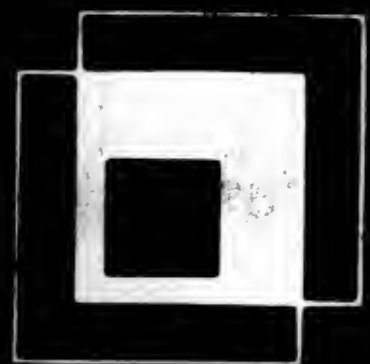


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BELL & HOWELL

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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription \$89.00 per annum, foreign mailing \$22.25 additional; single copies \$2.00 each.

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CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, \$1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

CONSOLIDATED LISTING OF RECENT OFFICIAL GAZETTE NOTICES RE PATENT OFFICE PRACTICES AND PROCEDURES

The following is a compilation of the more important notices and rules changes which have been published in the OFFICIAL GAZETTE from July 1, 1964 through December 31, 1971. These notices and rules changes are currently in effect and are published as a part of our "Better Service to the Public" program.

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INFORMATION AND CORRESPONDENCE

(1) INFORMATION RE APPLICATION STATUS

In view of the relatively long pendency of patent applications at the present time, the final disposition of which may, in some cases, be of substantial importance to the public in general or, at least, to persons other than the applicants, it has been decided effective immediately to advise any person who makes written request for information as to the status of a United States application referred to by number in a foreign patent, which patent is identified in the request, whether the application is pending, abandoned or patented and, if patented, what the patent number is. The former practice of giving similar information with respect to an application referred to by number in a United States patent (Manual of Patent Examining Procedure, section 102) will be continued.

EDWARD J. BRENNER,
Commissioner of Patents.

Dec. 11, 1964.

[809 O.G. 1293]

(2) TELEPHONE NUMBERS ON OFFICE ACTIONS

Effective immediately, the full surname of the Examiner who prepares the Office action will, in all cases, be typed below the action on the left side. The Examiner's telephone number will be typed below his name. This number should be called if the case is to be discussed or an interview arranged.

The Notice of December 10, 1964, 810 O.G. 308, and Change Notice 2-15 are rescinded.

RICHARD A. WAHL,
Superintendent, Patent Examining Corps.

Apr. 5, 1965.

[813 O.G. 1099]

(3) EXPEDITING PAPERS RELATING TO APPEALS

In order to expedite the handling and processing of all papers relating to appeals, it is essential that all such documents include the Group Number to which the application is assigned, as well as the Appeal Number and Serial Number.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

May 8, 1965.

[815 O.G. 417]

(4) STATUS INQUIRIES

Telephone inquiries regarding the status of applications should be directed to the group clerical personnel and not to the examiners. Inasmuch as the official records and applications are located in the clerical section of the Examining Groups, the clerical personnel can readily provide status information without contacting the examiners.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 22, 1965.

[819 O.G. 444]

(5) TELEPHONE NUMBERS ON AMENDMENTS AND OTHER PAPERS

In view of the increased use of telephone interviews regarding matter which can be readily cleared up by a telephone call to applicant or his representative, it is again recommended that amendments and other papers, such as letters of transmittal, include the complete telephone number with area code and extension, preferably near the signature of the writer.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 11, 1966.

[825 O.G. 1]

(6) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on all official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Director of Administration.

Mar. 22, 1966.

[825 O.G. 428]

(7) HAND DELIVERY OF DUPLICATE COPY OF PAPERS BY ATTORNEY

The Notice appearing in 833 O.G. 1 is hereby superseded. The practice set out in the above notice is extended as follows:

In further implementation of the Notice in 829 O.G. 1755 concerning discontinuation of the practice of hand delivery by attorneys or others of officially date stamped papers, it is directed that prompt consideration and appropriate action be taken on the hand-delivered duplicate copy of such papers, which may include amendments, powers to inspect, requests for extension of time, etc.

The effect of such consideration and action should be communicated to applicant or his representative at the earliest practicable time to clarify the status of the case.

If requested, at the conclusion of an interview, it would be appropriate to indicate on the attorney's copy and the Office duplicate copy any agreement reached and to initial and date both copies.

Actual clerical entry of amendatory matter usually will require the presence in the file of the original paper; however, pending receipt of the original, examiner and clerical processing of the application should proceed, based on the duplicate copy, as far as practicable in the circumstances of each case.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 21, 1966.

[834 O.G. 829 (See Item 79)]

(8) ATTACHMENTS TO OFFICE ACTIONS

To expedite the preparation and mailing of certain Office actions, the following changes in practice are effective July 1, 1967:

Where references are furnished, applicant's copies of the Office action will be camera reproductions of the ribbon copy instead of the usual carbon copies. The list of reference citations, heretofore typed directly on the action, will be on a separate form, Notice of References Cited, PO-892, attached to applicant's copies of the action.

The manner of furnishing copies of the references remains unchanged.

About Aug. 1, 1967, the use of attachments to the Office action will be extended to include notification of informalities in the application and drawings. Where applicable, Notice of Informal Patent Drawings, PO-948, and Notice of Informal Patent Applications, PO-152 (rev.) will be attached to the first action.

The attachments will bear the same paper number and are to be considered as part of the action.

Replies to Office actions should include the 3-digit Art Unit number to expedite handling within the Office.

RICHARD A. WAHL,
Assistant Commissioner.

June 29, 1967.

[840 O.G. 711]

APPENDIX A

(9) PUBLIC INFORMATION APPENDIX—PATENT OFFICE

A. Purpose.

The purpose of this Appendix is to describe, in general, the public information services of the Patent Office, to describe the places at which and the methods whereby the public may obtain information, make submissions or requests or obtain decisions, to inform the public as to the sources or availability of rules, regulations, procedures, forms, instructions, or other requirements of the Patent Office, which affect the public, and otherwise to comply with the requirements of Section 552 of Title 5, U.S.C. as amended by Public Law 90-23, June 5, 1967 (81 Stat. 54).

B. Public Information Services.

(1) The Patent Office provides the public with a wide range of information relating to the organization, structure, description, and functions of the Patent Office. This includes material published regularly on a weekly basis, such as the OFFICIAL GAZETTE, and copies of the patents and trademark registrations identified therein. General information concerning the procedures for obtaining patents or registering trademarks, and for utilizing the search rooms and Scientific Library of the Patent Office is readily available.

(2) Publications of the Patent Office are listed in the catalog of publications sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. They are also listed in the Introduction of the "Rules of Practice of the United States Patent Office in Patent Cases," and in the pamphlet "General Information Concerning Patents." The Patent Office also publishes a circular "Patent Office Publications," which lists the available publications, and provides information as to price and source. These publications include:

- Annual Index of Patents.
- Decisions of the Commissioner of Patents.

- Manual of Patent Classification, and Classification bulletins.
- Patent Laws (pamphlet edition).
- Directory of Registered Patent Attorneys and Agents Arranged by States and Cities.
- Guide for Patent Draftsmen.

(3) The Patent Office has an Office of Information Services where the public may obtain a list of current publications and general information concerning the functions and services of the Patent Office. Information relating to patents may be obtained from the Patent Reference Branch of the Office of Patent Services, and information relating to trademarks may be obtained from the search room of the Trademark Examining Operation.

C. Guide to Published Rules and Regulations.

(1) Patent Office rules of procedure, descriptions of forms, substantive rules of general applicability, and statements of general policy are published in the Federal Register. Rules are currently codified in Title 37, Chapter I, Code of Federal Regulations, and are also available in pamphlet form entitled "Rules of Practice of the United States Patent Office in Patent Cases" and "Trademark Rules of Practice of the Patent Office with Forms and Statutes," each of which is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(2) The Patent Office maintains also an administrative staff manual, entitled "Manual of Patent Examining Procedure," and an index thereto, for the general guidance of its staff and the public. The manual, with its index, as amended, changed, and supplemented from time to time, is available in the Patent Office (the Public Search Room and Library) for inspection and copying, and copies are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

D. Submission of Requests and Applications.

The established places at which and the methods whereby the public may make requests concerning Patent Office functions, operations, and procedures are listed in Sections B and C of this Appendix.

E. (Reserved).

F. Inspection and Copying of Opinions and Orders.

(1) Final opinions and orders in the adjudication of patent cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Patent Reference Branch in the Main Commerce Building, 14th Street between Pennsylvania Avenue and Constitution Avenue, NW., Washington, D.C., 20231, readily accessible from the entrance on E Street near 14th Street. Instructions concerning the use of this facility are contained in the introductory portion to the pamphlet edition of the Rules of Practice in Patent Cases, and the pamphlet "General Information Concerning Patents."

(2) Final opinions and orders in the adjudication of trademark cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Trademark Examining operation in the Longfellow Building, 1741 Rhode Island Avenue, NW., Washington, D.C., 20231, from 8:00 a.m. to 6:00 p.m. on workdays only. Instructions concerning trademark operations are contained in the pamphlet "General Information Concerning Trademarks."

G. Inspection of Bureau Records.

(1) Applications for patents are required by law to be kept in confidence by the Patent Office and no information concerning such applications may be divulged by the Patent Office without authority of the applicant or owner, unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commissioner (35 U.S.C. 122).

(2) Special situations are recognized by the regulations (37 C.F.R. 1.11 and 1.14; Manual of Patent Examining Procedure, section 103), which prescribe the procedures to be followed in the opening of certain patent applications to inspection.

(3) Assignment records, digests, and indexes (37 C.F.R. 1.12) relating to patent applications are not available to the public.

(4) Pending trademark applications are not open to general inspection (37 C.F.R. 2.27).

(5) The procedures for requesting records not disclosed to the public as part of the regular informational activities of the Patent Office, or not included in the material described in Section F, supra, or whose disclosure is not provided for or precluded by the regulations cited in paragraphs (1), (2), (3) and (4) of this section, are prescribed in 37 C.F.R. 1.15.

EDWARD J. BRENNER,
Commissioner of Patents.

Date: Sept. 12, 1967.

Published in 52 F.R. 13830, Oct. 4, 1967

[843 O.G. 1567]

(10) POST CARD RECEIPT REMINDER

Applicants and their attorneys or agents are reminded of the provision in Section 717.01(a) of the Manual of Patent Examining Procedure, relating to the use of post cards as "receipts" of papers filed in the Patent Office.

If a receipt for any paper filed in the Patent Office is desired, it may be had by enclosing with the paper a self-addressed post card identifying the paper. The Patent Office will stamp the receipt date on the card and place it in the outgoing mail.

The identifying data on the card should be so complete as to match the paper with the application or other document to which it is to be associated. For example, the document should be identified by the applicant's name(s), Serial No., filing date, appeal number, interference number, etc., and the paper should be identified by specifying the type thereof, viz, affidavit, amendment, appeal, application papers, brief, drawings, fees, motions, supplemental oath or declaration, petition, etc.

When papers for more than one document are filed under a single cover a return post card should be attached to the paper for each document for which a receipt is desired.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 21, 1968.

[857 O.G. 667]

(11) OFFICE ACTION—FIRST PAGE FORM

The printed form POL-326 formerly used as the first page of the first Office action, 845 O.G. 1205, has been revised.

The new form is now being attached to all Office actions up to and including final rejections.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 22, 1969.

[859 O.G. 677]

(12) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of any communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Director of Administration.

Feb. 20, 1969.

[860 O.G. 662]

LIST OF PATENTEEES

Beginning with this issue, first inventor entries in the utility patents section of the weekly List of Patentees will no longer carry the issue date. This information is redundant in the weekly issues of the OFFICIAL GAZETTE and is dropped for that reason. The issue dates for all patents will appear, however, in the usual places in the 1969 Annual Index of Patents, Part I, List of Patentees.

[864 O.G. 653, (July 15, 1969)]

(14) DIRECTORY OF REGISTERED PATENT ATTORNEYS AND AGENTS

The Patent Office has recently published a new edition of the Directory of Registered Patent Attorneys and Agents Arranged by States and Countries. The new edition shows the addresses furnished to the Committee on Enrollment as of December 1968, of all attorneys, agents, and firms registered to practice before the Patent Office in patent cases. An added feature in the present edition is the use of a symbol to denote those registrants who are registered as patent agents.

The publication is on sale by the Superintendent of Documents, United States Government Printing Office, Washington, D.C., 20402, for \$1.50.

EDWIN L. REYNOLDS,
Chairman, Committee on Enrollment.

July 25, 1969.

[865 O.G. 663]

(15) ORDERS FOR COPIES OF FOREIGN PATENTS AND/OR PUBLISHED APPLICATIONS

Some foreign countries are not publishing their patents and/or applications in numerical order. Since the U.S. Patent Office will begin supplying orders for copies of these foreign documents from master microfilm reels made up on weekly or other periodic publishing sequences, effective immediately all orders must include the country, patent or application number, and the publication date (if known) of the ordered document. Reference should be made to Section 901.05(a) of the Manual of Patent Examining Procedure to assist in determining the publication date of the commonly encountered foreign patents and applications.

W. R. ARMSTRONG,
Director, Office of Patent Services.

Aug. 21, 1969.

[866 O.G. 685]

(16) GROUP NUMBER SHOULD APPEAR ON COMMUNICATIONS RELATING TO PENDING APPLICATIONS

It is again requested that the Group number be typed on amendments and other communications relating to pending applications in order to expedite the handling of mail and to conserve manpower. The number of the Group should be placed on the right-hand side, opposite the Serial Number or name of applicant. In view of the vast amount of mail, continued careful attention to these details will do much toward avoiding delay in handling of mail.

C. A. KALK,
Director of Administration.

Nov. 6, 1969.

[869 O.G. 345]

(17) DUTY OF INQUIRY BY APPLICANT

Status letters have been used by applicants to check operations of docketing systems, particularly to establish diligence if needed in support of petitions to revive abandoned applications. Previous announcements in the OFFICIAL GAZETTE (at 826 O.G. 372 and 844 O.G. 764) have sought to mitigate the burden on both the applicant and the Office.

The duty of repeatedly checking the OFFICIAL GAZETTE for the oldest date for new cases has proved burdensome for applicants, attorneys, and agents; the inflow of status queries on

new cases has not appreciably decreased. Until further notice, in new applications, the applicant will be considered to have exercised diligence in connection with a petition to revive an application abandoned for failure to respond to the initial Office action if inquiry as to the status of the application is received by the Patent Office within either one of the two following periods, whichever expires later:

- a. Twenty-one (21) months from the filing date of the application, or
- b. A reasonable period after the OFFICIAL GAZETTE indicates that the filing date of the oldest new case awaiting action in the group to which the application is assigned, is more recent than the filing date of the application.

For amended cases, the applicant will be considered to have exercised diligence in connection with a petition to revive an application abandoned for failure to respond to a second or subsequent action if inquiry as to the status of the application is received by the Patent Office within six (6) months after the filing of a response to which no reply from the Patent Office has been received.

The Notices at 828 O.G. 372 and 844 O.G. 764 are hereby superseded.

When an application has been abandoned for an excessive period before the filing of a petition to revive, an appropriate terminal disclaimer may be required.

Replies to inquiries regarding the status of both new and amended applications may be more expeditiously processed by the Patent Office if each inquiry is accompanied by a stamped return-addressed envelope.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dec. 5, 1969.

[869 O.G. 1031]

(18) TRANSMITTAL FORMS

As a convenience to attorneys and to standardize processing, forms have been developed for use in transmitting (1) new applications (PO-1082) and (2) amendments adding claims (PO-1083). These forms were approved by a Notice appearing in the Federal Register, November 28, 1969, and are designated 37 CFR 3.51 and 3.52 (869 OG 1033). Attorneys who desire to use these forms may obtain them without charge from the Correspondence and Mail Branch or the Receptionist in Building 3 in Crystal Plaza.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 2, 1970.

[870 O.G. 1040]

(19) MICROFILM: PATENT NUMBER SEQUENCE CLASSIFICATION RECORD

The Patent Office announces a new microfilm publication entitled Patent Number Sequence Classification Record. This official record lists the original and cross-reference classifications together for each patent number, in patent number order. This sequence contrasts with that of the previously announced Cumulative Index to the Classification of Patents which lists patent numbers by classification, in separate files for original and cross-reference classifications.

The Patent Number Sequence Classification Record comprises all patents issued through April 29, 1969. The classification includes all reclassifications made effective through January 1, 1969. This publication, which is available only in microfilm form, includes patents, design patents, reissue design patents, reissue patents, plant patents, defensive publications, and patents issued from 1790 to 1836. Updates to this record will be announced periodically, as circumstances warrant.

The Patent Number Sequence Classification Record comprises 16 reels of 16 mm. roll microfilm which are offered for sale in three different ways. The complete record is catalogued as PB-188600 and sells for \$70.00. The 7 reels comprising patents issued from numbers 2,225,518 (issued in 1940) to the end of the file are offered together for those who desire only more recent patents. This set is catalogued as PB-188617 and sells for \$35.00. Reels ordered individually or in sets other than the two mentioned above, sell for \$6.00 apiece

and should be ordered using the catalogue number for each reel desired, as shown below:

Cat. No.	Patent Nos. Included
PB-188601	1- 276,927
PB-188602	276,928- 539,569
PB-188603	539,570- 797,464
PB-188604	797,465-1,054,425
PB-188605	1,054,426-1,311,703
PB-188606	1,311,704-1,568,108
PB-188607	1,568,109-1,811,776
PB-188608	1,811,777-2,015,447
PB-188609	2,015,448-2,225,517
PB-188610	2,225,518-2,431,496
PB-188611	2,431,497-2,628,945
PB-188612	2,628,946-2,819,182
PB-188613	2,819,183-3,011,059
PB-188614	3,011,060-3,196,127
PB-188615	3,196,128-3,377,086
PB-188616	3,377,087-3,441,959

and Reissue Patents 1-26,557, Design Patents 1-214,007, Plant Patents 1-2,881 and all other categories mentioned in text above.

Orders may be addressed to:

CFSTI
5285 Port Royal Road
Springfield, Virginia 22151

Payment should be made in the form of a check or money order payable to the National Bureau of Standards—CFSTI. Inquiries, comments or suggestions concerning this record may be directed to the U.S. Patent Office, Office of Organization and Systems Analysis, Washington, D.C. 20231.

E. A. HURD,

Director, Office of Organization and Systems Analysis.

Jan. 15, 1970.

[871 O.G. 2]

(20) HAND DELIVERY OF PAPERS

The notice of November 10, 1969 (869 O.G. 345), regarding Hand Delivery of Papers is modified as indicated below.

The privilege of personal delivery of papers by applicants, their attorneys or agents to the Examining Groups is hereby extended to include any paper which relates to a pending application file. Under this procedure the paper will be date stamped with the Group stamp and made an official paper in the file, thereby avoiding the necessity of processing and forwarding to the Examining Group via the Mail Room. The approval and initials of the examiner will no longer be necessary for delivering papers directly to the Group. In those instances where an additional fee is required, the paper will be date stamped by the clerk, hand carried, together with the check or letter of authorization to charge a Deposit Account, to the Finance Branch for processing and then made an official paper in the file.

This procedure will be re-evaluated after it has been in effect for a period of six months.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 8, 1970.

[879 O.G. 667]

(21) OFFICE ACTIONS

Effective December 1, 1970, applicants or their attorney or agent will be provided with one carbon copy of all Office actions, and the provision of additional or other reproductions of the ribbon copy will be discontinued.

Heretofore, the Office has provided one or two copies of the examiner's action, depending upon the nature of the action. The practice of furnishing more than one copy will be discontinued and, effective with the above change, the applicant will be furnished one copy of all examiner actions.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 21, 1970.

[880 O.G. 740]

(22) IDENTIFICATION FOR APPLICATION CORRESPONDENCE

The Office is continuing to experience difficulty in matching incoming papers with the corresponding application files. This applies especially to responses to Office Actions, powers of attorney, changes of address, status letters, requests for extensions of time, and petitions.

A very necessary part of a complete identification of a pending application is the three-digit Group or Art Unit number, e.g., 110 or 111. Frequently, the Group Art Unit number is entirely omitted, or there are errors in this number. In the latter situation the error often occurs as a result of the case having been reassigned within the Office, and the communication is directed to an Examining Group other than that indicated in the most recent Office Action.

Where the Group Art Unit number is entirely omitted, the routine operations of the Application Branch must be interrupted solely for the purpose of determining the location of the application so that the communication can be properly routed. Under these circumstances the efficiency of the Application Branch is impaired and the incoming paper is delayed in reaching its proper destination. Where such papers are not essential to compliance with a statutory period or time limit for response, they may be returned for completion to identify the location of the files.

To assist the Office in expediting its business, it is requested that ALL papers relating to a pending application include the following information:

1. Serial number (checked for accuracy).
2. Group Art Unit number (copied from filing receipt or most recent Office Action).
3. Filing date.
4. Name of the Examiner who prepared the most recent Office Action.
5. Title of the invention.

To further reduce the burden on the Application Branch and the Examining Groups, it is also requested that the submission of additional or supplemental papers on a newly filed application be deferred until a filing receipt has been received. In the same vein, it would be appreciated if the filing of additional papers relating to an allowed application were referred until a notice of allowance (POL-85) was received.

If the above suggestions are adopted the processing of both new and allowed applications could proceed more efficiently and promptly through the Patent Office.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 5, 1971.

[885 O.G. 2]

(23) EARLY NOTIFICATION OF SERIAL NUMBER

To ensure prompt notification of the receipt of newly filed application papers, self-addressed post cards will be date stamped and promptly returned to the sender by the Correspondence and Mail Division.

If early notification of the serial number is also desired, an additional self-addressed post card should be submitted. Upon receipt of application papers with two return post cards, Correspondence and Mail Division will stamp both cards with the receipt date and return one card to the sender. The second card will be forwarded to the Application Branch where both the card and application papers will be stamped with a serial number and the card returned to the sender.

The identifying data on the post card intended for evidence that the Patent Office has received a complete set of application papers should include applicant's name(s); title of the invention; number of pages of specification, claims, and sheets of drawing; whether oath or declaration used; and amount and manner of paying the fee.

When more than one set of application papers is filed under one cover, a return post card should be attached to each set of papers for which a receipt is desired.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 10, 1971.

[884 O.G. 970]

(24) NEW DECLARATION FORM

To facilitate electronic data input and to expedite processing of new patent applications, a new declaration form has been devised.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
Assistant Commissioner.

May 28, 1971.

[887 O.G. 1840]

(25) PATENT APPLICATION BRANCH SERVICE

In order to expedite the processing of newly filed applications, improve the efficiency of the Office, and assist in the effort to normally dispose of patent applications within 18 months of their filing date, cooperation from the patent community is solicited with respect to recent procedural modifications.

Prior to examination concerning patentability, patent applications are now examined for compliance with formal requirements, and actions are mailed requiring correction of stated informalities. Many inquiries have arisen concerning the effect of such actions. Since the actions concerning correction of informalities include the setting of a period for response, failure to respond within the period set results in abandonment of the application.

Inquiries directed to the Application Branch, either in person or by telephone, concerning patent applications should not be made during the morning hours between 8:30 and 10:30.

The letter of transmittal accompanying the filing of continuing applications, particularly streamlined continuations and Rule 147 divisionals, should include such additional information as the identification by serial number of the parent application, its status, and location in the Patent Office. The supplying of this information will permit the processing of these new applications more rapidly than at present.

When a new application is filed with a request to transfer drawings under Rule 88, the application papers should include drawing prints to enable the Application Branch to process the case before transfer of the formal drawings is effected.

RICHARD A. WAHL,
Assistant Commissioner.

June 1, 1971.

[887 O.G. 1841]

(26) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:
 - a. He will receive an acknowledgment of the receipt of his order.
 - b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
 - c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.
3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Acting Assistant Commissioner
for Administration.

Aug. 2, 1971.

[890 O.G.301]

(27) STATUS INQUIRIES

In an effort to sharply reduce the volume and need for status inquiries, the past policy that diligence must be established by making timely status requests in connection with petitions to revive is hereby discontinued.

When an application has been abandoned for an excessive period before the filing of a petition to revive, an appropriate terminal disclaimer may be required. It should also be recognized that a petition to revive must be accompanied by the proposed response unless it has been previously filed (Rule 137). Also, under Rule 113, "Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each claim so rejected and, if any claim stands allowed, compliance with any requirement or objection as to form."

New Applications

Current examining procedures now provide for the routine mailing from the Examining Groups of Form POL-327 in every case of allowance of an application except where an Examiner's Amendment is promptly mailed. Thus, the separate mailing of a Form POL-327 or an Examiner's Amendment in addition to a formal Notice of Allowance (POL-85) in all allowed cases would seem to obviate the need for status inquiries even as a precautionary measure where the applicant may believe his new application may have been passed to issue on the first examination. However, as an exception, a status inquiry would be appropriate where a Notice of Allowance is not received within three months from receipt of either a Form POL-327 or an Examiner's Amendment.

Current examining procedures also aim to minimize the spread in dates among the various examiner dockets of each Art Unit and Group with respect to actions on new applications. Accordingly, the dates of the "oldest new applications" appearing in the OFFICIAL GAZETTE are fairly reliable guides as to the expected time frames of when the Examiners reach the cases for action.

Therefore, it should be rarely necessary to query the status of a new application.

Amended Applications

Amended cases are expected to be taken up by the examiner and an action completed within two months of the amendment date. Accordingly, a status inquiry is not in order after response by the attorney until five or six months have elapsed with no response from the Patent Office. A post card receipt for responses to Office actions, adequately and specifically identifying the papers filed, will be considered *prima facie* proof of receipt of such papers. Where such proof indicates the timely filing of a response, the submission of a copy of the post card with a copy of the response will ordinarily obviate the need for a petition to revive. Proof of receipt of a timely response to a final action will obviate the need for a petition to revive only if the response was in compliance with Rule 113.

In General

It is expected that this new policy will result in sharply reducing the number of status inquiries and permit the time now spent on them to be used in increasing Patent Office efficiency in other more essential areas.

Such status inquiries as may be still necessary may be more expeditiously processed by the Patent Office if each inquiry includes the application Serial Number, filing date, name of the applicant, name of the Examiner who prepared the most recent Office action, and Group Art Unit (taken from the most recent Office communication) in addition to the last known status of the application, and is accompanied by a stamped return-addressed envelope. Telephone inquiries regarding the status of applications should be directed to the group clerical personnel and not to the examiners. Inasmuch as the official records and applications are located in the clerical section of the Examining Groups, the clerical personnel can readily provide status information without consulting the examiners.

Status replies will be made by the Patent Office clerical support force and will only indicate whether the application is awaiting action by the Examiner or the applicant's response to an Office action. In the latter instance the mailing date of the Office action will also be given.

The Notices of Dec. 5, 1969 (869 O.G. 1031) and Sept. 22, 1965 (819 O.G. 444) are hereby superseded.

Nov. 24, 1971.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

[893 O.G. 810]

(28) NEW APPLICATION PROCESSING

Because of the delays in processing newly filed applications and the various problems attendant with those delays, a temporary Parallel Application Branch has been established.

This unit is processing all new applications filed after Oct. 27, 1971, and will be mailing application filing receipts within one month of the application filing date. The regular Application Branch will continue to operate and process the inventory of new applications and papers received through Oct. 27, 1971.

As a result of this arrangement, applicants may receive filing receipts on applications filed after Oct. 27, 1971, prior to receiving filing receipts on applications filed before that date.

The temporary Application Branch will continue operations until the regular Application Branch has disposed of its inventory of unprocessed applications. At that time, approximately Apr. 1, 1972, it is planned to resume all processing of newly filed applications in the regular branch by improved methods designed to keep the flow of applications moving on a current basis.

As previously, all applications received by the Patent Office will be microfilmed for record and reproduction purposes. The temporary operation of two application branches will effectively double the output of processed applications and will place excessive demands on our "in-house" microfilming capabilities. Accordingly, the applications being processed in the regular Application Branch will be microfilmed using facilities outside the Patent Office. As a result, these applications will be unavailable for approximately a two week period while they are being microfilmed. Consequently, the filing of requests for copies of these applications may be somewhat delayed.

However, all application copy requests which are submitted subsequent to two weeks after mailing of the filing receipt will be promptly filled. Copies requested at the time of filing the application will be mailed within two weeks after the mailing of the filing receipt.

All mailed inquiries concerning requests for application copies should be addressed to the:

Commissioner of Patents
Washington, D.C. 20231
Attn: Customer Relations Branch

Telephone and in-person inquiries concerning copy requests should be directed to the Customer Relations Desk (703) 557-2003 which is located adjacent the Public Search Room, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va.

All other inquiries about applications undergoing Application Branch processing should be addressed or directed in the usual manner.

Nov. 22, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[893 O.G. 807]

(29) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

Nov. 28, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[893 O.G. 807]

(30) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service (\$1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

Nov. 26, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[893 O.G. 810]

(31) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557-2003.

Nov. 26, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[893 O.G. 807]

(32) ACCESS TO PATENT APPLICATION AND INTERFERENCE FILES

In order to insure that access to patent application and interference files is given only to persons who are entitled thereto or who are specially authorized to have access under Rule 14 of the Rules of Practice in Patent Cases, and to insure also that the file record identifies any such specially authorized person who has been given access to a file, the following practice will be observed by all personnel of the Patent Office:

1. Access, as provided for in the Rules of Practice, will be given on oral request to any applicant, patentee, assignee, or attorney or agent of record in an application or patent only upon proof of identity or upon recognition based on personal acquaintance.
2. Where a power of attorney or authorization of agent was given to a registered firm prior to July 2, 1971, access will be given upon oral request as in paragraph 1 above to any registered member or employee of the firm who has signatory power for the firm.
3. Unregistered employees of attorneys or agents, public stenographers, and all other persons not within the provisions of paragraphs 1 and 2 above will be given access only upon presentation of a written authorization for access signed by a person specified in paragraph 1 above, which authorization will be entered as a part of the official file.

Nov. 24, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[893 O.G. 810]

RECORDS AND FILES

(33) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquiries as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.

2. The Office will not open certain parts only of an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public *ab initio*; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.

3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection; similar situations involving continuation in part applications will be considered on their individual merits.

4. Assignment records relating to reissue applications will be open to public inspection.

Dec. 15, 1965.

EDWARD J. BRENNER,
Commissioner.

[822 O.G. 769]

(34) NOTIFICATION RE: CONFLICT IN ASSIGNMENT IN CERTAIN APPLICATIONS

Effective September 12, 1966, Assignment Branch will discontinue mailing notification in cases where there is a conflict in assignment between an original application and its divisional, continuation, substitute, or continuation-in-part application.

Assignments from original applications are applied without charge ONLY to divisional, continuation, or substitute applications where the date of the assignment is prior to the filing date of the later-filed application. (Continuation-in-part applications require separate assignments if they are to be issued to the assignee.)

Practitioners are reminded of the provisions of Rule 834. Unless an assignment is filed at or prior to the date of payment of the issue fee, the patent will normally be issued in the name of the inventor.

Section 306 of the Manual of Patent Examining Procedures will be amended appropriately.

W. R. ARMSTRONG,
Director, Office of Patent Services.

Concurred:
(signed) R. A. WAHL,
Assistant Commissioner.

[830 O.G. 442 (Sept. 12, 1966)]

(35) RECORDING OF INSTRUMENTS

Effective April 1, 1967, the Patent Office will accept and record legible certified copies of original assignments or other instruments.

The certified copy, if not in the English language, will not be recorded unless accompanied by a translation signed by the translator.

Certification shall be to the fact that the instrument submitted is a true copy of the original and shall be made by a notary public or, if in a foreign country, by a consular officer of the United States or an officer authorized to administer oaths and authenticated by a consular officer of the United States.

Mar. 3, 1967.

RICHARD A. WAHL,
Assistant Commissioner.

[836 O.G. 1111]

(36) PUBLIC SEARCH ROOM

Due to budget and personnel limitations which took effect on July 1, 1968, it has become necessary to adopt measures that are consistent with these limitations and that will permit continuance of Patent Office activities and facilities without curtailing their use to the public. Among these measures is the service of returning to the files those patent bundles used by the attorneys and the general public in the Public Search Room.

Beginning August 19, 1968, in order that free access to the stacks may be maintained, persons drawing patent bundles

from the search files will be expected to return them to the file slots from which they were withdrawn.

This will enable the personnel in the Public Search Room to concentrate their time and efforts on the necessary updating and storage maintenance for improvement of the integrity of the search files.

RICHARD A. WAHL,
Assistant Commissioner.

Aug. 12, 1968.

[854 O.G. 287]

(37) ASSIGNMENT INFORMATION FOR ISSUE FEE TRANSMITTAL FORM

Rule 334, revised November 4, 1969, requires . . . "At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent Office. In the event an assignment has been filed, such statement must include the name of the assignee and indicate whether or not an acknowledgment of a recorded assignment has been received from the Patent Office."

The Issue Fee Transmittal Form POL-85b revised December 1969, provides space (Item 2) for Assignment Data which should be completed to comply with the Rule. Unless an assignee's name and address are identified in Item 2 of the Issue Fee Transmittal Form POL-85b, the patent will issue to the applicant. Assignment data printed on the patent will be based on information so supplied.

A request for correction of error arising from failure to correctly provide this Assignment Data in Item 2 will be considered only under the provisions of Rule 323 for a certificate of correction of applicant's mistake.

The recording of instruments in the Assignment Branch is not affected by this notice.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Sept. 28, 1970.

[879 O.G. 988]

(38) CERTIFIED COPIES OF APPLICATIONS AS ORIGINALLY FILED

The Patent Office has discontinued placing the assignments of record on the file wrapper of patent applications, except when a title report is requested or upon allowance of the case. Accordingly, the copies of applications prepared in response to requests for a certified copy of a patent application as filed, will no longer include an indication of assignments. Applicants desiring an indication of assignments of record should request separately certified copies of assignment documents.

ROBERT J. RISH,
Acting Assistant Commissioner
for Administration.

[887 O.G. 1042 (6-22-71)]

FEEES AND PAYMENT OF MONEY

(39) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office*. This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
Director of Administration.

July 15, 1965.

[818 O.G. 1207]

(40) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

This notice supplements the Notice of September 10, 1965, 818 O.G. 1207, September 28, 1965, relating to the administration of the act of July 24, 1965, Public Law 89-83, increasing certain fees payable to the United States Patent Office.

That act provides for the payment of additional fees on presentation of certain claims during the prosecution of applications. This provision applies in the case of applications filed on or after October 25, 1965, the effective date of the act. In such cases, when any amendment is filed which presents additional claims over the total number covered by fees previously paid, it should be accompanied by any additional fees due.

As in the case of claims presented after an application is filed and before first action, described in the Notice of September 10, 1965, when independent claims are subsequently presented so that the number of uncanceled independent claims in the application as amended exceeds the number of such claims paid for, an additional fee of \$10 is due for each such additional claim. Similarly, an additional fee of \$2 is due for each claim added in excess of the number of uncanceled claims, independent or dependent, already paid for.

Treatment of Amendments Unaccompanied by Fees Due

Amendments filed during and after the prosecution of an application and not accompanied by the entire fee due upon such filing will be treated as follows:

If such an amendment is filed in reply to an Office action it will be regarded as not being fully responsive thereto and the practice set forth in section 714.03 of the Manual of Patent Examining Procedure will be followed, care being taken to avoid any abuse of this practice by attorneys as, for example, by habitual submission of such amendments without fees or with insufficient fees.

If an amendment which is not filed in response to an Office action is of such a nature as to require a fee and is not accompanied by the full fee required, it will not be entered and the applicant will be so advised.

Amendment During Interference

An amendment filed in connection with a motion to add counts to an interference (Rule 233) must be accompanied by the claim or claims to be added and with the appropriate fees, if any, which would be due if the amendments were to be entered. It may be that the amendments will never be entered. Only upon the granting of the motion is it necessary for the other party or parties to present the claims, but the fees must be paid whenever presented.

Claims which have been submitted in response to a suggestion by the Office for inclusion in an application must be accompanied by the fee due, if any.

Amendment After Requirement for Restriction

After a requirement for restriction or election of species, nonselected claims will be included in determining the fees due in connection with a subsequent amendment unless such claims are canceled.

Refunds

Money paid in excess or by mistake in connection with an amendment will be refunded in the usual manner.

Amendments affecting the claims cannot serve as the basis for granting any refund.

Money paid in connection with the filing of a proposed amendment will not be refunded by reason of the nonentry of the amendment.

EDWARD J. BRENNER,
Commissioner of Patents.

Jan. 13, 1966.

[823 O.G. 814]

(41) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging

of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Commissioner.

Feb. 23, 1966.

[824 O.G. 1200]

(42) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89-83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose. Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will not be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Commissioner of Patents.

Apr. 12, 1966.

[825 O.G. 1183]

(43) DEPENDENT CLAIMS

Although the notice published on October 5, 1965, in 819 O.G. 3, explained that for the purposes of the present fee bill, Public Law 89-83, approved July 24, 1965, the Patent Office will consider a proper dependent claim as being one

which incorporates by reference a single preceding claim, whether independent or dependent, and includes all the limitations of the claim so incorporated, there appears to be still some uncertainty on this matter and it is therefore thought to be desirable to elaborate it.

Since the initial determination, for fee purposes, as to whether a claim is dependent must be made by persons other than examiners, it is necessary, at that time, to accept as dependent virtually every claim which refers to another claim, without determining whether there is actually a true dependent relationship. Such acceptance does not, however, preclude a subsequent holding by the examiner that a claim is not a proper dependent claim.

An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends (35 U.S.C. 112) or in other words that it shall not conceivably be infringed by anything which would not also infringe the basic claim. Thus, for example, if claim 1 recites the combination of elements a, b, c and d, a claim reciting the structure of claim 1 in which d was omitted or replaced by e would not be a proper dependent claim, even though it placed further limitations on the remaining elements or added still other elements.

The fact that a dependent claim which is otherwise proper might require a separate search or be separately classified from the claim on which it depends would not render it an improper dependent claim, although it might result in a requirement for restriction.

The fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter improper. Thus, if claim 1 recites a specific product a claim for the method of making the product of claim 1 in a particular manner would be a proper dependent claim since it could not be infringed without infringing claim 1. Similarly, if claim 1 recites a method of making a product, a claim for a product made by the method of claim 1 could be a proper dependent claim. On the other hand, if claim 1 recites a method of making a specified product, a claim to the product set forth in claim 1 would not be a proper dependent claim if the product might be made in other ways.

Any claim which is in dependent form but which is so worded that it does not, in fact, include every limitation of the claim on which it depends, will be required to be cancelled as not being a proper dependent claim; and cancellation of any further claim depending on such a dependent claim will be similarly required. The applicant may thereupon amend the claims to place them in proper dependent form, or may redraft them as independent claims upon payment of any necessary additional fee.

The basis for the difference in fees between independent and dependent claims is the fact that the examination of a dependent claim is normally a comparatively simple matter after the claim on which it depends has been examined. This relationship, however, obtains only when the independent claim represents a bona fide attempt to define the invention and to distinguish it from the known prior art. Accordingly, the presentation of a claim which on its face is obviously unpatentable or indefinite, as basis on which other claims are dependent, is not considered to be proper practice. One example of such a practice involves the use of a claim drawn to "all the features of novelty herein disclosed," with other claims, which actually recite the features thought to be novel, being dependent on the first. A similarly objectionable arrangement would involve the use, as a basic independent claim, of a claim merely reciting "a wheeled vehicle," "an amino acid" or "an internal combustion engine."

Such a practice as that just described involves not only an attempt to evade the free provisions of Public Law 89-83, but also the presentation of a claim known by the attorney or agent presenting it to be unpatentable. Any registered patent attorney or agent who makes a practice of presenting claims of this character may be called on to explain his actions.

(signed) EDWARD J. BRENNER,
Commissioner.

June 8, 1966.

[828 O.G. 1]

DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such

accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
Commissioner.

June 23, 1966.

[828 O.G. 377]

(45) PRACTICE RE: FILING FEES

It is suggested that attorneys review the notices pertaining to filing fees under the new Fee Act of 1965 appearing at 818 O.G. 1207, September 28, 1965, and 823 O.G. 814, February 15, 1966.

The filing fee includes the basic \$65 fee plus an additional fee corresponding to the number and type of claims presented. For filing fee purposes the Patent Office considers any claim that specifically refers back to another claim to be a dependent claim, regardless of statutory class.

It appears that some attorneys are submitting filing fees in excess of their computations, apparently to insure against loss of a filing date should their computations be in error. This is neither necessary nor desirable. The Application Branch has been authorized to accept all applications, otherwise acceptable, if the basic fee of \$65 is submitted, and if the deficiency is no more than \$25 of the required filing fee, and to require payment of the deficiency within a stated period upon notification of the deficiency. Practitioners are urged to discontinue submitting excessive fees, since processing such fees has proved costly to the Office, and since applicants are believed to be adequately protected against loss of filing date by the practice outlined above.

There appears to be an erroneous impression that a Rule 147 divisional case requires a filing fee based on the claims in the parent case. The 818 O.G. 1207 notice specifically states that an amendment filed with a Rule 147 case will be effective to reduce the number of claims upon which the fee is based.

RICHARD A. WAHL,
Assistant Commissioner.

June 30, 1966.

[828 O.G. 1085]

(46) ISSUE FEES

Effective March 31, 1969, the Patent Office will discontinue the practice of estimating the number of printed pages of specification in advance of printing.

Instead, a Minimum Issue Fee will be due three months from the date of the Notice of Allowance. This minimum fee, which consists of \$100 plus \$10 for the first page of printed specification plus \$2 for each sheet of drawing, will be shown on the Notice of Allowance which has been revised to reflect the new practice.

After the patent is printed and the number of pages of specification is found to exceed the one already paid for, a Notice of Balance of Issue Fee Due will be attached to the Grant. Failure to pay this balance within THREE MONTHS FROM THE DATE OF THE PATENT will result in lapse of the patent.

Practitioners are urged to use the special fee transmittal forms provided with the Notice of Allowance and the Notice of Balance of Issue Fee Due.

The above fees will not be accepted from anyone other than the applicant, his assignee, attorney, or a party in interest as shown by the records of the Patent Office.

ATTENTION is also directed to the space designated on the Notice of Allowance Transmittal form PO-85a wherein the name of the assignee is required if it is desired to have the patent issued to an assignee or assignees.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 31, 1969.

[860 O.G. 2]

(47) CALCULATION OF ISSUE FEES

This notice is to clarify the manner in which the balance of issue fee due is calculated for the printed pages of specification (including claims) in excess of the one page already paid for by payment of the Minimum Issue Fee (see the notice of January 31, 1969, 860 O.G. 2).

Under the authority of 35 U.S.C. 151, the charge is disregarded WHERE ONLY ONE ADDITIONAL PAGE OR LESS is involved. Thus, if the patent consists of two pages or less, no balance fee is due. However, if the patent consists of three pages, a Notice of Balance of Issue Fee Due for \$20 is mailed together with the original patent grant. (A page consists of one side of a printed sheet containing two columns or less.)

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.

Feb. 4, 1970.

[872 O.G. 1]

(48) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

An increasing number of amendments are being received with improper fees. Because of the problems occasioned thereby, it is suggested that attorneys review the notices pertaining to fees and the Office practice related thereto (823 O.G. 814, Feb. 15, 1966; 828 O.G. 1, July 5, 1966; 828 O.G. 1085, July 26, 1966). Attention is invited to the new form 3.52, Amendment transmittal letter, for additional guidance in computing fees (869 O.G. 1036, Dec. 23, 1969). This form may be obtained from the Receptionist in Building 3 of Crystal Plaza. The new loose-leaf rule book, which will soon be available, includes a sample form (No. 52) also. When submitting the new amendment transmittal letter please include the Art Unit and Examiner's name.

The above notices and new form may also be found as Items 24, 25, 29 and 147 in the consolidated listing of notices in the OFFICIAL GAZETTE of Jan. 13, 1970.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 13, 1970.

[873 O.G. 1]

(49) EXAMINER AMENDMENTS—CHARGE AGAINST DEPOSIT ACCOUNTS

The Examiner's Amendment practice is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed \$50.00 for each patent application.

In order to expedite the issuance of a patent on an application otherwise ready for allowance, an Examiner's Amendment will be acceptable to make a charge against a deposit account provided prior approval is obtained from the attorney or agent. When such an Examiner's Amendment is prepared, the prior approval will be indicated by identification of the name of the authorizing party, the date and type (personal or telephone) of authorization, the purpose for which the charge is

made (drawing correction, additional claims, etc.), and the deposit account number. Further identifying data, if deemed necessary and requested by the attorney, should also be included in the Examiner's Amendment.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Mar. 17, 1970.

[873 O.G. 667]

POWERS OF ATTORNEY

(50) WITHDRAWAL OF ATTORNEY

To expedite the handling of requests for permission to withdraw as attorney, under Rule 36, the request should be submitted in triplicate (original and two copies) and indicate thereon the present mailing address of the attorney who is withdrawing.

JOSEPH SCHIMMEL,
Solicitor.

Apr. 18, 1967.

[837 O.G. 667]

(51) RULE 34—APPEARANCES BEFORE BOARD OF APPEALS

Applicants and their attorneys are reminded that Rule 34 provides that before any attorney or agent will be allowed to "take action of any kind in any application or proceeding, a written power of attorney or authorization . . . must be filed in the particular application or proceeding." [Italics added.]

Henceforth this rule will be strictly enforced. This applies to attorneys appearing at oral hearings before the Board of Appeals.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

July 26, 1967.

[841 O.G. 669]

(52) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Recognition of Attorneys and Agents, Standards of Conduct, and Patent Application Petitions

These rule changes eliminate present provision for the recognition and registration of firms of attorneys and agents for practice in patent and trademark cases, and permit registered attorneys and agents to file papers in patent applications without the need for filing powers of attorney or authorizations. The changes further establish the Code of Professional Responsibility of the American Bar Association as the standard of conduct for those practicing before the Patent Office insofar as the Code is not inconsistent with Patent Office rules. Other changes eliminate the present requirement for a petition or other express request for a patent and liberalize requirements as to inventor names.

The changes relating to the discontinuance of the recognition and registration of firms are intended to obviate problems incident to such registration such as, for example, the lack of certainty as to the responsibility of individual attorneys and agents for actions taken by registered nonpartnership business entities, such as professional corporations, the problems associated with the rights to firm names and registration numbers upon dissolution or reorganization of firms, and the recognition as "firms" of groups of attorneys or agents, such as parts of corporation organizations, when the attorneys and agents are not in fact associated as partners. Acceptance of papers filed in patent applications by registered attorneys and agents upon a representation that the attorney or agent is authorized to act in a representative capacity is for the purpose of facilitating responses on behalf of applicants in patent applications, and, further, to obviate the need for filing powers of attorney or authorizations of agent in individual applications when there has been a change in composition of law firms or corporate patent staffs. Interviews with a registered attorney or agent not of record will,

in view of 35 U.S.C. section 122, be conducted only on the basis of information and files supplied by the attorney or agent.

Provision is made for an applicant to supply an address to receive correspondence from the Patent Office concerning his application, in addition to his residence address, so that the Patent Office may direct mail to any address of applicant's selection, such as a corporate patent department, a firm of attorneys or agents, or an individual attorney, agent, or other person. In connection with patent applications pending upon the effective date of the changes in which a firm is the only representative of record (and in connection with divisions and continuations thereof not requiring execution by the applicant), the address of the firm will be considered to be the correspondence address for the application. Powers of attorney and authorizations of agent in favor of registered individual attorneys and agents will, of course, continue to be recognized and accepted.

The amendments to §§ 1.344 and 2.13 are intended to provide a more definite and uniform standard of conduct for those engaged in practice before the Patent Office than do present rules. The Code of Professional Responsibility of the American Bar Association is incorporated by reference in the rule with a statement as to where copies thereof may be inspected or obtained. The rule specifies that the standards referred to are those set forth in the Code of Professional Responsibility as amended February 24, 1970, and the rule does not, therefore, refer to standards imposed by later amendments of the Code. Any standards in other Patent Office rules which are inconsistent with standards imposed by the Code (as, for example, the limitations in § 1.345(b) on the distribution of professional announcements and the duties imposed by § 1.205(b)) remain in force.

The elimination of the requirement for a petition requesting the grant of a patent and the relaxation of requirements as to the names of applicants are intended to simplify patent application procedures. Section 1.76 is being revoked as redundant in view of revisions in § 1.57.

Notice of proposed rule making regarding revocation of §§ 1.35 and 1.61 and revision of §§ 1.14, 1.21, 1.33, 1.34, 1.36, 1.51, 1.52, 1.57, 1.76, 1.341, 1.343, 1.344, 1.346, 1.347, 2.13, and 2.15 of Title 37, Code of Federal Regulations was published in the Federal Register of January 15, 1971 (36 F.R. 611). Interested persons were given an opportunity to participate in the rulemaking process through submission of comments in writing and at an oral hearing held on March 23, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective date. This revision shall become effective on the date of its publication in the Federal Register (7-2-71).

In consideration of the comments received and pursuant to the authority contained in Section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), and Section 31 of that Act (66 Stat. 795; 35 U.S.C. 31), Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. In § 1.14, paragraph (a) is revised to read as follows:

§ 1.14 Patent applications preserved in secrecy.

(a) Except as provided in § 1.11(b) pending patent applications are preserved in secrecy. No information will be given by the Office respecting the filing by any particular person of an application for a patent, the pendency of any particular case before it, or the subject matter of any particular application, nor will access be given to or copies furnished of any pending application or papers relating thereto, without written authority in that particular application from the applicant or his assignee or attorney or agent of record, unless it shall be necessary to the proper conduct of business before the Office or as provided by this part.

2. In § 1.21, paragraph (h) is revised to read as follows:

§ 1.21 Patent and miscellaneous fees and charges.

(h) For registration of an attorney or agent:

For admission to examination for registration to practice, fee payable upon application----- \$35.00
On registration to practice----- 25.00

3. Section 1.33 is revised to read as follows:

§ 1.33 Correspondence respecting patent applications and proceedings.

(a) The residence and post office address of the applicant must appear in the oath or declaration if not stated elsewhere in the application. The applicant may also specify and an attorney or agent of record may specify a correspondence address to which communications about the application are to be directed. All notices, official letters, and other communications in the case will be directed to the correspondence address or, if no such correspondence address is specified, to an attorney or agent of record (see § 1.34(b)), or, if no attorney or agent is of record, to the applicant, or to any assignee of record of the entire interest if the applicant or such assignee so requests, or to an assignee of an undivided part if the applicant so requests, at the post office address of which the Office has been notified in the case. Amendments and other papers filed in the application must be signed: (1) By the applicant, or (2) if there is an assignee of record of an undivided part interest, by the applicant and such assignee, or (3) if there is an assignee of record of the entire interest, by such assignee, or (4) by an attorney or agent of record, or (5) by a registered attorney or agent not of record who acts in a representative capacity under the provisions of § 1.34(a). Double correspondence with an applicant and his attorney or agent, or with more than one attorney or agent, will not be undertaken. If more than one attorney or agent be made of record and a correspondence address has not been specified, correspondence will be held with the one last made of record.

(b) An applicant who has not made of record a registered attorney or agent may be required to state whether he received assistance in the preparation or prosecution of his application, for which any compensation or consideration was given or charged, and if so, to disclose the name or names of the person or persons providing such assistance. This includes the preparation for the applicant of the specification and amendments or other papers to be filed in the Patent Office, as well as other assistance in such matters, but does not include merely making drawings by draftsmen or stenographic services in typing papers.

4. Section 1.34 is revised to read as follows:

§ 1.34 Recognition for representation.

(a) When a registered attorney or agent acting in a representative capacity appears in person or signs a paper in practice before the Patent Office in a patent case, his personal appearance or signature shall constitute a representation to the Patent Office that, under the provisions of this part and the law, he is authorized to represent the particular party in whose behalf he acts. In filing such a paper, the attorney or agent should specify his registration number with his signature. Further proof of authority to act in a representative capacity may be required.

(b) When an attorney or agent shall have filed his power of attorney, or authorization, duly executed by the person or persons entitled to prosecute the application, he is a principal attorney of record in the case. A principal attorney or agent so appointed, may appoint an associate attorney or agent who shall also then be of record.

§ 1.35 [Revoked]

5. Section 1.35 is revoked.

6. Section 1.36 is revised to read as follows:

§ 1.36 Revocation of power of attorney or authorization; withdrawal of attorney or agent.

A power of attorney or authorization of agent may be revoked at any stage in the proceedings of a case, and an attorney or agent may withdraw, upon application to and approval by the Commissioner. An attorney or agent, except an associate attorney or agent whose address is the same as that of the principal attorney or agent, will be notified of the revocation of his power of attorney or authorization, and the applicant will be notified of the withdrawal of the attorney or agent. An assignment will not of itself operate as a revocation of a power or authorization previously given, but the assignee of the entire interest may revoke previous powers and be represented by an attorney or agent of his own selection.

7. Section 1.51 is revised to read as follows:

§ 1.51 General requisites of an application.

Applications for patents must be made to the Commissioner of Patents. A complete application comprises:

- (a) A specification, including a claim or claims, see §§ 1.71 to 1.77.
- (b) An oath or declaration, see §§ 1.65 and 1.68.
- (c) Drawings, when necessary, see §§ 1.81 to 1.88.
- (d) The prescribed filing fee. (See 35 U.S.C. section 41 for filing fees.)

8. In § 1.52, paragraph (a) is revised to read as follows:

§ 1.52 Language, paper, writing, margins.

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink.

9. Section 1.57 is revised to read as follows:

§ 1.57 Signature.

The application must be signed by the applicant in person. The signature to the oath or declaration will be accepted as the signature to the application provided the oath or declaration is attached to and refers to the specification and claims to which it applies. Otherwise the signature must appear at the end of the specification after the claims. Full names must be given, including at least one given name without abbreviation together with any other given name or initial.

§ 1.61 [Revoked]

10. Section 1.61 is revoked.

§ 1.76 [Revoked]

11. Section 1.76 is revoked.

12. In § 1.77, paragraph (h) is revised to read as follows:

§ 1.77 Arrangement of application.

- (h) Signature. (See § 1.57.)

§ 1.341 [Amended]

13. Section 1.341 is amended by revoking paragraph (d).

14. Section 1.343 is revised to read as follows:

§ 1.343 Persons not registered or recognized.

Only persons who are registered or given limited recognition as provided in § 1.342 will be permitted to prosecute patent applications of others before the Patent Office.

15. Section 1.344 is revised to read as follows:

§ 1.344 Professional conduct.

Attorneys and agents appearing before the Patent Office must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 E. 60th Street, Chicago, Ill. 60637.

16. Section 1.346 is revised to read as follows:

§ 1.346 Signature and certificate of attorney.

Every paper filed by an attorney or agent representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney or agent, except papers which are required to be signed by the applicant or party in person (such as the application itself and affidavits or declarations required of applicants). The signature of an attorney or agent to a paper filed by him, or the filing or presentation of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief, there is good ground to support it; and that it is not interposed for delay.

17. Section 1.347 is revised to read as follows:

§ 1.347 Removing names from registers.

Attorneys and agents, registered to practice before the Patent Office, should notify the Office of any change of address for entry on the register, by letter separate from any notice of change of address filed in individual applications.

The Office may address a letter to any person on the registers, at the address of which separate notice for the register was last received, for the purpose of ascertaining whether such person desires to remain on the register. The name of any person failing to reply and give the information requested within a time limit specified will be removed from the register, and the names so removed published in the OFFICIAL GAZETTE. Any name so removed may be reinstated, either on the register of attorneys or the register of agents, as may be appropriate.

18. Section 2.13 is revised to read as follows:

§ 2.13 Professional conduct.

Attorneys and other persons appearing before the Patent Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 East 60th Street, Chicago, Ill. 60637.

19. Section 2.15 is revised to read as follows:

§ 2.15 Signature and certificate of attorney or agent.

Every paper filed by an attorney at law or other person representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney at law or other person except those papers which are required to be signed by the applicant or party. The signature of an attorney at law or such other person to a paper filed by him, or the filing of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief there is good ground to support it; and that it is not interposed for delay.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-9387; Filed 7-1-71; 8:49 am]

Published in 36 F.R. 12616, July 2, 1971

[890 O.G. 298 (Sept. 14, 1971)]

(53) RECOGNITION OF FIRMS OF ATTORNEYS AND AGENTS

The notice of August 5, 1971, appearing in the OFFICIAL GAZETTE September 7, 1971 (890 O.G. 2) is revised as follows.

The originally announced period terminating October 1, 1971, relating to appointments of firms of attorneys or agents, filed in the Patent Office after July 2, 1971, is hereby extended. Accordingly, until further notice, any power of attorney or authorization of agent naming a firm, received in the Patent Office after July 2, 1971, will be construed as a direction to consider the firm name and address as the correspondence address of the application.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Sept. 27, 1971.

[891 O.G. 886]

APPLICATION CONTENT

(54) DECLARATION IN LIEU OF OATH—RIBBONING OF PAPERS UNNECESSARY

Recent legislation, 35 U.S.C. 25, and Rule 68 based thereon permit applicants to make a written declaration in lieu of the customary oath or affirmation which accompanies a patent application.

Such a declaration, even if signed in a country foreign to the United States, need not be ribboned to the other papers.

The declaration, like the oath, is an integral part of the application and must be maintained together therewith.

When a declaration is used, it is unnecessary to appear before any official in connection with the making of the declaration. Further details are given in 29 F.R. 18502, Dec. 29, 1964, 811 O.G. 2.

RICHARD A. WAHL,
Superintendent, Patent Examining Corps.
[813 O.G. 2]

(55) GUIDELINES FOR DRAFTING A MODEL PATENT APPLICATION UNDER THE REVISED RULES

The following guidelines illustrate the preferred layout and content for patent applications. They have been prepared to supplement the amendments to the rules which are effective January 1, 1967. These guidelines are suggested for the applicant's use.

Arrangement and Contents of the Specification

The following order of arrangement is preferable in framing the specification and, except for the title of the invention, each of the lettered items should be preceded by the headings indicated.

- (a) Title of the Invention.
- (b) Abstract of the Disclosure.
- (c) Cross-References to Related Applications (if any).
- (d) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Prior Art.
- (e) Summary of the Invention.
- (f) Brief Description of the Drawing.
- (g) Description of the Preferred Embodiment(s).
- (h) Claim(s).

(a) **Title of the Invention:** (See Rule 72(a).) The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive.

(b) **Abstract of the Disclosure:** (See Rule 72(b), MPEP 608.01(a), and 831 O.G. 1828, October 25, 1966.)

(c) **Cross-References to Related Applications:** (See Rule 78 and MPEP 201.11.)

(d) **Background of the Invention:** The specification should set forth the Background of the Invention in two parts:

(1) **Field of the Invention:** A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions. The statement should be directed to the subject matter of the claimed invention.

(2) **Description of the Prior Art:** A paragraph(s) describing to the extent practical the state of the prior art known to the applicant, including references to specific prior art where appropriate. Where applicable, the problems involved in the prior art, which are solved by the applicant's invention, should be indicated.

(e) **Summary:** A brief summary or general statement of the invention as set forth in Rule 73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(f) **Brief Description of the Drawing:** A reference to and brief description of the drawing(s) as set forth in Rule 74.

(g) **Description of the Preferred Embodiment(s):** A description of the preferred embodiment(s) of the invention as required in Rule 71. The description should be as short and specific as is necessary to adequately and accurately describe the invention.

Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field to which the invention pertains, form a part of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject mat-

ter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(h) *Claim(s)*: (See Rule 75.) A claim may be typed with the various elements subdivided in paragraph form. There may be plural indentations to further segregate subcombinations or related steps.

Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims.

Claims should preferably be arranged in order of scope so that the first claim presented is the broadest. Where separate species are claimed, the claims of like species should be grouped together where possible and physically separated by drawing a line between claims or groups of claims. (Both of these provisions may not be practical or possible where several species claims depend from the same generic claim.) Similarly, product and process claims should be separately grouped. Such arrangements are for the purpose of facilitating classification and examination.

The form of claim required in Rule 75(e) is particularly adapted for the description of improvement type inventions. It is to be considered a combination claim and should be drafted with this thought in mind.

In drafting claims in accordance with Rule 75(e), the preamble is to be considered to positively and clearly include all the elements or steps recited therein as a part of the claimed combination.

Oath

(See Rule 65.) Where one or more previously filed foreign applications are cited or mentioned in the oath, complete identifying data, including the application or serial number as well as the country and date of filing, should be provided.

EDWARD J. BRENNER,
Commissioner of Patents.

[832 O.G. 5]

(56) PLANT PATENT APPLICATIONS—FILING DATE

Applicants and their attorneys are reminded that an application for a patent for a plant must include two copies of the specification, Rule 163(b), and two copies of the drawing when in color, Rule 165(b).

Effective immediately, applications for plant patents which fail to include two copies of the specification and two copies of the drawing when in color will be accepted for filing only. The Application Branch will notify the applicant immediately of this deficiency and require the same to be rectified within one month. Failure to do so will result in loss of filing date.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 21, 1968.

[857 O.G. 668]

(57) REDUCTION IN PATENT APPLICATION DISCLOSURE

Request for Comments

A joint committee comprising representatives of the Patent Office, the American Bar Association and the American Patent Law Association was established in September 1968 for purposes of investigating ways in which patent application disclosures could be improved and in particular ways in which the disclosures could be reduced. In the course of committee deliberations a number of proposals were generated. Those that appeared to be most practical and to hold most promise for early implementation have been compiled in the form of proposed "Guidelines for Preparation of Patent Application Disclosures." The guidelines are set forth below for review and comment. All persons who desire to present their views, objections, recommendations, or suggestions in connection therewith are invited to do so by forwarding the same to the Commissioner of Patents, Washington, D.C., 20231 on or before March 31, 1969. No hearing will be scheduled.

GUIDELINES FOR PREPARATION OF PATENT APPLICATION DISCLOSURES

Applications for patents frequently contain descriptive and illustrative material in excess of that required by 35 U.S.C. 112. If such material were to be excluded from the application, tri-fold benefits should accrue:

1. The time and costs involved in the preparation of an application should be reduced.
2. Examination time should be less.
3. There should be a reduction in patent printing costs.

In an effort to reduce such excesses, at least in part, the following guidelines, relating to preparation of patent applications, have been promulgated.

Drawing

The illustration on the drawing should be restricted to the invention disclosed in the application. Old and known subject matter should be omitted unless essential for establishment of environment or for a clear understanding of the invention. If disclosure of the latter type is essential it should be presented in skeleton or phantom form if possible. Reference numerals for such material should be held to a minimum.

Conventional sub-assemblies should be shown in block form with appropriate legends or by means of standard drawing symbols, in instances where detailed disclosure is not essential for a proper understanding of the invention. If there is doubt as to whether or not symbolical representation is appropriate, reference should be made in the descriptive material to a patent or publication which will support the position that the item so illustrated is conventional with the understanding that the supporting document or the appropriate portion thereof will be made available upon demand.

Flow diagrams should be treated in a similar manner.

Shading should be provided on the drawing only if essential for illustrating contours or showing specific relationships between structural parts. Test—can the invention be clearly understood in the absence of shading?

Multiple Inventions, Species, etc.

Disclosures in divisional and other types of dependent applications carved from basic or parent application as well as those in the parent application should be restricted to the respective claimed inventions, or as an alternative the dependent application may be printed with the customary identifying information, an abstract, and the claims. The alternative printing should include proper reference to the parent document. The abbreviated printing should be used only if the parent precedes the dependent application in issue. (A copy of the parent or basic patent would be supplied along with the abbreviated patent in response to orders for the latter.)

Cancellation of Descriptive Material

Descriptive material deemed superfluous or unessential for a clear understanding of the disclosed invention should be omitted, however, if such material is presented in the application, the Examiner should require cancellation in the first Office action. This will provide applicant with an opportunity to traverse the requirement prior to final rejection. Cancellation may be deferred until the presence of allowable subject matter is indicated by the Examiner.

Laudatory language, exhaustive descriptions of prior art, unessential statements of objects and lengthy statements of environment should be omitted from, or reduced to bare essentials in the application descriptive material. Lengthy descriptions of items that are obvious and well known to those skilled in the art should be avoided. A mere statement that such items are known and conventional should be adequate in most instances, however, if doubt exists reference may be made to disclosures in specific documents for support. Likewise lengthy descriptions regarding use should be avoided. Procedures for testing should not ordinarily be described. Biological studies and case histories should ordinarily not be included in the descriptive material since they can be presented in affidavit form.

Objects—Abstracts—Summary

State the primary object of the invention and if essential a limited number of secondary objects—all should be brief. The abstract and statement of object(s) appear to satisfy the requirements in Rules 73 and 77, a separate summary is deemed unnecessary.

The abstract should be limited to the technical disclosure that is new in the art to which the invention pertains.

Sectionalized Disclosure

Headings should be provided in patent applications to set off different portions, such as Abstract, Discussion of Prior Art, Background of Invention, Technical Disclosure of Invention, Additional Species of Invention, and the like. Cancellation of subject matter not pertinent to the claimed invention will be facilitated if the descriptive material is so organized.

In order to make the most of computer capabilities of the future, specifications should provide "indicators" which can be readily identified by the processing equipment. While this has general application it is illustrated below with regard to chemical disclosures.

Context indicators:

Set out in the specification

Reserved word paragraph

Heading such as—

Utility

Starting material

Process

Final-Products

Chemical-Compounds—Names (followed by a tabulated list)

Chemical-Compounds—Structures (followed by a tabulation of structures)

Chemical-Compounds—Notations (the tabulated list could be Wiswesser, UPAC, or Patent Office; transformation could be made later)

Miscellaneous

Words or phrases of high information content (as distinguished, for example, from the word "means") appearing in claims as well as in invention descriptions, should be given indicator symbols or printed in bold face type, or italicized, so that future manual searching by the Examiner and the public will be made easier. A capability will exist for easier keyboarding for full text analysis for computer based information.

Where an elaborate expression appears in the descriptive material or claims it should be designated, for example, as "Definition 1" and later reference to the definition should be made with the designator.

Applications that include drawings should include a list of elements and the associated reference numerals for the elements comprising the invention.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:

JOHN F. KINCAID,

Assistant Secretary for Science and Technology.

Published in 34 F.R. 524; Jan. 16, 1969

[859 O.G. 1 (Jan. 16, 1969)]

(58) GUIDELINES FOR INCORPORATION BY REFERENCE IN PATENT APPLICATIONS

An application for a patent may incorporate essential material by reference to a United States patent, or an allowed U.S. application, subject to the conditions set out below. Essential material* is defined as that which is necessary (1) to support the claims, or (2) for adequate disclosure of the invention (35 U.S.C. 112). Material which is essential to the referencing application may not be incorporated by reference to patents issued by foreign countries or to non-patent publications. Essential material may not be incorporated by reference to a patent or application which itself incorporates essential material by reference.

The referencing application must include (1) an abstract, (2) a brief summary of the invention, (3) an identification of the referenced patent or application, (4) at least one view in the drawing in those applications admitting of a drawing, and (5) one or more claims. Where appropriate it would be advisable to direct particular attention to specific portions of the referenced patent or application.

*Non-essential subject matter may be incorporated by reference to patents issued by the United States or foreign countries, prior filed commonly owned patent applications filed in the United States, and non-patent publications for purposes of indicating the background of the invention or illustrating the state of the art.

If an application is filed with a complete disclosure, essential material may be cancelled by amendment and the same material substituted by reference to a patent or a pending and commonly owned allowed application in which the issue fee has been paid. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the material cancelled from the application is the same material that has been incorporated by reference.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned allowed U.S. application for which the issue fee has been paid, applicant will be required prior to examination to furnish the Patent Office with a copy of the referenced material together with an affidavit executed by the applicant or his attorney or agent of record stating that the copy consists of the same material incorporated by reference in the referencing application.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned application other than one in issue with the fee paid, applicant will be required prior to examination to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the same material incorporated by reference in the referencing application.

EDWARD J. BRENNER,
Commissioner.

Approved: Jan. 15, 1969.

JOHN F. KINCAID,

Assistant Secretary for Science and Technology.

Published in 34 F.R. 883; Jan. 18, 1969

[859 O.G. 346]

(59) INCORPORATION BY REFERENCE—FILING DATE

In clarification of the Notice of December 30, 1968, appearing in the OFFICIAL GAZETTE of February 11, 1969, the following amplification is made.

The filing date of any application wherein essential material is incorporated by reference to a foreign patent or to a publication will not be affected because of the presence of such reference. In such a case, as well as any other case which improperly incorporates essential material by reference, the applicant will be required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the same material incorporated by reference in the referencing application.

ERRATUM

Attention is directed to the error in the above-mentioned notice appearing at 859 O.G. 346. Please delete the phrase, "a U.S. patent or", which was erroneously printed in the second line of the last paragraph.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 7, 1969.

[A Notice covering this same subject, in slightly different form, has been published in 34 F.R. 5555, Mar. 22, 1969.]

[861 O.G. 680]

(60) PHOTOCOPIES OF APPLICATIONS

Many of the patent application papers received by the Patent Office are copies of the original, ribbon copy. These are acceptable if, in the opinion of the Office, they are legible and permanent. Legibility includes ability to be photocopied and photomicrographed so that suitable reprints can be made. This requires a high contrast, with black lines and a white background. Gray lines and/or a gray background sharply reduce photo reproduction quality.

Applicants should make every effort to file patent applications in a form that is clear and reproducible. The Office may accept for filing date purposes papers of reduced quality but will require that acceptable copies be supplied for further processing.

Additionally, legibility of some application papers becomes impaired due to abrasion or aging of the printed material during examination and ordinary handling of the file. It may be necessary to require that clear, legible copies be furnished at later stages after filing, especially when preparing for issue.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 28, 1970.

[872 O.G. 341]

(61) DIVISIONAL APPLICATION PAPERS

In the interest of expediting the processing of newly filed divisional applications, filed as a result of a restriction requirement, applicants are requested to include the appropriate Patent Office classification on the papers submitted.

The appropriate classification for the divisional application may be found in the office communication of the parent case wherein the requirement was made. It is suggested that this classification designation be placed in the upper right hand corner of the letter of transmittal accompanying these divisional applications.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

June 5, 1970.

[875 O.G. 702]

(62) REDUCTION IN PATENT APPLICATION DISCLOSURE

Notice of proposed Guidelines for Preparation of Patent Application Disclosure was published in the Federal Register of January 14, 1969 (34 F.R. 524), and in the OFFICIAL GAZETTE of the Patent Office of February 4, 1969 (859 O.G. 1). Comments from the general public were invited.

After consideration of comments received, new guidelines are deemed unnecessary, even though the average length of specification seems to be increasing. Applicants and their attorneys are reminded that 35 U.S.C. 112 requires inventions to be described "in such full, clear, concise, and exact terms as to enable any person skilled in the art . . . to make and use the same . . ." To satisfy the "concise" requirement, lengthy and unnecessary descriptive detail should be avoided.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: July 24, 1970.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 70-9862; Filed, July 30, 1970; 8:45 a.m.]

35 F.R. 12296, July 31, 1970

[878 O.G. 1]

PRIORITY APPLICATIONS

(63) REISSUE APPLICATIONS—FOREIGN PRIORITY

A "claim" for the benefit of an earlier filing date in a foreign country under 35 U.S.C. 119 must be made in a reissue application even though such a claim was made in the application on which the original patent was granted. However, no additional certified copy of the foreign application is necessary. The procedure is similar to that for "Continuing Applications" in the last paragraph of MPEP 201.14(b).

The heading on printed copies will not be carried forward to the reissue from the original patent. Therefore, it is important that the file wrapper be endorsed under "Claims Foreign Priority."

RICHARD A. WAHL,
Acting Superintendent Patent Examining Corps.

[807 O.G. 579 (Oct. 20, 1964)]

(64) FILING OF PRIORITY PAPERS

In view of the shortened periods for prosecution leading to allowances, it is recommended that priority papers be filed as early as possible. Although Rule 55 permits the filing of

priority papers up to and including the date for payment of the final fee, it is advisable that such papers be filed promptly after filing the application. Frequently priority papers are found to be deficient in material respects such as, for example, the failure to include the correct certified copy and there is not sufficient time to remedy the deficiency. Occasionally a new oath may be necessary where the original oath omits the reference to the foreign filing date for which the benefit is claimed. The early filing of priority papers would thus be advantageous to applicants in that it would afford time to explain any inconsistencies that exist or to supply any additional documents that may be necessary.

It is also suggested that a pencil notation of the serial number of the corresponding U.S. application be placed on the priority papers.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 1, 1965.

[821 O.G. 1261]

(65) STREAMLINED CONTINUATION APPLICATIONS

Effective immediately, if the drawings and specification of a new application are to be identical with those of a pending application of the same applicant, and if the claims are to be directed to the same invention as that prosecuted in the pending application, the application papers of the earlier case, excepting the claims but including the drawing, may be used in the new case. A request for the use of such papers must be made and such request will be considered a waiver of the right to further prosecution of the earlier application and will terminate proceedings therein as of the filing date accorded the new application. The filing fee will be that appropriate to all the claims to be included in the new case. The entire file wrapper contents of the earlier application will be included in the file of the new one but the Office actions in the former will not be regarded as actions in the latter and the prosecution of the new application will be conducted in the same manner as if new application papers had been filed. A new serial number and filing date will be accorded but the effective filing date will be that of the earlier application.

EDWARD J. BRENNER,
Commissioner of Patents.

Feb. 11, 1966.

[824 O.G. 1]

(66) STREAMLINED CONTINUATION APPLICATIONS—ORIGINAL APPLICATION ALLOWED

Since the streamlined continuation application procedure provided for by the Notice of February 11, 1966, published in the OFFICIAL GAZETTE of March 1, 1966, 824 O.G. 1, involved abandonment of the original application, and since the abandonment of an application after it has been allowed and the issue fee has been paid is not ordinarily permitted, the said streamlined prosecution will not be permitted when the original case has been allowed and the issue fee has been paid prior to the filing of the continuation application.

EDWARD J. BRENNER,
Commissioner.

May 13, 1966.

[827 O.G. 2]

(67) EFFECTIVE DATE OF UNITED STATES PATENT

In section 706.02, delete penultimate paragraph.

Rewrite section 715.01 to read:

The effective date of a United States Patent for use as a prior art reference is not affected by the foreign filing date to which the patentee may be entitled under 35 U.S.C. 119. *In re Hilmer*, 833 O.G. 13, 149 USPQ 480 (CCPA 1966); *Lilly et al. v. Brenner*, 153 USPQ 95 (C.A.D.C. 1967). The reference patent is effective as of the date the application for it was filed in the United States (35 U.S.C. 102(e) and 103). *Hazeltine Research, Inc. et al. v. Brenner*, 824 O.G. 8 (U.S. Supreme Court 1965).

RICHARD A. WAHL,
Assistant Commissioner.

Apr. 5, 1967.

[838 O.G. 1]

(68) PATENT HEADINGS

As a service to the public, beginning with the issue of January 10, 1968, the heading of the printed patent will include all identifying parent data of continuation-in-part applications as is now the practice in continuation, divisional, substitute, and reissue applications. It should be noted, however, that inclusion of this information in the heading does not necessarily indicate that the claims are entitled to the benefit of the earlier filing date.

The above practice will not change the procedure with regard to assignments as set forth in the first sentence of paragraph 2 of Section 306 of the M.P.E.P.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 18, 1967.

[846 O.G. 337]

(69) CHAINS OF CONTINUING APPLICATIONS

In view of the decision of the Court of Customs and Patent Appeals in *In re Henriksen* (158 USPQ 224) the application of 35 U.S.C. 120 will no longer be limited to a chain of three successively filed continuing cases.

Accordingly, Change Notice 12-8 is rescinded.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Aug. 9, 1968.

[854 O.G. 559]

(70) FOREIGN PRIORITY OF CONTINUING APPLICATION

If the Examiner is aware of the fact that the parent of a continuing application has fully complied with the requirements of 35 U.S.C. 119 and is therefore entitled to the benefit of the filing date of an earlier filed foreign application, he should direct it to the applicant's attention in an Office action, as in the following exemplary language:

"Applicant is reminded that in order to be entitled to priority based on papers filed in parent application Serial No. _____ under 35 U.S.C. 119, a claim for such priority must be made in this application. In making such claim, applicant may simply call attention to the fact that a certified copy of the foreign application is in the parent application (M.P.E.P. 201.14(b))."

RICHARD A. WAHL,
Assistant Commissioner.

Aug. 30, 1968.

[855 O.G. 1]

(71) GERMANY: NEW REQUIREMENT FOR SUBMISSION OF COPY OF ORIGINAL APPLICATION IN CONVENTION CASES

Under Section 27 of the German Patent Law which came into effect October 1, 1968, all applicants submitting a claim of priority in Germany under the Paris Union will be required to submit a copy of the application upon which the claim for priority is based. The U.S. Patent Office has been advised by the German Office that the copy need not be certified correct by the Office in which the application was originally filed.

Accordingly, for U.S. applicants, one method of complying with the new law would be to accompany the German filing with a copy of the prior U.S. applications as filed. This copy can be produced by the applicant himself.

If the applicant does not submit the copy at the time of filing, the German Office will issue, within two months after the German filing, a request to submit the copy. Failure to submit the required copy within two months after notification results in loss of the priority claim.

With respect to application on file in Germany prior to October 1, 1968, the following applies:

Copies of the original application will not be required for those applications already on file if the serial number of the application on which the priority claim is based had been communicated to the German Patent Office prior to October 1, 1968.

With regard to applications on file prior to October 1, 1968, for which the U.S. serial number is communicated after

October 1, 1968, the request for the copy of the U.S. application will be made together with the notice preceding the laying open to public inspection of the file of the German application.

GERALD D. O'BRIEN,
Assistant Commissioner.

Jan. 13, 1968.

[859 O.G. 345]

(72) STREAMLINED CONTINUATION APPLICATION

The streamlined continuation procedure, provided for by the notice of February 11, 1966 (824 O.G. 1), may not be used when at the time of filing the continuation application: (1) the parent application has been allowed and the issue fee has been paid; (2) the parent application is, or has been, involved in court action; (3) the parent application has been abandoned; or (4) the parent application is, or has been, involved in an interference declared prior to the date of filing the continuation application.

Attention is also directed to the fact that the streamlined procedure is limited to true continuation applications and is not available for use when filing any other type of continuing application.

Applicants are urged when filing a streamlined continuation application to file a duplicate letter of transmittal in the parent application.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 14, 1969.

[869 O.G. 1]

DRAWINGS

(73) PHOTOPRINTS AS DRAWINGS—FILING DATE ONLY

Effective September 1, 1964 the Application Branch is authorized and directed to accept all applications in which photoprints have been submitted in lieu of formal drawings, and to forward them to the Examiner, who will notify the applicant immediately that the application has been accepted for filing only, and that to be entitled to examination, the applicant must file formal drawings complying with Rule 84 within 60 days, and pay the cost of comparing the photoprints with the formal drawings.

A comparison charge of \$10.00 per hour, with a minimum charge of \$10.00 per application is hereby established. This charge may be applied against deposit accounts and authorization to charge such accounts should be included when the formal drawings are filed. For those who have no deposit account acceptance of the formal drawings will be contingent upon payment of the comparison charge within the period set.

This notice supersedes the notice of April 24, 1964, published May 26, 1964, in 802 O.G. 871.

EDWARD J. BRENNER,
Commissioner.

July 16, 1964.

[805 O.G. 3]

(74) NEW DRAWINGS PREPARED BY PATENT OFFICE

In Section 608.02(x) the paragraphs headed "New Drawings Prepared by Patent Office" are cancelled and the following substituted therefor:

When new drawings have been required in pending applications and have been prepared by the Office draftsman, they are not sent to the applicant for his signature but a copy (print) is sent to him for his file. The name of the inventor(s) will be printed on the drawings by the Office draftsman.

In the event that the application is in condition for allowance, the application will be sent to issue immediately after the drawing is prepared.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 6, 1966.

[823 O.G. 1]

(75) TRANSFER OF DRAWINGS

In view of the recent amendment of Rule 138 to permit the express abandonment of patent applications by the attorney, there is no longer any sufficient reason for delaying the formal abandonment of an application after all the drawings thereof have been transferred to another case. Accordingly, effective February 1, 1967, no request to transfer all the drawings from a pending application will be granted unless and until a formal abandonment of the application has been filed. In order to insure copendency, such as abandonment may be so worded as to become effective only after the transfer of the drawings has taken place.

EDWARD J. BRENNER,
Commissioner.

Dec. 15, 1966.

[834 O.G. 431]

(76) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART I—RULES OF PRACTICE IN PATENT CASES

Drawing Requirements

These rule changes are intended to facilitate the handling and filing of patent application drawings in the Patent Office. Changing the drawing size to 8½ by 14 inches will permit filing of the original drawings in the application file wrapper in the Patent Office. The new size will also permit the use of standard storage equipment, mailing envelopes, and copying equipment.

The revised rules will prohibit the use of names within the "sight" of the drawing, thereby making additional space available for illustration and reducing the number of formal objections and corrections required.

Permanently mounted color photographs in plant patent applications will be accepted. This should result in substantial savings to applicant.

Since no names or other identification will be permitted within the "sight" of the drawing, applicants are expected to use the space above and between the hole locations to identify each sheet of drawings (note § 1.84(1)). This identification may consist of the attorney's name and docket number or the inventor's name and case number and may include the sheet number and the total number of sheets filed (for example, "sheet 2 of 4").

Notice of proposed rule making regarding revision of §§ 1.59, 1.84, 1.85, 1.123, and 1.165 and revocation of §§ 1.82 and 1.87 of Title 37, Code of Federal Regulations, relating to drawing requirements, was published in the Federal Register of January 15, 1971 (36 F.R. 610). Interested persons were given an opportunity to participate in the rule making process through submission of comments in writing and at an oral hearing held on March 23, 1971.

Effective date. This revision shall become effective on the date of its publication in the Federal Register. However, until Jan. 1, 1972, drawings complying with the unrevised rules will also be accepted.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. Section 1.59 is revised to read as follows:

§ 1.59 Papers of complete application not to be returned.

Papers in a complete application, including the drawings, will not be returned for any purpose whatever. If applicants have not preserved copies of the papers, the Office will furnish copies at the usual cost.

§ 1.82 [Revoked]

2. Section 1.82 is revoked.

3. In § 1.84 the introductory text preceding paragraph (a) and paragraph (h) are revoked and paragraphs (a), (b), (c), (j), and (l) are revised to read as follows:

§ 1.84 Standards for drawings.

(a) **Paper and ink.** Drawings must be made upon pure white paper of a thickness corresponding to two-ply or three-ply bristol-board. The surface of the paper must be calendered and smooth and of a quality which will permit erasure and

correction with India ink. India ink, or its equivalent in quality, must be used for pen drawings to secure perfectly black solid lines. The use of white pigment to cover lines is not acceptable.

(b) **Size of sheet and margins.** The size of a sheet on which a drawing is made must be exactly 8½ by 14 inches. One of the shorter sides of the sheet is regarded as its top. The drawing must include a top margin of 2 inches and bottom and side margins of one-quarter inch from the edges, thereby leaving a "sight" precisely 8 by 11¼ inches. Margin boarder lines are not permitted. All work must be included within the "sight." The sheets may be provided with two ¼-inch-diameter holes having their centerlines spaced eleven-sixteenths inch below the top edge and 2¼ inches apart, said holes being equally spaced from the respective side edges.

(c) **Character of lines.** All drawings must be made with drafting instruments or by a process which will give them satisfactory reproduction characteristics. Every line and letter must be absolutely black and permanent; the weight of all lines and letters must be heavy enough to permit adequate reproduction. This direction applies to all lines however fine, to shading, and to lines representing cut surfaces in sectional views. All lines must be clean, sharp, and solid, and fine or crowded lines should be avoided. Solid black should not be used for sectional or surface shading. Freehand work should be avoided wherever it is possible to do so.

(h) [Revoked]

(j) **Arrangement of views.** All views on the same sheet must stand in the same direction and should, if possible, stand so that they can be read with the sheet held in an upright position. If views longer than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the two-inch margin is on the right-hand side. One figure must not be placed upon another or within the outline of another.

(l) **Extraneous matter.** An inventor's, agent's, or attorney's name, signature, stamp, or address, or other extraneous matter, will not be permitted upon the face of a drawing, within or without the margin, except that identifying indicia (attorney's docket number, inventor's name, number of sheets, etc.) should be placed within three-fourths inch of the top edge and between the hole locations defined in paragraph (b) of this section. Authorized security markings may be placed on the drawings provided they be outside the illustrations and are removed when the material is declassified.

4. Section 1.85 is revised to read as follows:

§ 1.85 Informal drawings.

The requirements of § 1.84 relating to drawings will be strictly enforced. A drawing not executed in conformity thereto, if suitable for reproduction, may be admitted but in such case the drawing must be corrected or a new one furnished, as required. The necessary corrections or mounting will be made by the Office upon applicant's request or permission and at his expense. (See §§ 1.21 and 1.165.)

§ 1.87 [Revoked]

5. Section 1.87 is revoked.

6. In § 1.123, paragraph (a) is revised to read as follows:

§ 1.123 Amendments to the drawing.

(a) No change in the drawing may be made except by permission of the Office. Permissible changes in the construction shown in any drawing may be made only by the Office. A sketch in permanent ink showing proposed changes, to become part of the record, must be filed. The paper requesting amendments to the drawing should be separate from other papers.

7. In § 1.165, paragraph (b) is revised to read as follows:

§ 1.165 Drawings.

(b) The drawing may be in color and when color is a distinguishing characteristic of the new variety, the drawing

must be in color. Two copies of color drawings must be submitted. Color drawings may be made either in permanent water color or oil, or in lieu thereof may be photographs made by color photography or properly colored on sensitized paper. Permanently mounted color photographs are acceptable. The paper in any case must correspond in size, weight and quality to the paper required for other drawings. See § 1.84. Nonpermanently mounted copies will be correctly mounted at applicant's expense, § 1.21(1).

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: May 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-7504 Filed 5-27-71; 8:49 am]

Published in 36 F.R. 9774; May 28, 1971

[1887 O.G. 1840]

EXAMINATION OF APPLICATIONS

(77) INFORMAL APPLICATIONS OF FOREIGN APPLICATIONS

This Notice is of special interest to attorneys and agents prosecuting applications on inventions originating abroad.

Many applications filed in this Office correspond in form and substance to the requirements (regulations) of countries foreign to the United States. Since they were not originally drafted to comply with our Rules of Practice, especially those based on 35 U.S.C. 112, the first examination cannot be the full and complete one contemplated under current examining procedures. This first examination is necessarily limited, under MPEP 702.01, to pointing out the informalities and citing the results of a search, the search being based upon the invention so far as it can be understood from the foreign type of claims, often coupled with a somewhat generalized disclosure. Since U.S. Patent Office policy is to accord equal treatment to all cases regardless of origin, current examining procedures as explained in the address reprinted in 803 O.G. 893, subject these applications to final determination on the second action. It is obviously to applicant's advantage to file the application with an adequate disclosure and with claims which conform to the U.S. Patent Office usages and requirements. This should be done whenever possible. If, however, due to the pressure of a Convention deadline or other reasons, this is not possible, applicants are urged to submit promptly, preferably within three months after filing, a preliminary amendment which corrects the obvious informalities. The informalities should be corrected to the extent that the disclosure is readily understood and the claims to be initially examined are in proper form, particularly as to dependency, and otherwise clearly define the invention. "New matter" must be excluded from these amendments since preliminary amendments do not enjoy original disclosure status, section 608.04(b), MPEP.

EDWARD J. BRENNER,
Commissioner of Patents.

Mar. 4, 1965.

[812 O.G. 1295]

(78) TERMINAL DISCLAIMERS FILED IN APPLICATIONS

In view of the increasing number of terminal disclaimers being filed in pending applications under 35 U.S.C. 253, it is considered advisable to point out the practice to be followed in such cases.

Since the claims of pending applications are subject to cancellation, amendment or remembering, a terminal disclaimer directed to a particular claim or claims will not be accepted; the disclaimer must be of a terminal portion of the term of the entire patent to be granted. The statute does not provide for conditional disclaimers and accordingly, a proposed disclaimer which is made contingent on the allowance of certain claims cannot be accepted. The disclaimer should identify the disclaimant and his interest in the application and should specify the date when the disclaimer is to be-

come effective. An acceptable form for such a disclaimer is as follows:

To the Commissioner of Patents:

Your petitioner, John Doe, residing at _____ in the county of _____ and State of _____ represents that he is (here state exact interest of the disclaimant and, if he is an assignee, set out the liber and page or reel and frame where the assignment is recorded) of application No. _____, filed on the _____ day of _____ 19____ for _____. Your petitioner hereby disclaims all that portion of the term of any patent to be issued on the said application subsequent to _____ 19____.

The disclaimer must be accompanied by the statutory fee.

EDWARD J. BRENNER,
Commissioner.

Apr. 26, 1965.

[814 O.G. 359]

(79) PRACTICE RE: TECHNICAL REJECTIONS

In the interest of reducing the number of technical rejections and expediting the prosecution of applications the following changes will be instituted effective June 1, 1965:

1. The inclusion of a negative limitation shall not, in itself, be considered a sufficient basis for objection to or rejection of a claim. However, if such a limitation renders the claim unduly broad or indefinite or otherwise results in a failure to point out the invention in the manner contemplated by 35 U.S.C. 112, an appropriate rejection should be made.

2. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited either in the conventional manner heretofore permitted, or alternatively. For example, if "... wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation then "... wherein R is A, B, C or D" shall also be considered proper.

3. The use of Markush claims of diminishing scope shall not, in itself, be considered a sufficient basis for objection to or rejection of claims. However, if such a practice renders the claims indefinite or if it results in undue multiplicity, an appropriate rejection shall be made. This change does not in any way affect the substantive law governing the treatment of Markush claims. The foregoing practice with respect to Markush claims of diminishing scope will be effective on an experimental basis until December 1, 1965, and, if it proves satisfactory, will then be adopted permanently.

EDWARD J. BRENNER,
Commissioner.

Apr. 30, 1965.

[814 O.G. 716]

(80) "SPECIAL" EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The trial of "Special" Examining Procedure for Certain New Applications as announced in 812 O.G. 953 and later modified by 817 O.G. 423 indicates the desirability of making such procedure available on a standard operating basis. Accordingly, an additional category is being added to the list of situations in which an application may be advanced out of turn for examination, Rule 102 and M.P.E.P. 708.01 and 708.02. The M.P.E.P. will be rewritten to incorporate this practice.

Certain further modifications have been incorporated into the conditions and procedure; most importantly, the new case now may be a continuing or divisional application, the prohibition against an application having an earlier effective U.S. filing date has been removed. Original limits on filing date and on number in any Group have previously been deleted.

The full text of conditions and procedures now applicable appears below, and the notices in 812 O.G. 953 and 817 O.G. 423 are accordingly rendered obsolete.

REQUIREMENTS AND PROCEDURES TO EFFECT ACCELERATED EXAMINATION OF NEW APPLICATIONS

Requirements Precedent to Grant of Special Status for Accelerated Examination

A new application (one which has not received any examination by the examiner) may be granted special status

provided that applicant (and this term includes applicant's attorney or agent) concurrently:

- (a) Submits a written petition to make special.
- (b) Agrees that the application will not include more than ten claims at any time. Should the pending application contain more than ten claims when the request for special status is filed, an amendment must be proposed at that time to reduce the number to not more than ten, which amendment will be entered only if the special status is granted. All of the claims presented for this special prosecution must obviously be directed to a single invention.
- (c) Submits a statement that a pre-examination search was made, and specifying whether by the inventor, attorney, professional searchers, etc., and listing the field of search by class and subclass, publication, chemical abstracts, foreign patents, etc.
- (d) Submits one copy each of the references deemed most closely related to the subject matter encompassed by the claims.
- (e) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references. Where applicant indicates an intention of overcoming one of the references by affidavit under Rule 131, the affidavit must be submitted before the application is taken up for action, but in no event later than one month after request for special status.

In those instances where the request for this special status does not meet all the prerequisites set forth above, applicant will be notified and the defects in the request will be stated. The application will remain in the status of a new application awaiting action in its regular turn. In those instances where a request is defective in one or more respects, applicant will be given one opportunity to perfect the request. If perfected, the request will then be granted.

Once a request has been granted, prosecution will proceed according to the procedure set forth below; there is no provision for "withdrawal" from this special status.

Special Examining Procedure

1. The new application, having been granted special status as a result of compliance with the requirements set out in the section titled "Requirements Precedent to Grant of Special Status for Accelerated Examination," supra, will be taken up by the Examiner before all other categories of applications except those clearly in condition for allowance and these with set time limits, such as Examiner's Answers, Decisions on Motions, etc., and will be given a complete first action which will include all essential matters of merit as to all claims. The Examiner's search will be restricted to the subject matter encompassed by the claims. This first action will terminate with the setting of a three-month shortened period for response.

2. During the three-month period for response, applicant is encouraged to arrange for an interview with the Examiner in order to resolve, with finality, as many issues as possible. In order to afford the Examiner time for reflective consideration before the interview, applicant or his representative should cause to be placed in the hands of the Examiner at least one working day prior to the interview, a copy (clearly denoted as such) of the amendment that he proposes to file in response to the Examiner's action. Such a paper will not become a part of the file, but will form a basis for discussion at the interview.

3. Subsequent to the interview, or responsive to the Examiner's first action if no interview was had, applicant will file his "record" response. The response at this stage, to be proper, must be restricted to the rejections, objections, and requirements made. Any amendment which would require broadening the search field will be treated as not a proper response.

4. The examiner will within one month from the date of receipt of applicant's formal response, take up the application for final disposition. This disposition will constitute either a final action which terminates with the setting of a three-month period for response, or a notice of allowance. No further response will be made by the Examiner after a final action with the exceptions that (a) an Examiner's Answer may be prepared in response to an appeal brief, or (b) the application may be passed to issue.

5. A personal interview after final Office action will not be permitted unless requested by the Examiner. However, telephone interviews will be permitted where appropriate for the purpose of correcting any minor matters which remain outstanding.

RICHARD A. WAHL,
Assistant Commissioner.

[822 O.G. 2]

(81) PROSECUTION OF PATENT APPLICATIONS AFTER FINAL ACTION

Experience over the past several months indicates the need to re-emphasize certain areas of examining procedure outlined in Assistant Commissioner Wahl's address to the Patent Examining Corps on September 24, 1965 (819 O.G. 893). Certain paragraphs or parts thereof are quoted below, with emphasis added.

"It is planned, accordingly, that prosecution before the examiner should be essentially concluded after applicant's first response and the examiner's reply thereto. No amendments to claims, nor new claims, should be entered after final rejection, except in rare instances, unless it is readily apparent that these place the case in condition for allowance or materially reduce or simplify the issues for appeal. Also, no amendments should be entered which raise new issues or require further search. However, if a response to a final rejection is received and it would clearly place the case in condition for allowance except for minor matters which could be cleared up over the telephone, the examiner should telephone applicant or his attorney or agent to try to promptly clear up such matters."

"In general, a very complete and thoroughly considered first response by applicant will be in order because it will determine the form and content of the claims, not only for the final consideration by the examiner, but also by the Board of Appeals if appeal be taken. In this connection, attention is directed to suggestions set forth in notices in the OFFICIAL GAZETTE in recent years that applicant should include in his application at the time of filing, or after the first complete action, the most detailed claim that he would be willing to accept as well as the broadest claim to which he considers himself entitled."

"A third change in procedure is that in all cases wherein the examiner decides that a requirement for restriction to one invention or for election of species must be made, a telephone call will be made to applicant or his representative advising him of the situation and requesting a prompt election by return telephone call if the decision cannot be made immediately. When the election is made by telephone, the examiner in his action will make of record the complete requirement and will state the date of the call, the name of the applicant or his representative who made the election, and the result of the election. Such restriction or election requirements will, of course, be subject to written requests for reconsideration (traverse) in accordance with Rule 143. If no reply is received to the examiner's telephoned requirement within a reasonable period, about three working days, he will proceed to make the requirement in a written action as heretofore."

In further implementation of these procedures, the following paragraphs add further details to take effect on the date of this notice and to apply to all Office actions taken or written, and to all communications received from applicant, on or after the effective date.

FINAL ACTION AND PRE-APPEAL

The prosecution of an application before the examiner should ordinarily be concluded with the final action. However, one personal interview and one written response by applicant may be entertained after such final action if circumstances warrant. Thus, only one request by applicant for a personal interview after final should be granted, but in exceptional circumstances, a second personal interview may be initiated by the examiner if in his judgment this would

materially assist in placing the application in condition for allowance. Any amendment submitted under Rule 116(a) and Rule 116(b) for purposes of appeal should be presented in the first response after final action and will be considered as heretofore; if any amendments are submitted after the examiner's reply to such first response, they should be refused entry as not warranted at this stage of prosecution, even though such amendments allegedly present rejected claims in better condition for appeal. Similarly, no affidavit should be considered if presented later than with the first response after final unless a showing is made under Rule 116(b).

The practice will be continued of advising applicant by means of the recently introduced form letter (POL-303) as to the disposition of proposed amendments to the claims and as to the effect of any argument or affidavit submitted in the first response after final action.

If a response subsequent to the first response after final action is received before appeal and which on its face clearly places the application in condition for allowance, it should be entered and a notice of allowability (POL-255) promptly sent to applicant; if such subsequent response does not on its face place the application in condition for allowance, it should not be considered further (unless, in the examiner's judgment, there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and should be refused entry. A form letter (POL-309) will be used for notification that such subsequent responses do not place the application in condition for allowance.

Requests for extension of the shortened statutory period for reply after final action, under Rule 130(b), will be considered by the Primary Examiner and if granted will be for not more than one month; petitions for further extensions will be decided by the Commissioner or his designees in this matter. It should be noted that, under Rule 181(f), the filing of a Rule 181 petition will not stay the period for reply to an Examiner's action which may be running against an applicant.

APPEAL AND POST-APPEAL

The record on appeal should be essentially the record before the examiner at the time appeal is taken. Thus, no amendments, except under Rule 193(b), presented after appeal has been taken should be entered for purposes of appeal, and no exception should be made to this, see Rule 116(c). Amendments, arguments, or affidavits filed concurrently with or of even date with appeal notice will be construed as filed after appeal for the purpose of this procedure, even though they may be the first response to the final action. In accordance with Rule 195, affidavits or exhibits submitted after the case has been appealed should be considered for entry only if applicant makes the necessary showing why they were not earlier presented; Rule 195 should be strictly construed in this regard. If after appeal has been taken, a paper is presented which on its face clearly places the application in condition for allowance, such paper should be entered and a notice of allowability (POL-255) promptly sent to applicant. If such paper does not on its face place the application in condition for allowance, it should not be considered further (unless in the examiner's judgment there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and proposed amendments therein should not be entered. Notification that such papers do not place the application in condition for allowance will be made by use of a form letter (POL-309).

In accordance with the above, the Brief should be directed to the claims and to the record of the case as they appeared upon filing the appeal, but it may, of course, withdraw from consideration on appeal any claims or issues as desired by appellant.

Upon timely filing of a Brief, it will be referred to the examiner for his consideration of its propriety as to the appeal issues and for preparation of an Examiner's Answer if the Brief is proper and the application is not allowable. The Examiner's Answer will normally be of the shortened type referring to and relying on the final action; it may withdraw rejection of claims or any objection or requirement as desired by the examiner. No new ground of rejection or objection should be incorporated in the Examiner's Answer without express approval in each case by the Group Manager.

RESTRICTION AND ELECTION

A basic policy of the streamlined examining program is that the second action on the merits should be made final.

In those applications wherein a requirement for restriction or election is accompanied by the rejection of linking or generic claims, such action will be considered to be an action on the merits and the next action by the examiner should be made final. It may thus be to applicant's advantage to make a telephone election in such cases prior to the first action.

Requirements for restriction or election will continue to be governed by existing criteria. However, in stating a requirement for restriction hereafter there should be no citation of patents to show separate status or classification or utility. The separate inventions should as heretofore be identified by a grouping of the claims with a short description of the total extent of the invention claimed in each group, specifying the type or relationship of each group as by stating the group is drawn to process, or to subcombination, or to product, etc., and should indicate the classification or separate status of each group, as for example, by class and subclass.

The period for response to a requirement for restriction or election, where there is no rejection of claims, will hereafter be set at 30 days.

MANUAL OF PATENT EXAMINING PROCEDURE

Procedures currently set forth in the Manual of Patent Examining Procedure which may be in conflict with the above are superseded by those announced above. Change Notices and replacement pages will be issued in due course.

MANUAL OF CLERICAL PROCEDURE

This information will also be incorporated in the Manual of Clerical Procedure.

RICHARD A. WAHL.

[824 O.G. 4 (Mar. 1, 1966)]

(82) DOUBLE PATENTING

In view of the uncertain situation which has arisen as a result of recent decisions dealing with "double patenting" it is thought to be advisable to restate the practice which should be followed in this area, particularly as regards the effect of terminal disclaimers. The term "double patenting" is properly applicable only to cases involving two or more applications and/or patents of the same inventive entity and should not be applied to situations involving commonly owned cases of different inventive entities. Sole and joint inventors cannot constitute a single entity, nor do two or more sets of joint inventors constitute a single entity if any individual is included in either set who is not also included in the other.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted, if the claims do not overlap, even though the subject matter to which the claims of one case are directed may be obvious in view of the subject matter claimed in the other case. *In re Robeson*, 1964 C.D. 561, 141 USPQ 485; *In re Kaye*, 1964 C.D. 680, 141 USPQ 829. Claims overlap within the meaning of this statement if it is possible for them to be infringed by the same process, machine, manufacture, or composition of matter. Cross reading is not necessary to constitute such an overlap.

Overlapping claims should not be allowed in cases filed by the same inventive entity if they are directed to identical inventive concepts, or if the concept to which one set of claims is directed would be obvious in view of that to which the other set is directed. This is true regardless of the relative filing dates of the cases or the relative scope of the claims.

In situations involving cases filed by different inventive entities, regardless of ownership, Sections 102 and 103 of 35 U.S.C. preclude the granting of two or more patents when directed to identical inventive concepts or when one of the concepts would be obvious in view of the other. A terminal disclaimer can have no effect in this situation since the basis for refusing more than one patent is not connected with any extension of monopoly.

In view of 35 U.S.C. 185, it is necessary to determine priority of invention whenever two different inventive entities are claiming a single inventive concept, and this determination should ordinarily be made before any patent is issued. This is true regardless of ownership, and the provision of Rule 201(c) that interferences will not be declared or continued between commonly owned cases unless good cause is shown therefor does not mean that two patents are to be allowed

in such cases, but that the common assignee should be called on to state which of the entities involved is prior to the other in date of invention.

Accordingly, the assignee of two or more cases of different inventive entities, containing conflicting claims, should be called on to maintain a line of demarcation between them. If such a line is not maintained then, when one of the cases is in condition for allowance, claims covering the conflicting subject matter should be suggested as provided in Rule 203, care being taken to insure that such claims cover all the conflicting matter and the assignee should be called on to state which entity is the prior inventor of that subject matter and to limit the claims of the other application accordingly. If the assignee does not comply with this requirement and presents the interfering claims in both cases, an interference should be declared, attention being directed to Rule 208 if there is a common attorney. If suggested claims are not presented within the time allowed, rejection should be made on the ground of disclaimer as indicated in Rule 203(b).

In the event that a common assignee, after taking out a patent on one of two or more applications, for the first time presents claims in a pending application which are not patentably distinct from claims of the patent, the claims of the application should be rejected on the ground that the assignee, by taking out the patent at a time when the application was not claiming the patented invention, is estopped to contend that the patentee is not the prior inventor.

If a patent is inadvertently issued on one of two commonly owned applications by different inventive entities which at the time when the patent issued were claiming inventions which are not patentably distinct, the assignee should be called on to make a determination of priority as in the case of pending applications and, if no election is made, an interference should be declared. An election of the applicant as the first inventor should not be accepted without a complete (not terminal) disclaimer of the conflicting claims in the patent.

EDWARD J. BRENNER,

Commissioner.

Jan. 9, 1967.

[834 O.G. 1615]

(83) NON-FINAL SECOND ACTION REJECTION PRACTICE

Experience since September 1, 1966, indicates that the non-final second action rejection practice announced on a trial basis at 829 O.G. 1755 (M.P.E.P. Change Notice 10-1) has worked out satisfactorily for both the Office and the applicants. Effective immediately, that practice as restated below will be followed on a regular basis.

Second actions on the merits will not be made final where the examiner introduces a new ground of rejection not necessitated by amendment of the application by the applicant. Further, in carrying out this policy, a second action on the merits in any application will not be made final if it includes a rejection of any claim not amended by applicant where that rejection relies on newly cited art. Also, amendments complying with objections or requirements as to form are to be permitted after final action in accordance with Rule 116(a).

RICHARD A. WAHL,

Assistant Commissioner.

Jan. 30, 1967.

[835 O.G. 715]

(84) SPECIAL EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The practice of granting special status to certain new applications as set forth in the Notice of December 14, 1965, 822 O.G. 2, is modified to the extent indicated below in the case where the Office determines that all of the claims presented are not obviously directed to a single invention.

Where the claims in a case are directed to more than one invention, an election without traverse will be a prerequisite to the grant of special status.

The election may be made by applicant at the time of filing the petition for special status. Should applicant fail to include an election with the original papers or petition and the Office determines that a requirement should be made, the established telephone restriction practice will be followed.

If otherwise proper, examination on the merits will proceed on claims drawn to the elected invention.

If applicant refuses to make an election without traverse, the application will not be further examined at that time. The petition will be denied on the ground that the claims are not directed to a single invention, and the application will await action in its regular turn.

Divisional applications directed to the non-elected inventions will not automatically be given special status based on papers filed with the petition in the parent case. Each such application must meet on its own all requirements for the new special status.

RICHARD A. WAHL,

Assistant Commissioner.

Mar. 21, 1967.

[837 O.G. 667]

NEW FIRST ACTION PROCEDURE

Effective January 2, 1968, a new practice involving the use of a revised form for the first page of the first Office Action will be instituted. The use of this new form will introduce some new practices and procedures and will terminate the "Interview Practice Preliminary to Notice Under 35 U.S.C. 132" announced August 1, 1967, at 841 O.G. 1.

The heading of the revised form containing the address and application identification will have a completely revised format to facilitate future pre-action addressing by automatic typewriter.

Under the new procedure, the Examiner will signify on the revised form certain information including the period set for response, any attachments, and, in a "summary of action," the position taken on all claims.

The new procedure will also allow the Examiner, in the exercise of his professional judgment, to indicate that a discussion with applicant's representative may result in agreements whereby the application may be placed in condition for allowance and that the Examiner will telephone the representative within about two weeks. Under this practice the applicant's representative can be adequately prepared to conduct such a discussion. Any resulting amendment may be made either by the applicant's attorney or agent or by the Examiner in an Examiner's Amendment. It should be recognized that when extensive amendments are necessary it would be preferable if they were filed by the attorney or agent of record, thereby reducing the professional and clerical workload in the Patent Office and also providing the file wrapper with a better record, including applicant's arguments for allowability as required by Rule 111.

RICHARD A. WAHL,

Assistant Commissioner.

Dec. 11, 1967.

[845 O.G. 1205]

(86) MODIFICATION OF NOTICE OF JANUARY 31, 1967

The practice set forth in the notice of January 31, 1967, entitled "Double Patenting" (834 O.G. 1615), is modified to the extent that when a single inventive entity is involved a terminal disclaimer will be accepted to avoid a double patenting rejection even if the claims overlap, if the claims which would otherwise be subject to such rejection could not have been allowed in the other application or patent, and if the terminal disclaimer further provides that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

EDWARD J. BRENNER,

Commissioner.

Feb. 14, 1968.

[848 O.G. 1]

(87) CONTINUATIONS—RES JUDICATA REJECTIONS

Some confusion exists in the interpretation of the established Office policy regarding the use of *res judicata* rejections. To clarify the Manual on this point the following changes are made—

The second paragraph of MPEP 201.07 is rewritten to read:

At any time before the patenting or abandonment of or termination of proceedings on his earlier application, an applicant may have recourse to filing a continuation in order to introduce into the case a new set of claims

and to establish a right to further examination by the primary Examiner.

The last two sentences of MPEP 201.11 are deleted. MPEP 706.03(w) is rewritten to read:

A prior adjudication against the inventor on the same or similar claims constitutes a proper ground of rejection as *res judicata*. See *Ex parte Budde*, 150 USPQ 469; 828 O.G. 409. The rejection should be used only when the earlier decision was a decision of the Board of Appeals or any of the reviewing courts, and when the time for further court review has expired and no such review has been sought, or, if filed, the review action is terminated. The timely filing of a second application copending with an earlier application does not preclude the use of *res judicata* as a ground of rejection for the second application claims.

When making a rejection on *res judicata*, action should ordinarily be made also on the basis of prior art.

RICHARD A. WAHL,

Assistant Commissioner.

Mar. 18, 1968.

[849 O.G. 277]

(88) GUIDELINES FOR CONSIDERING DISCLOSURE OF UTILITY IN DRUG CASES

On December 5, 1967 the text of certain guidelines which the Patent Office proposed to adopt in the examination of applications for drugs, was published in the OFFICIAL GAZETTE (845 O.G. 1). A hearing was had on January 16, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. The following guidelines are being published after consideration of all the material and opinions, both written and oral, which were submitted in response to that invitation.

EDWARD J. BRENNER,

Commissioner of Patents.

Mar. 19, 1968.

General

These guidelines are set down to provide uniform handling of applications disclosing drug or pharmaceutical utility. They are intended to guide patent examiners and patent applicants as to criteria for utility statements. They deal with fundamental questions and are subject to revision and amendment if future case law indicates this to be necessary.

The following two basic principles shall be followed in considering matters relating to the adequacy of disclosure of utility in drug cases:

(1) The same basic principles of patent law which apply in the field of chemical arts shall be applicable to drugs, and

(2) The Patent Office shall confine its examination of disclosure of utility to the application of patent law principles, recognizing that other agencies of the government have been assigned the responsibility of assuring conformance to the standards established by statute for the advertisement, use, sale or distribution of drugs.¹

A drug is defined by 21 U.S.C. 321(g)

The term "drug" means (A) articles recognized in the official United States Pharmacopoeia, official Homeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement to any of them; and (B) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (C) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (D) articles intended for use as a component of any articles specified in clause (A), (B), or (C); but does not include devices or their components, parts or accessories.

In addition, compositions adapted to be applied to or used by human beings, e.g., cosmetics, dentifrices, mouthwashes, etc., may be treated in the same manner as drugs subject to the conditions stated.

Any proof of a stated utility or safety required pursuant to these guidelines may be incorporated in the application as filed, or may be subsequently submitted by affidavit if and when required. The Patent Office, in reaching its own independent

¹ *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 180 USPQ 215; *In re Hartop et al.*, 50 CCPA 780, 811 F.2d 249, 185 USPQ 419.

decisions on questions of utility and how to use under 35 U.S.C. 101 and 112, will continue to avail itself of assistance and information from the Secretary of Health, Education, and Welfare as authorized by 21 U.S.C. 372(b), when necessary.

In accordance with the basic principles set forth above, the following procedures shall be followed in examining patent applications in the drug field with regard to disclosures relating to utility.

35 U.S.C. 101

Utility must be definite and in currently available form,² not merely for further investigation or research but commercial availability is not necessary. Mere assertions such as "therapeutic agents,"³ "for pharmaceutical purposes,"⁴ "biological activity,"⁵ "intermediates,"⁶ and for making further unspecified preparations are regarded as insufficient.

If the asserted utility of a compound is believable on its face to persons skilled in the art in view of the contemporary knowledge in the art, then the burden is upon the examiner to give adequate support for rejections for lack of utility under this section.⁷ On the other hand, incredible statements⁸ or statements deemed unlikely to be correct by one skilled in the art⁹ in view of the contemporary knowledge in the art will require adequate proof on the part of applicants for patents.

Proof of utility under this section may be established by clinical or *in vivo* or *in vitro* data, or combinations of these, which would be convincing to those skilled in the art.¹⁰ More particularly, if the utility relied on is directed solely to the treatments of humans, evidence of utility, if required, must generally be clinical evidence.¹¹ Although animal tests may be adequate where the art would accept these as appropriately correlated with human utility.¹² If there is no assertion of human utility,¹³ or if there is an assertion of animal utility,¹⁴ operativeness for use on standard test animals is adequate for patent purposes.

Exceptions exist with respect to the general rule relating to the treatment of humans. For example, compositions whose properties are generally predictable from a knowledge of their components, such as laxatives, antacids and certain topical preparations, require little or no clinic proof.¹⁵

Although absolute safety is not necessary to meet the utility requirement under this section, a drug which is not sufficiently safe under the conditions of use for which it is said to be effective will not satisfy the utility requirement.¹⁶ Proof of safety shall be required only in those cases where adequate reasons can be advanced by the examiner for believing that the drug is unsafe, and shall be accepted if it establishes a reasonable probability of safety.

35 U.S.C. 112

A mere statement of utility for pharmacological or chemotherapeutic purposes may raise a question of compliance with Section 112, particularly "... as to enable any person skilled in the art to which it pertains ... to use the same." If the statement of utility contains within it a connotation of how to use, and/or the art recognizes that standard modes of

² *Brenner v. Manson*, 383 U.S. 519, 148 USPQ 689.

³ *Ex parte Lorenz et al.*, 49 CCPA 1227, 305 F.2d 875, 134 USPQ 312, cf. *Ex parte Brockmann et al.*, 127 USPQ 57.

⁴ *In re Dietrich*, 50 CCPA 1858, 818 F.2d 946, 188 USPQ 128.

⁵ *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48; *Ex parte Lawham*, 135 USPQ 106.

⁶ *In re Joly et al.*, 54 CCPA 1159, 153 USPQ 45; *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48.

⁷ *In re Gazave*, 54 CCPA 1524, 154 USPQ 92.

⁸ *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Oberweger*, 28 CCPA 749, 115 F.2d 826, 47 USPQ 455; *Ex parte Moore et al.*, 128 USPQ 8.

⁹ *In re Ruskin*, 53 CCPA 872, 354 F.2d 895, 148 USPQ 221; *In re Pottier*, 54 CCPA 1293, 153 USPQ 407; *In re Novak et al.*, 49 CCPA 1288, 306 F.2d 924, 134 USPQ 335. See also, *In re Irons*, 52 CCPA 938, 340 F.2d 974, 144 USPQ 851.

¹⁰ *In re Irons*, 52 CCPA 938, 340 F.2d 924, 144 USPQ 851; *Ex parte Paschall*, 88 USPQ 131; *Ex parte Pennell et al.*, 99 USPQ 56; *Ex parte Ferguson*, 117 USPQ 229; *Ex parte Timmis*, 123 USPQ 581.

¹¹ *Ex parte Timmis*, 123 USPQ 581.

¹² *In re Hartop et al.*, 50 CCPA 780, 811 F.2d 249, 185 USPQ 419; *Ex parte Murphy*, 134 USPQ 184.

¹³ *Ex parte Blöcke v. Treves*, 44 CCPA 753, 241 F.2d 718, 112 USPQ 472; *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 180 USPQ 215; *In re Dodson*, 48 CCPA 1125, 292 F.2d 948, 180 USPQ 224; *In re Hitchings*, 52 CCPA 1141, 342 F.2d 80, 144 USPQ 637.

¹⁴ *In re Bergel et al.*, 48 CCPA 1102, 292 F.2d 955, 180 USPQ 206; *Ex parte Melvin*, 155 USPQ 47.

¹⁵ *Ex parte Harrison et al.*, 129 USPQ 172; *Ex parte Lewis*, 140 USPQ 70.

¹⁶ *In re Hartop et al.*, 50 CCPA 780, 811 F.2d 249, 185 USPQ 419.

administration are contemplated, Section 112 is satisfied.¹⁷ If the use disclosed is of such nature that the art is unaware of successful treatments with chemically analogous compounds, a more complete statement of how to use must be supplied than if such analogy were not present.¹⁸ It is not necessary to specify the dosage or method of use if it is obvious to one skilled in the art that such information could be obtained without undue experimentation.¹⁹

With respect to the adequacy of disclosure that a claimed genus possesses an asserted utility representative examples together with a statement applicable to the genus as a whole will ordinarily be sufficient if it would be deemed likely by one skilled in the art, in view of contemporary knowledge in the art, that the claimed genus would possess the asserted utility.²⁰ Proof of utility will be required for other members of the claimed genus only in those cases where adequate reasons can be advanced by the examiner for believing that the genus as a whole does not possess the asserted utility. Conversely, a sufficient number of representative examples, if disclosed in the prior art will constitute a disclosure of the genus to which they belong.

In the case of mixtures including a drug as an ingredient, or mixtures which are drugs, or methods of treating a specific condition with a drug, whether old or new, a specific example should ordinarily be set forth, which should include the organism treated. In appropriate cases, such an example may be inferred from the disclosure taken as a whole and/or the knowledge in the art (e.g., gargle).

Where the claimed compounds are capable of several different utilities and one use is adequately described in accordance with these guidelines, additional utilities will be investigated for compliance with Sections 101 and 112 only if not believable on their face to those ordinary skill in the art in view of the contemporary knowledge of the art. Failure to meet these standards may result in a requirement to cancel such additional utilities.²¹

[849 O.G. 567]

(89) APPLICATIONS TO BE TAKEN UP SPECIAL

Hereafter the existence of the following facts will place the application concerned in the category of special cases, i.e., those to be advanced out of regular order for examination.

Once a case is taken up for action by an Examiner according to its effective filing date, it should be treated as special by any Examiner, Art Unit or Group to which it may subsequently be transferred. Exemplary situations include: (1) new cases transferred as the result of a telephone election, and (2) cases transferred as the result of a timely response to any official action.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 29, 1968.

[850 O.G. 4]

(90) TRIAL MULTIPLE DEPENDENT CLAIM PRACTICE

For the trial period running from July 1, 1968, through December 31, 1968, all applications and amendments to applications filed in the Patent Office will be permitted to include multiple dependent claims which refer back to any of the preceding claims in the alternative whether independent or dependent. In this manner a claim may have a single number but would effectively be considered and treated as a plurality of claims. Entry into this program will require (1) the filing of a written request in which the applicant agrees to abide by the conditions of the program, and (2) the filing of appropriate fees and a showing of the fee calculation. Although the trial period terminates December 31, 1968, the prosecution

¹⁷ Cf. *In re Johnson*, 48 CCPA 783, 282 F.2d 370, 127 USPQ 216; *In re Hitchings et al.*, 52 CCPA 1141, 342 F.2d 80, 144 USPQ 637.

¹⁸ *In re Mourou et al.*, 52 CCPA 1863, 345 F.2d 595, 145 USPQ 452; *In re Schmidt et al.*, 54 CCPA 1577, 153 USPQ 640.

¹⁹ *In re Oppenauer*, 31 CCPA 1248, 143 F.2d 974, 62 USPQ 297; *In re Cavallito et al.*, 48 CCPA 711, 282 F.2d 357, 127 USPQ 202; *In re Cavallito et al.*, 48 CCPA 720, 282 F.2d 363, 127 USPQ 206; *In re Schmidt*, 48 CCPA 1140, 293 F.2d 274, 130 USPQ 404; *In re Cavallito*, 49 CCPA 1335, 306 F.2d 505, 184 USPQ 370; *In re Surrey*, 54 CCPA 855, 370 F.2d 349, 151 USPQ 724; *In re Lund et al.*, 54 CCPA 1361, 153 USPQ 625.

²⁰ *Ex parte Lanham*, 121 USPQ 223; *Ex parte Moore et al.*, 128 USPQ 8; *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Gottlieb et al.*, 51 CCPA 1114, 328 F.2d 1016, 140 USPQ 665.

of all applications placed in this program will continue under the program guidelines.

A claim dependent upon any of a plurality of preceding claims will be considered in acceptable form and entered provided it is otherwise acceptable and does not (1) cross statutory classes with any of its parent claims, or (2) depend from any other multiple dependent claim, or (3) refer back to preceding claims in the conjunctive rather than the disjunctive form (e.g., "The tool as defined in any one of claims 1, 2, and 4 . . ." is acceptable, but "The tool as defined in claims 1 and 2 . . ." is not acceptable. Likewise, "The tool as defined in claims 1, 2, or 4 . . ." is acceptable, whereas "The tool as defined in claims 1, 2 and/or 4 . . ." is not acceptable). Should any dependent claim include a claim association that violates any of the above prohibitions the claim will be rejected as indefinite for failure to comply with 35 U.S.C. 112 and will not be further treated with regard to any other claim association. Also, multiple dependent claims will not be considered for entry after final rejection. Further, during this trial period, for the applications involved in this program the total numbered claims may not exceed ten. Non-compliance with this condition will result in applicant being given one month to reduce the total numbered claims to ten. In newly filed cases, the failure to comply within the one month period will result in loss of filing date. In all other cases the entire amendment will not be entered in the absence of compliance with this requirement.

It is suggested that the claims be arranged in order of narrowing scope whereby the first claim presented is the broadest. Claims dependent upon the broad claim should come next, followed by claims which are dependent upon any of the plurality of preceding claims.

Practice and Rejections

When acting on a multiple dependent claim, the Examiner will consider the patentability of the various claim associations encompassed by said claim and apply any pertinent prior art in the usual manner. Each of these associations should be compared with the prior art, exactly as if it were presented as an independent claim. If a claim having multiple dependency should include both patentable and unpatentable claim associations, the Examiner will identify each of the patentable claim associations and identify and specifically reject each of the unpatentable claim associations. However, mere failure to reject a claim association does not give rise to a presumption of allowability.

For fee purposes every claim which refers to any of the preceding claims will be considered effectively as a dependent claim for each association of claims that it represents, thereby effectively increasing the number of claims in the case. Therefore, in these cases the additional fees required for claims in excess of ten will be two dollars (\$2.00) times the total effective number of claims in excess of ten. This fee is based on the fact that such a claim is, in substance and so far as the work of examination is concerned, equivalent to a number of dependent claims each based on a single preceding claim.

In applications not under this program but having multiple dependent claims, it will be assumed that applicant intends these claims as effectively only a single claim. Accordingly, such claims will be considered alternative and therefore indefinite under 35 U.S.C. 112.

Rule 75(c) is hereby suspended for the duration of the trial period in those cases presenting multiple dependent claims under this program insofar as conflict exists between the requisites of the rule and the proposed practice.

RICHARD A. WAHL,
Assistant Commissioner.

June 4, 1968.

[851 O.G. 893]

(91) SPECIAL EXAMINING PROCEDURE

The Special Examining Procedure whereby a new application may be granted special status and advanced for examination is hereby revised to remove the condition limiting the application to no more than ten claims. The petition for special status will be granted regardless of the number of claims pending in the application at any time provided all other remaining conditions of this program are met (see MPEP 708.02).

RICHARD A. WAHL,
Assistant Commissioner.

June 12, 1968.

[852 O.G. 509]

(92) REJECTIONS NOT BASED ON PRIOR ART

The primary object of the examination of an application is to determine whether or not the claims define a patentable advance over the prior art. This consideration should not be relegated to a secondary position while undue emphasis is given to non-prior art or "technical" rejections. Effort in examining should be concentrated on truly essential matters, minimizing or eliminating effort on matters which may have played a part in the examination process in the past but which are not really critical. Where a major technical rejection is proper (e.g., lack of proper disclosure, undue breadth, utility, etc.) such rejection should be stated with a full development of the reasons rather than by a mere conclusion coupled with some stereotyped expression.

Generally speaking, the inclusion of (1) negative limitations and (2) alternative expressions, provided that the alternatively expressed elements are basically equivalents for the purpose of the invention, are permitted if no uncertainty or ambiguity with respect to the question of scope or breadth of the claim is presented.

The examiner has the responsibility to make sure the wording of the claims is sufficiently definite to reasonably determine the scope. It is applicant's responsibility to select proper wording of the claim, except to the extent that the selection of words makes the claims indefinite. Under no circumstances should a claim be rejected merely because the Examiner prefers a different choice of wording.

Rejections not based on prior art are explained in 706.03(a) to 706.03(y). IF THE ITALICIZED LANGUAGE IN THESE SECTIONS IS INCORPORATED IN THE REJECTION, THERE WILL BE LESS CHANCE OF A MISUNDERSTANDING AS TO THE GROUNDS OF REJECTION.

RICHARD A. WAHL,
Assistant Commissioner.

July 23, 1968.

[853 O.G. 603]

(93) DOUBLE PATENTING AND TERMINAL DISCLAIMER

The practice concerning double patenting and the effect of a terminal disclaimer on such a rejection is set out below. The notices of January 9, 1967, and February 14, 1968, relating to this subject are hereby superseded except with reference to the practice described involving different inventive entities.

Claims should be rejected on double patenting only in cases involving two or more applications and/or patents of the same inventive entity and not in situations involving commonly owned cases of different inventive entities. Commonly owned cases of different inventive entities are to be treated in the manner set out in MPEP 804.03.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted provided the claims of the different cases are not drawn to the same invention (*In re Knohl*, 155 USPQ 586; *In re Griswold*, 150 USPQ 804).

Claims that differ from each other (aside from minor differences in language, punctuation, etc.), whether or not the difference is obvious, are not considered to be drawn to the same invention. In cases where the difference is obvious, terminal disclaimers are effective to overcome rejections on double patenting. However, such terminal disclaimers should include a provision that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

Where there is no such difference, the inventions are the same and a terminal disclaimer is ineffective.

EDWARD J. BRENNER,
Commissioner.

Feb. 18, 1969.

[860 O.G. 661]

(94) REVISED DESIGN PATENT PRACTICE

The following changes are being instituted in order to clarify the distinction between the ornamental design for an article being claimed in a design patent and its environment. These changes are to be followed in the examination of all

design applications as of the date of this notice. It is suggested that applicants initiate compliance with these changes in all pending design applications.

The ornamental design which is being claimed must be shown in solid lines in the drawing. Dotted lines for the purpose of indicating unimportant or immaterial features of the designed article are no longer permitted. There are no portions of a design which are immaterial or unimportant. In *Blum*, 852 O.G. 1045; 153 USPQ 177.

The title of the article being claimed in a design patent must correspond to the name of the article shown in solid lines in the drawing.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 26, 1969.

[860 O.G. 999]

(95) "MERE FUNCTION OF MACHINE"—REJECTION

In view of the decision of the Court of Customs and Patent Appeals in *In re Tarsay-Hernoch* appearing at 158 USPQ 141, process or method claims will no longer be subject to a rejection by Patent Office examiners solely on the ground that they define the inherent function of a disclosed machine or apparatus. Accordingly, the subject matter of MPEP 706.03(r) is inapplicable and hereby cancelled.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 10, 1969.

[861 O.G. 343]

(96) FINAL REJECTION—FIRST ACTION

The claims of a new application may be finally rejected in the first Office action in those situations where (1) the new application is a continuing application of, or a substitute for, an earlier application, and (2) all claims of the new application (a) are drawn to the same invention claimed in the earlier application, and (b) would have been properly finally rejected on the art of record in the next Office action if they had been entered in the earlier application. A first action final rejection in a continuation-in-part application is not proper where any claim includes subject matter not present in the parent case.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 20, 1969.

[861 O.G. 1011]

(97) TRIAL MULTIPLE DEPENDANT CLAIM PRACTICE—TERMINATION

In view of the limited interest as evidenced by the small degree of participation, the trial multiple dependent claim practice announced at 851 O.G. 893, June 25, 1968, and running from July 1, 1968 through December 31, 1968, will not be reinstituted as a regular procedure.

All of the applications filed and accepted under this program will continue under the provisions of the program throughout their prosecution.

RICHARD A. WAHL,
Assistant Commissioner.

June 9, 1969.

[864 O.G. 323]

(98) RULES OF PRACTICE IN PATENT CASES

[37 CFR Part 1]

Preexamination

Notice of proposed rule making regarding an amendment of Part 1, Title 37, Code of Federal Regulations by adding thereto a new center heading reading "Preexamination" and a new § 1.98 relating to the submission of a patentability brief, was published in the Federal Register of July 31, 1969 (34 F.R. 12532). As a result of further deliberations, the Patent Office has decided under the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), to revise the original proposal in the manner set forth below. This revised proposal would expedite the prosecution of applications and strengthen the presumption of validity of issued patents.

Parties who desire to present their views, objections, recommendations, or suggestions in connection with this revised proposal are invited to do so by letter addressed to the Commissioner of Patents, Washington, D.C. 20231, on or before October 23, 1969. Oral comments may be presented at a hearing to be held on Thursday, October 23, 1969, at 9 a.m. d.s.t., in Room 34-3D50, Building 34, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance.

PREEXAMINATION

§ 1.98 Patentability brief.

(a) At the time of filing an application, or at such time as may be specified in an official notice, the applicant shall submit a patentability brief. The brief shall identify a reasonable number of patents and publications that were believed to be prior art and were specifically considered most pertinent in connection with the invention claimed in the application. The brief shall further include an explanation as to why the claims in such application are deemed patentable over the identified patents and publications. Copies of the identified patents and publications, other than patents of the United States, shall be submitted with the brief. The patentability brief shall not be construed as a representation that a search has been made or that no better art exists than that identified as having been specifically considered.

(b) If no prior art was specifically considered in connection with the invention claimed in the application, the brief shall include an express statement to that effect with an explanation as to why the claims are deemed patentable.

(c) Neither matters of judgment in identifying patents, publications, or any other prior art, whether or not required by this section, nor inadvertent failure to comply with the provisions of this section shall constitute grounds for refusing to issue a patent.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: September 5, 1969.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 69-10756; Filed, Sept. 8, 1969; 8:48 a.m.]

Published in 34 F.R. 14176, Sept. 9, 1969

[866 O.G. 1402]

(99) CLAIM INTERPRETATION

The notice of January 15, 1968, appearing in the OFFICIAL GAZETTE of February 13, 1968 (847 O.G. 331) and concerned with statements relating to the scope of the invention claimed in patent applications, is hereby rescinded.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 12, 1969.

[867 O.G. 1]

(100) EXAMINATION OF PATENT APPLICATIONS ON COMPUTER PROGRAMS

Notice of Rescission of Guidelines

Notice regarding the adoption by the Patent Office of guidelines for the examination of patent applications on computer programs was published in the Federal Register of October 22, 1968 (33 F.R. 15600), and in the OFFICIAL GAZETTE of the Patent Office of October 22, 1968 (855 O.G. 829).

In view of the decision by the U.S. Court of Customs and Patent Appeals in "In re Prater et al.," 162 USPQ 541, 886 O.G. 1034, (1969), the adopted guidelines are hereby rescinded, effective immediately. For the time being, adoption of new guidelines for the examination of patent applications is being deferred pending further judicial interpretation of the law on a case-by-case basis.

Consideration of "In re Prater et al." has brought into question the advisability of issuing guidelines for the examination of patent applications on computer programs. Parties who desire to present their views, recommendations, or suggestions concerning such guidelines are invited to do so, by letter addressed to the Commissioner of Patents, Washington, D.C. 20231. Those parties who recommend the issuance of

such guidelines are invited to submit comments concerning the proposed language of the guidelines.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: October 3, 1969.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 6912194; Filed, Oct. 9, 1969; 8:48 a.m.]

Published in 34 F.R. 15724, October 10, 1969

[868 O.G. 349]

(101)

CERTAIN CASES

Reopening After Decision, Board of Appeals

Effective with the date of this notice the Commissioner of Patents will, on a trial basis, entertain petitions under § 1.198 of Title 37, Code of Federal Regulations (Patent Office Rule 198), to reopen certain cases in which an applicant has sought review under 35 U.S.C. 141 or 145. This procedure is restricted to cases which have been decided by the Board of Appeals and which are amendable to settlement without the need for going forward with the court proceeding. Such petitions will ordinarily be granted only in the following categories of cases:

1. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the claims do not include a disclosed limitation or because they suffer from some other curable defect, and the decision reasonably is suggestive that claims including the limitation or devoid of the defect will be allowable;

2. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the record does not include evidence of a specified character, and is reasonably suggestive that if such evidence were presented, the appealed claims would be allowable, and it is demonstrated that such evidence presently exists and can be offered; or

3. When the decision of the Board of Appeals is based on a practice, rule, law, or judicial precedent which, since the Board's decision, has been rescinded, repealed, or overruled. Any such petition must be accompanied by the proposed amendment, evidence, or argument said to justify allowance of the claims. The petition further must point out how the case falls within one of the preceding categories. Failure to do so or failure of the case to qualify as coming within one of the categories will usually constitute bases for denying the petition. In any event, no case will be reopened unless it is for the consideration of matters not already adjudicated, and sufficient cause has been shown.

Such petitions will not be ordinarily entertained after the filing of the Commissioner's brief in cases in which review has been sought under 35 U.S.C. 141, or after trial in a 35 U.S.C. 145 case.

In the case of an appeal under 35 U.S.C. 141, if the petition is granted, steps will be taken to request the court to remand the case to the Patent Office and if so remanded the proposed amendments, evidence, and arguments will be entered of record in the application file for consideration, and further action will be taken by the Board of Appeals in the first instance or by the Examiner as may be appropriate. In the case of civil action under 35 U.S.C. 145, steps will be taken for obtaining dismissal of the action without prejudice to consideration of the proposals.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: Oct. 16, 1969.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 69-12674; Filed Oct. 22, 1969; 8:48 a.m.]

Published in 34 F.R. 17210, Oct. 23, 1969

[868 O.G. 1058]

(102) PROSECUTION AND DELIVERY OF AMENDMENTS

General

Many of the difficulties encountered in the prosecution of patent applications after final rejection may be alleviated if

each applicant includes, at the time of filing or no later than the first response, claims varying from the broadest to which he believes he is entitled to the most detailed that he is willing to accept.

Prosecution After Final Rejection

To expedite the resolution of cases under final rejection, an amendment filed at any time after final rejection but before an appeal brief is filed, may be entered upon or after filing of an appeal provided the total effect of the amendment is to (1) remove issues for appeal, and/or (2) adopt Examiner suggestions. Of course, if the amendment necessitates a new search, raises the issue of new matter, presents additional claims without cancelling a corresponding number of finally rejected claims, or otherwise introduces new issues, it will not be entered. Examiners will continue to respond to all non-entered amendments after final rejection, and will indicate the status of each claim of record or proposed, including the designation of claims that would be entered on the filing of an appeal if filed in a separate paper. It should be noted that an amendment placing a case in condition for allowance will be enterable by the Examiner at any stage prior to forwarding the answer on appeal. Except where an amendment merely cancels claims and/or adopts Examiner suggestions, removes issues for appeal, or in some other way requires only a cursory review by the Examiner, compliance with the requirement of a showing under Rule 116(b) will be expected of all amendments after final rejection.

In accordance with prior practice, in order to prevent abandonment, a timely filed amendment after final rejection that reaches the Examiner near the end or after the expiration of the period for response, may be entered in part if this can be done to make the case allowable (e.g., a second amendment after final rejection filed on the last day of the response period, where no appeal has been filed and the amendment cancels all rejected claims and proposes to add claims, at least one of which is unpatentable, entry would be approved to the extent of cancelling the rejected claims and entering only the patentable claims).

Only one attorney-initiated personal interview will be permitted after final rejection. However, the Examiner may initiate an interview anytime he believes it would expedite the prosecution of the application.

Hand Delivery of Papers

For purposes of convenience in those cases where the attorney and the Examiner agree that a proposed amendment discussed during a personal interview would place the application in condition for allowance, the amendment may be left with the Examiner to become an official paper in the file without routing through the mail room, provided no additional fees are required. Where the case is under final rejection, if changes in the proposed amendment are necessary and these changes are not practical to be made by Examiner's Amendment, the attorney or a local associate will be permitted to hand deliver a corrected amendment to the Examiner, provided no additional fees are required and further that the amendment is submitted to the Examiner by the end of the next working day following the interview and within the period for response.

The Examiner who accepts these amendments will write "entry approved" in the left-hand margin of the first page of the amendment, date and initial the amendment, and then have it date stamped with the Group Stamp. For applications under final rejection acceptance of a hand delivered amendment will require the initials of a Primary Examiner.

The privilege of personal delivery of papers by attorneys to the Examining Groups is extended to requests for extensions of time in addition to amendments of the type referred to above.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 10, 1969.

[869 O.G. 345]

(103) PETITION TO REVIVE PRACTICE

Effective immediately, a decision on a petition to revive an abandoned application will be based solely on whether a satisfactory showing has been made that the delay was unavoidable (35 U.S.C. 133). A petition to revive will not be considered unless the petition fee and a proposed response to the last Office action have been received (Rule 137).

The granting of a petition to revive does not serve in any way as a determination that the proposed response to the Office action is completely responsive. Revived applications will be forwarded to the examiner to determine the completeness of the proposed response. Such applications must be taken up *Special*. If the examiner determines that the response is complete, he should promptly take the case up for action. If the proposed response is not a complete response to the last Office action, the examiner should write a letter to the applicant informing him of the specific defects in his response and set a one-month time limit for applicant to complete his response. If the applicant does not complete his response within the set one-month limit, the application is again abandoned.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 11, 1969.

[869 O.G. 1362]

(104)

ENVIRONMENTAL QUALITY

In signing the National Environmental Policy Act on the first day of this decade, President Nixon declared, "The 1970's absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment." This landmark legislation declares that it is the continuing policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act.

In accordance with the desires of the President and this mandate of the Congress, the Patent Office will accord "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil. In order that the Patent Office may implement this procedure, we request that all applicants desiring to participate in this program request that their applications be accorded "special" status. Such requests should be written, should identify the applications by serial number and filing date, and should be accompanied by affidavits or declarations under Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of these life-sustaining elements.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Jan. 29, 1970.

[871 O.G. 673]

(105) PETITION TO REVIVE PRACTICE—CLARIFICATION

In clarification of the notice of Dec. 11, 1969 (869 O.G. 1362), the practice set forth in the second paragraph thereof is limited to proposed "responses" before final rejection. While a response to a non-final action may be either an argument or an amendment under Rule 111, a response to a final action "must include cancellation of, or appeal from the rejection of, each claim so rejected" under Rule 113.

Accordingly, in any case where a final rejection had been made, the proposed response required for consideration of a petition to revive must be either an appeal or an amendment that cancels all the rejected claims or otherwise *prima facie* places the application in condition for allowance.

In those situations where abandonment occurred because of the failure to file an appeal brief, the proposed response, required for consideration of a petition to revive, must include a brief accompanied by the proper fee.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 20, 1970.

[873 O.G. 1]

(106) TIMELY PRESENTATION OF AFFIDAVITS OF DECLARATIONS UNDER RULES 131 AND 132

All affidavits or declarations under Rule 131 or 132 must be timely presented in order to be admitted.

Affidavits and declarations submitted prior to a final rejection will be considered timely.

An affidavit or declaration presented with a first response after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection will be entered and considered without a showing under Rule 116(b).

No other affidavit or declaration, under Rule 131 or 132, presented after a final rejection, will be considered unless a satisfactory showing is made under Rule 116(b) or 195.

All admitted affidavits or declarations will be acknowledged and commented upon by the Examiner in his next succeeding action.

RICHARD A. WAHL,
Assistant Commissioner of Patents.
[877 O.G. 243]

(107) ABBREVIATED FIRST ACTIONS ON THE MERITS

Starting on or about February 1, 1971, and continuing for a trial period of up to twelve months, a newly developed form (PO-1142) will be used for first actions on the merits of patent applications involving claims subject to rejection and/or objection on statutory or other legal grounds.

The form is designed to furnish a clear, full, and complete first action including the reasons for rejection and/or objection together with such information and references as may be useful in judging the propriety of continuing the prosecution, all in accordance with the statute (35 U.S.C. 132); and it is intended to abridge the action with condensed language using essential words and phrases in abbreviated form, in order to expedite the prosecution and reduce the pendency time of applications awaiting examination. Where found necessary in exceptional cases, a regular action without the form will be used.

For abbreviation purposes, references referred to on the form will be designated by capital letters and identified on revised reference list PO-892, and their correlation as applied to the claims will be indicated by symbols illustrated and explained on the bottom of the form. Sections 100-103, and 112 of the patent statute are reproduced on the back of the form.

Summary sheet POL-326 will continue in use with all first actions, and has been revised to identify different parts of the sheet as "Part I" and "Part II." Form PO-1142 will be distinguished as "Part III," and if a second copy of the form is necessary and is used to complete the action it will be marked for distinction as "Part IIIa" (a regular typed page if annexed to an action with the form will be designated as "Part IV"). All parts of the action after Part I (Parts II, III, and IV) will each have numbered paragraphs starting with the numeral 1, and communications relating thereto may be properly identified by the number on the particular part (for example, paragraph 2 on Part III may be identified as paragraph III-2).

As noted, Form PO-1142 will be used only for first actions on the merits concerned with claims subject to rejection and/or objection on statutory or other legal grounds. It will not be used for any subsequent action nor a first action made final as in a continuing application.

Second actions on the merits will be final according to prevailing practice, and any reference referred to in these or subsequent actions will be identified by name or otherwise in conventional manner, not by capital letters as used on Form PO-1142. For this reason, use of conventional reference identification in response to all Office actions will be helpful.

Only one carbon copy of the action will be furnished in accordance with the Notice of October 21, 1970, entitled "Office Actions" and appearing in 880 O.G. 740.

All other Office policies, practices, and procedures remain in effect.

RICHARD A. WAHL,
Assistant Commissioner.
[883 O.G. 2]

(108) AFTER FINAL REJECTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793;

35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.116, 1.191, 1.192, and 1.193, and by adding § 1.130.

All persons interested in presenting their views and objections and recommendations in connection with the proposed changes are invited to do so on or before March 23, 1971, on which day a hearing will be held at 2 p.m., e.s.t., in Room 8C06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

The proposed changes, if adopted, will provide a basis for a revised procedure for treating amendments filed after a final rejection. A proposed additional section is added to incorporate the existing practice relative to affidavits.

The proposed procedure will provide that all timely filed first amendments after final rejection be entered as a matter of right, subject to the limitation that additional claims will not be entered beyond the number that would result in the total number of claims under prosecution equalling the number of claims finally rejected. Only those second and subsequent amendments which cancel claims will be entered as a matter of right. The entry and treatment of any other amendments filed at this stage will be entirely within the discretion of the examiner.

A distinction will be made between first amendments after final rejection filed within 2 months from the date of the final rejection and those filed after that period.

A first amendment after final rejection filed within 2 months of the final rejection will receive a full and complete advisory action as soon as possible after its receipt in the Patent Office. Under these circumstances, the revised procedure would permit the filing of an appeal within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. However, if an appeal had been filed before the mailing of the advisory action, the appeal brief would not be due until 2 months after the date of the advisory action.

Amendments filed later than 2 months after the date of the final rejection in nonappealed cases may be answered at the examiner's discretion, but no additional time will be allowed for appeal. However, if an appeal is filed in these cases, a full and complete advisory action will be rendered and the time for filing the brief will be extended to expire 2 months from the date of the advisory action.

After jurisdiction of an application transfers to the Board of Appeals, no amendments will be considered for entry except those restricted to cancellation of claims or copying claims for purposes of interference.

If new issues are presented in the claims as amended or presented after final rejection, they will be rejected in the advisory action on the ground of being drawn to new issues. These rejections will be reviewable by the Board of Appeals as "adverse decisions of examiners" (35 U.S.C. 7).

The current practice of normally making the second action on the merits final and setting of a 3-month period for response will continue. However, the practice of granting an automatic 1-month extension of time if an amendment is filed (notices of Aug. 7, 1967; 841 O.G. 1411 and of Sept. 26, 1968; 855 O.G. 1109) will be terminated, and extensions of time at this stage of the prosecution will not be encouraged. Further, any extension of time granted after a final rejection will not affect the 2-month period and the privilege of an advisory action.

The present policy concerning consideration of affidavits, declarations, and exhibits will remain unchanged.

Holding of interviews after final rejection will be at the primary examiner's discretion.

This procedure will also allow the examiner to prepare examiner's answers which simply refer to the final rejection or the advisory action in most instances.

The sections, if amended as proposed, would read as follows:

§ 1.116 Amendments after final action.

(b) A first amendment presented after final rejection will be entered and considered, but the total number of claims under prosecution may not exceed the total number finally rejected. Entry of second and subsequent amendments after

final rejection will normally be limited to only those which cancel claims.

(c) A first amendment filed within 2 months after the date of the final rejection, or after appeal, will receive a full and complete advisory action. If not previously filed, an appeal may be filed in such cases within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. In those cases where an appeal was filed before the date of the advisory action, the appeal brief is due 2 months after the date of the advisory action.

(d) After jurisdiction of an appealed case passes to the Board of Appeals no amendments may normally be made (see § 1.191(d)). After decision on appeal, amendments can only be made as provided in § 1.198, or to carry into effect a recommendation under § 1.196.

(e) Amendments after final rejection shall not introduce new issues into the prosecution.

§ 1.130 Affidavits, declarations, or exhibits after final rejection.

Affidavits, declarations, or exhibits submitted with a first reply after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection, shall be admitted and considered. No other affidavit, declaration, or exhibit presented after final rejection will be admitted and considered without a showing of good and sufficient reasons why they were not earlier presented.

§ 1.191 Appeal to Board of Appeals.

(a) Every applicant for a patent or for reissue of a patent, any of the claims of which have been twice rejected, or who has been given a final rejection (§ 1.113) may, upon the payment of the fee required by law, appeal from the decision of the primary examiner to the Board of Appeals within the time allowed for response. (See § 1.116(c).)

(d) The jurisdiction of an appealed case is retained by the primary examiner until the time for filing a reply to the examiner's answer (§ 1.193(b)) has expired, at which time the Board of Appeals will take jurisdiction of the same.

§ 1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, or within the time allowed in an advisory action (§ 1.116(b)), whichever is later, file a brief, accompanied by the requisite fee. Said brief shall include all of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Two extra copies of the brief are required if an oral hearing is requested. Upon a showing of sufficient cause the time for filing the brief may be extended to a date not later than 2 months after the original expiration date. Any longer or further extensions must be sought from the Commissioner. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

§ 1.193 Examiner's answer.

(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within 1 month from the date of such answer. However, if the examiner's answer states a new ground of rejection appellant may file a reply thereto within 2 months from the date of such answer; such reply may include any amendment or material appropriate to the new ground.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Approved: January 22, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary for
Science and Technology.

[FR Doc. 71-1167 Filed 1-27-71; 8:47 a.m.]

Pub. in 36 F.R. 1356-57, Jan. 28, 1971

[883 O.G. 880]

DEPOSIT OF MICROORGANISMS

Some inventions which are the subject of patent applications depend on the use of microorganisms which must be described in the specification in accordance with 35 U.S.C. 112. No problem exists when the microorganisms used are known and readily available to the public. When the invention depends on the use of a microorganism which is not so known and readily available, applicants must take additional steps to comply with the requirements of Section 112.

In *re Argoudelis et al.*, 168 USPQ 99 (CCPA, 1970), accepted a procedure for meeting the requirements of 35 U.S.C. 112. Accordingly, the Patent Office will accept the following as complying with the requirements of Section 112 for an adequate disclosure of the microorganism required to carry out the invention:

- (1) The applicant, no later than the effective U.S. filing date of the application, has made a deposit of a culture of the microorganism in a depository affording permanence of the deposit and ready accessibility thereto by the public if a patent is granted, under conditions which assure (a) that access to the culture will be available during pendency of the patent application to one determined by the Commissioner to be entitled thereto under Rule 14 of the Rules of Practice in Patent Cases and 35 U.S.C. 122, and (b) that all restrictions on the availability to the public of the culture so deposited will be irrevocably removed upon the granting of the patent;
- (2) Such deposit is referred to in the body of the specification as filed and is identified by deposit number, name and address of the depository, and the taxonomic description to the extent available is included in the specification; and
- (3) The applicant or his assigns has provided assurance of permanent availability of the culture to the public through a depository meeting the requirements of (1). Such assurance may be in the form of an averment under oath or by declaration by the applicant to this effect.

A copy of the applicant's contract with the depository may be required by the Examiner to be made of record as evidence of making the culture available under the conditions stated above.

RICHARD A. WAHL,
Assistant Commissioner.
[886 O.G. 638]

(110) ENVIRONMENTAL QUALITY

The National Environmental Policy Act declares that it is a continuing policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policy set forth in the Act.

Following the enactment of the National Environmental Policy Act, the Patent Office initiated an Environmental Quality Program under which it accorded, upon request, "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil.

It seems apparent that not all patent applicants are aware of the availability of such special handling under the program. While over 381 patent applications have already been approved for accelerated processing by the Patent Office, a substantial number of patent applicants whose inventions would qualify have not requested special status for their patent applications.

In order to participate in the program, applicants must request that their applications be accorded "special" status in writing, identifying the applications by serial number and filing date, and should submit affidavits or declarations under

Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of the three life-sustaining elements mentioned.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

June 7, 1971.

[888 O.G. 2]

(111) TITLE 37—PATENTS, TRADEMARKS,
AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Division-Continuation Program

The current Rule 147 divisional practice and the "streamlined continuation" program set forth in the notices of February 11, 1966 (824 O.G. 1); May 13, 1966 (827 O.G. 2); May 31, 1966 (828 O.G. 1085) and October 14, 1969 (869 O.G. 1) are superseded by this change in the rules.

The practice under § 1.60 permits persons having authority to prosecute the prior application to file a continuation or divisional application without an oath or declaration, if the continuation or divisional application is a copy of the prior application as filed. However, some of the claims in the prior application as filed may be canceled by amendment in order to reduce the filing fee. An amendment presenting additional claims may accompany the request for filing an application under § 1.60 but such amendment will not be entered until after the filing date has been granted.

Form 3.54 is designed as an aid for use by both applicant and the Patent Office and should simplify filing and processing of applications under § 1.60.

Application copies may be prepared and submitted by the applicant, his attorney or agent, provided they are verified as true copies. No charges will be made for preparation of copies that are retained by the Office.

Notice of proposed rule making regarding a revision of §§ 1.41 and 1.75, an addition of §§ 1.60 and 3.54 and revocation of § 1.147 of Title 37, Code of Federal Regulations, Relating to a division-continuation program, was published in the Federal Register of January 28, 1971 (36 F.R. 1357).

Interested persons were given an opportunity to participate in the rule making process through submission of comments in writing and at an oral hearing held on March 23, 1971.

Full consideration has been given to the comments received and changes in the text of the original proposal have been made in view thereof.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 3 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. In § 1.41, paragraph (a) is revised to read as follows:

§ 1.41 Applicant for patent.

(a) A patent must be applied for and the application papers must be signed and the necessary oath or declaration executed by the actual inventor in all cases, except as provided by §§ 1.42, 1.43, and 1.47. (See § 1.60.)

2. A new § 1.60 is added to read as follows:

§ 1.60 Continuing application for invention disclosed and claimed in a prior application.

A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment of or termination of proceedings on the prior application. If the application papers comprise a copy of the prior application as filed, signing and execution by the applicant may be omitted provided the copy either is prepared and certified by the Patent Office or is prepared by the applicant and verified by an affidavit or declaration by the applicant, his attorney or agent, stating that it is a true copy of the prior application as filed. Certification may be omitted if the copy is prepared by and does not leave the custody of the Pat-

ent Office. Only amendments reducing the number of claims or adding a reference to the prior application (§ 1.78(a)) will be entered before calculating the filing fee and granting of the filing date.

3. In § 1.75, paragraph (d) (2) is revised to read as follows:

§ 1.75 Claim(s).

(d)

(2) See §§ 1.141 to 1.146 as to claiming different inventions in one application.

§ 1.47 [Revoked]

4. Section 1.147 is revoked.

5. Section 3.54 is added to read as follows:

§ 3.54 Division-continuation program application transmittal form.

IN THE UNITED STATES PATENT OFFICE

Docket No. _____

THE COMMISSIONER OF PATENTS,
Washington, D.C. 20231.

SIR: This is a request for filing a

☐ Continuation

application under 37 CFR 1.60.

☐ Divisional

of pending prior application Serial No. _____ filed

on _____ of _____ (date) (inventor)

for _____ (title of invention)

1. ☐ Enclosed is a copy of the prior application as originally filed and an affidavit or declaration verifying it as a true copy.
2. ☐ Prepare a copy of the prior application.
3. ☐ The filing fee is calculated below:

CLAIMS AS FILED, LESS ANY CLAIMS CANCELED BY AMENDMENT				
For	Number filed	Number extra	Rate	Basic fee \$65
Total claims.....	-10=	X	\$2 =	
Independent claims.....	-1=	X	10 =	
Total filing fee.....				

4. ☐ The Commissioner is hereby authorized to charge any fees which may be required, or to credit any overpayment to Account No. _____
A duplicate copy of this sheet is enclosed.
5. ☐ A check in the amount of \$_____ is enclosed.
6. ☐ Cancel claims _____
7. ☐ Amend the specification by inserting before the first line the sentence: —This is a ☐ continuation, ☐ division, of application Serial No. _____ filed _____
8. ☐ Transfer the drawings from the prior application to this application and abandon said prior application as of the filing date accorded this application.
A duplicate copy of this sheet is enclosed for filing in the prior application file.
9. ☐ The prior application is assigned to _____
10. ☐ The power of attorney in the prior application is to _____

(name, reg. No., and address)

a. ☐ The power appears in the original papers of the prior application.

b. ☐ Since the power does not appear in the original papers, a copy of the power in the prior application is enclosed.

c. ☐ Recognize as associate attorney and address all future communications to _____

(name, reg. No., and address)

(Signature)

- ☐ Inventor(s)
☐ Assignee of Complete Interest
☐ Attorney or agent of record in prior application

Effective date. These amendments shall become effective on September 1, 1971, and will apply to applications filed after that date.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: June 29, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-9484 Filed 7-2-71; 8:51 am]

Published in 36 F.R. 12689; July 3, 1971

[889 O.G. 3]

(112) ABBREVIATED FIRST ACTION TRIAL PROGRAM

Requests for Comments

The Abbreviated First Action Program, announced in the OFFICIAL GAZETTE of February 2, 1971 (883 O.G. 2), using form PO-1142 has been in operation for over nine months. Considerable experience with the use of this form should now be available throughout the patent profession. It is recognized that though the use of this form may not be an ideal form of communication, the increased burdens on the examination and processing of patent applications have necessitated the development of more efficient methods of expediting the prosecution.

Comments, criticisms, and suggestions concerning the Abbreviated First Action Program are invited. It is requested that the opinions expressed be made in the light of current conditions under which the Office must operate and be based on actual experience with the program. In order to adequately determine the quality and value of this program all views, both favorable and unfavorable, are earnestly solicited. Any critical comments should be supported wherever practical by reference to specific cases.

Letters written in response to this request should be sent as soon as possible to the Commissioner of Patents, Washington, D.C. 20231, Attn: Assistant Commissioner R. A. Wahl.

FRANK H. BRONAUGH,
Deputy Assistant Commissioner.

Nov. 10, 1971.

[898 O.G. 1]

AMENDMENTS

(113) AMENDMENTS—BASIS IN ORIGINAL DISCLOSURE,
MANUAL OF PATENT EXAMINING PROCEDURE

When an amendment is filed in response to an objection or rejection based on incomplete disclosure, a study of the entire application is often necessary to determine whether or not "new matter" is involved. In the interest of expeditious prosecution, Examiners are directed, whenever such an objection or rejection is made, to call attention to Rule 111(c). Applicant should specifically point out the support for any amendments made to the disclosure.

RICHARD A. WAHL,
Assistant Commissioner.

Aug. 13, 1965.

[818 O.G. 4]

(114) EXAMINER'S AMENDMENT PRACTICE

The present practice in making Examiner's Amendments when passing an application to issue is modified to permit the amendment or cancellation of claims where these have been authorized by applicant (or his representative) in a telephone or personal interview. The Examiner's Amendment should include a statement indicating that the changes were authorized, the date and type (personal or telephone) of interview, and with whom it was had.

The current policy prohibiting changes in the drawing and/or description of an application is maintained with the exceptions noted in MPEP Section 1302.04.

The new procedure resulted from an employee's suggestion.

RICHARD A. WAHL,
Assistant Commissioner.

May 11, 1966.

[827 O.G. 2]

894 O.G.—2

(115) BRACKETS AND RULE 121—AMENDMENT OF
CLAIMS

In view of the number of inquiries requesting an interpretation of the word "brackets" appearing in amended Rule 121 concerned with the amendment of claims, it is thought that clarification is desirable.

The term brackets [] as set forth in the amendment to Rule 121 and first announced in 843 O.G. 373 does not encompass and is to be distinguished from parentheses (). Therefore, any amendment using parentheses to indicate cancelled matter in a claim rewritten under Rule 121(b) may be held non-responsive in accordance with Rule 121(c).

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 15, 1968.

[847 O.G. 331]

INTERVIEWS

INTERVIEW PRACTICE

(116) To assist in early and equitable conclusion of examination of applications, the use of interviews in person or by telephone is encouraged, subject to the following guidelines.

Interviews with Examiners, whether in person or by telephone, shall be governed in general by the provisions of Rule 133. A request for an interview, whether made orally or in writing, before the first Office action is untimely and will not be acknowledged if written, or granted if oral; Rule 133(a).

If upon examination or re-examination, it is found that minor changes could be made to place the application in condition for allowance, the attorney or pro se inventor should be so notified by telephone. This practice should be followed whether or not there has been a specific request for interview or for such notification.

Where an interview is arranged, both the Examiner and the attorney should be familiar with the issues in the application before starting the conference. It is the responsibility of both parties to the interview to see that it is not extended beyond a reasonable time, usually not longer than thirty minutes. The Primary Examiner personally responsible for the final disposition of the application should be notified of the results of the interview at its conclusion.

Interviews in person or by telephone are to be encouraged after the first Office action on the merits. In addition to interviews initiated by applicant, the Examiner may initiate interviews where he believes it would be productive. This practice may result in the filing of a first response that will so effectively advance the prosecution to permit disposing of the case in a bare minimum number of actions. The telephone procedure set forth in part 4 of Optimum Examining Procedure Memorandum #8, 801 O.G. 267, requiring a call by the Examiner, if requested by applicant, before taking final action has been found not satisfactory and will no longer be followed.

An interview may be granted after final rejection; however, except in rare instances, only one such interview should be granted.

An interview should not be requested or approved, except in very unusual circumstances, after filing of a Brief on appeal or after an application has been passed to issue by the Primary Examiner.

Interviews are permissible any working day of the week except on overtime Saturdays.

RICHARD A. WAHL,
Acting Superintendent,
Patent Examining Corps.

Sept. 16, 1964.

[807 O.G. 307]

(117) TELEPHONE INTERVIEWS

Present Office policy places great emphasis on telephone interviews initiated by the Examiner. For this reason, it is no longer deemed necessary for an attorney to request a telephone interview as specified in the old Optimum Examining Procedure memos. Examiners are no longer required to note or acknowledge requests for telephone calls or state reasons why such proposed telephone interviews would not be considered effective to advance prosecution. However, it is still

desirable for an attorney to call the Examiner if the attorney feels the call will be beneficial to advance prosecution of the case.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 11, 1967.

[846 O.G. 1022]

JOINDER

(118) TELEPHONE PRACTICE IN RESTRICTION AND ELECTION OF SPECIES SITUATIONS

If an examiner determines that a requirement for restriction should be made in an application, he should formulate a draft of such restriction requirement including, if any, the grounds of rejection of linking or generic claims. Thereupon, he should telephone the attorney of record and ask if he will make an oral election, with or without traverse if desired, after the attorney has had time to consider the restriction requirement. The examiner should arrange for a second telephone call within a reasonable time, generally within three working days. If the attorney objects to making an oral election, or fails to respond, the usual restriction letter will be mailed, and this letter should NOT contain any reference to the unsuccessful telephone call.

When an oral election is made, the examiner will then proceed to incorporate into his letter a formal restriction requirement including the date of the election, the attorney's name, and a complete record of the telephone interview, followed by a complete action on the elected claims including linking or generic claims if present.

If on examination the examiner finds the elected claims to be allowable and no traverse was made, the letter should be written on POL-37 (Examiner's Amendment) and should include cancellation of the non-elected claims, a statement that the prosecution is closed and that a notice of allowance will be sent in due course. Correction of formal matters in the above-noted situation which cannot be handled by a telephone call and thus requires action by the applicant should be handled under the *Ex parte Quayle* practice, using POL-90; these would usually be drawing corrections or the like requiring payment of charges.

Should the elected claims be found allowable in the first action, and an oral traverse was noted, the examiner should include in his action a statement under Section 821.01, M.P.E.P., making the restriction final and giving applicant thirty days (Rule 136) to either cancel the non-elected claims or take other appropriate action. Failure to take action will be treated as an authorization to cancel the non-elected claims by an Examiner's Amendment and pass the case to issue. Prosecution of this application is otherwise closed.

In either situation (traverse or no traverse), caution should be exercised to determine if any of the allowed claims are linking or generic before cancelling the non-elected claims.

Where the respective inventions are located in different groups the requirement for restriction should be made only after consultation with and approval by all groups involved. If an oral election would cause the application to be examined in another group, the initiating group should transfer the application with a signed memorandum of the restriction requirement and a record of the interview. The receiving group will incorporate the substance of this memorandum in its official letter as indicated above. Differences as to restriction should be settled by the existing chain of command, e.g. Supervisory Primary Examiner or Manager.

This practice is limited to use by examiners who have at least negotiation authority. Other examiners must have the prior approval of their Supervisory Primary Examiner.

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 27, 1966.

[824 O.G. 408]

(119) RESTRICTION AND ELECTION PRACTICE

Effective April 1, the practice and procedure in cases involving a requirement for restriction or election is changed as indicated below.

Under the new practice, whenever a written or telephoned requirement is made in a case which includes claims considered by the Examiner to be generic or linking, it will not

include any rejection of these claims. The Examiner should specify which claims are considered to be generic or linking.

Although no art will be cited where linking claims are present, a search should be made and art cited where generic claims are involved. In the latter situation the generic claims will not be rejected but merely indicated as not allowable in view of the cited art (Rule 146).

A 30-day shortened statutory period will be set for response to a written requirement. Such action will not be an "action on the merits" for the purpose of the second action final program. In either situation, with linking or generic claims, a response, to be complete, need only include a proper election.

The only exception to the above practice will be in the case where the Examiner gives a complete action on the merits of all the claims in addition to the requirement for restriction.

The use of the telephone to make an initial requirement will be continued and is encouraged.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 28, 1967.

[837 O.G. 668]

(120) ELECTION OF SPECIES

Effective June 1, 1967, the following practice will be instituted on a trial basis for 6 months.

In cases involving Markush claims or generic claims of the formula type including such a number and diversity of members as to require an unduly extensive and burdensome search for the embodiments encompassed, the Examiner may require election of species without a search on the merits (Rule 105).

The election requirement may be made in the same manner as that described in the Change Notice 12-6 of Feb. 28, 1967, with a 30 day shortened statutory period which will not be an "action on the merits" for the purpose of second action final program. If a telephone requirement, made by the Examiner, is complied with the first written action will be a complete action on the merits and the usual 3 months shortened statutory period will be set.

As pointed out in Change Notice 12-6, the use of the telephone to make an initial requirement will be continued and is encouraged.

EDWARD J. BRENNER,
Commissioner.

May 4, 1967.

[838 O.G. 1223]

(121) NON-ELECTED CLAIMS

In the interest of expediting the prosecution of pending applications, the following change in procedure is made. When preparing a final action in an application where there has been a traversal of a requirement for restriction or election of species, the Examiner should indicate in his action that a complete response must include cancellation of the non-elected claims or other appropriate action (Rule 144).

In the above situations where a response to the final action has otherwise placed the application in condition for allowance, the failure to take appropriate action with respect to the non-elected claims will be construed as authorization to cancel these claims by Examiner's Amendment and pass the case to issue after the expiration of the statutory period.

RICHARD A. WAHL,
Assistant Commissioner.

May 24, 1968.

[851 O.G. 893]

(122) CHANGE OF INVENTORS

Where a person is added or removed as an inventor during the prosecution of an application before the Patent Office, problems may occur upon claiming U.S. priority in a foreign filed case. One such problem results from the apparent conflict between the inventor(s) named in the foreign application and the inventor(s) shown on the priority papers obtained from the U.S. Patent Office. Another problem may occur where there is no conflict between the inventors in the foreign application as filed and the priority papers but a change of inventors has been made in the U.S. application and a similar change is to be made in the foreign application.

In order to overcome the possibility of these problems arising in the future, Examiners should acknowledge any addition of inventors made in accordance with the practice under Rule 45 including the following statement in the next communication to the applicant or his attorney:

"In view of the papers filed _____, it has been found that this application, as filed, through error and without any deceptive intention, failed to include _____ as an actual joint inventor and accordingly, this application has been corrected to include him in accordance with Rule 45."

A similar statement, appropriately modified, should be made in the case where an inventor is removed from those included in the application as filed.

RICHARD A. WAHL,
Assistant Commissioner.

June 10, 1968.

[852 O.G. 509]

(123) RESTRICTION BETWEEN INVENTIONS

Combination claims (other than genus claims linking species claims), whether allowable, allowed, or not, will no longer automatically be permitted to serve as a basis for joining claimed inventions which otherwise would be properly the subject of a restriction requirement. In other words, applicant will be required to elect one of the claimed inventions which are the subject of a proper restriction requirement. Combination claims, formerly considered linking claims should be grouped as a separate invention. Rejoinder of the divided inventions, should any combination claim be allowed, however, also will no longer automatically be permitted. The statutory criteria for distinctness will be satisfied if the sub-combinations and/or combinations involved are shown to be separately classified, or to have acquired a separate status in the art, or to involve different fields of search.

RICHARD A. WAHL,
Assistant Commissioner.

June 20, 1968.

[852 O.G. 509]

(124) ELECTION OF SPECIES

The practice set forth in the Notice of May 4, 1967 (838 O.G. 1223) is made permanent and modified to permit a requirement for election of species in cases involving multiple species whether or not generic claims are present or searched prior to the election. Also, if no claims to species are presented but the generic claim is of the burdensome type referred to in the Notice, a requirement for election of species prior to search of the generic claims should be made.

As in the original Notice, if an election is made pursuant to a telephone requirement, the action should include a full and complete action on the elected species as well as on any generic claims that might be present. If generic claims are found allowable, no change in the practice currently in effect is contemplated.

RICHARD A. WAHL,
Assistant Commissioner.

Aug. 19, 1968.

[854 O.G. 287]

(125) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Conflicting Claims

These rule changes are intended to provide: (1) a basis for requiring a determination of priority without an interference by the common owner of a plurality of applications, or patent and applications, containing conflicting claims, and (2) a basis for requiring inclusion of a common ownership clause in all terminal disclaimers filed to obviate a double patenting rejection.

The proposal to amend Title 37, Code of Federal Regulations, by revising §§ 1.78 and 1.321 and by adding a new

§ 3.53 was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20011).

All interested persons were given an opportunity to participate in the rule making process by submission of comments in writing and in person at an oral hearing held on February 19, 1971. Changes have been made in the text of the original proposal as a result of these comments.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 3 of Title 37, Code of Federal Regulations, are hereby amended as follows:

1. In § 1.78, paragraph (b) has been revised and paragraph (c) has been added to read as follows:

§ 1.78 Cross-references to other applications.

(b) Where two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application.

(c) Where two or more applications, or an application and a patent naming different inventors and owned by the same party contain conflicting claims, the assignee may be called upon to state which named inventor is the prior inventor. In addition to making said statement, the assignee may also explain why an interference should be declared or that no conflict exists in fact.

2. Section 1.321 is revised to read as follows:

§ 1.321 Statutory disclaimer.

(a) A disclaimer under 35 U.S.C. 253 must identify the patent and the claim or claims which are disclaimed, and be signed by the person making the disclaimer, who shall state therein the extent of his interest in the patent. A disclaimer which is not a disclaimer of a complete claim or claims may be refused recordation. A notice of the disclaimer is published in the OFFICIAL GAZETTE and attached to the printed copies of the specification. In like manner any patentee or applicant may disclaim or dedicate to the public the entire term, or any terminal part of the term, of the patent granted or to be granted.

(b) A terminal disclaimer, when filed in an application to obviate a double patenting rejection, must include a provision that any patent granted on that application shall be enforceable only for and during such period that said patent is commonly owned with the application or patent which formed the basis for the rejection. See § 1.21 for fee.

3. A new § 3.53 is added, which reads as follows:

§ 3.53 Terminal disclaimers in applications.

To the Commissioner of Patents:

Your petitioner, _____, residing at _____ in the county of _____ and State of _____ represents that he is (here state exact interest of the disclaimant and, if he is an assignee, set out the liber and page or reel and frame where the assignment is recorded) of application Serial No. _____, filed on the _____ day of _____, 19____ for _____. Your petitioner, _____, hereby disclaims the terminal part of any patent granted on the above-identified application, which would extend beyond the expiration date of Patent No. _____ and hereby agrees that any patent so granted on the above-identified application shall be enforceable only for and during such period that the legal title to said patent shall be the same as the legal title to United States Patent No. _____, this agreement to run with any patent granted on the above identified application and to be binding upon the grantee, its successors or assigns.

Effective date: This revision shall become effective on April 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: April 12, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-5418; Filed 4-16-71; 8:51 a.m.]

Published in 36 F.R. 7318; Apr. 17, 1971

[886 O.G. 424]

TIME FOR RESPONSE

(126) EXTENSION OF TIME

It is ordinarily desirable that notice of the action taken by the Patent Office on requests for extension of time be communicated to the persons making the requests as soon as is reasonably possible. In order to improve Patent Office service to patent and trademark applicants in this regard, the following procedure is being instituted effective immediately. If a request for extension of time is filed in duplicate and accompanied by a stamped return-addressed envelope, the Office will indicate the action taken on the duplicate and return it promptly in the envelope. Utilization of this procedure is optional on the part of applicant.

EDWARD J. BRENNER,
Commissioner of Patents.

Aug. 3, 1966.

[829 O.G. 1307]

(127) EXTENSIONS OF TIME

Effective immediately, a new liberal policy for interpretation and application of Rule 136(b) will apply with respect to first requests for a one-month extension of time for reply to Office actions where a shortened statutory period for response has been set. Any request under Rule 136(b) for extension of time must state a reason in support thereof; under the above policy the application of the rule will entail only a limited evaluation of the stated reason.

This liberality will not apply to (1) any requests for more than a one-month extension, and (2) second and subsequent requests for extension of time.

In order to provide prompt notification of the action taken on extension requests, the request may be filed in duplicate, accompanied by a stamped return-addressed envelope (including a ZIP code), as announced in the OFFICIAL GAZETTE of August 23, 1966 (820 O.G. 1307).

It is expected that requests for extension of time will continue to be made only when a need exists and will not become a standard operating procedure. Routine use of this practice may necessitate abandoning the new policy and a return to a less liberal interpretation of Rule 136(b).

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 26, 1967.

[835 O.G. 716]

(128) FINAL REJECTION—TIME FOR RESPONSE

Effective Sept. 1, 1967, the filing of a timely response to a final rejection having a shortened statutory period for response will operate to extend the period for appeal or filing of a containing case an additional month, but in no case to exceed six months from the date of the final action.

An object of this practice is to obviate the necessity for appeal or filing a continuing case merely to gain time to consider the Examiner's position in reply to an amendment timely filed after final rejection.

Present practice relating to the treatment of amendments after final rejection will continue to apply and failure to file a response during the three-month period will, as heretofore, result in abandonment of the application. In any case where this one-month extension applies and an amendment is officially received during this additional month, the amendment will not be entered or responded to unless it *prima facie* places the application in condition for allowance (e.g. cancels all rejected claims, fully complies with all Examiner suggestions, requirements, etc.).

Also, during this additional month no applicant- or attorney-initiated interview will be permitted.

EDWARD J. BRENNER,
Commissioner.

Aug. 7, 1967.

[841 O.G. 1411]

(129) FINAL REJECTION—TIME FOR RESPONSE

In clarification of the Notice of August 7, 1967, published in the OFFICIAL GAZETTE of August 29, 1967 (841 O.G. 1411), the filing of a timely response after a final rejection is con-

strued as including a request for a one month extension of the shortened statutory period.

If the response is complete but fails to place the application in condition for allowance, the request will be granted. The entry of any further amendments filed during the additional month shall be restricted to those which *prima facie* place the application in condition for allowance.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 26, 1968.

[855 O.G. 1109]

APPEALS

APPEAL BRIEFS

(130)

It appears that many appeal briefs are being filed which omit reference to the drawing in describing the appellant's invention. As a reminder that the Board of Appeals is aided in its consideration if such a reference appears, attention is directed to the following language in the first sentence of Rule 192(a):

"... including a concise explanation of the invention which should refer to the drawing by reference characters..."

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Aug. 3, 1965.

[817 O.G. 1241]

APPEAL BRIEFS

(131)

While Rule 192(a) requires two extra copies of appeal briefs only if an oral hearing is requested, such copies are of substantial assistance to the Board when appeals are submitted on brief and it is desirable that they be supplied in such cases also. All claims reproduced in appeal briefs should be double spaced.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Jan. 24, 1966.

[823 O.G. 411]

(132) PRACTICE RE: WITHDRAWAL OF FINAL REJECTION BY THE EXAMINER AFTER NOTICE OF APPEAL TO THE BOARD OF APPEALS

Where Notice of Appeal to the Board of Appeals has been filed and the Examiner withdraws the final rejection for allowance or further rejection, applicants are reminded that this results in automatic removal of the appeal from the records of the Board of Appeals in that application.

Accordingly, a proper response to a subsequent final rejection requires the filing of a new Notice of Appeal [without fee] and if this appeal is carried forward, the appropriate fee on filing a brief in support of the second appeal is required.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Mar. 29, 1967.

[837 O.G. 667]

(133) RULE 192—FILING OF APPEAL BRIEF

Attention is directed to the fact that the seasonable filing of an appeal brief is determined by Rule 192, irrespective of whether the applicant or his attorney has received the appeal acknowledgment with its *reminder* of the brief's due date.

The above should be reflected in any docketing system for filing appeal briefs.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Aug. 4, 1967.

[841 O.G. 1412]

(134) NEW APPEAL PROCEDURE

In the interest of facilitating and expediting the handling of appeals to the Board of Appeals of the Patent Office it has been decided to institute a practice whereby the application file will ordinarily remain with the Examiner until the

Examiner's answer to the appeal is filed. It is therefore necessary to modify the appeal procedure, effective immediately, as indicated below.

1. First Extension of Time To File Appeal Brief

To avoid delay in receiving notification of the granting of a first extension under Rule 192, appellant should file his request in duplicate. Where granted, the Board will stamp the action taken on both copies, promptly returning one copy to the addressee.

Further extensions must be sought from the Commissioner, as heretofore.

2. Notice of Appeal

To expedite the processing of new appeals and to ensure their prompt acknowledgment, additional information will be necessary on the Notice of Appeal. Accordingly, Form 41 suggested in the Rules of U.S. Patent Office Practice in Patent Cases, is revised as shown below.

Copies for duplication may be obtained from the receptionist in Crystal Plaza and from the Correspondence and Mail Branch, in the Main Commerce Building. The use of this revised form is solicited.

All papers relating to appeals should include the post office address of the person to whom correspondence is to be directed.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

REVISED FORM 41

NOTICE OF APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD OF APPEALS

In re application of:

Serial No.:

For:

Filed:

Group Art Unit:

To Commissioner of Patents

Sir:

Applicant hereby appeals to the Board of Appeals from the decision dated _____ of the Primary Examiner finally rejecting claims _____.

The item(s) checked below are appropriate:

1. ☐ An extension of time to respond to the final rejection was granted on _____ for _____ month(s).
2. ☐ A timely response to the final rejection has been filed, as provided in 841 O.G. 1411.
3. ☐ Fee \$50.00:
 - ☐ Enclosed
 - ☐ Not required (Fee paid in prior appeal.)
 - ☐ Charge to Deposit Account No. _____
 (One additional copy of this Notice is enclosed herewith.)

Signature (Rule 191(b)).

Post Office Address (to which correspondence is to be sent).

[849 O.G. 278 (Apr. 9, 1968)]

(135) ORAL HEARINGS UNDER RULE 194

Effective September 1, 1968, for a trial period of six months, new procedures will be initiated which will permit Primary Examiners to present an oral argument before the Board of Appeals in appeals where the applicant has been granted an oral hearing.

After the attorney or agent representing the appellant has made his presentation, the Examiner will be allowed fifteen minutes to reply as well as to present a statement which clearly sets forth his position with respect to the issues and rejections of record. Appellant may utilize any allotted time not used in the initial presentation for rebuttal.

RICHARD A. WAHL,
Assistant Commissioner.

July 26, 1968.

Concur:

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[855 O.G. 827]

(136) ABANDONMENT OF APPLICATIONS BEFORE BOARD OF APPEALS

There have been recent instances of the Board of Appeals rendering a decision in an application which had already been refiled as a streamlined continuation.

To avoid recurrence of this situation, applicants should promptly inform the Clerk of the Board in writing as soon as they have positively decided to refile or to abandon an application containing an appeal awaiting a decision. Failure to exercise appropriate diligence in this matter may result in the Board's refusing an otherwise proper request to vacate their decision.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[857 O.G. 1005 (Dec. 24, 1968)]

APPEAL HEARINGS

(137)

The practice of permitting oral arguments by Primary Examiners in appeals, announced for a trial period in the OFFICIAL GAZETTE of Oct. 22, 1968 (855 O.G. 827), is hereby made permanent.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 27, 1969.

Concur:

E. L. REYNOLDS,
First Assistant Commissioner.

[861 O.G. 1011]

(138) REPLY BRIEFS

Applicants should clearly and specifically indicate in their reply briefs the new points of argument "raised in the examiner's answer" to which said reply briefs are directed. Rule 193(b) does not permit general rebuttal of each statement made in the examiner's answer; Consequently a reply brief which is not restricted to answering "new points" may be refused consideration in toto.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Apr. 15, 1969.

[862 O.G. 848]

(139) APPEALS—CONFIDENTIAL MEMORANDA

The practice of presenting confidential memoranda to the Board of Appeals is hereby terminated. All correspondence with the Board of Appeals, whether by the Examiner or the applicant will be on the record. No unpublished decisions which are unavailable to the general public by reason of 35 U.S.C. 122 will be cited by the Examiner or the applicant except that either the Examiner or the applicant has the right to cite an unpublished decision in an application having common ownership with the application on appeal.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

July 28, 1970.

[877 O.G. 733]

(140) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICES IN PATENT CASES

Extensions of Time To File Appeal Briefs

After the effective date of this rule change, the examining group clerical staffs will perform all processing and record-keeping relating to appeals to the Board of Appeals up to and including the time when an examiner's supplemental answer to a reply brief is mailed or the time for filing a reply brief has expired. At this time jurisdiction of an appealed application passes from the examiner to the Board of Appeals.

Therefore, all inquiries and papers concerning an application under appeal should be directed to the appropriate examining group until the application is in condition for consideration by the Board of Appeals.

Papers filed in an appealed application under the jurisdiction of the Board of Appeals, such as requests for reconsideration or confirmation of an oral hearing date, should include an expression in the heading such as "Before the Board of Appeals" so that it may be properly routed by the mailroom.

The examining group appeal clerks are authorized to grant, upon the first request therefor, 1-month extensions of time to file the brief or reply brief. Any further extensions or any initial request for an extension of more than 1 month may be granted by the group directors.

After the effective date, there will be no Patent Office acknowledgements of notices of appeals or briefs.

There was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20010) a proposal to revise § 1.192 of Title 37, Code of Federal Regulations, to broaden the authority to grant extensions of time for filing appeal briefs.

Interested persons were given the opportunity to participate in the rule making through submission of comments in writing, and at an oral hearing held on February 19, 1971.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), § 1.192 of Title 37 of the Code of Federal Regulations is hereby revised as follows:

§ 1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate, accompanied by the requisite fee, of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

(b) On failure to file the brief, accompanied by the requisite fee, within the time allowed, the appeal shall stand dismissed.

Effective date. This amendment shall be effective March 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: March 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-4414; Filed 3-29-71; 8:50 a.m.]

Published in 36 F.R. 5850; Mar. 30, 1971

[885 O.G. 644]

(141) APPEAL BRIEFS UNDER RULES 192 AND 193(b)

Appellants are reminded that their briefs in appealed cases must be responsive to every ground of rejection stated by the examiner, including new grounds stated in his answer.

Where an appellant fails to respond by way of brief or reply brief to any ground of rejection, and it appears that the failure is inadvertent, appellant shall be notified that he is allowed one month to correct the defect by filing a supplemental brief. Where this procedure has not been followed, the Board of Appeals should remand the application to the examiner for compliance. When the record clearly indicates intentional failure to respond by brief to any ground of rejection, for example, by failure to file a supplemental brief within the one-month period allowed for that purpose, the examiner should inform the Board of Appeals of this fact in his answer and merely specify the claims affected.

Where the failure to respond by brief appears to be intentional, the Board of Appeals may dismiss the appeal as to the claims involved. Oral argument at a hearing will not remedy such deficiency of a brief.

This notice supersedes the notices of May 4, 1966, 826 O.G. 1060, and of Oct. 20, 1966, 833 O.G. 1.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Apr. 26, 1971.

[886 O.G. 424]

INTERFERENCES

(142) INTERFERENCE—DECLARATION

Effective July 1, 1964, no interference will be declared between pending applications, if there is a difference of more than three (3) months in the effective filing dates of the applications in the case of inventions of a simple character, or a difference of more than six (6) months in other cases, except in exceptional situations, as determined and approved by the Commissioner.

EDWARD J. BRENNER,
Commissioner.

June 26, 1964.

[804 O.G. 297]

(143) INTERFERENCE PRACTICE—AFFIDAVIT UNDER RULE 204(c)

There has been difficulty in a number of cases due to uncertainty on the part of applicants concerning the requirements of affidavits to be filed under Rule 204(c) to secure interference contests with patentees whose filing dates antedate their own by more than three months, and it is hoped that the following explanation will be helpful.

In preparing affidavits under this rule applicants should have in mind the provisions of Rule 228, and especially the following facts:

1. That after these affidavits are forwarded by the Primary Examiner for the declaration of an interference they will be examined by a Board of Patent Interferences.

2. If the affidavits fail to establish with adequate corroboration acts and circumstances which would prima facie entitle applicant to an award of priority relative to the effective filing date of the patentee, an order will be issued concurrently with the notice of interference, requiring applicant to show cause why summary judgment should not be rendered against him.

3. Additional affidavits in response to such order will not be considered unless justified by a showing under the provisions of Rule 228, and if the applicant responds the patentee will receive from the applicant a copy of the response (Rule 247) and from the Patent Office a copy of the original showing (Rule 228), and will be entitled to present his views with respect thereto.

4. It is the position of the Board of Patent Interferences that all affidavits submitted must describe acts which the affiants performed or observed or circumstances observed, such as structure used and results of use or test, except on a proper showing as provided in Rule 204(c). Statements of conclusion, for example, that the invention of the counts was reduced to practice, are generally considered to be not acceptable. It should also be kept in mind that documentary exhibits are not self-proving and require explanation by an affiant having direct knowledge of the matters involved. However, it is not necessary that the exact date of conception or reduction to practice be revealed in the affidavits or exhibits if the affidavits aver observation of the necessary acts and facts, including documentation when available, before the patentee's effective filing date. On the other hand, where reliance is placed upon diligence, the affidavits and documentation should be precise as to dates from a date just prior to patentee's effective filing date. The showing should relate to the essential factors in the determination of the question of priority of invention as set out in 35 U.S.C. 102(g).

5. The explanation required by Rule 204(c) should be in the nature of a brief or explanatory remarks accompanying an amendment, and should set forth the manner in which the requirements of the counts are satisfied and how the requirements for conception, reduction to practice or diligence are met.

GEORGE W. BOYS,

Apr. 21, 1966. Chairman, Board of Patent Interferences.

[826 O.G. 712]

(144) DESIGNATION OF INTERFERENCE RECORD RELIED UPON

During the taking of testimony in an interference it is frequently not clear just what testimony is necessary to a party's case, since the contentions to be made by the opposing

party are not known, and in the case of a junior party it is frequently not known whether or not the senior party will take testimony. Therefore counsel taking testimony will normally cover all matters which might possibly have an effect on his case. Then, in preparing his briefs it may become apparent that certain portions of his record have no real significance as to issues involved. A review of these portions by the Board of Patent Interferences is thus unnecessary.

Accordingly, in order to reduce the time required by the Board of Patent Interferences to study the record, and to more effectively and efficiently decide the issues involved, counsel relying on an evidentiary record in interference cases are requested to file a statement as to the portions of their record upon which they rely. Such statement should be included in the briefs of the respective parties.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[846 O.G. 679 (Jan. 16, 1968)]

(145) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Discovery During Interference Proceedings

These rule changes are intended to provide for: (1) Consideration of action sought by a party to a patent interference proceeding outside the period prescribed therefor where the delay in seeking such action is justified; (2) the designation of a specific period for discovery and the preparation for the taking of testimony; (3) specified discovery upon request (a) during the period for preparation for testimony as to evidence and testimony to be offered by junior parties and (b) after completion of testimony in chief of the junior parties, as to evidence and testimony to be offered by senior parties; (4) the ordering of additional discovery upon motion by a party where the interest of justice so requires; and (5) sanctions by the Board of Patent Interferences where there is noncompliance with a requirement of a rule or an order by the board.

The proposal to amend Title 37, Code of Federal Regulations, by revising §§ 1.245 and 1.251 and by adding a new § 1.287 was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20011).

All interested persons were given an opportunity to participate in the rule-making process by submission of comments in writing and in person at an oral hearing held on February 19, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective Date. This amendment shall become effective 30 days after publication in the Federal Register and shall apply only to those interferences in which the times for taking testimony are set on or after such effective date.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations is hereby amended as follows:

1. Section 1.245 is revised to read as follows:

§ 1.245 Extension of time.

Extensions of time in any case not otherwise provided for may be had by stipulation of the parties, subject to approval, or on motion duly brought, sufficient cause being shown for such extension. A motion not timely made may be considered upon a showing of sufficient cause as to why such motion was not timely presented.

2. Section 1.251, paragraphs (a), (b), (c), and (d) are revised, and a new paragraph (e) is added as follows:

§ 1.251 Assignment of times for discovery and taking testimony.

(a) A period for preparation of testimony will be set in which all parties should complete discovery and other preparatory activities.

(b) Times will be assigned in which the junior party shall complete his testimony in chief, and in which the other

party shall complete the testimony on his side, and a further time in which the junior party may take rebutting testimony, but he shall take no other testimony. If there be more than two parties to the interference, the times for taking testimony will be so arranged that each shall have an opportunity to prove his case against prior parties and to rebut their evidence, and also to meet the evidence of junior parties.

(c) Times for preparation of testimony, for compliance with § 1.287(a) and for taking of testimony will ordinarily be assigned in notices sent to the parties after motions under § 1.231 have been disposed of or, if no such motions have been filed, after the close of the motion period (§ 1.231).

(d) Testimony shall be taken during the times assigned in accordance with §§ 1.271 to 1.286.

(e) The date for final hearing will ordinarily be set in separate notices.

3. A new § 1.287 is added as follows:

§ 1.287 Discovery.

(a)(1) Each party who expects to take testimony must serve on each opposing party who requests service the following:

(i) A copy of each document in his possession, custody, or control and upon which he intends to rely,

(ii) A list of and a proffer of reasonable access to things in his possession, custody, or control and upon which he intends to rely, and

(iii) A list giving the names and addresses of all persons whom he intends to call as witnesses and indicating the relationship of each person to the invention in issue.

(2) Dates for compliance with subparagraph (1) of this paragraph will be set in accordance with the following:

(i) The date by which all parties may request service shall be not less than 10 days from the date of the order setting testimony times;

(ii) The date for service by all junior parties shall be not less than 30 days from the date of the order setting such times;

(iii) The date for service by the senior party shall be not less than 10 days from the date set for the close of testimony in chief of all junior parties.

(3) Where more than two parties are involved and one of the junior parties is not entitled to take testimony as to a more senior party, the requirements of subparagraphs (1) and (2) of this paragraph shall not be applicable as between such parties.

(b) The provisions of paragraph (a) of this section are without prejudice to the right of a party, where appropriate, to obtain production of documents or things during cross-examination of an opponent's witness or during his own period for rebuttal testimony.

(c) Upon motion (§ 1.243) brought by a party during the period for preparation of testimony, or thereafter as authorized under § 1.245, and upon a showing that the interest of justice so requires, the Board of Patent Interferences may order additional discovery as to matters under the control of a party within the scope of the discovery rules of the Federal Rules of Civil Procedure, specifying the terms and conditions of such additional discovery. An order by the Board granting or denying a motion under this paragraph shall not be subject to review prior to a decision awarding priority.

(d)(1) A party will not be permitted to rely on any document or thing in his possession, custody, or control, or on any witness, not listed and served by that party as required by paragraph (a) of this section, except upon a promptly filed motion accompanied by the proposed additional documents or lists together with a showing of sufficient cause as to why they were not served by the date set pursuant to paragraph (a) of this section.

(2) Any failure to comply with an order under the provisions of paragraph (c) of this section may be considered by the Board of Patent Interferences as basis for applying appropriate restrictions against the party failing to comply, for holding certain facts to have been established, and in an appropriate case for awarding priority against him, or for taking such other action as may be deemed appropriate.

(e) The parties may by agreement among themselves modify any of the foregoing requirements consistent with the schedule of times for taking testimony and filing the record. In the absence of such agreement, discovery will not

be permitted prior to the period set for the preparation of testimony.

Dated: May 6, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-6617; Filed 5-11-71; 8:49 a.m.]

Published in 36 F.R. 8732; May 12, 1971

[887 O.G. 726]

CORRECTION OF ERRORS

(146) CERTIFICATES OF CORRECTION LISTING

Certificates of Correction are issued every Tuesday. Beginning on January 7, 1969, each issue of the OFFICIAL GAZETTE will numerically list all U.S. patents having Certificates of Correction issued that Tuesday. The list will appear under the heading "Certificates of Correction Issued (date)."

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 22, 1968.

[857 O.G. 1005]

(147) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART I—RULES OF PRACTICE IN PATENT CASES

Issuance of Certificates of Correction

On October 11, 1968, notice of proposed rulemaking regarding the amendment of §§ 1.322 and 1.323 of Title 37, Code of Federal Regulations, dealing with the issuance of certificates of correction, was published in the Federal Register (33 F.R. 15218). Interested persons were given 40 days in which to submit written comments, suggestions, or objections regarding the proposed amendments.

Full consideration having been given to all comments that were received in response to the public notice, the amendments originally proposed are hereby adopted without change and are set forth below.

As a result of these rule changes it will no longer be necessary for the patentee to forward his patent to the Patent Office when requesting the issuance of a certificate of correction. Upon receipt of an appropriate request, a certificate of correction will be issued and forwarded to the patentee, with an authorization permitting the patentee to physically attach same to the patent.

In connection with this change of procedure, arrangements have been made with Shepard's Citations to indicate under its listing of patents in its set entitled "Shepard's United States Citations, Patents and Trademarks" those patents for which certificates of correction have been issued. Beginning in April of this year the information will be published in that set's quarterly cumulative supplement and will appear in the bound volume thereof, when it is released.

Effective date. These amendments shall become effective upon publication in the Federal Register.

Dated: Mar. 18, 1969.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:

ALLEN V. ASTIN,
Assistant Secretary for Science and Technology.

[861 O.G. 680]

(148) NEW PROCEDURE FOR HANDLING CERTIFICATES OF CORRECTION

In compliance with amended Rules 322 and 323, and to expedite the issuance of certificates and reduce printing costs,

practitioners are urged to submit the text of the certificate on a special form which could serve as the final copy for use in direct process reproduction (offset printing) of the certificate of correction. The request for issuance of the certificate (together with the fee where the error is due to applicant's mistake) should be in a separate letter accompanied by two copies of the form and a self-addressed envelope.

Where the recommended format is used and approved, one copy of said form, duly certified, will be returned to the patentee for attachment to his copy of the patent. This will eliminate the present necessity for returning the patent when requesting a certificate. The other copy of the form will be used for direct offset printing of copies of the certificate which, as heretofore, will be attached to every printed copy of the patent subsequently sold or distributed.

Copies of the form are obtainable for reproduction purposes from Correspondence and Mail Branch and from the receptionist in Bldg. 3, Crystal Plaza. Below is a sample form illustrating a variety of corrections and the suggested manner of setting out the format. Particular attention is directed to:

- Identification of the exact point of error by reference to column and line number of the printed patent.
- Conservation of space on the form by typing single space, beginning two lines down from the printed message.
- Starting the correction to each separate column as a sentence, and using semi-colons to separate corrections within said column, where possible.
- Two inch space left blank at bottom for signature of attesting officer.
- Use of quotation marks to enclose the exact subject matter to be deleted or corrected; use of double hyphens (--) to enclose subject matter to be added, except for formulas.
- Where a formula is involved, setting out only that portion thereof which is to be corrected.

Where the recommended format is not used or where the nature of the subject matter is such that it is more expedient to print by the direct image offset technique, e.g., entire sheet(s) of drawing or page(s) of specification omitted, multiple pages of corrections, intricate chemical formulas, etc., Issue and Gazette Branch will prepare the certificate as heretofore. Patentee will receive a copy for attachment to his copy of the patent.

April 1, 1969.

RICHARD A. WAHL,
Assistant Commissioner.

UNITED STATES PATENT OFFICE CERTIFICATE OF CORRECTION

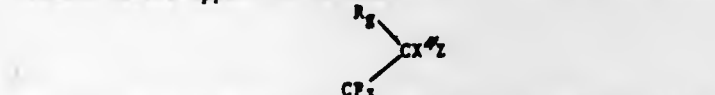
Patent No. 3,647,999

Dated April 1, 1969

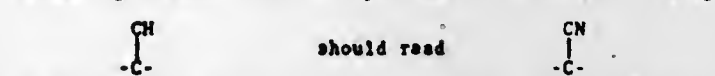
James W. Worth

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the drawings, Sheet 3, Fig. 3, the reference numeral 225 should be applied to the plate element attached to the support member 207. Column 1, lines 45 to 49, the left-hand formula should appear as follows:



Column 2, formula XXXV, that portion of the formula reading



Formula XXXVII, that portion of the formula reading "-CH₂CH-" should read "-CH₂CH₂-" ... Column 2, line 68 and column 3, lines 3, 8 and 13, the claim reference numeral "2", each occurrence, should read "1" ... Column 10, line 16, cancel beginning with "12. A sensor device" to and including "five strips." in column 11, line 8, and insert the following claim:

12. A control circuit of the character set forth in claim 1 and for an automobile having a convertible top, and including: means for moving said top between raised and lowered retracted position; and control means responsive to said sensor relay for energizing the top moving means for moving said top from retracted position to raised position.

[862 O.G. 2]

ABSTRACTS

(149) EXAMINATION REQUIREMENTS AND PROCEDURE IN RELATION TO ABSTRACTS OF THE DISCLOSURE

The newly adopted amendment to Rule 72 which requires the submission of an Abstract of the Disclosure is being applied to patent applications which receive a first Office action of any kind from the Examiner on or after November 1, 1966; however, on cases filed before January 1, 1967, abstracts will not be required where the application is passed to issue on the first action.

The Examiner in the first office action on and after November 1, 1966, should require the submission of a brief abstract of the technical disclosure in the specification, the abstract to appear immediately after the title of the invention and preceding the disclosure in a separate paragraph under the heading "Abstract of the Disclosure." The following form paragraph may be used to make the requirement:

"An abstract is required, see new Rule 72(b)."

Responses to such actions should be treated under Rule 111(b) practice like any other formal matter.

Upon passing the case to issue, the Examiner should see that the abstract is an adequate and clear statement of the contents of the disclosure and generally in line with the guidelines in the following paragraphs; the abstract shall be changed by Examiner's Amendment in those instances where deemed necessary.

1. The purpose of the abstract is to provide a non-legal technical statement of the contents of the disclosure. The abstract should be an objective condensation (rather than a description) of the disclosure, in clear and concise language. Statements as to the relative merits or value, or speculative applications of the invention should be omitted.

2. The abstract should be especially designed to serve as a searching-scanning tool for the scientist, engineer or researcher in the particular art, and therefore should serve to indicate whether there is a need for consulting the full specification for details.

3. The abstract should be as brief as the subject permits. A single paragraph of 50-100 words should be sufficient.

4. Especially in the chemical field, the abstract should include a statement of the utility of the subject matter of the disclosure, particularly that which is related to the invention.

5. The abstract should be separate and independent of the "Summary of the Invention." One of the purposes of the abstract is to determine quickly the nature and gist of the technical disclosure.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 7, 1966.

[831 O.G. 1328]

(150) CHANGE IN CONTENT OF THE PATENTS SECTION OF THE OFFICIAL GAZETTE

In keeping with the Patent Office program to encourage the use of patents in the scientific, engineering and business communities, as well as the patent profession, a change in the content of the patents section of the OFFICIAL GAZETTE is being made.

Beginning with the first issue of the OFFICIAL GAZETTE in January 1968, a copy of the abstract of each patent where an abstract is available will appear, in lieu of the claim. This change in content is being made in order that patent information may be better utilized by the patent public.

In addition to the regular issue of the OFFICIAL GAZETTE an extract of the patents section, i.e., the descriptive matter relating to patents only, will be made available. The subscription rate for the patents section extract only for the first six months period beginning with the first issue in January 1968, will be twenty-seven dollars (\$27.00) and one dollar and twenty-five cents (\$1.25) for a single copy. The extract will be mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed. The title of the extract will be "Official Gazette—Patent Abstracts Section."

It is to be noted that the Government Printing Office has determined that the subscription rate for the regular issue

of the OFFICIAL GAZETTE will be increased to sixty-seven dollars (\$67.00) for the subscription year beginning January 1968, and the price of individual copies will be increased to one and a half dollars (\$1.50). The increased rate is not related to the new program.

EDWARD J. BRENNER,
Commissioner of Patents.

Sept. 25, 1967.

[843 O.G. 747]

(151) PARAGRAPH REQUIREMENTS FOR ABSTRACTS

In view of some difficulties experienced in determining the extent of the abstracts, the Patent Office is supplementing the Notice of October 7, 1966 (831 O.G. 1328).

An abstract should usually be limited to a single paragraph, under the heading, "Abstract of the Disclosure" as stated in Rule 72(b) and MPEP 608.01(b).

In unusual circumstances where the application disclosure does not lend itself to a single paragraph abstract, a plural paragraph abstract may be acceptable. An example of these rare situations would be an application having claims to different statutory classes, it being recognized that an abstract of the disclosure should be written to include the advancement in the art.

To avoid errors in printing where a plural paragraph abstract is deemed necessary and appropriate, the complete abstract must be set off by suitable headings to indicate where the abstract begins and ends. Appropriate headings useable between the abstract and the subsequent description are to be found in the "Guidelines for Drafting a Model Patent Application Under the Revised Rules" (832 O.G. 5; MPEP 608.01(a)).

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 16, 1968.

[854 O.G. 287]

(152) PATENT ABSTRACTS

The provision in Rule 72(b) of the Rules of Practice in Patent Cases, relating to inclusion of a "brief abstract of the technical disclosure" in applications for patent, has now been in effect for two and one-half years.

Instructions regarding abstract preparation were published at 831 O.G. 1328, October 25, 1966, and at about the same time a pamphlet entitled "Guidelines for the Preparation of Patent Abstracts" was published and made available to personnel concerned with the preparation and review of abstracts of the type noted.

Abstracts are becoming more and more significant in the field of mechanized and computerized prior art retrieval. It is therefore important that they reach the optimum quality level at the earliest possible date.

During the past year abstracts, in a random sample of approximately 1000 allowed applications, were audited or reviewed for purposes of determining degree of compliance with the aforementioned instructions and guidelines. Steady improvement in the quality of the abstracts was noted in the course of the review. The review clearly indicated, however, a need for further improvement as well as a need for certain modifications and revisions in the earlier published guidelines. There also appeared to be a need for reemphasis of portions of the guidelines.

Accordingly, a revised set of guidelines consonant with the needs suggested by the audit have been promulgated, and are set forth below for use in the preparation and review of patent abstracts.

GUIDELINES FOR THE PREPARATION OF PATENT ABSTRACTS

Background

The Rules of Practice in Patent Cases require that each application for patent include an Abstract of the Disclosure, Rule 72(b).

The content of a patent abstract should be such as to enable the reader thereof, regardless of his degree of familiarity with patent documents, to ascertain quickly the character of the subject matter covered by the technical disclosure and should include that which is new in the art to which the invention pertains.

The abstract is not intended nor designed for use in interpreting the scope or meaning of the claims, Rule 72(b).

Content

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains.

If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure.

If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or a use thereof.

If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following: (1) if a machine or apparatus, its organization and operation; (2) if an article, its method of making; (3) if a chemical compound, its identity and use; (4) if a mixture, its ingredients; (5) if a process, the steps. Extensive mechanical and design details of apparatus should not be given.

With regard particularly to chemical patents, for compounds or compositions, the general nature of the compound or composition should be given as well as the use thereof, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Language and Format

The abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 250 words. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should sufficiently describe the disclosure to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "This disclosure concerns," "The disclosure defined by this invention," "This disclosure describes," etc.

Responsibility

Preparation of the abstract is the responsibility of the applicant. Background knowledge of the art and an appreciation of the applicant's contribution to the art are most important in the preparation of the abstract. The review of the abstract, for compliance with these guidelines, with any necessary editing and revision on allowance of the application is the responsibility of the examiner.

Sample Abstracts

A heart valve with an annular valve body defining an orifice and having a plurality of struts forming a pair of cages on opposite sides of the orifice. A spherical closure member is captively held within the cages and is moved by blood flow between open and closed positions in check valve fashion. A slight leak or backflow is provided in the closed position by making the orifice slightly larger than the closure member. Blood flow is maximized in the open position of the valve by providing an inwardly convex contour on the orifice-defining surfaces of the body. An annular rib is formed in a channel around the periphery of the valve body to anchor a suture ring used to secure the valve within a heart.

A method for sealing, by application of heat, overlapping closure panels of a folding box made from paperboard having an extremely thin coating of moisture-proofing thermoplastic material on opposite surfaces. Heated air is directed at the surfaces to be bonded, the temperature of the air at the point of impact on the surfaces being above the char point of the board. The duration of application of heat is made so brief, by a corresponding high rate of advance of the boxes through the air stream, that the coating on the reverse side of the panels remains substantially non-tacky. The bond is

formed immediately after heating within a period of time for any one surface point less than the total time of exposure to heated air of that point. Under such conditions the heat applied to soften the thermoplastic coating is dissipated after completion of the bond by absorption into the board acting as a heat sink without the need for cooling devices.

Amides are produced by reacting an ester of a carboxylic acid with an amine, using as catalyst an alkoxide of an alkali metal. The ester is first heated to at least 75° C. under a pressure of no more than 500 mm. of mercury to remove moisture and acid gases which would prevent the reaction, and then converted to an amide without heating to initiate the reaction.

RICHARD A. WAHL,
Assistant Commissioner.

Apr. 23, 1969.

[862 O.G. 653]

(153) DISCONTINUATION OF THE PUBLICATION "PATENT ABSTRACTS SECTION OF THE OFFICIAL GAZETTE"

Effective Mar. 31, 1970, the Patent Office will no longer print the publication "Patent Abstracts Section of the Official Gazette." Reasons for this decision are the desire to incur a saving in printing costs, the same information now appears in the OFFICIAL GAZETTE, and the number of subscribers no longer warrants a separate publication.

The Superintendent of Documents, U.S. Government Printing Office, will contact subscribers to the "Patent Abstracts" for appropriate action regarding their subscriptions.

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.
Feb. 9, 1970.

[872 O.G. 1]

REFERENCES

(154) CITATION OF PUBLICATIONS AND FOREIGN PATENTS

Foreign Patents

In accordance with Rule 107, for each foreign patent cited, there should be indicated the number of sheets of drawing and pages of specification and also the sheet number(s) and page number(s) specifically relied upon if less than the entire disclosure is used. Because it is essential to conserve space in the Examiner's file of applications and to minimize the cost to applicant under the automatic supply of references cited, whenever the total number of sheets and pages in any foreign patent exceeds ten, the Examiner should keep the total relied on as near to ten as possible. Applicants who desire a copy of the complete foreign patent or of the portion not "relied on" must order it, not through the automatic supply system, but in the usual manner.

Publications

Publications such as German allowed applications and Netherlands printed specifications should be similarly handled. With other publications such as books, periodicals and catalogues, the specific pages relied upon should be cited. If the copy relied upon is located only in the Group making the action (there is no call number), the additional information, "Copy in Group —" should be given.

RICHARD A. WAHL,
Acting Superintendent,
Patent Examining Corps.

Jan. 4, 1965.

[811 O.G. 293]

(155) AUTOMATIC FURNISHING FREE COPIES OF CITED REFERENCES

Commencing November 1, 1965, one complete set of references cited by Examiners in Office Actions will be automatically supplied without charge simultaneously with the mailing of the actions.

Additional copies of references desired must be properly identified and purchased from the regular Patent Office copy supply facilities.

This supersedes the notice, "Providing Copies of Cited References to Applicants" which was published in 809 O.G. 817 on December 8, 1964.

C. A. KALK,

Director of Administration.

Oct. 1, 1965.

[819 O.G. 1335]

(156) CITATION OF REFERENCES AT TIME OF ALLOWANCE

Commencing March 15, 1966, references cited by examiners when passing an application to issue will no longer be supplied under the automatic plan. Copies of these references, if desired, must be purchased from the regular Patent Office copy supply facilities.

Except as above indicated references cited by examiners in Office Actions will continue to be automatically supplied without charge simultaneously with the mailing of the actions.

This modifies the notice, "Automatic Furnishing Free Copies of Cited References," which was published in 820 O.G. 1 on November 2, 1965.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Feb. 24, 1966.

[824 O.G. 805]

(157) ORDERS FOR REFERENCES CITED IN SHORTENED STATUTORY PERIOD ACTIONS

Effective immediately, the Patent Office will no longer supply copies of references cited on a "Special Handling" basis without the usual additional charge. This service was announced in the OFFICIAL GAZETTE on June 2, 1964.

The Patent Office has, since November 1, 1965, been furnishing one complete set of references cited by Examiners in Office Actions automatically, without charge, simultaneously with the mailing of the actions.

[825 O.G. 811 (Apr. 19, 1966)]

(158) POLICY RE: VOLUNTARY CITATION OF PRIOR ART BY APPLICANTS

Effective immediately, the following policy is being adopted in the hope of encouraging more frequent and meaningful citation of prior art by applicants and their attorneys on a voluntary basis.

Prior art cited by applicants or their attorneys within thirty days of the filing of a patent application, or prior to the first Office action, whichever is later, will be fully considered by the Examiner, will be part of the official record, and will be included in the list of references cited in the patented file and in the printed patent provided the applicant:

(a) Limits the number of references cited to not more than five separate items, unless a satisfactory explanation is given as to why more than five citations are necessary, and submits one copy of each of the references; and

(b) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references.

References cited by applicants or attorneys under the "special" examining procedure announced on March 2, 1965, and published in 812 O.G. 953 will also be included in the list of references cited in the patented file and printed patent.

Prior art cited by applicants and attorneys under the practice set forth in the notices published in 797 O.G. 733; 802 O.G. 601; 804 O.G. 1 and 805 O.G. 294 will no longer be listed in the printed patent.

EDWARD J. BRENNER,
Commissioner of Patents.

Apr. 13, 1967.

[837 O.G. 1032]

(159) REFERENCE CITATIONS IN CONTINUATION APPLICATIONS

Effective December 1, 1967, the Office will discontinue the practice of furnishing, automatically and without charge,

copies of references cited in continuation applications if they had been previously cited in the parent application.

In the rare instance where no art is cited in a continuation application, all the references cited during the prosecution of the parent application will be listed at allowance for printing in the patent.

Other continuing applications, including continuation-in-part and divisional applications, are not affected by this change.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 1, 1967.

[846 O.G. 1022]

(160) PATENT CLASSIFICATION

As a service to the public, effective with the issue of December 10, 1968, all patents will contain at the end of the specification, after the "List of References," a list of all classes and subclasses in the U.S. Classification System into which the patent was cross-referenced at the time of issue. This listing will be headed "U.S. Cl.—X.R."

Beginning with the issue of January 7, 1969, all patents will also include International Patent Classifications in the heading and identified as "Int. Cl."

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 29, 1968.

[858 O.G. 1029]

(161) MACHINE SEARCH SERVICE

The Mechanized Search Service presently used by the Patent Office in making examiner searches in the field of Data Processing is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of \$40.00 each. The instruction manual "Search System Manual for the Field of Data Processing-ICIREPAT System DP" is included as part of the "package." A renewal fee of \$35.00 per year entitles the subscriber to receive a set of cards for new issues.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content ¹
Data processing.....	235 340	157 172.5	2,965 U.S. Patents. 622 Literature articles.

¹ Approximate number of documents in the files as of June 30, 1971.

The scope and organization of this file is described in the publication "Search System Manual for the Field of Data Processing-ICIREPAT System DP."

A substantial portion of this publication is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforescribed publication. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of Data Processing may be directed to the Supervisory Primary Examiner of Group Art Unit 237.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper

even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is \$5.00. Copies of all U.S. patent and non-patent literature references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address request to the Patent Office, Office of Search Systems and Documentation, Washington, D.C. 20231.

After any necessary consultation with the Examiner in preparing the search query, address search requests together with the completed code sheet and fee to the Commissioner of Patents, Washington, D.C., 20231. Attention should be directed to the Office of Search Systems and Documentation, Office of the Administrator.

[891 O.G. 886 (Oct. 19, 1971)]

TRADEMARKS

(162) ADVANCEMENT OF TRADEMARK APPLICATIONS FOR EXAMINATION

Effective immediately, in the interest of expediting the prosecution of trademark applications in which the applicants are willing to cooperate in accelerated prosecution, any trademark application in which the applicant agrees to respond to each Office action within two months of its date will be advanced for action by the Patent Office ahead of applications in a similar stage of prosecution in which no such agreement has been made.

EDWARD J. BRENNER,
Commissioner of Patents.

Mar. 23, 1966.

[827 O.G. TM 1]

(163) ORAL HEARINGS UNDER TRADEMARK RULE 2.142(c)

Effective January 1, 1969 for a trial period of six months, new procedures will be initiated which will permit Trademark Examiners having full signatory authority to present an oral argument before the Trademark Trial and Appeal Board in ex parte appeals where the applicant has been granted an oral hearing.

After the attorney representing the appellant has made his presentation, the Examiner will be allowed fifteen minutes to reply as well as to present a statement clearly setting forth his position with respect to the issues involved. Appellant may utilize any allotted time not used in the initial presentation for rebuttal.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Nov. 14, 1968.

[857 O.G. TM 49]

(164) SEPARATION OF THE PATENT AND TRADEMARK SECTIONS OF THE OFFICIAL GAZETTE

Effective February 2, 1971, the OFFICIAL GAZETTE will be separated into two parts to be known as the *Patent Official Gazette* and the *Trademark Official Gazette*. The subscription prices for these publications are as follows:

Patent Official Gazette:
\$89.00 per year
22.25 additional for foreign mailing
2.00 per single copy
Trademark Official Gazette:
\$17.00 per year
4.25 additional for foreign mailing
.40 per single copy

Also effective February 2, 1971, the OFFICIAL GAZETTE will no longer contain "Decisions in Patent and Trademark Cases." Decisions of the type heretofore found in the "Decisions in Patent and Trademark Cases" are published by non-Federal

organizations such as, for example, the Bureau of National Affairs, Inc., 1231 25th St. NW., Washington, D.C. 20037, and West Publishing Co., 50 Kellogg Blvd., St. Paul, Minn. 55102.

Finally, the "Decisions Leaflet" of the OFFICIAL GAZETTE will no longer be supplied as a separate subscription item after January 26, 1971. According to present plans, however, both the PATENT OFFICIAL GAZETTE and the TRADEMARK OFFICIAL GAZETTE will have identical "Patent Office Notices" sections containing notices of the various types heretofore published in the Gazette decision leaflet and Trademark Section. Those notices of particular interest to Patent Office employees will be accumulated and published approximately every fourth week, and distributed separately to employees.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

[882 O.G. 448]

(165) NOTICE OF TRADEMARK PUBLICATIONS IN FEBRUARY AND MARCH

Beginning Feb. 2, 1971, the OFFICIAL GAZETTE of the United States Patent Office, consisting of patent and trademark Sections, was separated into two distinct publications, the "OFFICIAL GAZETTE (Patent Section)" and the "OFFICIAL GAZETTE (Trademark Section)." Those subscribing to the OFFICIAL GAZETTE prior to the separation have received only the OFFICIAL GAZETTE (Patent Section) beginning with the date of its separation unless they requested a subscription to the OFFICIAL GAZETTE (Trademark Section). An effort was made to notify these subscribers that they would not receive the OFFICIAL GAZETTE (Trademark Section) after the separation on February 2 unless they subscribed separately to this publication. However, the notice has been misinterpreted by some former subscribers who, accordingly, have not requested a separate subscription to the OFFICIAL GAZETTE (Trademark Section) and, therefore, have not received this publication.

In view of the above, jurisdiction will be restored for all marks published for opposition on Feb. 2, 9, 16, and 23, Mar. 2, 9, and 16, 1971, to the Examiner of Trademarks and these marks will, by notice in the OFFICIAL GAZETTE (Trademark Section) of Mar. 23, 1971, be republished for opposition by reference to the OFFICIAL GAZETTE (Trademark Section) for those dates. The republication of these marks by reference will be effective as a publication in accordance with Section 12(a) of the Trademark Act of 1946 for the purpose of opposition by any person who believes he will be damaged by the registration of the mark. Oppositions to such republished marks may be filed within the time specified by Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any opposition received after the original publication and on or before Apr. 22, 1971, will be deemed to have been timely filed.

In addition, all persons desiring to receive the OFFICIAL GAZETTE (Trademark Section) should contact the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription to this publication costs \$17.00 per annum. The Superintendent of Documents has advised that all persons subscribing during March will receive the previous February and March issues of the OFFICIAL GAZETTE (Trademark Section) until the excess weekly inventory of approximately 8000 copies is exhausted.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Feb. 25, 1971.

[884 O.G. 430]

(166) PREFACE TO THE TRADEMARK O.G. NOTICES

In September 1970, a Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce. The Purpose of this Committee was to advise the Patent Office on ways to increase the efficiency and effectiveness of the administration of the Trademark Act. A report of this Advisory Committee has been received by the Commissioner of Patents. After reviewing the recommendations, although the review is not complete, it has been decided to make certain changes in trademark practice and procedure, and to propose changes in the rules of practice. Beginning with this issue of the OFFICIAL GAZETTE and in subsequent issues as needed,

announcements will be published concerning changes in procedures and proposed amendments to the Trademark Rules of Practice.

IDENTIFICATION OF GOODS AND SERVICES IN TRADEMARK APPLICATIONS

Effective immediately, the Alphabetical List of Goods and Services which appears in the volume entitled "International Classification of Goods and Services to Which Trade Marks Are Applied" (published by the World Intellectual Property Organization (WIPO) is adopted as a general guideline for determining the degree of particularity of identification of goods and services required in trademark applications.

Terms which appear in the International Classification listing will generally be accepted as proper identifications of goods and services. The use in the listing of more specific identifications indented below the heading term does not necessarily preclude acceptability of that heading. For example, the International Classification lists, as Item A407, *Ammunition*, followed by specific types of ammunition, as Items A408 and A409 and A410. "Ammunition" will be accepted as an identification in accordance with *In re Dynamit Nobel AG*, 169 USPQ 499 (TTAB, 1971). However, if the more specific term is used whenever appropriate, prosecution of the application may be shortened since the possibility of a requirement of greater particularity (see below) is reduced.

Greater particularity than is set forth by the terms in the International Classification listing may not be required by the Examiner in the absence of a clear need therefor. Typical illustrations of clear need can be found in the following situations:

- (1) The broad term includes items which are classified in more than one class. (For example, "artists' materials.")
- (2) The broad term is too indefinite for proper examination. (For example, "metallic parts.")
- (3) (a) The identification is inconsistent with the goods or services disclosed by the specimens.
(b) The ordinary meaning of the identification is at variance with the goods or services disclosed by the specimens or the record. (For example, "decalcomanias" are not adequately identified by the term "publications." See also *Ex parte Consulting Publishing Co.*, 115 USPQ 240.)
- (4) Wordings included in the mark requires limitation of the identification. (For example, "beer" may not be included in the identification where the mark is "Newark 'Olde Town' Ale" (*Ex parte Consumers Brewing Co.*, 55 USPQ 426).)

On the other hand, some situations do not constitute clear need, as illustrated by the following:

- (1) The existence of a decision holding that a likelihood of confusion exists in relation to items which are narrowly identified does not in itself constitute a clear need to require amendment of a broad identification to the more specific items mentioned in the decision.
- (2) If the identification is understood when read in association with the title of the class in which it is placed and is otherwise satisfactory, further qualifying amendment should not be required. (For example, "mufflers" in the clothing class would not require further modification to indicate that articles of clothing are intended; similarly the term "house organ" in the class for printed publications would not need further qualification.)

In a few instances, the terminology in the International Classification of Goods and Services is not in common usage in the United States. Where this occurs, the term more commonly used in this country should be selected.

The English edition of the "International Classification of Goods and Services to Which Trade Marks Are Applied" can be ordered from:

Sales Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

Certain modifications and additions to the Classification have been published as supplements and are also available from the British Office.

We have been advised by the British Patent Office that the best methods of payment are:

(a) By International Money Order or by Banker's draft payable in Sterling and drawn on a British bank or,

(b) By ordinary check drawn on an American bank in dollars and payable to the Comptroller-General, Patent Office. Orders for the International Classification and for the Supplements can be made by method (a) or (b) and should be accompanied by remittance in the following amount(s):
(a) If paid by International Money Order or by Banker's draft:

International Classification	10 shillings	(\$1.20 per copy)
Nov. 15, 1967 supplement	1 shilling	(12¢ per copy)
Mar. 18, 1970 supplement	(free)	
Mar. 3, 1971 supplement	2 shillings	(24¢ per copy)

Total Cost (including postage by surface mail) -- 13 shillings (\$1.56)

(b) If paid by ordinary check:

International Classification	\$1.45
Nov. 15, 1967 supplement	.15
Mar. 18, 1970 supplement	(free)
Mar. 3, 1971 supplement	.80

Total Cost (including postage by surface mail) -- \$1.90

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. 2]

(167) REQUEST FOR EXTENSION OF TIME IN WHICH TO OPPOSE

The Patent Office is adopting a new procedure to be used when filing a request for an extension of time in which to oppose under Section 13 of the Trademark Act and Rule 2.102, Trademark Rules of Practice. All requests for extension of time should be submitted in triplicate. The Patent Office will stamp each copy of the request with the action taken and send a copy to the requester and the applicant. The third copy will be entered in the file.

The purpose of this new procedure is to expedite the handling of extensions of time by eliminating the preparation of a formal notice of the disposition of the request. Further, this procedure will provide the applicant with additional information concerning the potential opposition.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. 3]

(168) TERMINATION OF ADVANCEMENT OF TRADEMARK APPLICATIONS FOR EXAMINATION

The practice of expediting the prosecution of certain new trademark applications as set forth in the notice of March 23, 1966 (825 O.G. TM 54, 104 and 148) entitled "Advancement of Trademark Applications for Examination," is rescinded effective August 1, 1971.

Pending applications in which a request for accelerated prosecution is filed prior to August 1, 1971, will continue to be expedited in accordance with the notice of March 23, 1966.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 13231; July 16, 1971

[889 O.G. 2]

(169) RECORDING OF DOCUMENTS AFFECTING TITLE

The Patent Office is liberalizing its policy concerning the recording of documents, other than assignments, which affect title to trademark registrations and applications. Under Rule 2.185 of the Trademark Rules of Practice, instruments affecting title to a trademark registration or application, and licenses of trademarks which are the subject of trademark registrations or applications, will be recorded even though the

recording thereof may not serve as constructive notice under Section 10 of the Trademark Act of 1946, as amended (15 U.S.C. 1060).

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

June 16, 1971.

Published in 36 F.R. 19931; July 16, 1971

[890 O.G. 2]

(170) ESTABLISHMENT OF MANUAL OF TRADEMARK EXAMINING PROCEDURES

Preliminary work has begun on the preparation of a Manual of Trademark Examining Procedure.

Directives on trademark examining procedure will be issued by the Patent Office from time to time and, when appropriate, will be included in the Manual at a later date. The directives will be numbered sequentially and those issued prior to publication of the Manual will be designated as Series 1. These directives will constitute the guidelines for the examination of trademark applications.

Trademark Examining Directives are available through the Superintendent of Documents, Washington, D.C., 20013 at an annual subscription of \$1.50 plus 50¢ for foreign mailing.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

July 27, 1971.

[889 O.G. 1358]

(171) RE: TRADEMARKS
[37 CFR Part 2]

ACCESS TO PENDING APPLICATIONS

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) the Patent Office proposes to revise § 2.27 of Title 37, Code of Federal Regulations as set forth below.

All persons are invited to present their written views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before October 15, 1971. No oral hearing will be held.

The only substantive change made in § 2.27 is elimination of the requirement to show good cause for access to pending applications. The amendment is intended to liberalize access to pending trademark applications. A written request for access will continue to be required, however, so that a record of those persons having access to pending applications may be maintained. The proposed amendment also restructures the form of the rule by dividing it into four sections for easier reading.

The text of the proposed revised section is as follows:

§ 2.27 Pending application index; access to applications.

(a) An index of pending applications including the name and address of the applicant, a reproduction or description of the mark, the goods or services with which the mark is used, the class number, the dates of use, and the serial number and filing date of the application will be available for public inspection as soon as practicable after filing.

(b) Access to the file of a particular pending trademark application will be permitted prior to publication under § 2.81 upon written request.

(c) Decisions of the Commissioner and the Trademark Trial and Appeal Board in applications and proceedings relating thereto are published or available for inspection or publication.

(d) After a mark has been registered, or published for opposition, the file of the application and all proceedings relating thereto are available for public inspection and copies of the papers may be furnished upon paying the fee therefor.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Approved: August 9, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-12161; Filed 8-19-71; 8:45 a.m.]

Published in 36 F.R. 16194; Aug. 20, 1971

[890 O.G. 300]

(172) TRADEMARK APPLICATION AND DRAWING REQUIREMENTS, INTERFERENCES, AND INTER PARTES PROCEDURES

[37 CFR Part 2]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440, 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793, 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revoking § 2.124a, adding §§ 2.83 and 2.117, and revising, amending and/or redesigning §§ 2.21-2.23, 2.27, 2.52, 2.56, 2.80-2.82, 2.91, 2.92, 2.98, 2.99, 2.101, 2.103, 2.104, 2.112, 2.116, 2.119, 2.120, 2.122-2.125, and 2.127-2.129.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231, on or before October 22, 1971, on which date a hearing will be held at 2:30 p.m., e.d.s.t., in Room 8C06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

Trademark application and drawing requirements. Revised § 2.21 specifies the requirements for a complete application. The Patent Office proposes to reduce the requirements for a complete application, thereby making most applications entitled to a filing date when received. Informalities which require correction under present practice, however, would continue to require correction at an appropriate time.

Section 2.22 is amended by deleting the first sentence of the existing section and changing the title.

Section 2.23 provides for numbering of all applications as received, whether or not entitled to a filing date.

Section 2.52 requires the size of sheets on which drawings are made to be 8 inches wide and 11 inches long, in order to standardize drawing size and expedite handling in the Patent Office.

Section 2.56 is amended to make clear that five specimens must still be submitted, although not required in order to obtain a filing date under § 2.21.

Trademark interferences. Under section 16 of the Trademark Act of 1946, the Patent Office proposes to restrict interference practice to rare cases in which a party might be able to prove that he would suffer irreparable harm if his only recourse was to file an opposition or a petition for cancellation. It is believed that opposition and cancellation proceedings are the most expeditious means of determining the rights of parties with respect to conflicting marks. The proposed changes are expected virtually to eliminate interferences in trademark cases. The Patent Office is not presently aware of any interference situation in which the rights of the parties cannot be determined fairly in an opposition or cancellation proceeding. However, to provide an opportunity for a party to request an interference if such a situation should arise, proposed § 2.91 would provide for petitions to the Commissioner for the declaration of interferences under extraordinary circumstances.

Section 2.80, formerly § 2.81, is provided with a more descriptive title, and the reference to interferences in the last sentence is deleted.

New § 2.83 provides that when the marks in two or more applications are in conflict, the application with the earliest filing date will be published for opposition.

Section 2.91 provides that interferences will not be declared except upon petition to the Commissioner and upon a showing of extraordinary circumstances.

Existing § 2.92(b) is revoked, existing § 2.92(c) is redesignated as § 2.61(c), and part of the last sentence of existing § 2.98 is deleted, since interferences will no longer be instituted by the Examiner of Trademarks.

Trademark inter partes procedure. The changes in the sections concerning inter partes procedure are intended to reflect the current practice of the Trademark Trial and Appeal Board, and to expedite the handling of inter partes proceedings from institution to final hearing. They are designed, at the same time, to further incorporate into the inter partes proceedings the general principles embodied in the Federal Rules of

Civil Procedure insofar as they may be applicable to Patent Office proceedings, and thereby provide a uniform practice and body of law as guidelines to both attorneys and the Patent Office. The amendments incorporate portions of the rules of practice in Patent Cases (37 CFR Part 1) pertaining largely to the procedure for taking testimony. In incorporating these provisions, those portions which are not applicable to the inter partes trademark proceedings have been deleted.

The proposed change in § 2.99 authorizes publication or allowance of applications for concurrent registration without a concurrent use proceeding when there has been a prior court determination of the rights of the parties.

Section 2.104 is changed to adopt language from the Federal Rules by requiring a "short and plain statement" showing why an opposer would be damaged. The change is intended to make clear that a lengthy pleading is not required. An analogous change is made in § 2.112 with respect to petitions for cancellation.

Section 2.116, formerly § 2.117, is amended to make clear that subsequent amendments to the Federal Rules of Civil Procedure will be applicable.

Proposed new § 2.117 would provide for proceedings before the Trademark Trial and Appeal Board to be suspended when the parties are engaged in a civil action which might be dispositive of the case.

Section 2.119 is changed by adding a paragraph identical to § 1.248, regarding manner of service of papers.

A number of amendments are proposed for § 2.120. The discovery provisions of the Federal Rules of Civil Procedure are adopted for inter partes trademark proceedings except where different provisions are contained in the Patent Office regulations.

Section 2.120(a) would permit discovery depositions either upon oral examination or upon written questions.

Section 2.120(b) concerning requests for admission is changed by increasing the period of 15 days for responding to requests for admission to 30 days in line with the amendments to the Federal Rules of Civil Procedure effective July 1, 1970.

Section 2.120(c), as amended, specifies 11 subjects for written interrogatories, in lieu of the more general provision for interrogatories in Rule 33 of the Federal Rules of Civil Procedure.

Section 2.120(d) permits application to the Trademark Trial and Appeal Board for an order requiring discovery, and allows the Board to impose sanctions for failure to comply with such orders.

Section 2.122(b) provides for a registration pleaded in an opposition or petition for cancellation to be received in evidence and made part of the record if two status copies of the printed registration or an order for such copies is submitted.

Present § 2.123(c), relating to printed publications and official records, is redesignated as § 2.122(c) and revised to incorporate the substance of § 1.282 (Patent Rule 282).

New § 2.122(d) incorporates the substance of § 1.283 (Patent Rule 283).

New § 2.123 incorporates the provisions of §§ 1.273-1.281, 1.285, and 1.286 (Patent Rules 273 to 281, 285 and 286). In certain instances references are made to provisions of the Federal Rules of Civil Procedure. Portions of the Patent Rules which are not applicable to trademark practice have been omitted.

Section 2.124(b) is amended to require testimony by written questions to be prepared with each answer immediately preceded by its corresponding question. A requirement also is added for testimony under § 2.124 to be certified.

Section 2.124a, concerning testimony taken in foreign countries, is revoked. Testimony in foreign countries would be taken by depositions upon written questions in accordance with new § 2.124(d).

Reference numbers in § 2.125 have been changed in accordance with the renumbering.

Section 2.127(a) provides that the Trademark Trial and Appeal Board may treat a motion as conceded when a party fails to file a brief in opposition to the motion. Sections 2.127(b) and 2.129(c) are amended by adding a sentence requiring briefs in opposition to petitions for reconsideration to be filed within 15 days.

Section 2.128(b) includes certain changes with respect to the form required for briefs.

The proposed amendments are as follows:

1. Revise § 2.21 to read as follows:

§ 2.21 Requirements for a complete application and filing date.

(a) An application will not be considered complete unless all of the following elements are received:

- (1) A name and address to which communications can be directed;
- (2) A drawing or other identification of the mark sought to be registered;
- (3) An identification of goods or services;
- (4) At least one specimen of the mark as actually used;
- (5) A date of first use of the mark in commerce, or a certification or certified copy of a foreign registration if the application is based on such foreign registration pursuant to section 44(e) of the act, or a claim of the benefit of a prior foreign application in accordance with section 44(d) of the act;
- (6) The required filing fee for at least one class of goods or services.

Compliance with one or more of the rules relating to the elements specified above may be required before the application is further processed.

(b) The filing date of the application is the date on which the complete application is received in the Patent Office in acceptable form.

2. Revise § 2.22 to read as follows:

§ 2.22 Incomplete application.

If the papers are incomplete or so defective that they cannot be accepted, the applicant will be notified and the papers and fee held 6 months for completion. If the application is not completed within such time, the papers and fee will be returned to the applicant or otherwise disposed of; the drawing or fee of an unaccepted application may be transferred to a later application.

3. Revise § 2.23 to read as follows:

§ 2.23 Serial number.

Applications will be numbered as received and the applicant will be informed of the serial number and date of receipt of the application. When an application has been determined to be complete, the applicant will be informed of the filing date of the application.

§ 2.27 [Amended]

4. Amend § 2.27 by changing "2.81" in the second sentence of paragraph (a) to read "2.80."

5. Amend § 2.52 by revising paragraph (c) to read as follows:

§ 2.52 Requirements for drawings.

(c) **Size of paper and margins.** The size of the sheet on which a drawing is made must be 8 inches wide and 11 inches long. One of the shorter sides of the sheet should be regarded as its top. When the figure is longer than the width of the sheet, the sheet should be turned on its side with the top at the right. The size of the mark must be such as to leave a margin of at least 1 inch on the sides and bottom of the paper and at least 1 inch between it and the heading.

6. Revise § 2.56 to read as follows:

§ 2.56 Specimens.

The application must be accompanied by five specimens of the trademark as actually used on or in connection with the goods in commerce. The specimens shall be duplicates of the actually used labels, tags, or containers, or the displays associated therewith or portions thereof, when made of suitable material and capable of being arranged flat and of a size not larger than the size of the drawing.

7. Redesignate § 2.81 as § 2.80 and revise to read as follows:

§ 2.80 Publication for opposition.

If, on examination or reexamination of an application for registration on the Principal Register, it appears that the applicant is entitled to have his mark registered, the mark will be published in the OFFICIAL GAZETTE for opposition. The

mark will also be published in the case of an application to be placed in concurrent use proceedings, if otherwise registrable.

§ 2.81, 2.82 [Redesignated]

8. Redesignate §§ 2.82 and 2.83 as §§ 2.81 and 2.82, respectively.

9. Add a new § 2.83 to read as follows:

§ 2.83 Conflicting marks.

(a) Whenever an application is made for registration of a mark which so resembles another mark pending registration as to be likely to cause confusion or mistake or to deceive, the mark with the earliest effective filing date will be published in the OFFICIAL GAZETTE for opposition if eligible for the Principal Register, or issued a certificate of registration if eligible for the Supplemental Register. A notice will be sent, if practicable, to the later filed applicant informing him of the publication or issuance of the earlier filed mark.

(b) In situations in which conflicting applications are filed on the same date, the application with the earliest date of execution will be published in the OFFICIAL GAZETTE or issued a certificate of registration. A notice will be sent, if practicable to the applicant with the later date of execution informing him of the publication or issuance of the earlier executed application.

(c) The conflicting application which is not published in the OFFICIAL GAZETTE for opposition or not issued a certificate of registration will be suspended by the Examiner of Trademarks until the published or issued application is registered or abandoned.

10. Revise the heading for §§ 2.91—2.99 entitled "Interferences" to read "Interferences and Concurrent Use Proceedings."

11. Revise § 2.91 to read as follows:

§ 2.91 Interferences.

(a) An interference will not be declared between two applications or between an application and a registration except upon petition to the Commissioner. Interferences will be declared by the Commissioner only upon a showing of extraordinary circumstances which would result in a party being unduly prejudiced without an interference. In ordinary circumstances, the availability of an opposition or cancellation proceeding to the party will be deemed to remove any undue prejudice.

(b) Registrations and applications to register on the Supplemental Register, registrations under the Act of 1920, and registrations of marks the right to use of which has become incontestable are not subject to interference.

12. Revise § 2.92 to read as follows:

§ 2.92 Preliminary to interference.

Before the declaration of an interference, the marks which are to form the subject matter of the controversy must have been decided to be registrable by each party except for the interfering mark.

§ 2.61 [Amended]

13. Redesignate § 2.92(c) as § 2.61(c).

14. Revise § 2.98 to read as follows:

§ 2.98 Adding party to interference.

If, during the pendency of an interference, another case appears involving substantially the same registrable subject matter, the Examiner of Trademarks may request the suspension of the interference for the purpose of adding said case. Such suspension will be granted as a matter of course if no testimony has been taken. If any testimony has been or is about to be taken, the case will not be added except upon approval of a member of the Trademark Trial and Appeal Board. If the case is not added, the Examiner of Trademarks may suspend action on such case pending termination of the interference proceeding.

15. Amend § 2.99 by adding a new paragraph (d) to read as follows:

§ 2.99 Application to register as concurrent user.

(d) When concurrent registration is sought on the basis of a court determination of the rights of the parties to use the marks in commerce, the application shall be examined by the Examiner of Trademarks. If the applicant is entitled to registration subject only to the concurrent lawful use of a

party to the court proceeding, the Examiner of Trademarks may publish or allow the application, provided the court decree specifies the rights of the parties.

§ 2.101 [Amended]

16. Amend § 2.101 by changing "2.81" to read "2.80."

§ 2.103 [Amended]

17. Amend § 2.103 by changing "2.81" in the second sentence to read "2.80."

18. Revise § 2.104 to read as follows:

§ 2.104 Contents of opposition.

The opposition must set forth a short and plain statement tending to show why the opposer would be damaged by the registration of the opposed mark and state the specific grounds for opposition. A duplicate copy of the opposition including exhibits shall be filed.

19. Revise § 2.112 to read as follows:

§ 2.112 Petition for cancellation.

The petition to cancel, which must be verified, or include a declaration in accordance with § 2.20, must set forth a short and plain statement tending to show why the petitioner believes he is or will be damaged by the registration, state the specific grounds for cancellation, and indicate the respondent party to whom notice shall be sent. A duplicate copy of the petition, including exhibits, shall be filed with the petition. Applications to cancel different registrations owned by the same party may be joined in one petition when appropriate, but the fee for each application to cancel a registration must accompany the petition.

20. Redesignate § 2.117 as § 2.116 and revise paragraph (a) to read as follows:

§ 2.116 Federal Rules of Civil Procedure.

(a) Except as otherwise provided and wherever considered applicable or appropriate, procedure and practice in inter partes proceedings shall be governed by the Federal Rules of Civil Procedure effective on July 30, 1970 or as subsequently amended.

21. Add a new § 2.117 to read as follows:

§ 2.117 Suspension of proceedings.

Whenever it shall come to the attention of the Trademark Trial and Appeal Board that parties to a pending case are engaged in a civil action which may be dispositive of the case, proceedings before the Board will be suspended until termination of the civil action.

22. Revise § 2.119 to read as follows:

§ 2.119 Service of papers.

(a) Every paper filed in the Patent Office in inter partes cases, including appeals, must be served upon the other parties except the notices of interference (§ 2.98), the notice of opposition (§ 2.105), the petition for cancellation (§ 2.118) and the notices of a concurrent use proceeding (§ 2.99), which are mailed by the Patent Office. Proof of such service must be made before the paper will be considered by the Office. A statement signed by the attorney or agent, attached to or appearing on the original paper when filed, clearly stating the time and manner in which service was made will be accepted as prima facie proof of service.

(b) Service of papers must be on the attorney or agent of the party if there be such or on the party if there is no attorney or agent, and may be made in either of the following ways: (1) By delivering a copy of the paper to the person served; (2) by leaving a copy at the usual place of business of the person served with someone in his employment; (3) when the person served has no usual place of business, by leaving a copy at his residence, with a member of his family over 14 years of age and of discretion; (4) transmission by first class mail, which may also be certified or registered. Whenever it shall be satisfactorily shown to the Commissioner that none of the above modes of obtaining or serving the paper is practicable, service may be by notice published in the OFFICIAL GAZETTE.

(c) When service is made by mail, the date of mailing will be considered the date of service. Whenever a party is required to take some action within a prescribed period after the service of a paper upon him by another party and the paper is served by mail, 5 days shall be added to the prescribed period.

23. Revise § 2.120 to read as follows:

§ 2.120 Discovery procedure.

The provisions of the Federal Rules of Civil Procedure relating to discovery, effective on July 30, 1970 or as subsequently amended, shall apply where appropriate in inter partes trademark cases except as otherwise provided in this section. The period in which discovery may be taken will be specified by the Trademark Trial and Appeal Board.

(a) *Depositions for discovery*—(1) *Manner of taking.* Depositions may be taken upon oral examination in the manner prescribed by § 2.123 (c), (d) and (e), or upon written questions in the manner prescribed by § 2.124. The responsibility for securing the attendance of a proposed deponent other than a party or anyone who at the taking of the deposition was an officer, director or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a public or private corporation, partnership or association or governmental agency which is a party rests wholly with the interested party. See 35 U.S.C. 24.

(2) *Discovery of foreign party.* The discovery of a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party domiciled in a foreign country, may be taken in the manner prescribed by §§ 2.123 and 2.124.

(3) *Use of discovery depositions.* Discovery depositions may be used in accordance with Rule 32(a) (1), (2), (4), and (c) of the Federal Rules of Civil Procedure provided the party offering the deposition, or any part thereof, in evidence files the same before the close of his testimony period and also files a notice of reliance thereon. Objections, including any made during the examination, will be considered only if made or renewed at the hearing.

(b) *Request for admission.* (1) Any party to an opposition, interference, cancellation or concurrent use proceeding may, within the time specified for taking depositions for discovery, serve upon any adverse party two copies of a written request for admission by the letter of the genuineness of any relevant document described in and attached to the request (a photocopy may be attached provided the original thereof is made available for inspection), or of the truth of any facts which are material and relevant to the issues and which are believed to be within the knowledge of both the parties serving and the parties served. Each matter in respect of which an admission is requested shall be considered as admitted unless, within 30 days after service thereof, the party to whom the request is directed serves upon the party requesting the admission a sworn statement denying specifically the matter in respect of which admission is requested, or setting forth in detail the reasons why he cannot truthfully either admit or deny the same, or files objections thereto together with one copy of the request for admission. Any reply to such objection shall be due within 10 days after service thereof.

(2) No admission shall be considered as part of the record in the case unless a party files, before the close of his testimony period, a notice of reliance thereon and a copy of the admission and request therefor.

(c) *Interrogatories.* (1) Any party to an opposition, interference, cancellation or concurrent use proceeding may, during the period for discovery specified by the Trademark Trial and Appeal Board, serve upon any adverse party two copies of written interrogatories limited to inquiries with respect to the following:

(i) The issues of abandonment, nonuse, title, or fraud.
(ii) Date of first use of any mark involved in the proceeding.

(iii) In a concurrent use proceeding, the geographical area by States in which the mark has been used.

(iv) A description of all goods to which the mark has been applied.

(v) Annual sales in units and dollars of all goods sold under the mark during the past 5 years.

(vi) A description of advertising and promotion of the mark.

(vii) Annual expenditure for advertising and promotion of the mark during the past 5 years.

(viii) A description of channels of distribution by which all goods sold under the mark reach ultimate purchasers.

(ix) All known instances of actual confusion of goods or of source between the pleaded marks of adversary parties, stat-

ing as to each the date and place of such instance, the name and address of the confused person or organization, the names and addresses of all witnesses to such instance of confusion, and a statement of the particular circumstances.

(x) Representative samples of packaging, advertisements, and promotions of all goods sold under the mark.

(xi) Names and addresses of persons having knowledge of the facts contained in the pleading of the adverse party.

Answers to interrogatories may understate sales dollars and units and advertising and promotional expenditures by employing the form "in excess of . . ." but no evidence of greater amounts shall thereafter be offered by the answering party during the proceeding. The party upon whom the interrogatories have been served shall serve a copy of the answers, and objections if any, on the interrogating party within 30 days after the service of the interrogatories.

(2) Interrogatories and answers thereto shall not be considered as part of the record in the case unless the interrogating party files, before the close of his testimony period, a notice of reliance thereon, setting forth in said notice each interrogatory and answer thereto relied upon.

(d) *Failure to make discovery: Sanctions.* If any party fails or refuses to answer any proper question in taking discovery depositions or fails or refuses to answer any proper question propounded by interrogatories or fails or refuses to comply with an order to produce and permit the inspection and copying of designated things, the party seeking discovery may apply to the Trademark Trial and Appeal Board for an order compelling discovery. If a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure fails to obey an order to provide or permit discovery, the Trademark Trial and Appeal Board may strike out all or any part of any pleading of that party, dismiss the action or proceeding, or deny any part thereof, enter judgment as by default against that party, or take any such other action as may be deemed appropriate.

24. Amend § 2.122 by revising paragraph (b) and adding new paragraphs (c) and (d) to read as follows:

§ 2.122 Matters in evidence.

(b) A registration of the opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if two status copies (showing title in the party) of the printed registration or an order for such copies accompany the opposition or petition.

(c) Printed publications, such as books and periodicals, available to the general public in libraries or of general circulation, and official records, if competent evidence and pertinent to the issue, may be introduced in evidence by filing in the Patent Office a notice to that effect during the period for the taking of the testimony of the party (during the period for taking of testimony-in-chief if such matters are not in rebuttal), specifying the record or the printed publication, the page or pages to be used, indicating generally its relevance, and accompanied by the record or authenticated copy or the printed publication or a copy. When a copy of an official record of the Patent Office is filed, it need not be a certified copy. The notice and copy of the record or publication must be served on each of the other parties.

(d) Upon motion duly made and granted, testimony taken in another proceeding, or testimony taken in a suit between the same parties or those in interest, may be used in a proceeding, so far as relevant and material, subject, however, to the right of any contesting party to recall or demand the recall of witnesses whose testimony has been taken, and to take other testimony in rebuttal of the testimony.

25. Revise § 2.123 to read as follows:

§ 2.123 Testimony in inter partes cases.

(a) *Manner of taking testimony.* Testimony of witnesses in inter partes cases may be taken (1) by depositions upon oral examination as provided by this section, or (2) by depositions upon written questions as provided by this section and § 2.124.

(b) *Stipulations.* If the parties so stipulate in writing, depositions may be taken before any person authorized to administer oaths, at any place, upon any notice, and in any manner, and when so taken may be used like other depositions. By agreement of the parties, the testimony of any witness or witnesses of any party, may be submitted in the form of an affidavit by such witness or witnesses. The parties

may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated.

(c) *Notice of examination of witnesses.* Before the depositions of witnesses shall be taken by a party, due notice in writing shall be given to the opposing party or parties, as provided in § 2.119(b), of the time when and place where the depositions will be taken, of the cause or matter in which they are to be used, and the name and address of each witness to be examined; if the name of a witness is not known a general description sufficient to identify him or the particular class or group to which he belongs, together with a satisfactory explanation, may be given instead. Neither party shall take depositions in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other is not available.

(d) *Persons before whom depositions may be taken.* Depositions may be taken before persons designated by Rule 28 of the Federal Rules of Civil Procedure.

(e) *Examination of witnesses.* (1) Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition is to be taken.

(2) The deposition shall be taken in answer to questions, with the questions and answer recorded in their regular order by the officer, or by some other person (who shall be subject to the provisions of Rule 28 of the Federal Rules of Civil Procedure) in the presence of the officer except when his presence is waived on the record by agreement of the parties. The testimony shall be taken stenographically and transcribed, unless the parties present agree otherwise. In the absence of all opposing parties and their attorneys or agents, depositions may be taken in longhand, typewriting, or stenographically.

(3) The opposing party shall have full opportunity to cross-examine the witnesses. If the opposing party shall attend the examination of witnesses not named in the notice, and shall either cross-examine such witnesses or fail to object to their examination, he shall be deemed to have waived his right to object to such examination for want of notice.

(4) All objections made at the time of the examination to the qualifications of the officer taking the deposition, or to the manner of taking it, or to the evidence presented, or to the conduct of any party, and any other objection to the proceedings, shall be noted by the officer upon the deposition. Evidence objected to shall be taken subject to the objections.

(5) When the deposition has been transcribed, the deposition shall be carefully read over by the witness, or by the officer to him, and shall then be signed by the witness in the presence of the officer unless the reading and the signature be waived on the record by agreement of all parties.

(f) *Certification and filing by officer.* The officer shall annex to the deposition his certificate showing:

(1) Due administration of the oath by the officer to the witness before the commencement of his deposition;

(2) The name of the person by whom the deposition was taken down, and whether, if not taken down by the officer, it was taken down in his presence;

(3) The presence or absence of the adverse party;

(4) The place, day, and hour of commencing and taking the deposition;

(5) That the deposition was read by or to the witness before he signed the same, and that he signed the same in the presence of the officer; and

(6) The fact that the officer was not disqualified as specified in Rule 28 of the Federal Rules of Civil Procedure.

If any of the foregoing requirements are waived, the certificate shall so state. The officer shall sign the certificate and affix thereto his seal of office, if he has such a seal. Unless waived on the record by agreement, he shall then, without delay, securely seal in an envelope all the evidence, notices, and paper exhibits, inscribe upon the envelope a certificate giving the number and title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents. If the weight or bulk of an exhibit shall exclude it from the envelope, it shall, unless waived on the record by agreement of all parties, be authenticated by the officer and transmitted in a separate package marked and addressed as provided in this section.

(g) *Form of deposition.* (1) The pages of each deposition must be numbered consecutively, and the name of the witness plainly and conspicuously written at the top of each page. The deposition may be written on legal-size or letter-size paper, with a wide margin on the left hand side of the page,

and with the writing on one side only of the sheet. The questions propounded to each witness must be consecutively numbered and each question must be followed by its answer.

(2) Exhibits must be numbered or lettered consecutively and each must be marked with the number and title of the case and the name of the party offering the exhibit. Entry and consideration may be refused to improperly marked exhibits.

(h) *Depositions must be filed.* All depositions which are taken must be duly filed in the Patent Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies; and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

(i) *Inspection of depositions.* After the depositions are filed in the Office, they may be inspected by any party to the case, but they cannot be withdrawn for the purpose of printing. They may be printed by someone specially designated by the Office for that purpose, under proper restrictions.

(j) *Effect of errors and irregularities in depositions.* Notice will not be taken or merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and in case of such injury it must be made to appear that, as soon as the party became aware of the ground of objection, he gave notice thereof. Rule 32(d) (1), (2), (3)(a) and (3)(b) of the Federal Rules of Civil Procedure shall apply to errors and irregularities in depositions.

(k) *Objections to admissibility.* Subject to the provisions of paragraph (j) of this section, objection may be made to receiving in evidence any deposition or part thereof, or any other evidence, for any reason which would require the exclusion of the evidence according to the established rules of evidence, which will be applied strictly by the Office.

(l) *Evidence not considered.* Evidence not obtained and filed in compliance with these sections will not be considered.

26. Amend § 2.124 by revising paragraphs (a) and (b) and adding a new paragraph (d) to read as follows:

§ 2.124 *Testimony by depositions upon written questions.*

(a) A party may taken the testimony of a witness by written questions to be propounded by an officer before whom depositions may be taken. See Rule 28 of the Federal Rules of Civil Procedure. The questions shall be served upon the other party within 10 days after the opening date set for taking the testimony of the party submitting the questions, together with a notice stating the name and address of the person who is to answer them and the name or descriptive title and address of the officer before whom the deposition is to be taken. Within 10 days thereafter, a party so served may serve cross questions upon the party proposing to take the deposition. Within 5 days thereafter, the latter may serve redirect questions upon a party who has served cross questions. Within 8 days after being served with redirect questions a party may serve recross questions upon the party proposing to take the depositions. Written objections to questions may be served on the party propounding the questions, and in response thereto substitute questions may be served, within 3 days.

(b) A copy of the notice and copies of all questions served shall be delivered by the party taking the testimony to the officer designated in the notice, who shall proceed to take the testimony of the witness in response to the questions and to prepare each answer immediately preceded by its corresponding question, then certify, and file the deposition, attaching thereto the copy of the notice and the questions received by him. Such depositions are subject to the same rulings for filing and serving copies as other depositions.

(d) Testimony in foreign countries shall be taken only by depositions upon written questions unless the parties stipulate otherwise in writing. Rule 28(b) of the Federal Rules of Civil Procedure shall apply to the taking of testimony in foreign countries.

§ 2.124a [Revoked]

27. Revoke § 2.124a.

28. Revise § 2.125 to read as follows:

§ 2.125 *Copies of testimony.*

(a) One copy of the transcript of testimony (taken in accordance with § 2.123 (e) through (h) or § 2.124), together

with copies of documentary exhibits, shall be served on each adverse party within 30 days after completion of the taking of such testimony. The original transcript and exhibits and one copy of the transcript shall be filed in the Patent Office as promptly as possible.

(b) Each transcript and the copies thereof shall comply with § 2.123(g) as to arrangement, indexing and form.

29. Amend § 2.127 by revising paragraphs (a) and (b) to read as follows:

§ 2.127 *Motions.*

(a) Motions shall be made in writing and shall contain a full statement of the grounds therefor. Any brief or memorandum in support of a motion shall accompany or be embodied in the motion. Briefs in opposition to a motion shall be filed within 15 days from the date of service of the motion unless another time is specified by the Trademark Trial and Appeal Board or the time is extended on request. Where a party fails to file a brief in opposition to a motion, the Trademark Trial and Appeal Board may treat the motion as conceded. Oral hearings will not be held on motions except on order of the Trademark Trial and Appeal Board.

(b) Any petition for reconsideration or modification of a decision, if it is not appealable, must be filed within 10 days after the decision or, if the decision is appealable, within the time specified in § 2.129(c). Any brief in opposition shall be filed within 15 days after service of the petition.

30. Amend § 2.128 by revising paragraph (b) to read as follows:

§ 2.128 *Final hearing and briefs.*

(b) Briefs may be submitted in typewritten form. They shall be the same in size and the same as to page and print as is specified for printed copies of testimony. Typewritten briefs shall conform to the requirements for typewritten copies of testimony, except that legal-size paper may be used and the binding and covers specified are not required. Without leave of the Trademark Trial and Appeal Board, no brief shall contain more than 50 pages of argument and, in case of the reply brief, the entire brief shall not exceed 25 pages. Each brief shall contain an alphabetical index of cases therein.

31. Amend § 2.129 by revising paragraph (c) to read as follows:

§ 2.129 *Oral argument.*

(c) Any petition for rehearing, reconsideration, or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

Dated: August 26, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-13116; Filed 9-7-71; 8:49 a.m.]

Published in 36 FR 18002, Sept. 8, 1971

[891 O.G. 4]

(173) IDENTIFICATION OF GOODS AND SERVICES IN
TRADEMARK APPLICATIONS

Amendment

The notice entitled Identification of Goods and Services in Trademark Applications which appeared in the Federal Register of July 16, 1971 (36 F.R. 13232) and the OFFICIAL GAZETTE of Aug. 3, 1971, specified an incorrect method of payment for securing a copy of the English edition of "International Classification of Goods and Services to which Trademarks are Applied." Due to problems in international monetary exchange, the British Patent Office no longer accepts an ordinary check drawn on an American bank in dollars. The paragraphs in the identified notice relating to

methods of payment (the last two paragraphs and concluding table) should read as follows:

We have been advised by the British Patent Office that the only acceptable methods of payment are by International Money Order or banker's draft, payable in sterling and drawn on a bank in the United Kingdom. Orders for the International Classification and for the supplements can be made by remittance in the following amount(s):

International Classification	50 pence
Nov. 15, 1967, supplement	5 pence
Mar. 18, 1970, supplement	Free
Mar. 3, 1971, supplement	10 pence

Total cost (including postage by surface mail)	65 pence
Additional charge for postage by air mail	1 pound 55 pence

Total cost by airmail	2 pounds 20 pence
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Orders should be sent directly to:

Sales Branch, The Patent Office, Block C,
Station Square House, St. Mary Cray,
Orpington, Kent, England

RENE D. TEGTMAYER,
Assistant Commissioner for Appeals,
Legislation and Trademarks.

Date: Aug. 27, 1971.

Pub. 36 F.R. 17591; Sept. 2, 1971

[890 O.G. 976]

(174) STATUS INQUIRIES; AMENDMENT

The notice entitled Status Inquiries which appeared in the Federal Register of August 11, 1971 (36 F.R. 14771-14772), indicated that all status inquiries regarding trademark applications will be entered in the application files. That procedure will not, however, be followed in all cases, and the first paragraph of the notice has, accordingly, been amended to read as follows:

"In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed in the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. Both the original inquiry and the duplicate will be marked with a response and the duplicate will be returned to the applicant. The original inquiry will be entered in the file only if the applicant has requested an estimated date for the next Office action; otherwise, the original inquiry will be placed in a separate file."

Dated: Sept. 14, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[FR Doc. 71-14129; Filed 9-23-71; 8:50 a.m.]

Pub. in 36 F.R. 18961, Sept. 24, 1971

[891 O.G. 1332]

POSTAL SERVICE EMERGENCY

(175) EMERGENCY SITUATION IN THE
U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16 and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be

considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connecticut is located at:

Room 610-B, Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Acting Commissioner of Patents.
Mar. 19, 1970.
[872 O.G. 1383]

(176) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the aboveset date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.
Mar. 27, 1970.
[873 O.G. 319]

(177) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.
Apr. 27, 1970.
[874 O.G. 688]

(178) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Acting Commissioner of Patents.
Apr. 27, 1970.
[874 O.G. 688]

(179) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92-34.

Public Law 92-34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92-34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

- Applicant(s) for patent or trademark registration;
- Patentee(s) or trademark registrant;
- Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amend-

ment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceeding in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statutory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.
Dated: July 14, 1971.
JAMES H. WAKELIN, Jr.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-10469; Filed 7-22-71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

MISCELLANEOUS

(180) JOINT UNITED STATES-REPUBLIC OF THE PHILIPPINES PROGRAM

I am pleased to announce the availability of an exchange program on examination results between the United States and the Republic of the Philippines. The program involves patent applications filed in the United States which are subsequently followed by corresponding applications filed in the Republic of the Philippines and patent applications filed in the Philippines subsequently followed by corresponding applications filed in the United States.

The program would operate as follows:

The applicant would file his application in the U.S. Patent Office which would process the application in the normal manner and examine the application in the usual time sequence.

If the applicant should later file a corresponding application in the Philippines Patent Office, he may elect to use the special filing procedure. Under this special filing procedure, applicant files his application in the Philippines accompanied by a notice of election to participate in the special

procedure; which notice of election contains a certification that the description (excluding references to related applications), claims and drawings are identical to those of the corresponding application originally filed in the United States. The earlier filed application must be fully identified; and, in applications without a claim of priority, a certified copy of the earlier filed U.S. application must be submitted to the Philippines Patent Office. In addition, applicant must also agree that all amendments to his U.S. application will also be made with respect to his application filed in the Philippines.

In the U.S. Patent Office, applicant will regularly file two copies of each amendment, one copy must be marked "Copy for Philippines Patent Office." Upon termination of prosecution the U.S. Patent Office shall remove all copies so marked from the U.S. file and promptly forward the same to the Philippines Patent Office.

Election forms for participation in this special program must be signed in duplicate and simultaneously accompany the application to be filed in the Philippines.

Upon receipt of properly filed notice of election, the Philippines Patent Office would notify the U.S. Patent Office of the election by forwarding one copy of the election forms to the U.S. Patent Office. The Philippines Office would defer action on the Philippines application pending receipt of information as to the disposition of the application by the U.S. Patent Office. If no such information is received by the Philippines Office within a reasonable amount of time from the date of filing in the Philippines, the Philippines Office may, either on its own initiative, or applicant's request, inquire as to the status of the U.S. application and, if desired, proceed with its own independent examination.

Upon disposal of the application by the U.S. Patent Office, appropriate information will be sent to the Philippines Patent Office which will include all necessary identifying data, whether allowed or abandoned, notice of allowance, copies of documents cited during examination, a copy of the last office action and, when necessary, any earlier actions which may be included by reference in the last action. The Philippines Office would then make their own complete office action based upon the claims as amended with the U.S. Patent Office, performing whatever checks desired and search for copending interfering applications. Alternatively, the Philippines may request applicant to show cause why the results of the U.S. examination should not be accepted in the Philippines. All avenues of appeal would remain open to the applicant.

Where copending applications are cited and applied during examination in the U.S. Patent Office, full examination would not be forwarded to the Philippines Patent Office, and the fact that a U.S. copending application was cited would be noted as a matter of information, since such references would be inapplicable in the Philippines.

Where the application originates in the Philippines Patent Office and is subsequently filed in the U.S. Patent Office, a similar procedure as outlined above consonant with U.S. Law will be followed.

It is believed that this program will facilitate the handling of U.S. origin applications filed in the Republic of the Philippines resulting in a savings in time and expense of prosecution to U.S. applicants.

Election forms for participation in this special program are now available from The Foreign Exchange Section, Office of Patent Services.

GERALD D. O'BRIEN,
Assistant Commissioner.
[847 O.G. 331 (Feb. 13, 1968)]

(181) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3 FORMS FOR PATENT CASES

Amendment of Rules re New Defensive Publication Program; Additional Form

Section 1.11, 1.14, 1.101, 1.103 and 1.108 of Title 37 CFR (Patent Rules 11, 14, 101, 103 and 108) are amended or revised and a new § 1.139 (Patent Rule 139) is added to take

effect May 1, 1968, for the purpose of instituting a new defensive publication program. A new section 3.50 is added for the purpose of implementing the new program.

The general substance of the proposed revisions and additions was published in the Federal Register of February 20, 1968 (38 F.R. 3189). A hearing was held on March 27, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. Both oral and written comments were carefully considered. The sections are being revised substantially as published with a few additional changes.

This program is intended to provide better service to the public by making available the technical disclosure of certain applications in which the owner may prefer to publish an abstract in lieu of obtaining an examination by the Patent Office. The defensive publication would be in the form of an abstract of the technical disclosure, printed in the OFFICIAL GAZETTE and made a part of the Patent Office search files.

This program will be open to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application and agrees to the conditions of the program, including waiving his patent rights based on the designated application, opening the complete application to inspection by the general public upon publication of the abstract, expressly abandoning his application, the abandonment to take effect five (5) years after the earliest U.S. effective filing date of the application unless within that period interference proceedings have been initiated, and waiving his rights to a patent on a continuing application filed after the expiration of thirty (30) months from the earliest U.S. effective filing date of the designated application. *Until November 1, 1968, this program will be open to any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.*

In accordance with existing rules and procedures interferences may be declared with applications and patents. During the period beginning with the suggestion of claims by the Patent Office or the filing of claims by the applicant copied from a patent and ending with the termination of proceedings if an interference is declared or the mailing of a decision refusing to declare the interference, abandonment by reason of the expiration of the five year period will be stayed. Since the applicant has waived his patent rights and agreed to a defensive publication, termination of interference proceedings in his favor would render the express abandonment ineffective but would not result in the issuance of an enforceable patent. Instead, a normal Notice of Allowance would be issued except that the applicant would be notified that when the issue fee is remitted a disclaimer of the entire term of the patent to be granted in accordance with the second paragraph of 35 U.S.C. 253 should be included.

No special fees will be required for entrance into this program. The applicant will be permitted to include with his request a replacement or expanded abstract of the technical disclosure of up to two hundred (200) words. Acceptance of a request to enter this program will be contingent upon screening by the Patent Office to exclude such material that may be considered advertising, frivolous, scandalous, against public policy, subject to national security controls, etc. Acceptance of a designated application in this program is not intended to preclude the examination of any continuing application filed under 35 U.S.C. 120 within thirty (30) months after the earliest effective U.S. filing date of the designated application.

Upon receipt and approval of the request the application abstract will be published in the OFFICIAL GAZETTE. Publication of the abstract in the OFFICIAL GAZETTE would be in a separate section identifying the application as being open for inspection by the general public and indicating that it is subject to the New Defensive Publication Program.

Following publication the application would be filed in the Record Section of the Patent Reference Branch where it will be available for inspection upon written request. Copies of the application will be furnished by the Patent Office upon request and payment of fee. The application abstract and suitable drawing copies would then be made a part of the official search files.

After the defensive publication has appeared in the OFFICIAL GAZETTE the abstract and suitable drawing copies will be available as prior art from the date of publication under 35 U.S.C. 102(a) or 102(b) as a printed publication. Also,

at this time the application will be available as prior art under 35 U.S.C. 102(a) as evidence of prior knowledge from the actual date of filing the application in the Patent Office.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved: Apr. 9, 1968.
JOHN F. KINCAID,
Assistant Secretary for
Science and Technology.

Published in 33 F.R. 5623; Apr. 11, 1968

[849 O.G. 1221]

(182) STUDY OF COMPUTER PROGRAM PROTECTION

Request for Comments

The President's Commission on the Patent System, established by Executive Order No. 11215 on April 8, 1965, submitted its final report to the President on November 17, 1966. Included among the recommendations of the Commission is the following regarding computer programs:

A series of instructions which control or condition the operation of a data processing machine, generally referred to as "program," shall not be considered patentable regardless of whether the program is claimed as: (a) an article, (b) a process described in terms of the operations performed by a machine pursuant to a program, or (c) one or more machine configurations established by a program.

The Patent Reform Act of 1967, S. 1042 and H.R. 5924, included the Commission's recommendation and excluded computer programs from patentable subject matter. After a review of the comments submitted, the Department of Commerce withdrew its support of this provision of the Patent Reform Act for further study and evaluation of the subject.

Because of the significance of the computer programming industry to the economy and the interest evidenced by the public and private sectors in commenting on this provision of the Patent Reform Act, the Patent Office has initiated a comprehensive study of the need for the protection of computer programs. The study is intended to encompass all aspects of the question, including that as to whether there is, or is not, a need for some kind of protection for programs. The study will investigate which of various types of protection would best satisfy any need for protection, including systems based either on originality or novelty. Problems relating to the question of the protection of computer programs will be considered; for example, the nature of the disclosure and other requirements relating to applications for protection, the merits of examination and registration systems, the duration of protection, and the administration and enforcement of the various plans of protection.

The views of interested persons are solicited on the various aspects of the Patent Office study, the recommendation of the President's Commission and any related matters. These views should be submitted in writing to the Commissioner of Patents, Washington, D.C. 20281 by December 15, 1968.

EDWARD J. BRENNER,
Commissioner of Patents.

Sept. 16, 1968.

Approved:
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

[855 O.G. 555]

(183) DEFENSIVE PUBLICATION PROGRAM

The open season of the New Defensive Publication Program, originally announced in the OFFICIAL GAZETTE of May 7, 1968 (850 O.G. 1) as terminating November 1, 1968, is hereby extended. Accordingly, until January 1, 1969, this program will be open for any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.

As originally announced this program will continue to be open until further notice to any applicant having an application awaiting action by the Patent Office and who files a

written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application.

RICHARD A. WAHL,
Assistant Commissioner.

Oct. 1, 1968.

[855 O.G. 1109]

(184) PATENT PRINTING PRIORITY

In view of the backlog of allowed cases waiting to be printed, the applications placed in the weekly formulation of an issue set aside for printing will be selected according to the following priorities:

1. Allowed cases which were made special by the Commissioner (including those under the New Special Examining Procedure).
2. Allowed cases that are more than five years old.
3. Allowed reissue applications.
4. Allowed applications having an effective filing date earlier than that required for declaring an interference with a copending application claiming the same subject matter.
5. Allowed application of a party involved in a terminated interference.
6. Allowed applications in which the applicant has filed a request in the nature of a petition setting forth his reasons for advancing the printing date.
7. Allowed applications ready for printing and not covered by any of the six preceding categories. The selection of cases in the involved category will be by chronological sequence based on the date the issue fee was paid.

To ensure that any application falling within the scope of the categories outlined above and identified by numbers 1 to 5 receives special treatment the Examiners should staple on the file wrapper a tag entitled "Special in Issue and Gazette Branch." The special tag, PO-364, may be obtained from the Group Clerk. The Examiner shall print directly on the tag the recitation "In Issue and Gazette Branch" and the appropriate printing category outlined above. The application is then forwarded to Issue and Gazette Branch in accordance with existing procedures.

The personnel in Issue and Gazette Branch will then set the tagged cases aside and make a notation on all copies of the Notice of Allowance to be mailed that further processing of this application will be "special."

In cases falling in category No. 6, the request must be filed after the Notice of Allowance has been received and no later than the date the issue fee is paid. The request must be directed to the Head of the Issue and Gazette Branch.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 29, 1968.

[857 O.G. 1327]

(185) DEFENSIVE PUBLICATION PROGRAM

The notice of October 1, 1968 (855 O.G. 1109) which extended the open season of the New Defensive Publication Program until January 1, 1969, is hereby modified to further extend the open season indefinitely. Accordingly, until further notice any patent application which has not been given a first action may be entered in the Defensive Publication Program.

RICHARD A. WAHL,
Assistant Commissioner.

Dec. 20, 1968

[858 O.G. 687]

(186) SUPPLEMENTAL NOTICE REGARDING THE PATENT OFFICE STUDY OF COMPUTER PROGRAM PROTECTION

Extension of Time for Submitting Comments

The deadline set in the Federal Register notice of October 19, 1968 (33 F.R. 15562) for submitting comments in con-

nection with the Patent Office Study on Computer Program Protection is extended from December 15, 1968, to March 15, 1969.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:

JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 34 F.R. 1332; Jan. 28, 1969

[859 O.G. 345 (Jan. 28, 1969)]

(187) JOINT U.S.-SWEDISH SEARCH EXCHANGE

A program for the exchange of search results between the patent offices of Sweden and the United States was initiated in February 1969. The program which is now in full operation involves patent applications filed in one country which are subsequently followed by corresponding applications filed in the other.

The program operates as follows:

The applicant files an application in the U.S. Patent Office which then processes the application in the customary manner and in the usual time sequence.

If the applicant later files an application in Sweden claiming the priority of the U.S. application, the Patent Office of Sweden notifies the U.S. Patent Office of this filing by forwarding a request for a list of the references cited by the U.S. examiner in the first office action on the merits.

Where the application originates in Sweden and is subsequently filed in the U.S. Patent Office, a similar procedure is followed whereby the U.S. office requests and the Swedish office supplies a list of references cited by the Swedish examiner.

This program, which involves only the furnishing of listings of references cited, could improve the quality of the patents granted by each office.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Aug. 26, 1969.

[866 O.G. 1081]

(188) DEFENSIVE PUBLICATION PROGRAM

1. To resolve certain inherent publication and reference problems, and to establish and treat Defensive Publication. Applications (notices published in 33 F.R. 5623, April 11, 1968, and O.G. 1221, April 30, 1968) in the same manner as patents, the following changes are being made:

- a. Publication is to be weekly beginning with 869 O.G. No. 3, December 16, 1969, and
- b. Distinct numbers are to be assigned per example:

T 869 001
Number series, 001-999 available monthly,
O.G. volume number,
Document category, T for Technical disclosure.

2. Defensive Publications will continue to be included in sub-class lists and subscription orders. The new number will be used for all official reference and document copy requirements.

RICHARD A. WAHL,
Assistant Commissioner.

Nov. 21, 1969.

[869 O.G. 687]

(189) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90-363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. Holidays

(a) The following are legal public holidays:

- New Year's Day, January 1.
- Washington's Birthday, the third Monday in February.
- Memorial Day, the last Monday in May.
- Independence Day, July 4.

Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.

Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dec. 2, 1970.

[881 O.G. 1707]

(190) TITLE 37—PATENTS, TRADEMARKS,
AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE
SUBCHAPTER A—GENERAL

SUBCHAPTER B—GOVERNMENT INVENTIONS JURISDICTION

EDITORIAL NOTE: Chapter I of Title 37 of the Code of Federal Regulations is changed by designating the existing text as Subchapter A—General, and inserting a new Subchapter B—Government Inventions Jurisdiction, containing former Parts 300, 301, and 302 which are transferred from Chapter III of this title and redesignated as follows:

Part
100 Administration of a uniform patent policy with respect to the domestic rights in inventions made by Government employees.

101 Acquisition and protection of foreign rights in inventions.

102 Licensing of foreign patents acquired by the Government.

Accordingly, all references to sections in former Parts 300, 301, or 302 shall be deemed to be to sections in Parts 100, 101, and 102. Thus, a reference to former § 300.1 shall be considered a reference to § 100.1.

CHAPTER III—GOVERNMENT INVENTIONS JURISDICTION,
PATENT OFFICE, DEPARTMENT OF COMMERCE

TRANSFER OF REGULATIONS

The text of Chapter III of Title 37 of the Code of Federal Regulations is transferred to Chapter I of this title as Subchapter B—Government Inventions Jurisdiction. Former Parts 300, 301, and 302 are redesignated Parts 100, 101, and 102 respectively.

Published in 34 F.R. 20383, Dec. 31, 1969

[870 O.G. 1039]

(191) DELAY IN ISSUANCE OF PATENTS

On June 9 and June 16, 1970, only reissue patents, design patents, and trademark registrations will be issued due to circumstances involving the printing of patent specifications. Delays may occur in filling orders for newly issued patents.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

May 21, 1970.

[875 O.G. 327]

(192) PATENT FRONT PAGE FORMAT

August 4, 1970 marks the inauguration of certain changes and innovations in the form and method of producing printed copies of patents. Nearly 100 patents in this issue were electrophotographically composed for printing as part of a comprehensive system for developing and utilizing a patent full-text library in computer processable form. Numbers of patents produced in this manner are scheduled to increase until all patents enter the machineable data base.

Patents produced by this new system are distinguishable in appearance from all others in the following respects:

(a) Front page

The first sheet of each patent presents an arrangement of the applicable bibliographic type of data elements which are

itemized and discussed elsewhere; an abstract of the disclosure (or a claim when no abstract is available); and, a reduced reproduction of a representative drawing figure when the patent contains any drawings.

(b) Other changes

With identification of the patent appearing on the front page, the title of the invention and the name of the inventor will no longer be printed in the heading of drawings. The patent number, date of issuance, and sheet-of-sheets information will continue to be printed on the drawings.

All of the bibliographic type of data and the abstract which previously appeared on sheets containing text matter are removed from such pages and consolidated on the front page.

Data elements presented on the front page are accompanied by a number which appears in brackets.

The numbers are data element identifiers which have been adopted internationally for use on patents and published applications to facilitate the worldwide use of such documents as set forth below:

- [11] Patent number
- [21] Application number
- [22] Filing date
- [31] Application number (of a Convention priority application)

- [32] Filing date (of Convention priority application)
- [33] Country in which the Convention priority application was filed

- [45] Date of Patent issue: followed by terminal disclaimer, if any

- [51] International Patent Classification: basic classification in bold face type; other in light face

- [52] U.S. Classification: Original class and subclass in bold face type; cross-references in light face

- [54] Title of the invention: Followed by the number of claims and drawing figures

- [56] References cited: List of prior art documents cited by the examiner, arranged in the following categories:
United States Patents
Foreign Patents or Applications
Other Publications

- [60] Related U.S. Applications:

- [62] Due to Division(s)

- [63] Due to Continuation(s)

- [64] Due to reissue(s)

- [72] Name(s) of the Inventor(s)

- [73] Assignee(s)

- [*] Field of Search: Subclasses recorded on the file wrapper as searched by the examiner

- [*] Primary Examiner: The person responsible for review of the patent allowance or who, in addition, examined and allowed the patent application

- [*] Assistant Examiner: the person who examined and allowed the patent application, other than a primary examiner

- [*] Attorney: the principal attorney of record at the time the allowed application was prepared for patent printing

- [*] Abstract

- [*] Element numbers have not been assigned to the items denoted by the sign [*]

- [*] For earlier information respecting the front page format and date entries, reference is made to the notice published in the OFFICIAL GAZETTE of March 11, 1969 (860 O.G. 336-7).

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

July 16, 1970.

[877 O.G. 1]

(193) DISCLOSURE DOCUMENT PROGRAM

This notice consolidates and supersedes the notices of Mar. 26, 1969 (862 O.G. 1) and Aug. 11, 1970 (878 O.G. 1) relating to the Patent Office Disclosure Document Program.

Under this program the Patent Office accepts and preserves, for a period of two years, papers referred to as "Disclosure Documents." These papers may be used as evidence of the dates of conception of inventions.

THE PROGRAM

A paper disclosing an invention and signed by the inventor or inventors may be forwarded to the Patent Office by the

inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. It will be retained for two years and then be destroyed unless it is referred to in a separate letter in a related patent application within said two years.

A Disclosure Document is not a patent application and the date of its receipt in the Patent Office will not become the effective filing date of any patent application subsequently filed. However, like patent applications, these documents will be kept in confidence by the Patent Office. If patent protection is desired, a patent application should be filed as soon as possible.

This program does not diminish the value of conventional witnessed and notarized records as evidence of conception of an invention, but it should provide a more credible form of evidence than that provided by the popular practice of mailing a disclosure to oneself or another person by registered mail. The program is made available as a service to those persons desiring to use it.

CONTENT OF DISCLOSURE DOCUMENT

Although there are no restrictions as to content and claims are not necessary, the benefits afforded by a Disclosure Document will depend directly upon the adequacy of the disclosure. Therefore, it is strongly urged that the document contain a clear and complete explanation of the manner and process of making and using the invention in sufficient detail to enable a person having ordinary knowledge in the field of the invention to make and use the invention. When the nature of the invention permits, a drawing or sketch should be included. The use or utility of the invention should be described, especially in chemical inventions.

The Disclosure Document must be limited to written matter or drawings on paper or other thin, flexible material, such as linen or plastic drafting material, having dimensions or being folded to dimensions not to exceed 8½ by 13 inches. Photographs also are acceptable. Each page should be numbered. Text and drawings should be sufficiently dark to permit reproduction with commonly used office copying machines.

A \$10 fee is charged for filing a Disclosure Document. Payment must accompany the Disclosure Document when it is submitted to the Patent Office.

In addition to the \$10 fee, the Disclosure Document must be accompanied by a stamped, self-addressed envelope and a separate paper in duplicate, signed by the inventor, stating that he is the inventor and requesting that the material be received for processing under the Disclosure Document Program. The papers will be stamped by the Patent Office with an identifying number and date of receipt, and the duplicate request will be returned in the self-addressed envelope together with a warning notice indicating that the Disclosure Document may be relied upon only as evidence and that a patent application should be diligently filed if patent protection is desired. The inventor's request may take the following form:

"The undersigned, being the inventor of the disclosed invention, requests that the enclosed papers be accepted under the Disclosure Document Program, and that they be preserved for a period of two years."

RETENTION

The Disclosure Document will be preserved in the Patent Office for two years after its receipt and will then be destroyed unless it is referred to in a separate letter in a related patent application filed within the two-year period. The Disclosure Document must be referred to in the separate letter by title, number, and date of receipt. Acknowledgment of receipt of such letters will be made in the next official communication or in separate letter from the Patent Office. Unless it is desired to have the Patent Office retain the Disclosure Document beyond the two-year period, it is not required that it be referred to in a patent application.

WARNING AS TO LIMITATIONS

The two-year retention period should not be considered to be a "grace period" during which the inventor can wait to file his patent application without possible loss of benefits. It should be recognized that in establishing priority of invention an affidavit or testimony referring to a Disclosure Document must usually also establish diligence in completing the invention or in filing the patent application since the filing of the Disclosure Document.

Inventors are also reminded that any public use or sale in the United States, or publication of the invention anywhere in the world, more than one year prior to the filing of a patent application on that invention will prohibit the granting of a patent on that invention.

If the inventor is not familiar with what is considered to be "diligence in completing the invention" or "reduction to practice" under the patent law, or if he has other questions about patent matters, the Patent Office advises him to consult an attorney or agent registered to practice before the Patent Office. Patent attorneys and agents may be found in the telephone directories of most major cities. Also, many large cities have associations of patent attorneys which may be consulted.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Jan. 4, 1971.

[883 O.G. 3]

(194) OFFICE OF THE SECRETARY
[Dept. Organization Order 30-3B]
PATENT OFFICE
Organization and Functions

This material supersedes the material appearing at 35 F.R. 18553 of December 5, 1970.

SECTION 1. Purpose. This order prescribes the organization and assignment of functions within the Patent Office.

SEC. 2. Organization Structure. The principal organization structure and line of authority of the Patent Office shall be as depicted in the attached organization chart. (A copy of the Organization Chart is on file with the original of this document with the Office of the Federal Register.)

SEC. 3. Office of the Commissioner. The Commissioner determines the policies and directs the programs of the Patent Office and is responsible for the conduct of all activities of the Patent Office. He is principally assisted by five Assistant Commissioners who shall have the main duties as specified below:

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3) shall assist the Commissioner in the direction of the Patent Office and shall perform the duties and functions of the Commissioner in the latter's absence.

b. The Assistant Commissioner for Patent Examining (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the patent examining operations which consist of the organizational elements enumerated in section 5. This Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who, among other duties, shall perform the functions of this Assistant Commissioner during the latter's absence.

c. The Assistant Commissioner for Appeals, Legislation, and Trademarks (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy directions to the Board of Appeals, the Office of Legislation and International Affairs, the Trademark Trial and Appeal Board, and the Trademark Examining Operation.

d. The Assistant Commissioner for Search Systems Development shall provide technical, administrative, and Policy Direction to the Office of Research and Development and the Office of Search Systems and Documentation. This Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who, among other duties, shall perform the functions of this Assistant Commissioner during the latter's absence.

e. The Assistant Commissioner for Administration shall provide administrative and policy direction to certain administrative, public and internal support services which consist of the organizational elements enumerated in section 8. This Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who, among other duties, shall perform the functions of this Assistant Commissioner during the latter's absence.

SEC. 4. Offices reporting to the Commissioner. 01 The Director of Planning, Budget, Evaluation, and Forecast shall be the principal assistant and advisor to the Commissioner in Planning and Developing the major Programs of the Patent Office, in formulating and executing budgetary and fiscal policies, appraising the effectiveness of operations in attaining program objectives, and in assessing and forecasting technological activities and invention developments in the United

States and other nations. He shall direct the activities of the following offices:

a. The Office of Planning shall develop and recommend major plans and programs for accomplishing the objectives of the Patent Office; direct and coordinate the development and maintenance of internal program planning for support of office-wide objectives; and analyze proposed programs for consistency and effective integration with organization responsibility, for pertinence to goals and objectives, for measurability of accomplishment, and validity and usefulness of workload parameters as indicators of expected accomplishment.

b. The Office of Budget shall formulate, interpret, and execute budgetary and fiscal policies; establish and maintain a comprehensive Planning-Programming-Budgeting System collaborating with operating officials in developing budget and fiscal plans; develop and present budget requests; allocate and maintain budgetary control of available funds; and maintain external liaison in budgetary matters.

c. The Office of Evaluation shall review and evaluate the performance of operating units to determine their effectiveness in accomplishing previously established goals and objectives; review and evaluate cost/benefit and cost/effectiveness analyses of alternatives for program accomplishment; and conduct or initiate the submission of such studies as needed for evaluation purposes.

d. The Office of Technology Assessment and Forecast shall continually assess the status of technological activity in all countries, compare inventive activity in the United States relative to other nations, and forecast technological developments on a worldwide basis.

.02 The Office of the Solicitor shall comprise the Solicitor, who is the chief legal officer for the Patent Office, and his professional associates. This Office shall handle all litigation to which the Commissioner is a party and provide other legal services, including drafting of legislation and advice and assistance on legislative matters. Other than in connection with the issuance of patents or the registration of trademarks, the Office shall be subject to the overall authority of the Department's General Counsel, as provided in Department Organization Order 10-6.

.03 The Office of Information Services shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and the functions, services and administrative publications of the Patent Office; develop publication policies; provide direction and assistance in developing new and revised publications; and assure conformity with policies, regulations, and standards concerning publications and publication practices.

.04 The Office of Data Systems shall be responsible for providing data processing services to other elements of the Patent Office. This shall include the conduct of systems analysis and equipment evaluation studies directly related to the design and development of systems and programs for applications of computer techniques, except systems for printing patents; preparation or procurement and testing of computer programs and supplemental data processing services; operation of all general purpose ADP equipment, except that which may be approved for use within another organization unit as an integral part of its operations; and maintenance of a comprehensive library of programs, including those developed or procured by other organizational units.

.05 The Office of Government Inventions and Patents shall administer Executive Order 10096, as amended by Executive Order 10930 and related regulations, including the rendering of final decisions on the ownership of patents and the rights to inventions made by Government employees, and advise the Commissioner on matters involving the Committee on Government Patent Policy (of the Federal Council for Science and Technology). It shall also conduct research, liaison, and coordinative functions needed to carry out Executive Order 10096 and to advise the Commissioner on Committee matters; provide executive secretariat support to the Committee; and assist in the development and formulation, to the extent appropriate, of a uniform Government-wide patent policy.

Sec. 5. *Offices reporting to the Assistant Commissioner for Patent Examining.* .01 The Board of Patent Interferences shall conduct patent interference proceedings and make final determination in the Patent Office as to priority of invention. The Board shall also decide questions concerning property rights in inventions in the atomic energy and space fields

brought before it under the provisions of 42 U.S.C. 2182 and 2457 (d) and (e).

.02 The Office of Examining and Documentation Control shall develop procedures, quality and quantity standards relating to the conduct of the examination and documentation functions; evaluate compliance with examination and documentation standards; and train new examiners in patent practice and procedure.

.03 The Office of Support Services shall provide direct administrative and clerical support to the Examining Groups in the examination of patent applications and attend to the processing of applications both in advance of examination and after allowance by the examiners for patent issuance. Its duties include the review of incoming applications for compliance in matters of form; the origination and maintenance of application inventory documentation and status; preparation, routing, movement, and maintenance of files; liaison with other organization units in obtaining and processing documents; and the provision of other logistical and administrative support.

.04 The Examining Groups, specified below, shall examine applications for patent to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category indicated by the title of the group. The Examining Groups are:

General Chemistry and Petroleum Chemistry;
General Organic Chemistry;
High Polymer Chemistry, Plastics and Molding;
Coating and Laminating, Bleaching, Dyeing and Photography;
Specialized Chemical Industries and Chemical Engineering;
Industrial Electronics and Related Elements;
Security and Designs;
Information Transmission, Storage and Retrieval;
Electronic Component Systems and Devices;
Physics;
Handling and Transportation Media;
Material Shaping, Article Manufacturing, Tools;
Amusement, Husbandry, Personal Treatment, Information;
Heat Power and Fluid Engineering; and
Constructions, Supports, Textiles, and Cleaning.

Sec. 6. *Offices reporting to the Assistant Commissioner for Appeals, Legislation and Trademarks.* .01 The Board of Appeals shall conduct hearings and render decisions on appeals from adverse decisions of examiners rejecting claims in patent applications.

.02 The Office of Legislation and International Affairs shall make studies and advise the Commissioner on policy and action concerning matters which may require legislation and on international patent and trademark matters; develop and direct the implementation of related programs; maintain liaison with the Office of the Secretary, the Department of State, and appropriate congressional committees; and conduct negotiations in technical patent and trademark matters in establishing or implementing international agreements.

.03 The Trademark Trial and Appeal Board shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellation petitions, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.04 The Trademark Examining Operation shall be responsible for the classification and examination of applications for the registration of trademarks and service marks and the maintenance of the principal and supplemental registers of trademarks.

Sec. 7. *Offices reporting to the Assistant Commissioner for Search Systems Development.* .01 The Office of Research and Development shall identify areas of needed research, formulate approaches to research problems, and conduct research (or monitor research carried out under contract); and design and install experimental systems, new equipment, or other products of research, and evaluate their effectiveness after installation. Major research and development efforts are aimed at development of automated search and retrieval systems and more effective dissemination of stored information to Patent Office examiners, the patent profession, and the scientific community.

.02 The Office of Search Systems and Documentation shall develop, improve, and maintain subject matter classification systems; improve and maintain the examiner's search file; develop, improve, and maintain operational search systems both manual and electronic, for the storage and identification of patents and patent related literature so that examiners and the public may readily retrieve particular technical information.

Sec. 8. *Offices reporting to the Assistant Commissioner for Administration.* .01 The Office of Finance shall develop and maintain the financial accounting system of the Patent Office; perform accounting operations for the revenue, trust funds, and appropriation of the Patent Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent Office, and administration of the payroll system and related employee accounts; and provide financial advice and opinions.

.02 The Office of Personnel shall administer activities relating to recruitment, placement, employee relations, training and career development, incentive awards, performance rating, position classification and wage administration, group-management relations and various employee benefit programs.

.03 The Office of Administrative Services shall provide office-wide services including the procurement and supply of equipment, furnishings, and consumable items; space and facilities management; communications; travel and transportation services; mail, messenger, and general correspondence services; and procurement and supply of graphic services and administrative printing, including office forms and publications. This Office shall also be responsible for carrying out a comprehensive paperwork management program in the Patent Office, embracing forms, reports, directives and records.

.04 The Office of Public Services shall provide the materials and services offered directly to the public many of which are provided on a fee basis. These shall include recording instruments that transfer property rights to patents and trademarks; furnishing copies of patents and office records; providing drafting services; and maintaining collections of pertinent technical and scientific information such as United States and foreign patents, periodicals, books, and other publications for use by patent and trademark examiners and the public.

.05 The Office of Patent Publications shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly patent issues and related announcements in the Official Gazette; monitor the quality of performance by contributing sources; provide technical direction and advice in contract administration; and maintain close liaison with the U.S. Government Printing Office; and prepare and issue patent grants.

.06 The Office of Organization and Systems Analysis shall plan and conduct studies designed to improve organization, methods, procedures, workflow, managerial techniques, resource utilization, or otherwise increase efficiency, effectiveness and economy of operations; participate in implementing approved recommendations; counsel and assist program managers in developing and instituting systems changes to enhance effectiveness in meeting operational objectives, but not including computer systems; having responsibility for design and development of systems for printing patents, whether computerized or not, including reproduction subsystems; have responsibility for design and development of micrographic systems; provide data research and statistical analytical services, including mathematical modeling; develop and manage a system for the issuance of internal administrative orders and instructions; promote development of the Patent Office management improvement program and coordinate the collection, review, and submission of reportable plans and accomplishments thereon; maintain a program for the management and control of reports; and make special studies as required.

Effective date: May 4, 1971.

LARRY A. JOBE,
Assistant Secretary
for Administration.

[FR Doc. 71-6957; Filed 5-18-71; 8:45 a.m.]

Published in 36 F.R. 9078, May 19, 1971

[887 O.G. 727]

(195) PRINTING OF CHEMICAL PATENTS

In view of financial and scheduling considerations associated with the closing of Fiscal Year 1971, no chemical patents will appear in the patent issues of August 24 and 31,

and September 7 and 14, 1971. Chemical patents will again be issued on September 21, 1971.

RICHARD A. WAHL,
Acting Commissioner of Patents.

[889 O.G. 356]

(196) SUPPLEMENTAL TO THE MANUAL OF CLASSIFICATION

Over a span of years, Patent Examiners have created "unofficial" subclasses and digests to facilitate searches within the arts under their jurisdiction. A recent inventory of the unofficial U.S. patents in the Examiner search file (exclusive of designs) has enabled the issuance of a listing of unofficial subclasses and digests as a supplement to the Manual of Classification.

Current subscribers to the Manual of Classification shall receive the Supplement as soon as it becomes available (Sept.-Oct. '71), at a cost to be included in a forthcoming renewal fee. New subscriptions shall include the Supplement at a slightly higher cost.

It should be noted that the Supplement is intended only as an interim publication until such time as the Manual of Classification can be completely reprinted with the unofficial subclasses and digests shown in their proper relationship to respective official classes and subclasses. The reprinted Manual, in the described integrated format, shall be derived from computer stored data now in the process of being compiled and should be available by mid-1972.

WILLIAM R. NUGENT,
Assistant Commissioner.

July 27, 1971.

[889 O.G. 1064]

(197) PRESIDENTIAL DOCUMENTS, TITLE 3—

THE PRESIDENT

MEMORANDUM OF AUGUST 23, 1971

GOVERNMENT PATENT POLICY

Memorandum for Heads of Executive Departments
and Agencies

THE WHITE HOUSE,
Washington, August 23, 1971.

On October 10, 1963, President Kennedy forwarded to the Heads of Executive Departments and Agencies a Memorandum and Statement of Government Patent Policy for their guidance in determining the disposition of rights to inventions made under Government-sponsored grants and contracts. On the basis of the knowledge and experience then available, this Statement first established Government-wide objectives and criteria, within existing legislative constraints, for the allocation of rights to inventions between the Government and its contractors.

It was recognized that actual experience under the Policy could indicate the need for revision or modification. Accordingly, a Patent Advisory Panel was established under the Federal Council for Science and Technology for the purpose of assisting the agencies in implementing the Policy, acquiring data on the agencies' operations under the Policy, and making recommendations regarding the utilization of Government-owned patents. In December 1965, the Federal Council established the Committee on Government Patent Policy to assess how this Policy was working in practice, and to acquire and analyze additional information that could contribute to the reaffirmation or modification of the Policy.

The efforts of both the Committee and the Panel have provided increased knowledge of the effects of Government patent policy on the public interest. More specifically, the studies and experience over the past 7 years have indicated that:

(a) A single presumption of ownership of patent rights to Government-sponsored inventions either in the Government or in its contractors is not a satisfactory basis for Government patent policy, and that a flexible, Government-wide policy best serves the public interest;

(b) The commercial utilization of Government-sponsored inventions, the participation of industry in Government research and development programs, and commercial competition can be influenced by the following factors: the mission

of the contracting agency; the purpose and nature of the contract; the commercial applicability and market potential of the invention; the extent to which the invention is developed by the contracting agency; the promotional activities of the contracting agency; the commercial orientation of the contractor and the extent of his privately financed research in the related technology; and the size, nature and research orientation of the pertinent industry;

(c) In general, the above factors are reflected in the basic principles of the 1963 Presidential Policy Statement.

Based on the results of the studies and experience gained under the 1963 Policy Statement certain improvements in the Policy have been recommended which would provide (1) agency heads with additional authority to permit contractors to obtain greater rights to inventions where necessary to achieve utilization or where equitable circumstances would justify such allocation of rights, (2) additional guidance to the agencies in promoting the utilization of Government-sponsored inventions, (3) clarification of the rights of States and municipal governments in inventions in which the Federal Government acquires a license, and (4) a more definitive data base for evaluating the administration and effectiveness of the Policy and the feasibility and desirability of further refinement or modification of the Policy.

I have approved the above recommendations and have attached a revised Statement of Government Patent Policy for your guidance. As with the 1963 Policy Statement, the Federal Council shall make a continuing effort to record, monitor and evaluate the effects of this Policy Statement. A Committee on Government Patent Policy, operating under the aegis of the Federal Council for Science and Technology, shall assist the Federal Council in these matters.

This memorandum and statement of policy shall be published in the Federal Register.

RICHARD NIXON.

STATEMENT OF GOVERNMENT PATENT POLICY BASIC CONSIDERATIONS

A. The Government expends large sums for the conduct of research and development which results in a considerable number of inventions and discoveries.

B. The inventions in scientific and technological fields resulting from work performed under Government contracts constitute a valuable national resource.

C. The use and practice of these inventions and discoveries should stimulate inventors, meet the needs of the Government, recognize the equities of the contractor, and serve the public interest.

D. The public interest in a dynamic and efficient economy requires that efforts be made to encourage the expeditious development and civilian use of these inventions. Both the need for incentives to draw forth private initiatives to this end, and the need to promote healthy competition in industry must be weighed in the disposition of patent rights under Government contracts. Where exclusive rights are acquired by the contractor, he remains subject to the provisions of the antitrust laws.

E. The public interest is also served by sharing of benefits of Government-financed research and development with foreign countries to a degree consistent with our international programs and with the objectives of U.S. Foreign policy.

F. There is growing importance attaching to the acquisition of foreign patent rights in furtherance of the interests of U.S. industry and the Government.

G. The prudent administration of Government research and development calls for a Government-wide policy on the disposition of inventions made under Government contracts reflecting common principles and objectives, to the extent consistent with the missions of the respective agencies. The policy must recognize the need for flexibility to accommodate special situations.

POLICY

SECTION 1. The following basic policy is established for all Government agencies with respect to inventions or discoveries made in the course of or under any contract of any Government agency, subject to specific statutes governing the disposition of patent rights of certain Government agencies.

(a) Where

(1) a principal purpose of the contract is to create, develop or improve products, processes, or methods which are intended for commercial use (or which are otherwise intended to be made available for use) by the general public at home

or abroad, or which will be required for such use by governmental regulations; or

(2) a principal purpose of the contract is for exploration into fields which directly concern the public health, public safety, or public welfare; or

(3) the contract is in a field of science or technology in which there has been little significant experience outside of work funded by the Government, or where the Government has been the principal developer of the field, and the acquisition of exclusive rights at the time of contracting might confer on the contractor a preferred or dominant position; or

(4) the services of the contractor are

(i) for the operation of a Government-owned research or production facility; or

(ii) for coordinating and directing the work of others, the Government shall normally acquire or reserve the right to acquire the principal or exclusive rights throughout the world in and to any inventions made in the course of or under the contract.

In exceptional circumstances the contractor may acquire greater rights than a nonexclusive license at the time of contracting where the head of the department or agency certifies that such action will best serve the public interest. Greater rights may also be acquired by the contractor after the invention has been identified where the head of the department or agency determines that the acquisition of such greater rights is consistent with the intent of this Section 1(a) and is either a necessary incentive to call forth private risk capital and expense to bring the invention to the point of practical application or that the Government's contribution to the invention is small compared to that of the contractor. Where an identified invention made in the course of or under the contract is not a primary object of the contract, greater rights may also be acquired by the contractor under the criteria of Section 1(c).

(b) In other situations, where the purpose of the contract is to build upon existing knowledge or technology, to develop information, products, processes, or methods for use by the Government, and the work called for by the contract is in a field of Technology in which the contractor has acquired technical competence (demonstrated by factors such as know-how, experience, and patent position) directly related to an area in which the contractor has an established nongovernmental commercial position, the contractor shall normally acquire the principal or exclusive rights throughout the world in and to any resulting inventions.

(c) Where the commercial interests of the contractor are not sufficiently established to be covered by the criteria specified in Section 1(b) above, the determination of rights shall be made by the agency after the invention has been identified, in a manner deemed most likely to serve the public interest as expressed in this policy statement, taking particularly into account the intentions of the contractor to bring the invention to the point of commercial application and the guidelines of Section 1(a) hereof, provided that the agency may prescribe by regulation special situations where the public interest in the availability of the inventions would best be served by permitting the contractor to acquire at the time of contracting greater rights than a nonexclusive license.

(d) In the situations specified in Sections 1(b) and 1(c), when two or more potential contractors are judged to have presented proposals of equivalent merit, willingness to grant the Government principal or exclusive rights in resulting inventions will be an additional factor in the evaluation of the proposals.

(e) Where the principal or exclusive rights in an invention remain in the contractor, he should agree to provide written reports at reasonable intervals, when requested by the Government, on the commercial use that is being made or is intended to be made of inventions made under Governmental contracts.

(f) Where the principal or exclusive rights in an invention remain in the contractor, unless the contractor, his licensee, or his assignee has taken effective steps within three years after a patent issues on the invention to bring the invention to the point of practical application or has made the invention available for licensing royalty-free or on terms that are reasonable in the circumstances, or can show cause why he should retain the principal or exclusive rights for a further period of time, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable under the circumstances.

(g) Where the principal or exclusive rights to an invention are acquired by the contractor, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable in the circumstances (i) to the extent that the invention is required for public use by governmental regulations, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other public purposes stipulated in the contract.

(h) Whenever the principal or exclusive rights in an invention remain in the contractor, the Government shall normally acquire, in addition to the rights set forth in Sections 1(e), 1(f), and 1(g),

(1) at least a nonexclusive, nontransferable, paid-up license to make, use, and sell the invention throughout the world by or on behalf of the Government of the United States (including any Government agency) and States and domestic municipal governments, unless the agency head determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments; and

(2) the right to sublicense any foreign government pursuant to any existing or future treaty or agreement if the agency head determines it would be in the national interest to acquire this right; and

(3) the principal or exclusive rights to the invention in any country in which the contractor does not elect to secure a patent.

(i) Whenever the principal or exclusive rights in an invention are acquired by the Government, there may be reserved to the contractor a revocable or irrevocable nonexclusive royalty-free license for the practice of the invention throughout the world; an agency may reserve the right to revoke such license so that it might grant an exclusive license when it determines that some degree of exclusivity may be necessary to encourage further development and commercialization of the invention. Where the Government has a right to acquire the principal or exclusive rights to an invention and does not elect to secure a patent in a foreign country, the Government may permit the contractor to acquire such rights in any foreign country in which he elects to secure a patent, subject to the Government's rights set forth in Section 1(h).

SEC. 2. Under regulations prescribed by the Administrator of General Services, Government-owned patents shall be made available and the technological advances covered thereby brought into being in the shortest time possible through dedication or licensing, either exclusive or non-exclusive, and shall be listed in official Government publications or otherwise.

SEC. 3. The Federal Council for Science and Technology in consultation with the Department of Justice shall prepare at least annually a report concerning the effectiveness of this policy, including recommendations for revision or modification as necessary in light of the practices and determinations of the agencies in the disposition of patent rights under their contracts. The Federal Council for Science and Technology shall continue to

(a) develop by mutual consultation and coordination with the agencies common guidelines for the implementation of this policy, consistent with existing statutes, and to provide overall guidance as to disposition of inventions and patents in which the Government has any right or interest; and

(b) acquire data from the Government agencies on the disposition of patent rights to inventions resulting from federally financed research and development and on the use and practice of such inventions to serve as bases for policy review and development; and

(c) make recommendations for advancing the use and exploitation of Government-owned domestic and foreign patents.

Each agency shall record the basis for its actions with respect to inventions and appropriate contracts under this statement.

SEC. 4. Definitions: As used in this policy statement, the stated terms in singular and plural are defined as follows for the purposes hereof:

(a) *Government agency*—includes any executive department, independent commission, board, office, agency, administration, authority, Government corporation, or other Government establishment of the executive branch of the Government of the United States of America.

(b) *States*—means the States of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam and the Trust Territory of the Pacific Islands.

(c) *Invention, or Invention or Discovery*—includes any art, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the Patent Laws of the United States of America or any foreign country.

(d) *Contractor*—means any individual, partnership, public or private corporation, association, institution, or other entity which is a party to the contract.

(e) *Contract*—means any actual or proposed contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the Government where a purpose of the contract is the conduct of experimental, developmental, or research work.

(f) *Made*—when used in relation to any invention or discovery means the conception or first actual reduction to practice of such invention in the course of or under the contract.

(g) *To the point of practical application*—means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine and under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

[FR Doc. 71-12623; Filed 8-25-71; 10:41 a.m.]

36 F.R. 16887-16892; Aug. 26, 1971

[890 O.G. 1302 (Sept. 28, 1971)]

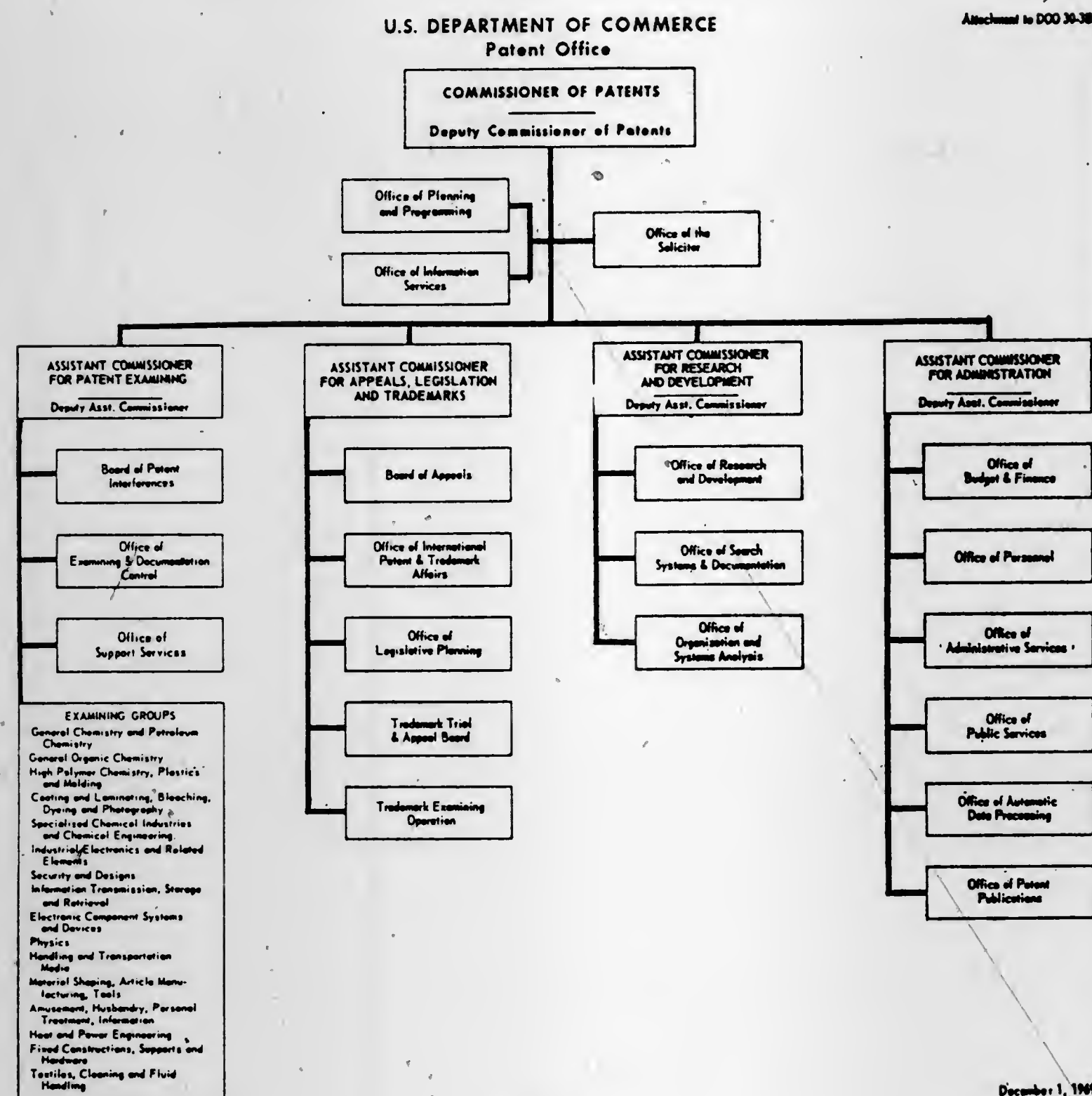
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ORGANIZATION OF THE PATENT OFFICE

The accompanying block type organization chart printed herein shows the present organization of the Patent Office. It is based upon Department of Commerce Organization Order 30-3B, which explains the functions of the several units comprising the organization set forth in the chart. The Order is published following the chart.

December 18, 1969.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.



[870 O.G. 334]

December 1, 1969

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PATENT OFFICE NOTICES

United States Adopted Names

List No. 30

July 1, 1971 to October 31, 1971

The following nonproprietary names for the drugs described have been adopted by the USAN Council (the nomenclature committee sponsored by the American Medical Association, the American Pharmaceutical Association and the United States Pharmacopoeial Convention) in cooperation with the interested manufacturers. The designation "United States Adopted Names" (USAN) has been coined to distinguish these formally adopted nonproprietary names from other nonproprietary names. Adoption of such names does not imply endorsement of the products involved by the A.M.A. Council on Drugs, the United States Pharmacopoeia or the National Formulary.

Any comments or suggestions should be addressed to Doctor Joseph B. Jerome, Secretary, United States Adopted Names Council, American Medical Association, 535 N. Dearborn St., Chicago, Ill., 60610.

apramycin: antibacterial antibiotic (veterinary)
brinolase: fibrinolytic enzyme
conazole: antifungal
dicumarol: anticoagulant
elantrene: antiparkinsonism
hexobendine: vasodilator
indoramin: antihypertensive
kasal: food additive
lapyrium chloride: surfactant
lomustine: antineoplastic
mibolerone: anabolic androgen
mitomycin: antineoplastic antibiotic
obidoxime chloride: cholinesterase reactivator
phenbutasone sodium glycerate: anti-inflammatory; anti-arthritis
proquazone: anti-inflammatory
rodocaline: local anesthetic
semustine: antineoplastic
sulfabenzamide: antibacterial
temodox: antibacterial growth promotant for animals

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent Office either on the basis of 4 years or more service in the Examining Corps or under Rule 341(e) of the "Rules of Practice of the United States Patent Office in Patent Cases."

Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds should be furnished the Commissioner of Patents on or before January 28, 1972.

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ROBERT GOTTSCHALK,
Dec. 7, 1971. Chairman, Committee on Enrollment.

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3,007,487, K. Adams, VALVE; 3,442,488, same, filed Aug. 6, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c1953, *Valve and Primer Corp. v. Gebruder Adams and Karl Adams.*

3,068,484, Moehlenpah and Pallme, APPARATUS FOR FABRICATING WOOD STRUCTURES; 3,069,664, same, filed June 30, 1971, D.C., E.D. Tenn. (Knoxville), Doc. 7523, *Hydro-Air Engineering, Inc. v. Building Component Machinery Co., Inc. and Sidney Gwyn.*

3,069,664. (See 3,068,484.)

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3,308,493, F. A. Lambach, SURFBOARD, filed Jan. 15, 1970, D.C., S.D. Calif. (San Diego), Doc. 70-16-S, *Robert Ellis v. Bill Bahne, doing business as Pines Unlimited.* Order granting motion for summary judgment and dismissing the action, Aug. 18, 1971.

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Re. 23,891. (See Re. 23,890.)

Re. 25,290, F. T. Parfrey, METHOD OF AND MEANS FOR FORMING HOLLOW ARTICLES, filed Aug. 6, 1971, D.C., W.D. Mich. (Grand Rapids), Doc. G194-71-CA(5), Owens-Illinois, Inc. and Francis Trigg Parfrey v. Baker Plastics Co., Hercules, Inc., Haskon, Inc. and Burcham Products Co. Same, filed Aug. 6, 1971, D.C., E.D. Mich. (Detroit), Doc. 36900, Owens-Illinois, Inc. and Francis Trigg Parfrey v. Hercules Inc., Baker Plastics and Haskon Inc.

D. 205,338, E. L. Kilbourn, COMBINED CLOSURE AND GAUGE FOR A FLUID SYSTEM; 3,385,318, same, INLET FITTING FOR PRESSURIZED FLUID SYSTEMS, filed May 9, 1969, D.C., N.D. Ind. (South Bend), Doc. 69-E-88, Progressive Dynamics, Inc. v. Bristol Products Corporation. Consent judgment enjoining defendant, Aug. 25, 1971.

Certificates of Correction for the Week of Jan. 4, 1972

3,405,575	3,575,880	3,585,948	3,592,602
3,414,718	3,575,999	3,586,032	3,592,985
3,415,766	3,576,000	3,586,139	3,593,023
3,415,788	3,576,031	3,586,196	3,593,502
3,421,884	3,576,216	3,586,228	3,593,559
3,423,425	3,576,730	3,587,406	3,593,571
3,492,220	3,576,869	3,588,435	3,594,054
3,496,107	3,576,987	3,589,172	3,594,345
3,499,424	3,576,994	3,589,181	3,594,637
3,500,962	3,577,599	3,589,316	3,594,697
3,526,069	3,577,983	3,589,446	3,595,021
3,535,615	3,578,423	3,589,610	3,595,624
3,538,112	3,579,088	3,589,692	3,595,636
3,539,676	3,579,328	3,590,058	3,595,670
3,544,568	3,579,427	3,590,148	3,595,684
3,545,945	3,581,835	3,590,352	3,595,860
3,546,281	3,581,514	3,590,449	3,595,965
3,546,300	3,581,548	3,590,552	3,596,518
3,547,878	3,581,641	3,590,746	3,597,202
3,548,282	3,581,720	3,590,993	3,597,391
3,549,572	3,583,076	3,591,230	3,597,401
3,553,552	3,583,906	3,591,236	3,598,329
3,554,885	3,584,002	3,591,409	3,598,023
3,555,730	3,584,013	3,591,471	3,599,281
3,560,462	3,584,341	3,591,484	3,599,332
3,564,018	3,584,618	3,591,652	3,599,805
3,564,904	3,584,828	3,591,689	3,599,910
3,565,611	3,585,111	3,591,745	3,600,302
3,565,930	3,585,127	3,591,883	3,600,657
3,566,145	3,585,372	3,592,217	3,601,154
3,570,636	3,585,585	3,592,410	3,601,713
3,573,914	3,585,596	3,592,456	3,601,725
3,574,679	3,585,742	3,592,584	3,602,421

Disclaimers

3,322,296.—Nick S. Khoury, Chicago, Ill. EASY OPENING CONTAINER. Patent dated May 30, 1967. Disclaimer filed Oct. 20, 1971, by the assignee, Continental Can Company, Inc.

Hereby enters this disclaimer to claims 7 and 8 of said patent.

3,439,286.—John M. Eubanks, Greensboro, N.C. PULSE AMPLIFIER. Patent dated Apr. 15, 1969. Disclaimer filed Sept. 28, 1971, by the assignee, Bell Telephone Laboratories, Incorporated.

Hereby enters this disclaimer to all claims of said patent.

3,543,068.—Gene A. Fisher, Adolfo M. Guzman, John P. Harris and Paul Y. Hu, Boulder, Colo. COMMUTATOR BRUSH ASSEMBLY. Patent dated Nov. 24, 1970. Disclaimer filed Sept. 23, 1971, by the assignee, International Business Machines Corporation.

Hereby enters this disclaimer to claims 1, 2, 3 and 4 of said patent.

3,600,216. Donald D. Stewart, Plainfield, N.J. PROCESS FOR ADHERING POLY-P-XYLYLENE TO SUBSTRATES USING SILANE PRIMERS AND ARTICLES OBTAINED THEREBY. Patent dated Aug. 17, 1971. Disclaimer filed Oct. 21, 1971, by the assignee, Union Carbide Corporation.

Hereby enters this disclaimer to claims 8 and 27 of said patent.

Dedications

3,488,616.—George I. Dunoon and Robert D. Mees, Fort Wayne, Ind. DRY TYPE TRANSFORMER WITH IMPROVED ENCAPSULATING COMPOSITION. Patent dated Jan. 6, 1970. Dedication filed Sept. 22, 1971, by the assignee, General Electric Company.

Hereby dedicates to the Public the remaining term of said patent.

3,513,523.—Armin F. Mittermair and Lowell M. Mason, Fort Wayne, Ind. MACHINE AND METHOD FOR FORMING LAMINATIONS FOR MAGNETIC CORES. Patent dated May 26, 1970. Dedication filed Sept. 22, 1971, by the assignee, General Electric Company.

Hereby dedicates to the Public the remaining term of said patent.

Disclaimer and Dedication

Design No. 219,776.—Edward C. Jacobs, San Carlos, Calif. DISPENSER FOR TOILET TANKS. Patent dated Jan. 26, 1971. Disclaimer and dedication filed July 19, 1971, by the inventor.

Hereby disclaims and dedicates the entire term of said patent to the Public.

Patents Available for Licensing or Sale

2,747,192. NECKTIE PROTECTOR. Sara S. Katz, 2255B Lindmont Circle, NE., Atlanta, Ga., 30324.

3,225,761. FATIGUE SUPPORT. Robert Swensen, 120 Poincianna Drive, Martinez, Ga., 30907.

3,254,810. CONTAINER LOCKING SYSTEM. Vance C. Sterrett, 501 West Linden Ave., Logansport, Ind., 46947.

3,455,301. MALE GENITAL APPLIANCE. Bruce P. Clark, 133 17th St., Oakland, Calif., 94612.

3,565,032. PROPULSION ARRANGEMENT FOR WATER-CRAFT. Heinrich Hertel, Berlin, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,563,237. DISTAL PHALANX BANDAGE. Edwin L. Maxwell, Washington, D.C. Correspondence to: Millen, Raptis & White, 503 Crystal Mall, Bldg. 1, 1911 Jefferson Davis Highway, Arlington, Va., 22202.

3,591,868. COMMODE STRUCTURE. Walter K. Owens, 335 7th St. SE., Winter Haven, Fla., 33880.

3,593,684. COLLAPSIBLE CATAMARAN. Joseph A. Cogliano. Correspondence to: Virgil H. Marsh, Christen & Sabal, Suite 507-511, 1000 Connecticut Ave. NW., Washington, D.C., 20004.

3,604,019. BATHTUB SAFETY APPLIANCE. Alton B. Garner, Wichita Falls, Tex. Correspondence to: Visioneering, Inc., P.O. Box 2451, Lubbock, Tex., 79408.

3,609,342. LIGHT FOR LADIES' HANDBAG. Maria Wisniewski, 819 68th St., Brooklyn, N.Y., 11220.

3,611,633. METHOD AND APPARATUS FOR OUTDOOR FLOWER ARRANGEMENTS. Clarice W. Shackelford, 3628 13th St. NW., Washington, D.C., 20010.

The following 2 patents are offered by Oliver C. Forehand, 104 E. Pope St., Box 428, Sylvester, Ga., 31791.

3,249,325. MISSILE GUIDANCE SYSTEM.

3,597,840. SAFETY RAZOR.

The following 3 patents are offered by Joseph A. Cogliano. Correspondence to be directed to: Virgil H. Marsh, Christen & Sabal, Suite 507-511, 1000 Connecticut Ave. NW., Washington, D.C., 20004.

3,593,684. COLLAPSIBLE CATAMARAN.

3,608,917. COLLAPSIBLE BICYCLE.

3,613,136. CATAMARAN.

The following 6 patents are offered by: Hydronautics, Inc. Applications for licenses may be addressed to Arthur S. Garrett, Finnegan, Henderson, & Farabow, Suite 600, 1775 K St. NW., Washington, D.C., 20006.

3,333,465. VARIABLE PRESSURE, VARIABLE DEPTH, FREE SURFACE, HIGH SPEED, CIRCULATING WATER CHANNEL.

3,348,519. UNDERWATER SUCTION ANCHORS.

3,450,601. AMBIENT TEMPERATURE VAPOR COMPRESSION DESALINATION SYSTEM.

3,500,783. STABLE OCEAN PLATFORM.

3,520,543. SEAL FOR SUCTION TYPE ANCHORS.

3,573,103. GILL OR SEAWATER FUEL CELL.

The following 8 patents are offered by: Masterpiece, Inc., % American Technical Institute, Inc., 200 5th Ave., New York, N.Y., 10010. Attention: Seymour H. Miller.

- D. 204,887. ARTIFICIAL CHRISTMAS TREE.
 3,223,454. APPARATUS FOR MAKING BRUSHES.
 3,278,364. ARTIFICIAL TREE AND METHOD OF MAKING SAME.
 3,365,529. ARTIFICIAL TREE LIMB TAPERING METHOD.
 3,459,243. FULLY AUTOMATIC CROSSLIMB ATTACHING MACHINE.
 3,594,260. ARTIFICIAL SHRUBBERY AND METHOD OF MANUFACTURING SAME.

The Department of Health, Education, & Welfare is offering the following 5 patents for licensing as provided by Title 45 C.F.R. Section 8.3.

Applications for licensing should be addressed to: Mr. Norman J. Laker, Chief, Patent Branch, % National Institutes of Health, Room 5A03, Westwood Bldg., Bethesda, Md., 20014.

- 3,192,765. VIBRATION TONOMETER.
 3,610,238. WOUND INFECTION PREVENTION DEVICE.
 3,617,218. CATALYTIC SYNTHESIS OF METALLIC HYBRIDS.
 3,619,423. CASCADE DIALYSIS APPARATUS AND METHOD.
 3,628,287. PRODUCTION OF DIOSGENIN BY PLANT TISSUE CULTURE TECHNIQUE.

General Electric Company is prepared to grant non-exclusive licenses under the following 26 patents to domestic manufacturers upon reasonable terms.

Applications for licenses under the following patent may be addressed to: Patent Counsel, Telecommunication Products Department, General Electric Company, Mountain View Road, Lynchburg, Va., 24502.

- 3,581,123. CIRCUIT FOR PROVIDING INDUCTIVE IMPEDANCE.

Applications for licensing under the following 3 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Company, P.O. Box 8555, Philadelphia, Pa., 19101.

- 3,480,554. SINGLE PHASE LEAD TELLURIDE.

- 3,588,964. CABLE TIE.
 3,597,919. LINEAR GAS GENERATOR ACTUATED LATCHING AND THRUSTING DEVICE.

Applications for licensing under the following 22 patents may be addressed to: Patent Counsel, Contractor Equipment Business Division, General Electric Company, 1285 Boston Ave., Bldg. 21 ES, Bridgeport, Conn. 06602.

- 2,711,506. SLOPE CONTROL FOR LOADS SUCH AS RESISTANCE WELDS.
 2,740,045. IMPULSE COUNTING CIRCUIT.
 2,755,394. SEQUENCE TIMER.
 2,764,700. SEQUENCE CONTROL SYSTEMS.
 2,765,402. ELECTRIC TIMER.
 2,793,329. SEQUENCE AND TIMING CONTROL SYSTEM.
 2,831,111. ELECTRIC TIMER.
 2,864,947. ELECTRIC TIMER.
 2,975,356. CURRENT REGULATOR.
 3,062,990. PROTECTIVE ELECTRICAL SYSTEMS.
 3,105,919. ADJUSTABLE TIME DELAY UNDERVOLTAGE PROTECTIVE CIRCUIT.
 3,221,188. PULSE GENERATING MEANS UTILIZING DELAY TIMED MASTER TO CONTROL DELAY TIMED SLAVES.
 3,229,054. TIME DELAY SWITCH.
 3,233,116. CONTROL RECTIFIERS HAVING TIMING MEANS ENERGIZED IN RESPONSE TO LOAD EFFECTING COMMUNICATION.
 3,260,916. OVERLOAD DETECTION MEANS.
 3,305,648. TIMING DEVICE.
 3,305,804. TIMING DEVICE.
 3,319,126. POWER SUPPLY.
 3,334,341. CIRCUIT FOR MONITORING A VARIABLE ELECTRICAL QUANTITY.
 3,387,143. PRESET PULSE COUNTER.
 3,515,936. HEAT SINK AND ELECTRICAL CONNECTION MEANS FOR AN IGNITION FIRING DEVICE.
 3,526,790. SYNCHRONOUS SWITCHING CIRCUITS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
 F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 14, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-13-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Ore and Ory; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	5-22-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-09-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-21-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-06-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	4-07-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	6-01-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing; Computation and Conversion; Storage Devices and Related Arts.	11-04-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-30-70
PHYSICS, GROUP 260—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	10-06-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	10-23-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-02-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding; Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-03-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Tolley; Printing; Typewriters; Stationery; Information Dissemination.	8-17-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	12-09-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	10-06-70

Expiration of patents: The patents within the range of numbers indicated below expire during December 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 680, 76th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 616, 83rd Congress, approved August 23, 1944 (58 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 263. Other patents, issued after the dates of the ranges of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,605,996 to 2,606,433, inclusive
 Plant Patents..... Numbers 1,328 to 1,338, inclusive

PATENTS

GRANTED JANUARY 4, 1972

GENERAL AND MECHANICAL

3,631,539

MOLDED HEADPIECE WITH MEANS FOR RESTRICTING THE CROWN RIM

James S. Massa, 5677 Cabot Drive, Oakland, Calif.

Filed Jan. 19, 1970, Ser. No. 3,774

Int. Cl. A42b 1/08, 1/22

U.S. Cl. 2-3 R

4 Claims

U.S. Cl. 2-153

3,631,541

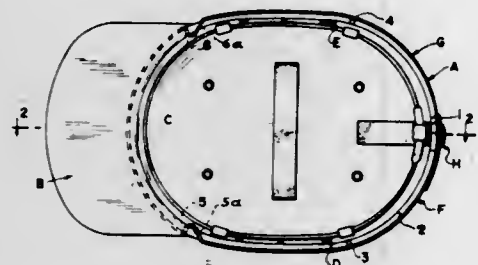
NECKTIE-SUPPORTING MEMBER

Kenneth J. Williams, 3699 Whispering Wood Drive, Florissant, Mo.

Filed Mar. 2, 1970, Ser. No. 15,749

Int. Cl. A41d 25/08

12 Claims



A molded headpiece having a crown with a series of slits or recesses extending upwardly from the edge of the crown and a crown-restricting adjustable band encircling the crown adjacent to the edge thereof for causing the contour of the crown and its edge to conform more closely to the contour of the average head. The headpieces or caps when unrestricted by the bands can be better nested for occupying less space for storage or shipment without complete forfeiture of the desired contours.



A necktie-supporting member has an edge that is disposable adjacent the collar of a shirt and that serves as a fold-defining edge, has a second edge that is spaced from the first edge and that serves as a second fold-defining edge, and has a necktie-gripping element that prevents accidental separation of a necktie from the necktie-supporting member. The first edge of the necktie-supporting member is initially directed downwardly and away from the collar of the shirt but is movable inwardly toward the shirt and then upwardly under a portion of the necktie to lie adjacent the collar. The second edge of the necktie-supporting member defines folds in further portions of the necktie as the first edge of the necktie-supporting member is moved inwardly toward the shirt and then upwardly under those further portions of the necktie to lie adjacent the collar of the shirt; and the first edge of the necktie-supporting member defines a fold in the portion of the necktie which extends outwardly over and then depends downwardly from that first edge.

3,631,540

VISOR-LATCHING DEVICE

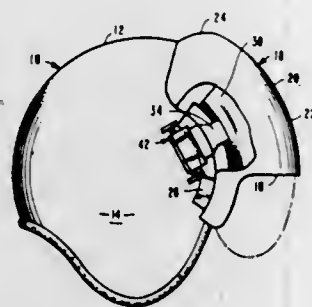
William H. Penny, Arcadia, Calif., assignor to Sierra Engineering Co., Sierra Madre, Calif.

Filed June 2, 1969, Ser. No. 829,358

Int. Cl. A42b 3/00

U.S. Cl. 2-6

9 Claims



A device which is particularly adapted for holding a movable visor on a headgear in a predetermined position which includes a friction surface mounted in a stationary position on the headgear and a friction clutch or latch mounted on and movable with the visor, the friction clutch including a pair of friction pawls spring biased on opposite directions and deflectable from engagement with the friction surface only in a direction acting against the spring bias so that acting together the friction pawls prevent linear motion in either direction and when one friction pawl is deflected out of contact with the friction surface motion in one direction is possible. A movable clutch finger is provided to deflect the selected friction pawl.

3,631,542

MYOELECTRIC BRACE

Allan G. Potter, Ames, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa

Filed Aug. 11, 1969, Ser. No. 848,919

Int. Cl. A61f 1/00, 5/10

U.S. Cl. 3-1.1

2 Claims

A myoelectric brace consisting of a fixed wrist-hand splint portion having a movable finger support portion pivotally secured thereto which is operated by a hydraulic actuator. The actuator is hydraulically coupled to a pump which is driven by a battery powered, direct current motor. Three skin electrodes are positioned on the patient's arm and sense muscle potentials in the patient's arm when the patient tenses a muscle in the immediate area of the skin electrodes. The resulting myo-potentials are then amplified by a muscle potential amplifier and are transformed into a slowly varying control signal by a detector circuit and a filter circuit. The control signal enters a differential amplifier where it causes the motor to drive the hydraulic pump until a predetermined pressure is reached. Actuation of the hydraulic pump causes the hydraulic actuator to pivotally move the finger support

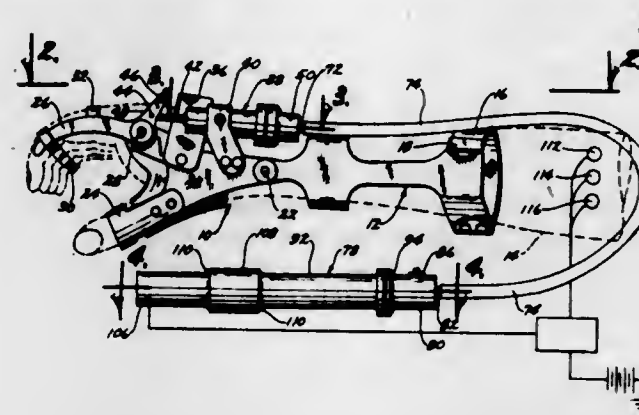
JANUARY 4, 1972

GENERAL AND MECHANICAL

71

towards the fixed splint portion. The motor stops when the differential amplifier receives a signal from the pressure transducer equal in amplitude to the control signal. This

The clamp means includes a camming means which applies forces to rotate pins carrying a swinging clamp plate. Both gravity-actuated and force-actuated sheet clamps are shown.



causes the differential amplifier output signal to go to zero. Relaxation of the patient's muscle causes the finger support to pivotally move away from the fixed splint portion.

3,631,543

SHOWER CURTAIN CLOSING APPARATUS

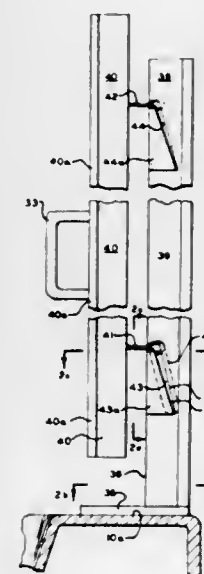
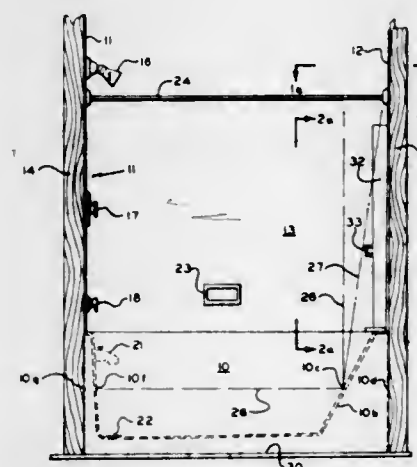
Richard P. Lauser, 48 Mead Street, Walton, N.Y.

Filed Aug. 13, 1970, Ser. No. 63,522

Int. Cl. A47k 3/14, 3/16

U.S. Cl. 4-149

7 Claims



A sheet clamp means clamps the vertical edge of a bathtub shower curtain adjacent a wall to provide an effective seal.

3,631,544

INFLATABLE WADING POOL OR LIKE ARTICLE

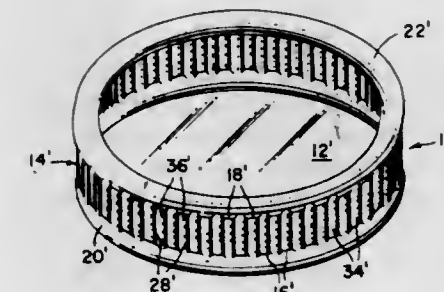
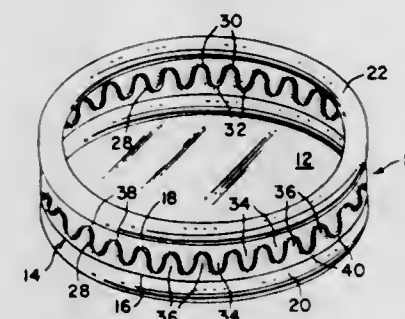
Bernard Tytel, New York, N.Y., assignor to Award International, Inc., North Bergen, N.J.

Filed Sept. 21, 1970, Ser. No. 73,960

Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172

6 Claims



An inflatable wading pool or like article whose upright wall is formed of a doubled-over sheet of material and is divided by airtight seams into upper and lower circumferentially continuous air compartments spaced by a series of vertically extending air pockets alternate one of which are connected to one another and to a common air inlet.

3,631,545

SWIMMING POOL AND METHOD OF CONSTRUCTING SAME

Brickley S. Orndorff, Camp Hill, Pa., assignor to Penn-Aquatic Industries, Inc., Mechanicsburg, Pa.

Filed July 6, 1970, Ser. No. 52,250

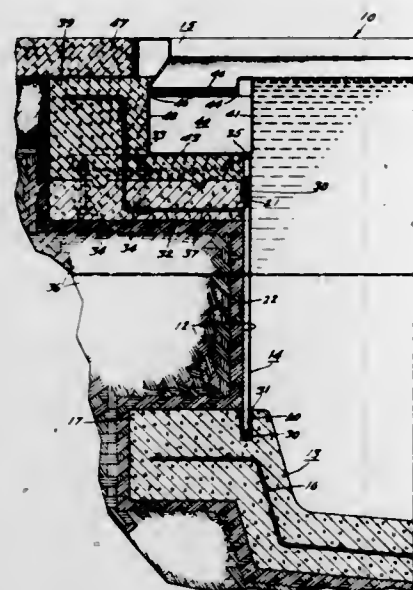
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172.19

6 Claims

An in-ground swimming pool having a poured concrete bottom, an upstanding wall composed of a series of vertically corrugated metal panels bonded to the bottom, and means which provides coping around the top of the wall. The wall is bonded to the bottom by means of an epoxy resin which is applied along the lower margin of the wall and in a continuous recess which is formed in the periphery of the bottom during pouring and which has a layer of deformable leveling material in its base for supporting the wall. The leveling material permits the wall to be leveled before being permanently bonded to the bottom by the epoxy. The coping means may be provided with an upwardly open water channel at water level; in which case, a layer of epoxy resin is disposed between the top of the wall and the underside of the coping. The channel coping is supported on a series of horizontally disposed members which are vertically adjusta-

ble by means of threaded fasteners to enable the position of the coping to be adjusted before a layer of concrete is poured



therearound to effect permanent installation of the coping in the ground.

3,631,546

DEVICE FOR OPTIONAL COUPLING OF A STRETCHER WITH DIFFERENT IMPLEMENTS

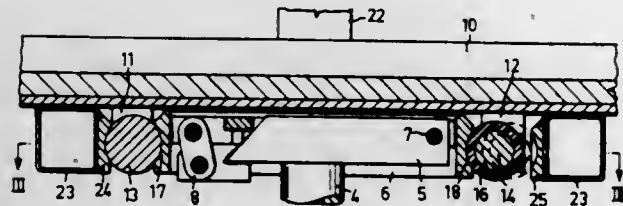
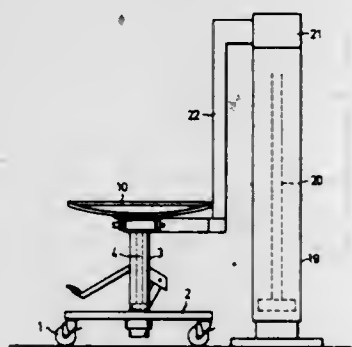
Kurt Arnold Eliasson, Alingsas, Sweden, assignor to AB Hydraul-Verken, Alingsas, Sweden

Filed Mar. 5, 1970, Ser. No. 16,724

Claims priority, application Sweden, Mar. 13, 1969, 3514/69
Int. Cl. A61g 7/10, 1/02; A47b 83/04

U.S. Cl. 5-81

4 Claims



This invention concerns a device for optionally coupling a stretcher with different implements permitting the releasing of the stretcher from one implement and the coupling of the stretcher with another implement, to which it is to be transferred, to be performed simultaneously without passing an intermediate position in which the stretcher is disconnected from both implements. For this purpose the invention is

characterized in that the stretcher has two transverse cylinders, of which one is mounted for eccentric rotation so as to permit to vary the space between the cylinders by rotation of the eccentric cylinder. One of the implements has a member with two cylindrical recesses in its end edge portions to be engaged by the cylinders in their closest position. The other implement has a fork-shaped support with cylindrical recesses in the sides of the fork legs to be engaged by the cylinders in their most spaced-apart position, the eccentricity of the eccentric cylinder and the spacing of the cylinders and recesses being such that when transferring the eccentric cylinder from its engagement with one implement to the other, said other implement is at least partially engaged before the first implement is entirely released.

3,631,547

NURSERY BASSINET UNIT

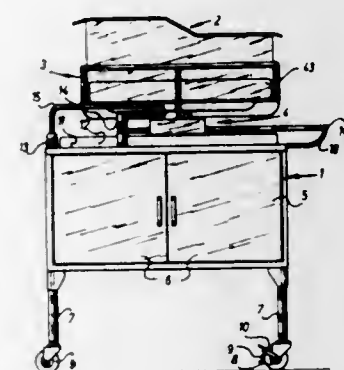
Denis Massie, 1015 Bienville Street, Douville, Canada

Filed Sept. 3, 1969, Ser. No. 854,944

Int. Cl. A47d 7/00; A47b 83/00, 91/00

U.S. Cl. 5-93

4 Claims



A nursery bassinet unit comprising a cabinet defining a table surface, a pair of parallel guide rails fixed to the cabinet and extending lengthwise along opposite edges of the table surface, a carriage constructed and arranged for riding on the parallel rails, and a bassinet carrier pivotally mounted on the carriage such that the bassinet is rotatably and translationally displaceable relative to the table surface.

3,631,548

COMBINED FOLDING CHILD'S CRIB AND PLAYPEN

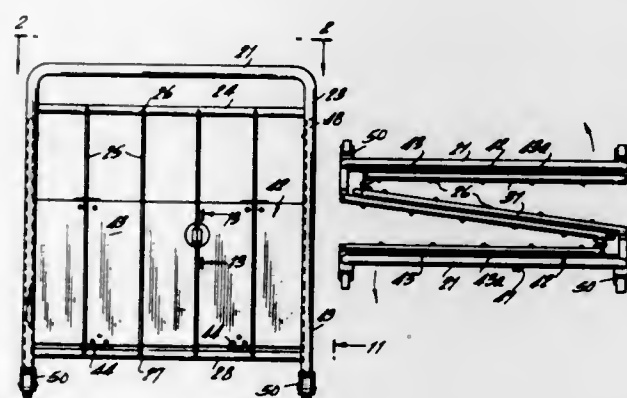
Julius Dahab, Little Neck, N.Y., assignor to Disposit Products Inc., New York, N.Y.

Filed Mar. 9, 1970, Ser. No. 17,818

Int. Cl. E03d 13/00; A47d 9/00

U.S. Cl. 5-99 R

2 Claims



Opposed panels of equal construction and length are secured together by hinges to form sides for an enclosure.

End frames, each provided with pairs of pivots of unequal length hingedly support the panels so that the panels can be collapsed into a compact assembly between the frames for storage. Barrel bolts carried by two of the frames serve to lock the enclosure in an open position when the end frames are separated.

3,631,549

WRENCH

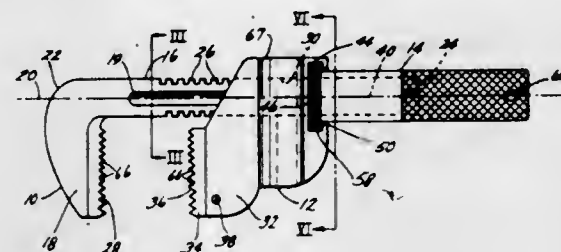
Cal W. Stoneburg, 5054 Midfield Drive, Portage, Mich.

Filed Sept. 19, 1969, Ser. No. 859,399

Int. Cl. B25b 13/16

U.S. Cl. 7-1 G

2 Claims



An adjustable wrench in which the handle is tubular, is rotatable relative to one jaw and has an internal thread for engaging threads on the shank of the other jaw so that the jaws can be opened and closed by rotation of the handle relative to the said one jaw.

3,631,550

MOORING DEVICES

Leslie Gerald Bullen, Dartmouth, Nova Scotia, Canada, assignor to EMI Limited, Hayes, England

Filed July 16, 1969, Ser. No. 842,286

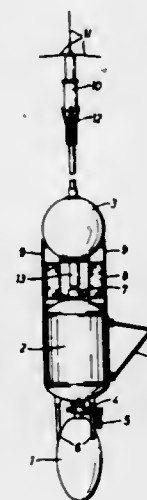
Claims priority, application Great Britain, July 16, 1968,

33,731/68

Int. Cl. B63b 21/52

U.S. Cl. 9-8

5 Claims



A mooring device is disclosed with a float to be held at a given depth and including a sinker, means linking the float and the sinker together, a cable connecting the float to the sinker and means mounted on the sinker for paying out the cable, means for disabling the paying out means on the impact of the sinker with the sea bed, and means associated with the linking means for releasing the linking means at a preset depth.

3,631,551 PREPACKAGED MONOPROPELLANT GAS GENERATOR BUOYANCY SYSTEM

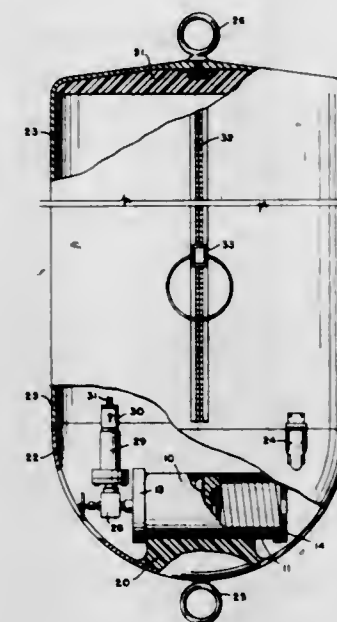
Donald Miller, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 3, 1969, Ser. No. 855,000

Int. Cl. B63b 7/04

U.S. Cl. 9-8 R

9 Claims



A prepackaged monopropellant gas generator buoyancy system having a variable lift capability wherein the effective volume of the lifting compartment may be variably adjusted by the user and incorporates a stainless steel bellows as the fuel compartment.

3,631,552

PIPE WORKING TOOL ASSEMBLY

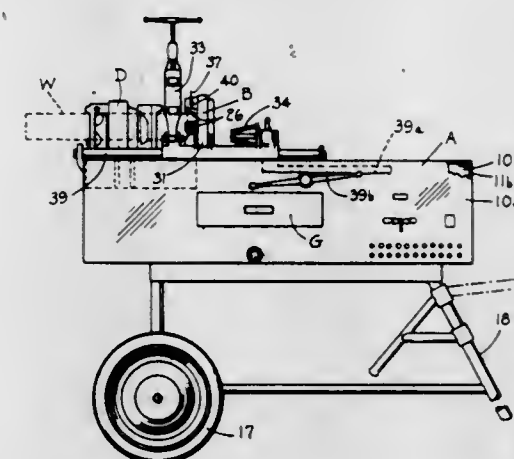
Joe A. Ivester, 62 Rock Creek Drive, Greenville, S.C.

Filed Oct. 17, 1969, Ser. No. 870,455

Int. Cl. B23g 1/00, 1/22, 1/24

U.S. Cl. 10-89

2 Claims



A portable power tool assembly for pipe working and the like, has a longitudinal driving means drivingly engaged on one end thereof by a power driven longitudinally aligned assembly having a pair of aligned motors, a spaced longitudinally aligned chuck assembly driven on the other end of the longitudinal driving means, said chuck assembly including a pair of spaced aligned chucks and a gear therebetween, a movable housing carrying a longitudinally aligned cutting die

assembly, said power driven assembly being carried on one side of the cutting die assembly and the chuck assembly being carried on the other side, and means discharging oil upon the dies through the die housing, so that a unitary power tool assembly is longitudinally driven to minimize size and enhance the range of its usefulness.

3,631,553

MANUFACTURE OF SHOE COMPONENTS

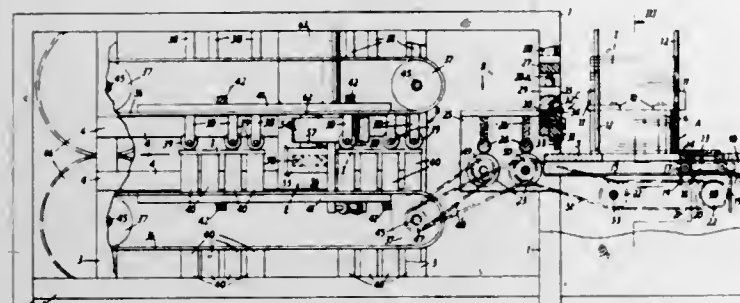
Islaye Holland, Littlethorpe, England, assignor to USM Corporation, Boston, Mass.

Filed Dec. 8, 1969, Ser. No. 882,859

Int. Cl. A43d

U.S. Cl. 12-1 A

3 Claims



A machine for automatically processing shoe soles which comprises a conveyor system for successively feeding individual soles through stations along the system, any desired combination of apparatus mounted at the stations for automatically performing different operations on the soles, and a device for holding a stack of soles and for automatically feeding them individually to the conveyor system. In a particular example, the machine is provided with an apparatus for stamping soles and an apparatus for performing an operation such as skiving or trimming on the edge portions of soles.

3,631,554

SHOE LASTING MACHINES

Frank Hartshorn, Wigston Fields, and George Millar, Leicester, both of England, assignors to USM Corporation, Boston, Mass.

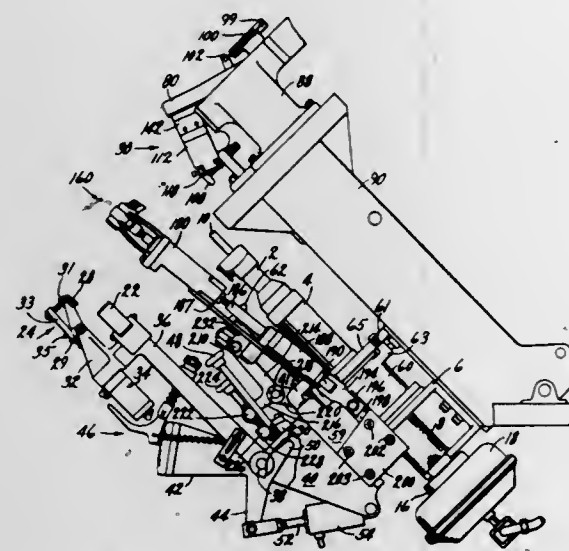
Filed Aug. 31, 1970, Ser. No. 68,251

Claims priority, application Great Britain, Sept. 9, 1969, 44,514/69

Int. Cl. A43d 21/00

U.S. Cl. 12-10.5

6 Claims



A shoe upper conforming machine having side grippers movable widthwise from spaced locations into engagement

with the sides of a shoe to locate the grippers automatically with respect to the upstanding margin of a shoe upper.

3,631,555

TUBE-CLEANING PELLET GUN

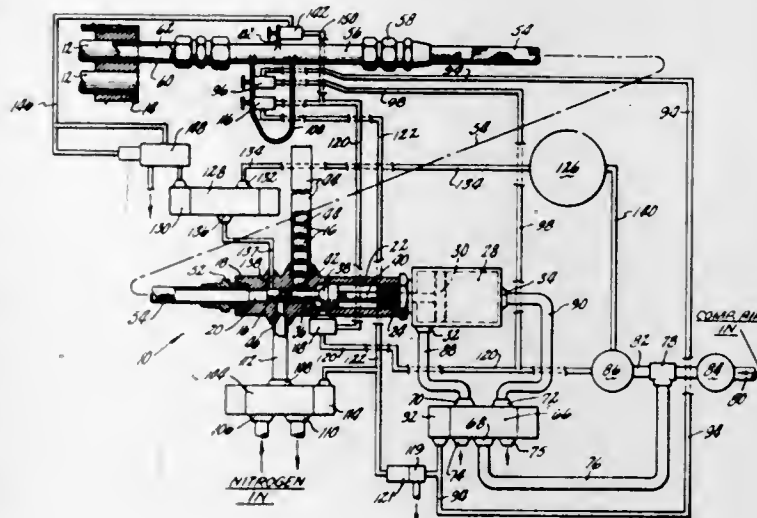
Kenneth Hurst, and Charles W. Linz, both of Chattanooga, Tenn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Mar. 9, 1970, Ser. No. 17,684

Int. Cl. B08b 9/04

U.S. Cl. 15-3.5

6 Claims



A manually actuated, automatically operated pellet gun for propelling felt pellets through the tube of a heat exchanger in order to clean the interior of the tube. Pellets are magazine fed to the bore of the gun and means are provided for selectively propelling dry pellets through the tube or pellets saturated with a cleaning agent.

3,631,556

AUTOMATIC TOOTHBRUSH

Peter Leendert Holster; Hendricus Franciscus Gerardus Smulders, and Cornelis Johannes Theresia Potters, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

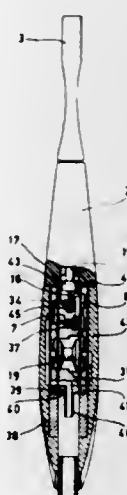
Filed Nov. 25, 1969, Ser. No. 879,844

Claims priority, application Netherlands, Nov. 29, 1968, 6817187

Int. Cl. A46b 13/06

U.S. Cl. 15-22 R

8 Claims



An automatic fluid-powered toothbrush provided with a fluid vibrator motor having a power chamber with a movable

wall such as a piston or a membrane connected to the brush member for causing vibrating movement thereof. At least one fluid port is arranged in the fluid path, and a valve is arranged with each port for opening and closing same. The closed or opened condition of each valve is determined by a bistable fluid switch controlled by the fluid pressure in the power chamber. The fluid switch may have a movable switching component which acts as a valve body. An auxiliary chamber is preferably provided in constant fluid communication with the fluid supply aperture and also has a movable wall. The movable walls of the power chamber and the auxiliary chambers are coupled to one another for the transmission of movement to one another. The chambers and passages may be arranged in a plurality of plates, such as, of a plastic, which are stacked with rubber packing plates between them, parts of which may act as a diaphragm-type movable wall or as a valve body.

3,631,557

SWEEPER

Gunter Leifheit, and Johannes Liebacher, both of Nassau/Lahn, Germany, assignors to Leifheit International Gunter Leifheit KG, Nassau/Lahn, Germany

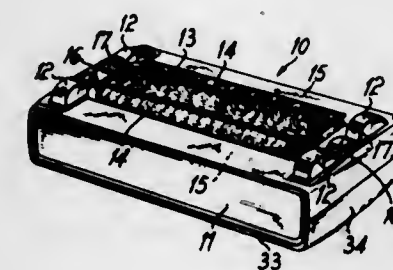
Filed Feb. 20, 1970, Ser. No. 13,134

Claims priority, application Germany, Feb. 21, 1969, P 19 08 649.8

Int. Cl. A47I 11/08

U.S. Cl. 15-42

15 Claims



A housing defines at least two internal cavities for the collection of sweepings. An operating unit is insertable into and removable from the housing in toto and comprises wheels for advancement of the sweeper on a surface to be swept, journal supports for the wheels, a rotatable brush roller arranged to be positioned intermediate the cavities when the unit is inserted into the housing, and motion-transmitting means linking the brush roller with at least one of the wheels for rotating the former in response to turning of the latter.

3,631,558

FLOOR MAINTENANCE MACHINE

Slavko Kovacevic; 5955 Cote St. Antoine Road, Montreal, Quebec, Canada

Filed Sept. 2, 1969, Ser. No. 854,593

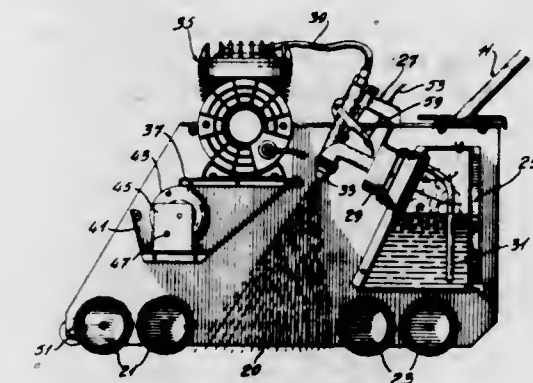
Int. Cl. A47I 11/18

U.S. Cl. 15-50 C

2 Claims

A floor maintenance machine having a casing defining a bottom opening and a handle at the rear end of the frame, the casing having two front rollers and two back rollers mounted for rotation about transverse axes. There is a reservoir for liquid in the casing and a compressed air sprayer

with a suction inlet in the reservoir and a nozzle outlet disposed to spray the liquid on the supporting surface



between the rollers. The casing further comprises a compressor unit connected to the sprayer to provide it with compressed air.

3,631,559

ARTICULATED HANDLE FOR A FLOOR CARE MACHINE

Paul E. Gaudry, Laval des Rapides; Edouard Gaudry, Cite St. Laurent; Raymond Descarries, Montreal, and James Anderson, Baie d'Urfe, Quebec, all of Canada, assignors to Consolidated Foods Corporation, Chicago, Ill.

Original application June 20, 1967, Ser. No. 647,378, now Patent No. 3,469,272. Divided and this application Dec. 19, 1968, Ser. No. 798,549

Int. Cl. A47I 11/16

U.S. Cl. 15-144

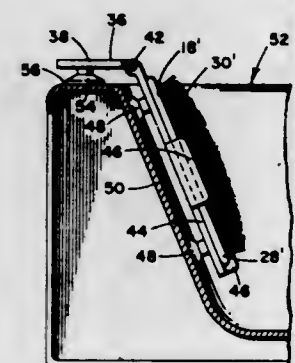
3 Claims



An articulated handle for a floor-treating apparatus in which a lower forked portion of the handle is pivotally hinged onto a base member. A yoke joins the ends of the lower forked portion remote from the base member and is provided with a channel in which is received a moveable latching bar and a depressable latch button which moves the bar against a spring. The handle also includes an upper forked portion having a handle at one end. The other end of the upper portion terminates in a pair of identical ears formed at the ends of the tines of the upper fork and each of these ears is received in the yoke in operative relation with the bar. Each ear has an inclined surface which engages the bar locking the lower and upper forked portions in extended relation and when the bar is depressed the upper and lower

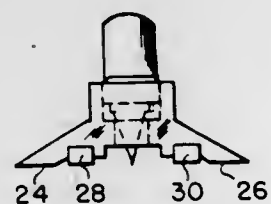
portions of the handle fold into a collapsed position or juxtaposed relation.

3,631,560
BRUSH AND HOLDING DEVICE THEREFOR
 James M. Atkins, Box 322, Whispering Pines, N.C.
 Filed Jan. 22, 1970, Ser. No. 4,906
 Int. Cl. A47k 7/02
 U.S. Cl. 15-146 3 Claims



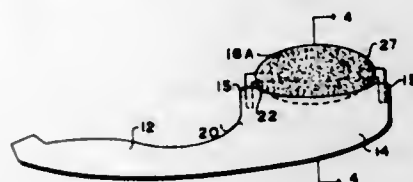
A brush and holding device for mounting on a wall of a bathtub or shower, the holding device comprising a back section and a plurality of tabs spaced from said back section and defining therewith retaining areas. The brush includes a body portion dimensioned to be removably received by said retaining areas, the bristles of said brush extending substantially beyond said tabs so as to present a continuous bristle surface for contact by the user.

3,631,561
SNAP-ON CLEANING UNIT FOR VEHICULAR WINDSHIELD WIPERS
 Marvin Aszkenas, 1206 Riverbank Drive, Stamford, Conn.
 Filed Dec. 18, 1969, Ser. No. 886,113
 Int. Cl. B60s 1/04
 U.S. Cl. 15-250.41 5 Claims



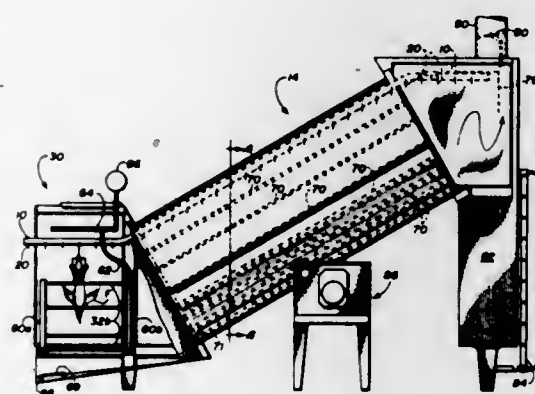
A cleaning unit adapted to be held in place by any standard type of automobile windshield wiper blade. The unit has an elongated opening through which the wiper blade projects. The cleaning unit may be solely a snap-on ice scraper or a snap-on sponge and squeegee combination for cleaning wet windshields. The device is of a clear plastic and is bendable to conform to the windshield curvature.

3,631,562
CLEANING BRUSH
 Garry Kleves, 52 Primrose Crescent, Winnipeg 17, Manitoba, Canada
 Filed Nov. 12, 1969, Ser. No. 875,702
 Int. Cl. A46b 15/00
 U.S. Cl. 15-172 1 Claim



A cleaning brush with a movable head having short bristles leaning or inclining in one direction, said head being movable so that the brush can be used with either hand and with the bristles inclining against the direction of brushing.

3,631,563
VAPORIZING APPARATUS FOR TREATMENT OF ANIMAL CARCASSES
 Bryan T. Snowden, Grapevine, Tex., assignor to Food Equipment, Inc.
 Filed June 10, 1969, Ser. No. 831,964
 Int. Cl. A22c 21/04
 U.S. Cl. 17-11.2 13 Claims

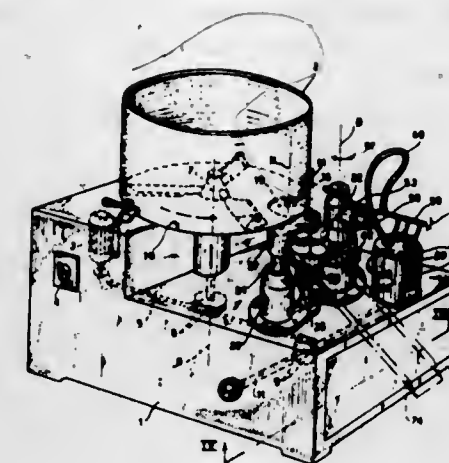


A compartmented housing is inclined at a predetermined angle relative to the horizontal, with a path being defined through the housing for travel of animal carcasses, such as poultry, therethrough. Spray nozzles project from a generally smooth inner surface of the housing for directing high-temperature steam upon preselected portions of the animal carcasses. The entry of ambient air into the housing is regulated to maintain a desired temperature within the housing. A pre-wetting station initially wets the animal carcasses prior to entry into the compartmented housing.

3,631,564
MACHINE FOR AUTOMATICALLY PREPARING HAMBURGER-TYPE STEAKS
 Antonio Mezzaqui, via Saliceton 49/3, Bologna, Italy
 Filed Apr. 25, 1969, Ser. No. 819,136
 Claims priority, application Italy, Apr. 27, 1968, 1610 A/68
 Int. Cl. A22c 7/00
 U.S. Cl. 17-32 7 Claims

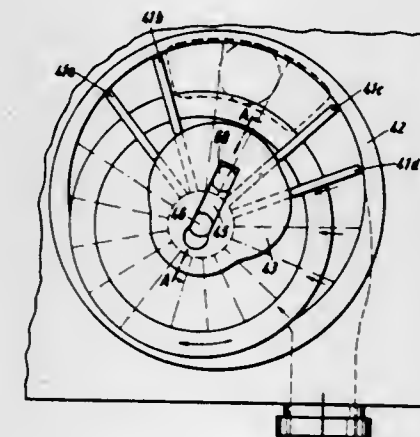
The disclosure concerns a machine for automatically preparing hamburger-type steaks wherein minced meat in a

container is pressed into a cavity by rotating blades. Means



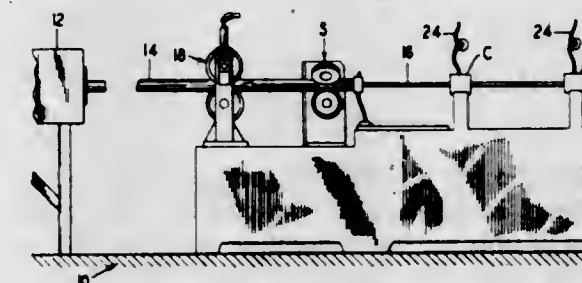
are provided for supplying protective sheets to steaks, compressing the steaks, and removing them to a conveyor.

3,631,565
FEEDING DEVICE FOR PULPY MASSES IN THE FORM OF A CELL PUMP, PARTICULARLY FOR SAUSAGE FILLING MACHINES
 Johannes Muller, Biberach am Riss, Germany, assignor to Firma Albert Handtmann, Metallgiesserei, Biberach am Riss, Germany
 Filed May 8, 1970, Ser. No. 35,812
 Int. Cl. A22c 11/08
 U.S. Cl. 17-37 3 Claims



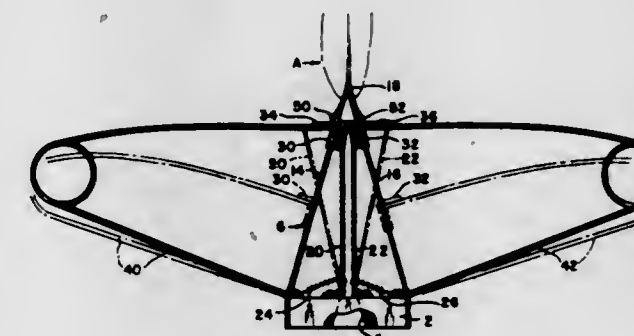
A feeding device for pulpy masses of the type of a bucket pump with radially guided feeding wings disposed in an eccentric rotor, which comprises a pump housing having a wall. A radially movable control disc subjected to pressure and determining the position of the feeding wings. The control disc has a guiding groove. A guide bolt and a spring-biased spring bolt extend into the guiding groove. The spring-biased spring bolt supports itself on the control disc by means of an oblique deviation face, and means are provided in the pump housing for setting from the outside a radial pressure effective on the control disc by means of the spring bolt.

3,631,566
APPARATUS FOR PROCESSING A CONTINUOUS TUBING
 Edward H. Dhuysser, Chicago, and Harry P. Eichin, Western Springs, both of Ill., assignors to Union Carbide Corporation, New York, N.Y.
 Original application Feb. 7, 1968, Ser. No. 703,748, now Patent No. 3,507,669, dated Apr. 21, 1970. Divided and this application Dec. 2, 1969, Ser. No. 881,503
 Int. Cl. A22c 13/00
 U.S. Cl. 17-42 5 Claims



Apparatus for processing a continuous length of tubing wherein a wet tubing is dried at a low inflating pressure and is shirred at a higher inflating pressure, the drying zone being separated from the shirring zone by gated feed means for the inflated tubing.

3,631,567
OYSTER OPENING AND REMOVING DEVICE
 Theodore S. Reinke, Box 355, Cambridge, Md.
 Filed Nov. 24, 1969, Ser. No. 879,127
 Int. Cl. A22c 29/00
 U.S. Cl. 17-76 7 Claims

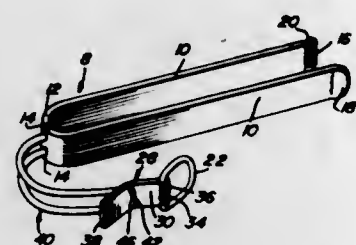


Device for separating the valves of a partially opened oyster and removing the oyster, comprising diverging surfaces over which the valves are pushed to fully separate them, and cutting members which engage and follow the inner surfaces of the valves as they are separated and which cut the muscle which connects the oyster to the valves.

3,631,568
BALER AND HOLDER FOR FOLDING CHAIRS
 Richard W. Wolfe, and Walton W. Wolfe, both of 1393 East Elm, Pocatello, Idaho
 Filed Nov. 30, 1970, Ser. No. 93,759
 Int. Cl. A47b 97/00
 U.S. Cl. 24-16 R 8 Claims

A readily attachable and detachable self-contained baler and holder for compactly harnessing and baling a group (four or five) conventional type auditorium or similar folding

chairs in a manner to facilitate handling, storing or transporting the same. The holder comprises a U-shaped forklike yoke whose arms are positioned lengthwise over the aligned legs of a group of chairs. A clip serves as an actuator and a link carried by one end of the clip is slidingly hitched over the yoke



arms. The clip has an offset finger grip. One end of a stout elastic band is attached to the clip and the other end is anchored in slots provided therefore in the curvate bight portion of the yoke. The stretched band, when under tension, shackles the retainer-link in its yoke clamping position.

3,631,569 FASTENER

Clifford Alexander Seckerson, Iver Heath, and Barry Roger Michael Barnett, West Drayton, both of England, assignors to TRW Inc., Cleveland, Ohio

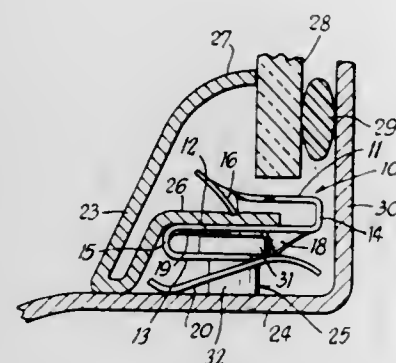
Filed June 17, 1970, Ser. No. 47,058

Claims priority, application Great Britain, June 23, 1969, 31,681/69

Int. Cl. A44b 19/06

U.S. Cl. 24—73 HS

6 Claims



A resilient sheet metal fastener for attaching an article such as a molding to a headed stud which is attached to a support surface. The fastener comprises a U-shaped portion having two limbs joined by a web and a slot extending into one limb from the end remote from the web. A pair of resilient tongues projects outwardly from the limb formed with the slot one on each side of the slot and an arm adapted to engage the article projects outwardly from the other limb. In use the U-shaped portion is slidingly engaged over the head of the stud with the shank of the stud extending through the slot and with the tongues compressed against the support surface so as to urge the said one limb against the head of the stud. To prevent accidental dislodgement of the clip from the head of the stud a catch projects across the open mouth of the U-shaped portion.

3,631,570 FASTENING DEVICE

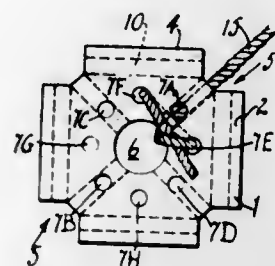
David Coleman, 95 Cathedral Road, Cork, Eire, Ireland
Filed Oct. 5, 1970, Ser. No. 77,842

Claims priority, application Ireland, Oct. 17, 1969, 1425/69

Int. Cl. F16g 11/00

U.S. Cl. 24—129

10 Claims



A fastening device for string, rope, wire and the like consists of a rigid block, having three passages extending through it parallel to a pair of opposite faces of the block, with the axes of the passages coinciding adjacent the perimeter of the block, two of the passages are mutually at right angles and the third passage is between them and at 45° to them. At least three holes extend through the block with at least one of the holes communicating with the third passage. The passages serve to guide a flexible line passed through them and the holes permit a line to be rapidly connected to the block in a manner which enables the line to be quickly released.

3,631,571 SEAT BELT BUCKLE ASSEMBLY

Robert W. Stoffel, Ferndale, Mich., assignor to Jim Robbins Seat Belt Company, Mount Clemens, Mich.

Filed Oct. 20, 1969, Ser. No. 867,574

Int. Cl. A44b 11/26

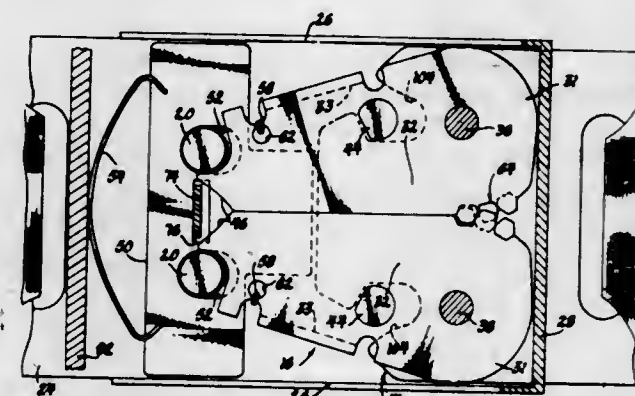
U.S. Cl. 24—230 A

19 Claims



A seatbelt assembly including a support means with a pair of latch members rotatably supported by the support means for movement between latched and unlatched positions. Each latch member includes a pair of interconnected parallel and spaced plates with a catch post extending between the

plates of each latch member. A tongue plate having slots extending laterally into each side thereof to define cam edges for engaging the catch posts to move the latch members toward the latched position in response to insertion of the tongue plate and shoulders engageable with the catch post for retaining the tongue plate in position when the latch members are in the latched position. Each of the latch members include a hook portion and a pair of cylindrical roller elements are disposed in the hook portions to retain the latch



members in the latched position. A positioning plate with elongated slots therein is in rolling engagement with the outward extremities of the cylindrical roller elements whereas the inward extremity of cylindrical roller elements are in rolling engagement with the hook portions of the latch members so that upon movement of the positioning plate the cylindrical roller element may be rolled along and out of engagement with the hook portions to allow the latch members to move from the latch position to the unlatched position whereby the tongue plate may be removed.

3,631,572 CARRYING STRAP MOUNTING

Karl Heinz Lange, Bunde-Ennigloh, Germany, assignor to Balda Werke Photographische und Kunststoff R. Gruter Kommanditgesellschaft, Bunde am Westphalia, Germany

Filed July 17, 1969, Ser. No. 842,446

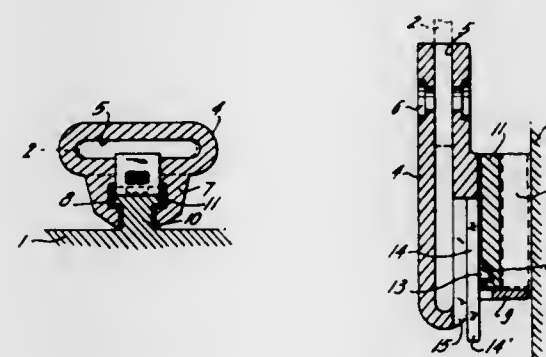
Claims priority, application Germany, Sept. 24, 1968, P 17

97 394.3

Int. Cl. A44b 17/00

U.S. Cl. 24—223

3 Claims



A carrying strap particularly suitable for cameras has a clawlike and accordingly hollow shaped connecting part which fits over a correspondingly shaped protruding member on the outside wall of the piece to be carried; particularly a camera or a notch on the protruding member is provided, and an elastically deflectable latch means having a protrud-

ing nose is integrally formed on the connecting part, which nose fits into the notch for securing the connecting part in place on the piece to be carried by the strap.

3,631,573

JEWELRY EXTENSION ARRANGEMENTS

Roger M. King, Watford, England, assignor to Milner King, Watford, England

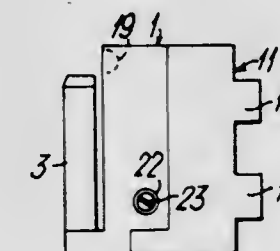
Filed Mar. 3, 1970, Ser. No. 16,123

Claims priority, application Great Britain, Oct. 15, 1969, 50,576/69

Int. Cl. A44c 5/18

U.S. Cl. 24—265 WS

13 Claims



A jewelry band extension link has a female end shaped to form a slide cavity therein and the other end is formed as a male end having a slide member adapted to mate with the slide cavity of a link having a corresponding female end. Securing means is provided whereby the extension link can be secured, permanently, or semipermanently, in association with a link, in the jewelry band, having a corresponding male or female end so as to lengthen the band, and, if the extension link is only semipermanently secured, it can be removed to shorten the band again.

3,631,574 CONVEYORS

Vincent Frank Chapman, Reigate, England, assignor to Redland Tiles Limited, Reigate, England

Filed Jan. 13, 1969, Ser. No. 790,590

Claims priority, application Great Britain, Jan. 16, 1968, 2,410/68

Int. Cl. B28b 3/20

U.S. Cl. 425—470

6 Claims



A tile extrusion machine comprises an endless loop conveyor which carries the pallets through the extrusion apparatus at a constant speed. The conveyor comprises a succession of links forming a continuous surface to support the pallets across their widths and along their lengths, adjacent links being pivotally coupled together about axes perpendicular to the direction of movement of the conveyor, the axes being below the level of the pallet-supporting surfaces and directly below the ends of or outside the lengths of the pallet-supporting surfaces of the links, so that when a link pivots at either end of the conveyor no part of the link moves above the pallet-supporting surface of the links running over the bed.

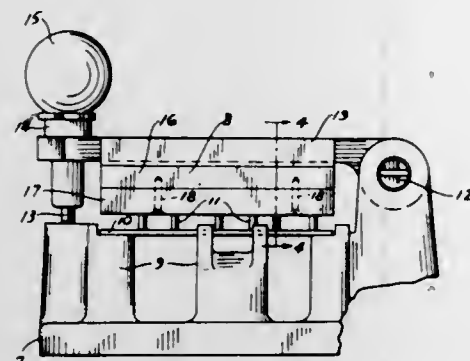
3,631,575

MULTIWELL AGAR GEL PUNCH

Walter Farris, 19193 Parkside, Detroit, Mich.
Continuation-in-part of application Ser. No. 19,035, Mar. 12, 1970, now Patent No. 3,600,772. This application June 1, 1970, Ser. No. 41,840
Int. Cl. B26f 1/02

U.S. Cl. 85-599

5 Claims



A multiwell agar gel punch to be used in screening biological samples which comprises a support for holding microscopic slides containing agar gel, and a hinged top member, which has a multiplicity of resiliently mounted punches, arranged in patterns; which when imparted to the agar gel, makes possible a rapid precipitation between pairs of the wells. When one well is charged with a sample of serum or plasma, and the other well is charged with a specific antibody serum, the slide is then subjected to a conventional, high-voltage immunoelectrophoresis.

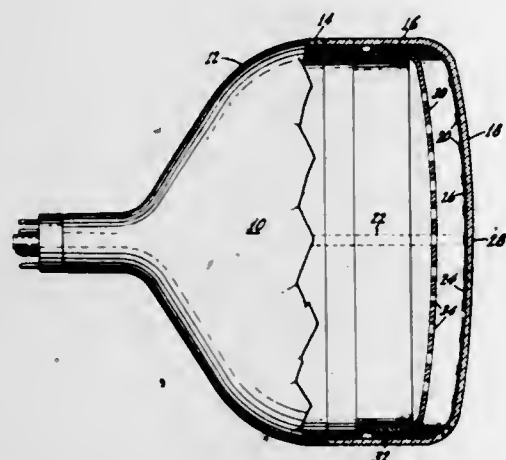
3,631,576

METHOD OF PRODUCING A COLOR KINESCOPE

Harold Bell Law, Princeton, N.J., and Ray Hui-Chung Lee, Richardson, Tex., assignors to RCA Corporation
Filed Mar. 17, 1970, Ser. No. 20,209
Int. Cl. H01j 9/16, 9/44

U.S. Cl. 29-25.13

21 Claims



A method for producing a color kinescope having an image screen and a color-selection mask comprising final-size apertures. The method includes the steps of providing at least one perforated resist layer on a metal substrate and removing through the perforations of the resist layer both certain portions of the substrate so as to provide corridors of a given size through the substrate and other portions of the substrate adjacent to the corridors, so as to provide recesses extending only partially through the substrate thereby producing a preliminary mask. The image screen is produced with the

preliminary mask, and, then, portions of the substrate located beneath the various recesses are removed so as to produce a color-selection mask comprising final-size apertures of larger size than the corridors. The color selection mask is then incorporated in a kinescope.

3,631,577

MACHINE FOR PROVISIONALLY ASSEMBLING WIRE SPOKE WHEELS

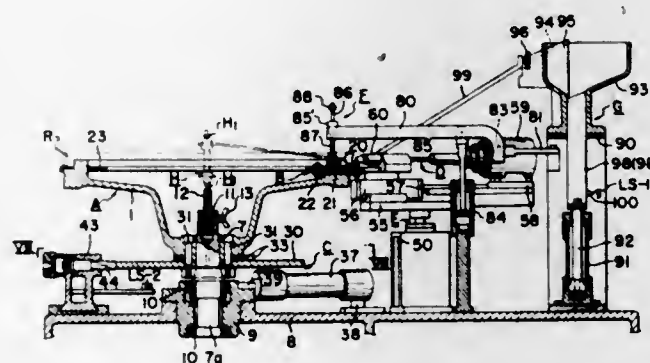
Kazuaki Hasegawa, Tokyo, and Kanzo Nozaki, Kawaguchi, both of Japan, assignors to Japan Bicycle Promotion Institute, Tokyo, Japan

Filed Aug. 1, 1969, Ser. No. 846,669

Claims priority, application Japan, June 6, 1969, 44/43950
Int. Cl. B23q 7/10

U.S. Cl. 29-211

8 Claims



A provisionally assembling machine for wire spoke wheels, characterized in that such machine includes a rim positioning table rotatably mounted together with a shaft including a hub supporting cylinder. A rim retainer is disposed on the peripheral portion of the rim positioning table for catching the rim loaded thereon at portions of the outer periphery thereof when the retainer is moved radially inwardly on such peripheral portion. Means is provided for intermittently driving the rim positioning table. Driver means arranged in the proximity of the rim positioning table and has its shaft driven by an electric motor. Means for displacing the driver means in the vertical direction for a predetermined distance and also for advancing or retreating the same towards or away from the rim positioning table is provided. A device spoke holding device movable in the vertical direction with respect to the rim positioning table and adapted to clamp the spoke together with the rim positioning table when the spoke holding device is at its lower position is included. A nipple supply is provided for supplying nipples one by one to the driver means. During the period when the rim positioning table is stationary, the spoke holding device is lowered to hold the spoke which is bridged across the hub and the rim, and simultaneously the driver is advanced to threadably mate the nipple with the tip of the spoke.

3,631,578

APPARATUS FOR ERECTING SHELVEING

Anthony Shangler, 300 Clearview Drive, Pleasant Hill, Mo.

Filed Nov. 20, 1969, Ser. No. 878,394

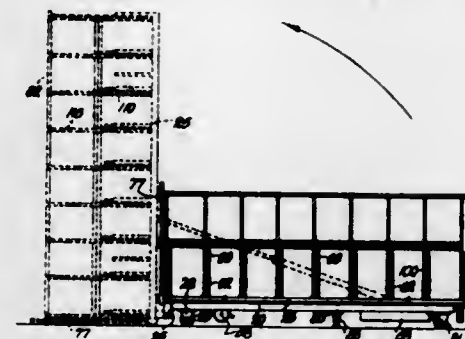
Int. Cl. B23p 19/00

U.S. Cl. 29-200 R

7 Claims

Removable shelver apparatus for and method of assembling a plurality of metal shelves into an integral shelving unit in a horizontal position and then erecting the shelving unit to a vertical position. Shelves are vertically placed in spaced relationship on a rectangular upper frame which is pivotally mounted on one end to and horizontally disposed on a rectangular lower base frame. Adjustable extensions having

associated gripping means are connected to the upper frame and hold the metal shelves in place while structural members are bolted to the shelves to form an integral shelving unit.



Locking means bias the shelving unit to the upper frame as the same is pivoted 90° with respect to the base frame to place the unit in an upright position.

3,631,579

APPARATUS FOR ASSEMBLING AEROSOL DISPENSING DEVICES

Herbert L. Leach, Hatfield, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Feb. 11, 1970, Ser. No. 10,553

Int. Cl. B23p 19/04

U.S. Cl. 29-208 B

5 Claims



Apparatus for assembling aerosol dispensing devices including a tapered recess to align the valve structure of the aerosol device with the condenser, means to apply pressure to the valve assembly, and means to impart reciprocal vertical motion to the alignment and pressure applying means.

3,631,580

METHOD OF MAKING PLASTIC ARTICLES

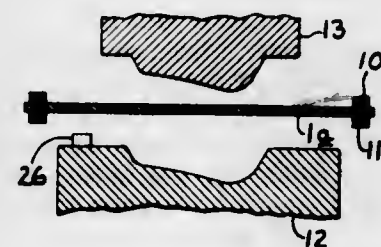
William M. Swartz, 1430 W. Wrightwood Ave., Chicago, Ill.

Filed Sept. 15, 1969, Ser. No. 857,896

Int. Cl. B23q 17/00

U.S. Cl. 29-407

5 Claims



Plastic sheets with a preprinted hot-stamped metallic area are heated and die formed. The registry and surface charac-

teristics of the formed article are noted by using a gridded test sheet that permits the configuration and location of the hot-stamped area to be corrected. The proper surface characteristics, such as the amount of surface crackling, of the hot-stamped area are obtained by varying the amount of elongation of the sheet in the hot-stamped area during die-forming.

3,631,581

METHODS AND APPARATUS FOR CLEANING GAPPED SLIDE FASTENER CHAIN

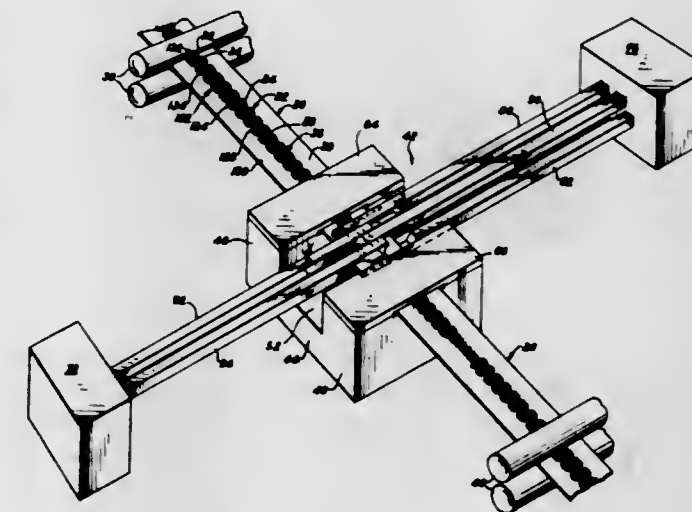
George B. Moertel, Conneautville, Pa., assignor to Textron Inc.

Filed Apr. 30, 1970, Ser. No. 33,418

Int. Cl. B21d 53/50; B29d 5/00

U.S. Cl. 29-408

41 Claims



Methods and apparatus for cleaning severed heel members from both sides of gapped slide fastener chain by reciprocating a plurality of vibrating elements which are disposed in engagement with the severed heel members and are contoured at their distal ends for driving the severed heel members outwardly from the carrier tapes so as to remove the same without cutting, tearing or otherwise damaging the slide fastener chain.

3,631,582

METHOD FOR FORMING A FILTER ELEMENT

Jean-Claude Lucas, Fontenay-aux-Roses, and Andre Madin, Paris, both of France, assignors to Societe Industrielle de Filtration (Sofitra), Paris, France

Filed Feb. 8, 1968, Ser. No. 703,921

Claims priority, application France, Feb. 8, 1967, 94,189

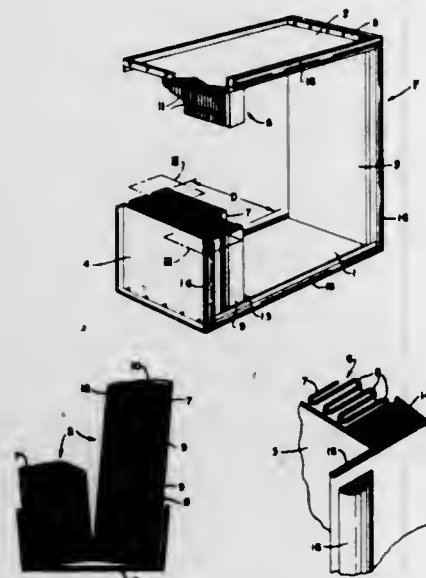
Int. Cl. B23p 19/04; B01d 29/06, 27/08

U.S. Cl. 29-419

5 Claims

Method and apparatus for forming a filter element especially useful for filtering noxious and radioactive gases. The element is composed of a ribbon of sheet filter material folded into reverse pleats. Bands or straps of flexible material are fixed to the crests of the folds in the sheet, at each side thereof, and extend longitudinally thereof, in laterally spaced relation. Transverse cuts are made in these strips at intervals regularly spaced along the pleated ribbon. Each cut is between two contiguous crests. The cuts made on one side are offset with respect to those on the other side. The pleated ribbon is then reversely folded at and along each line, to form a filter element of zigzag form. This element is then mounted within a casing having a passageway therethrough for gas to be filtered, to obturate the passageway by sealing the end and side termini of the element to the walls of the casing.

The apparatus consists of a machine operating automatically to make the aforesaid cuts. The pleated ribbon is moved in the direction of its length on and over a table. First and second rails extend transversely across the table, above and below it. Each rail carries a cutter assembly, which are spaced in the direction of travel of the ribbon. The assem-



blies move in unison and each makes a cut on its respective side of the ribbon to sever the bands along correctly spaced lines. At one surface of the ribbon, downstream of the cutters, means are provided to sense the cut previously made on that surface and to thereby initiate a new cutting stroke. The cutters are moved in their return or idling stroke along the rails, out of contact with the bands and the ribbon.

3,631,583

METHOD FOR PRODUCING SUBSTANTIALLY SOLID EXTRUSIONS FROM POWDERED METAL

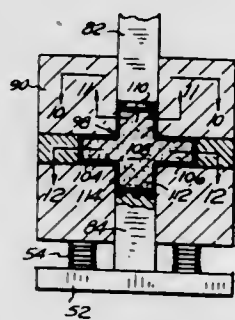
John Haller, Northville, Mich., assignor to Federal-Mogul Corporation, Southbridge, Mich.

Filed Nov. 12, 1969, Ser. No. 875,816

Int. Cl. B22f 3/24

U.S. Cl. 29—420.5

10 Claims



Powdered metal is encased in an elongated flat-ended air-tight deformable can by pouring it through a tubular filling stem through which the interior of the can is then evacuated to avoid subsequent oxidation of the contents thereof, and the stem is then sealed to retain the vacuum. The powdered-filled evacuated can is then heated to a high temperature of approximately 2,100° F. for about 1 hour, and while at that temperature is first compressed longitudinally to a high density in an extrusion containing a longitudinal extrusion

chamber with a lateral extension thereof which causes it to undergo extrusion laterally into said lateral extension of the extrusion chamber located within the die cavity. This action kneads the densified metal and obtains a so-called "grain flow" which improves the metallurgical properties thereof. Meanwhile, the peripheral portions of the opposite ends of the can move into clearance spaces surrounding the ends of one or both of the punches, thereby preventing crinkling of the can. The walls of this dense metal-filled can are then removed by machining or pickling, along with the deformed peripheral end portions thereof containing less dense metal powder. Thus, there is produced a substantially solid, laterally extended metal billet, the shape of which can be varied in accordance with the variation of the shape of the lateral extension of the extrusion chamber within the die cavity, for example circular (FIGS. 6 and 7), rectangular (FIG. 14), cruciform (FIG. 15) or circular with a central boss or bosses (FIGS. 20 and 21).

3,631,584

METHOD FOR ATTACHING HANDLES TO CONTAINERS OR THE LIKE

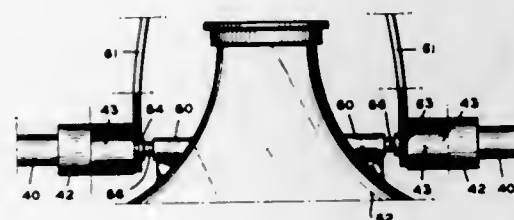
Norris W. Walkup; James W. Mauck, both of Atwood, Ill., and Irvin D. Hood, Ironton, Mo., assignors to National Distillers and Chemical Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 694,308, Dec. 28, 1967, now Patent No. 3,524,241, dated Aug. 18, 1970. This application Mar. 31, 1970, Ser. No. 24,274

Int. Cl. B23p 19/00, 11/02

U.S. Cl. 29—434

2 Claims



The method of attaching a substantially U-shaped bail-type plastic handle provided with apertured depending extremities to a plastic container provided with complementary opposed retaining means for engaging said apertured extremities to provide an unseparable pivotal association therewith, said method including the steps of positioning said container and handle in aligned relationship for engagement, applying pressure to said depending apertured extremities to forcibly engage the aligned retaining means and simultaneously oscillating said handle as the retaining means are forced through the associated apertures.

3,631,585

METHOD OF MAKING A FRICTION-WELDED DRIVE AXLE SHAFT HAVING AN ANNULAR SECTION OF FLASH METAL

Alex F. Stamm, Rochester, Mich., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Original application Oct. 17, 1966, Ser. No. 587,070, now Patent No. 3,465,545, Continuation of application Ser. No. 587,070, Oct. 17, 1966, now Patent No. 3,465,545. Divided and this application June 3, 1969, Ser. No. 831,822

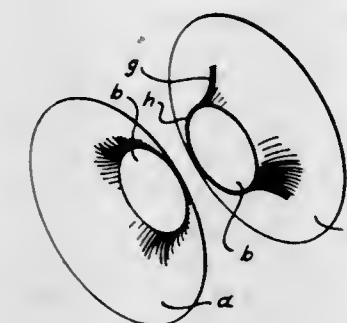
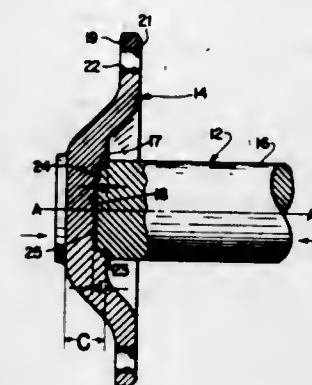
Int. Cl. B23k 27/00

U.S. Cl. 29—470.3

4 Claims

A method of making a drive axle shaft wherein a shaft and a flange having axially facing planar areas are friction welded

together such that a substantial annular flash region is corner portions of the joint are rounded and formed of formed therebetween and wherein an outer peripheral por-



tion of the flash is removed to form an annular smoothly merging juncture between the shaft and the flange.

3,631,586

MANUFACTURE OF COPPER-CLAD ALUMINUM ROD

John Patrick Bearpark, London; Stanley Wilton Pigott, Heath, Sussex, and Rees Jenkin Llewellyn, Twickenham, Middlesex, all of England, assignors to British Insulated Callender's Cables Limited, London, England

Filed Sept. 11, 1968, Ser. No. 759,138

Claims priority, application Great Britain, Sept. 14, 1967, 41,927/67

Int. Cl. B21c 23/22

U.S. Cl. 29—474.3

5 Claims



Copper-clad aluminum rod in which the copper cladding is soundly metallurgically bonded to the aluminum core is made by surrounding a preformed billet of aluminum with a close fitting sheath of copper to form a cold composite billet, the contiguous surfaces of the aluminum and copper components of the composite billet being clean and substantially free of surface oxides, and directly extruding the cold composite billet so formed to effect a reduction in cross-sectional area of the composite billet. The reduction in cross-sectional area of the cold composite billet is preferably effected by hydrostatic extrusion.

3,631,587

METHOD FOR FORMING CORNERS OF OMEGA-TYPE EXPANSION JOINTS

Byron J. Round, Simsbury, and Gunter J. Stalph, Windsor, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed May 4, 1970, Ser. No. 34,090

Int. Cl. B23k 31/02

U.S. Cl. 29—481

8 Claims

A method of fabricating an expansion joint embodying an inwardly facing U-shaped bellows member in which the

united segments of oppositely facing plates having an arcuate portion produced by a spinning operation.

ERRATUM

For Class 29—487 see: Patent No. 3,632,319

3,631,588

METHOD OF SOLDERING THE COOLING BODY OF AUTOMOBILE RADIATORS

Dan A. Barozzi; Valentin Calin, both of Brasov, and Peter Zsigmond, Prejmer-Brasov, all of Romania, assignors to Fabrica De Radiatoare Si Cabluri, Brasov, Brasov-Soseaua Crestianului, Romania

Filed Apr. 15, 1970, Ser. No. 28,968

Claims priority, application Romania, Sept. 4, 1969, 60953 Int. Cl. B23k 1/20, 31/02

U.S. Cl. 29—488

6 Claims

The invention is a new method for the manufacture of motor car radiators, regarding the soldering operation of the cooling body, consisting of cooling pipes and fins of aluminum, copper, brass or steel with an easily melting alloy.

3,631,589

METHOD FOR SEALING GLASS TO METAL

William J. Garceau, Reading, Pa., assignor to Western Electric Company Incorporated, New York, N.Y.

Filed Nov. 25, 1969, Ser. No. 879,669

Int. Cl. H01l 1/10; C03c 27/02

U.S. Cl. 29—588

9 Claims



Method of hermetically sealing hard glass to metal as in the encapsulation of a semiconductor device wherein the glass and metal are assembled in loosely fitting relationship

and placed in an oven. The assembly is then heated under nonoxidizing conditions at a first pressure. The nonoxidizing atmosphere is then evacuated to produce a second pressure and an oxygen containing gas is then introduced to produce a third pressure and to oxidize the metal when the temperature is increased to the range at which the metal oxidizes. The oxygen-containing atmosphere is then flushed out by introducing a nonoxidizing gas under pressure. The temperature is increased till the glass softens and seals with the metal. The sealed structure is then cooled.

3,631,590

METHOD FOR IMPREGNATING AND HARDENING WINDING RODS, COILS OR SEMICOILS OF ELECTRICAL MACHINES IN CORRECT DIMENSIONS
Arnold Wichmann, and Herbert Amborn, both of Mulheim (Ruhr), Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

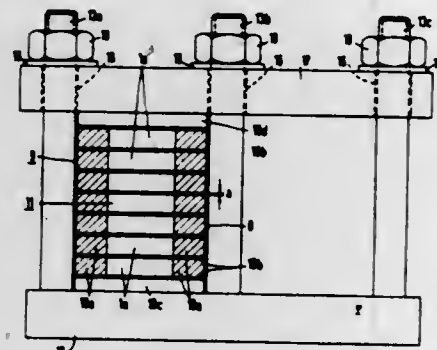
Filed Dec. 16, 1968, Ser. No. 783,961

Claims priority, application Germany, Dec. 16, 1967, P 16 13 441.1

Int. Cl. H02k 15/00

U.S. Cl. 29—596

6 Claims

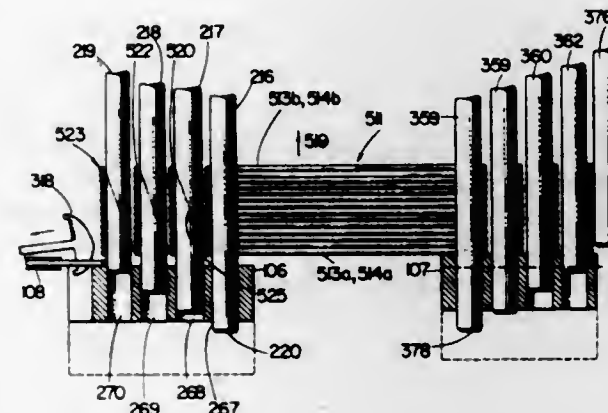


Described is method and apparatus impregnating and hardening, in correct dimensions, wrappings, preferably comprised of mica-containing tapes or bands with a low-adhesive content for insulating winding rods, coils or semicoils, particularly for high-voltage machines, whereby the insulating jacket, wound around the winding elements, is impregnated with a synthetic resin having hardening properties. The synthetic resin having penetrated the insulating jacket, is hardened in a manner which defines in correct dimensions the outer dimensions of the finished insulation. To this end, a plurality of winding elements is placed into an impregnating and hardening form, which contains receiving channels corresponding to the groove dimensions of the stator stack of laminations which will later be provided with the winding. The winding elements, in a nonimpregnated condition, are inserted into said receiving channels. The method is characterized by the fact that said winding elements are inserted into said receiving channels of said impregnating and hardening form with spacing which is smaller than its spacing in the stator stack of laminations; thus it constitutes only a part of the tooth width. The winding elements, together with spacers or filler pieces which define the receiving channels are stacked in layers to form a unit and are locked in place. Upon unlocking the unit, after the impregnating and hardening process, the winding elements and the spacers are removed in layers.

3,631,591
METHOD AND APPARATUS FOR MAKING CONCENTRIC, MULTITURN NESTED DYNAMOELECTRIC MACHINE FIELD COILS
Robert J. Eminger, and Clayton L. Tyson, both of Fort Wayne, Ind., assignors to Essex International Inc., Fort Wayne, Ind.
Original application May 22, 1967, Ser. No. 640,156, now Patent No. 3,481,372, dated Dec. 2, 1969. Divided and this application May 13, 1969, Ser. No. 824,121
Int. Cl. H02k 15/00

U.S. Cl. 29—596

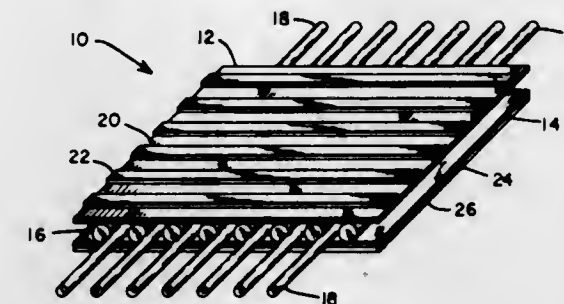
26 Claims



A method and apparatus for making concentric, multiturn nested dynamoelectric machine field coils, in which first and second concentric coil form means are provided each having first and second parts for respectively forming first and second opposite end portions of the first and second coils which are respectively connected by generally straight side portions. Each of the first parts comprises two elongated, spaced, parallel pins arranged to form the first end portions of the respective coil with each of the second parts being laterally spaced from the respective first part thereby to form the side portions of the respective coil. Each of the second parts has a first section comprising two elongated, spaced, parallel pins and a second section comprising two elongated, spaced parallel pins spaced from the first section pins on the side thereof remote from the first parts and parallel with the first section pins. The pins of each of the second parts are arranged in a pattern to form the second end portions of the respective coil with side sections respectively joined to the respective side portions and converging to and joining end sections. A flyer winder successively winds wire on the first and second coil form means respectively to form the first and second concentric coils thereon, one of the flyer and second coil form means being relatively longitudinally moved with respect to the other to a position in which the first and second coils are concentrically nested one within the other with one of the coil form means concentrically surrounding the other and with all of the pins being parallel. The first and second coil form means with the first and second nested, concentric coils thereon are moved to a position closely adjacent the elongated fingers of coil insertion apparatus with the pins extending in one direction and the coil insertion apparatus fingers is extending in the opposite direction in parallel relationship with the pins so that the coils may be removed from the pins directly onto the insertion apparatus fingers.

3,631,592
METHOD OF FORMING A TUNNEL STRUCTURE FOR A MAGNETIC PLATED WIRE MEMORY ARRAY
George D. Wilson, Torrance, Calif., assignor to Sperry Rand Corporation, New York, N.Y.
Filed May 25, 1970, Ser. No. 40,035
Int. Cl. H01f 7/06
U.S. Cl. 29—604

2 Claims

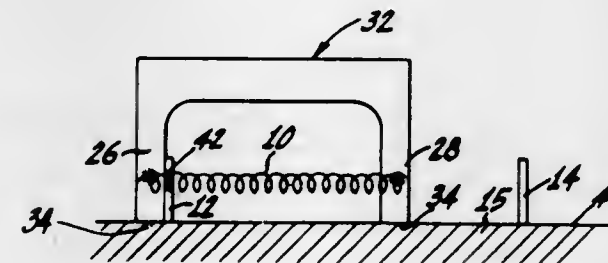


A method of forming the insulative base supported copper word lines and/or ground plane about parallelly aligned spaced-apart forming wires with the interstitial portions therebetween forming the tunnel structure. The copper word lines and the adhesively coated opposing faces of their plastic bases are bonded to the touching surfaces of the forming wires with the interstitial portions, the portions between the spaced-apart forming wires, forming the tunnels into which the respectively associated plated wire memory elements are inserted.

3,631,593
ASSEMBLY OF FILAMENTARY DISPLAY DEVICES
Norman Lee Lindburg, Berkeley Heights, and Hamilton David Woodland, Martinsville, both of N.J., assignors to RCA Corporation
Filed Jan. 2, 1970, Ser. No. 102
Int. Cl. H01c 17/00

U.S. Cl. 29—610

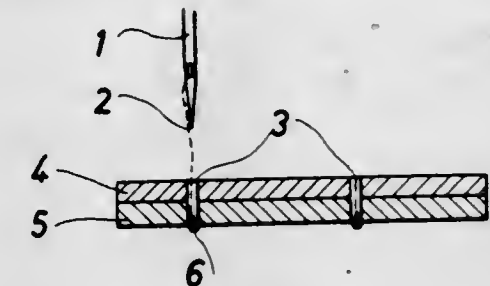
6 Claims



A refractory wire is wound in an elongated helix around and along a mandrel of a material different from that of the wire. A length of the wound mandrel is extended across and the helix thereof is bonded to spaced-apart legs of a fixture, and the mandrel is etched from within the helix. The helix is mounted between two spaced-apart terminals by disposing one leg of the fixture adjacent to one of the terminals, bonding the helix to the terminal, severing the helix from the one fixture leg, disposing the other leg of the fixture adjacent to the other terminal, bonding the helix to the other terminal, and severing the helix from the other fixture leg.

3,631,594
METHODS OF MAKING CIRCUIT BOARDS
Hans Dietrich, and Peter Weisse, both of Jena, Germany, assignors to Jenoptik Jena G.m.b.H., Jena, District of Gera, Germany
Filed Oct. 24, 1969, Ser. No. 869,401
Int. Cl. H01b 13/00; H05k 3/00
U.S. Cl. 29—624

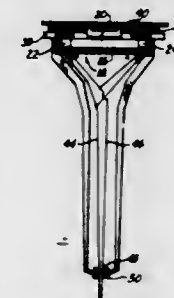
3 Claims



Insulated wire as lower thread is sewed by a sewing machine to two perforated matrices superposed on one another. The tension of the nonconductive upper thread is such as to cause the wire to extend in loops into the perforations of the matrices. After sewing, the wire is so impressed into carrier material on a board that part of its surface projects therefrom. The carrier material is then cured and the matrices are removed by displacement parallel to one another, so that the upper thread is sheared off and said loops protrude as connecting lugs.

3,631,595
ELECTRIC SHAVER
Harold W. Scott, Ridgefield, and Monroe R. Kelemencky, Woodbury, both of Conn., assignors to Electrex Corporation, Bethel, Conn.
Filed Feb. 4, 1970, Ser. No. 8,646
Int. Cl. B26b 21/00; H01v 7/00
U.S. Cl. 30—45

2 Claims



In an electric shaver, the cutting blade is mounted between a pair of piezoelectric elements arranged in opposed polarity in order to impart a sawing movement to the cutting surface of the blade.

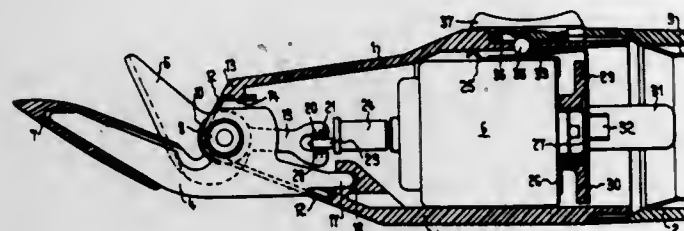
3,631,596
ELECTRIC SCISSORS
Heinrich Glaus, Niederwangen, Switzerland, assignor to Styner & Blenz AG, Niederwangen, Switzerland
Filed Mar. 30, 1970, Ser. No. 23,722
Claims priority, application Switzerland, Apr. 25, 1969, 6294/69
Int. Cl. B26b 15/00
U.S. Cl. 30—228

11 Claims

Electric scissors having a stationary blade and an oscillating blade driven by a motor, all mechanical and electrical

parts, particularly the scissors, motor and battery being accommodated and mounted in a handle-shaped casing made of two assembled parts of plastic material without any screw-

the other end to a plate which can act as the mirror and which has peripheral portions which define, in association with a removable resilient member, a channel connected to



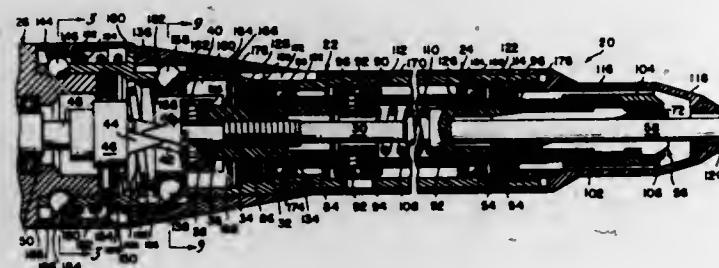
fastened portions by means of elastic portions latched to the casing, and all of said mechanical and electrical parts being readily exchangeable.

3,631,597

HANDPIECE WITH IMPROVED CHUCK ASSEMBLY
Nathaniel H. Lieb, Philadelphia, and Franklin W. Kerfoot, Jr., Newtown Square, both of Pa., assignors to Star Dental Manufacturing Co., Inc., Philadelphia, Pa.
Filed Sept. 15, 1969, Ser. No. 858,064
Int. Cl. A61c 1/08

U.S. Cl. 32-26

24 Claims



A dental handpiece having a rear housing containing a power assembly and a front housing containing a chuck assembly. The front housing is provided with an assembly for quickly connecting and removing the same from the rear housing. Additionally, a novel mechanism is provided for securing a bur in the chuck assembly. The mechanism includes a rotatable sleeve having a pair of balls secured in grooves therein. Rotation of the sleeve moves the balls in grooves of a linearly moving connector which in turn moves the collet of the chuck assembly linearly. Thus, rotational motion is translated into linear motion to advance and retract the collet securing the shank of the dental bur.

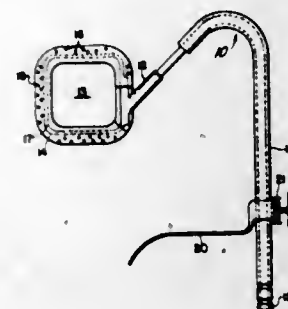
3,631,598

DENTAL INSTRUMENT
Maurice G. Lussier, 222 Maple Street, Lynn, Mass.
Filed May 18, 1970, Ser. No. 38,445
Int. Cl. A61c 17/04

U.S. Cl. 32-33

6 Claims

A dental instrument composed of a substantially flat plate member, e.g., a mirror, and a saliva ejector consisting of a tubular member attached at one end to a suction line and at

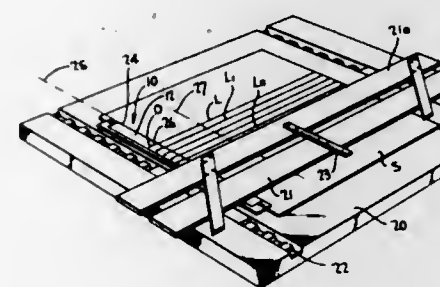


3,631,599

LINE-DRAFTING GUIDE
Murray K. Rogers, deceased, late of Somerset, Ky. (by May B. Rogers, executrix), assignor to Multi-Line Pen Company Incorporated, Ferguson, Ky.
Filed Nov. 4, 1969, Ser. No. 873,963
Int. Cl. B43i 5/00

U.S. Cl. 33-1 R

10 Claims



A thin strip of material is provided with a substantially smooth upper surface to accommodate the movement of a marking instrument, such as a ballpoint pen, thereacross to form the starting or ending of the drafting of a line. The guide edge of the strip is such as to allow smooth movement of the pen between said strip and said drawing surface and an ink-receptive covering is provided on the strip to remove excess ink whereby the end of each line is uniform. The strip is flexible plastic having a plurality of apertures formed therein and the covering is formed of masking tape with the sticky side extending through the apertures to temporarily fix the strip to the drawing surface. The depressions in the tape formed at the apertures allow more efficient cleaning of the sides of the pen when rotated.

3,631,600

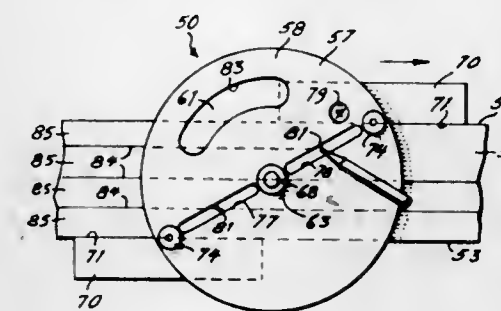
DRAWING DEVICE
Steve Turk, 7110 Seaford Road, Upper Darby, Pa.
Filed Feb. 9, 1970, Ser. No. 9,808
Int. Cl. B43i 13/02

U.S. Cl. 33-42

7 Claims

A device for dividing a planar surface into a plurality of equal sections. A first embodiment includes a member having

a plurality of regularly spaced apertures in linear relation to each other that are connected to a second member that may



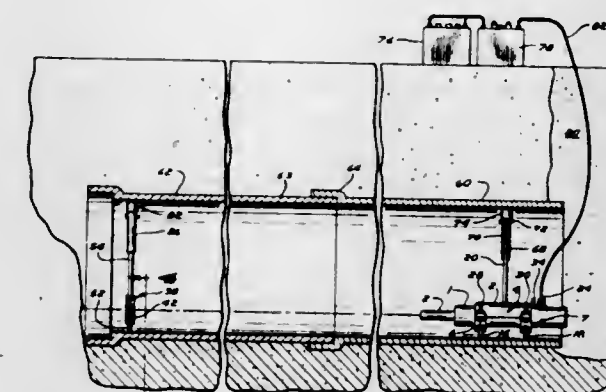
fit over the blade of a T-square. A second embodiment comprises a disclike indexing member with a plurality of sets of regularly spaced linearly disposed apertures.

3,631,601

METHOD AND APPARATUS FOR LAYING PIPE
Lloyd J. McNulty, Route 4, Cedar Heights, Hastings, Minn.
Filed Oct. 29, 1969, Ser. No. 872,245
Int. Cl. G11b 11/27

U.S. Cl. 33-46 AT

5 Claims



A laser beam projector is used to set a series of pipe sections in place along a predetermined line and grade by mounting the projector inside of a first pipe section preset on the desired line and grade by conventional surveying techniques, and then utilizing adjusting screws on the mounting housing supporting the laser projector in the first pipe section to precisely center the laser beam on a remote target positioned on the proper line and grade. With the laser beam thus projecting down the desired pipeline at the proper grade angle, successive pipe sections are set in place by placing the target within each successive pipe section and moving each pipe section laterally or vertically as required to center the target on the laser beam.

3,631,602

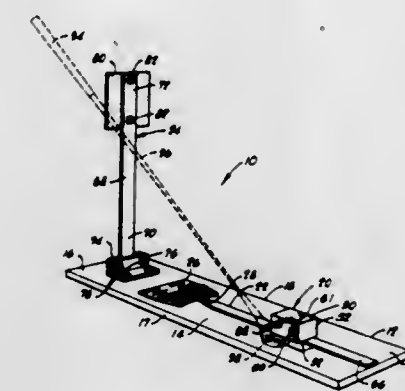
APPARATUS FOR INDICATING THE FACE ALIGNMENT OF GOLF CLUBS
Monroe L. Noel, 2624 S.W. 33, Oklahoma City, Okla.
Filed Sept. 24, 1969, Ser. No. 860,739
Int. Cl. G01b 5/24

U.S. Cl. 33-174 F

3 Claims

The present invention relates to apparatus for indicating the face alignment of golf clubs. The apparatus comprises an elongated base having means for contacting the face of a golf club head when the head is seated on the base pivotally at-

tached thereto. An indicator arm is attached to the means for contacting the face of the golf club and an upstanding shaft guide member is attached to the other end of the base. An indicator scale is attached to the base and positioned with respect to the indicator arm so that when a wood type of golf club is held in the normal manner for addressing a golf ball



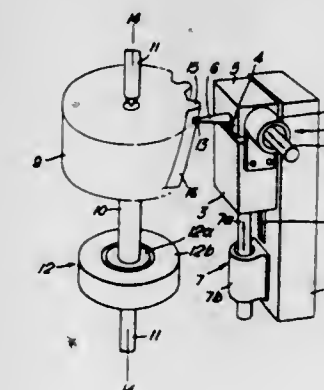
with the shaft thereof adjacent to the guide member and the head thereof seated on the base in contact with the means for contacting the face thereof, the relative alignment of the face with the shaft is indicated. The apparatus may be used with iron-type golf clubs to indicate the face alignment thereof when held in the normal manner for striking a golf ball.

3,631,603

METHOD AND APPARATUS FOR MEASURING PROFILE AND LEAD ERRORS IN GEAR TEETH
Robert Gordon Munro, Huddersfield, and Rodney Barker Hale, Watford, both of England, assignors to J. Goulder & Sons Limited, Kirkheaton, Huddersfield, England
Filed May 13, 1969, Ser. No. 824,242
Claims priority, application Great Britain, June 13, 1968, 28,112/68
Int. Cl. G01b 7/28, 19/20

U.S. Cl. 33-179.5

6 Claims



In a method of measuring errors in the flanked surfaces of the teeth of a gearwheel, the gearwheel is mounted freely rotatable. A probe is arranged to contact the flanked surface to be measured whereby the gearwheel can rotate in response to a movement of the probe which causes relative movement of the probe over said surface in a required direction. To test the flanked surface, the probe is moved in said direction by a predetermined amount, and the resulting rotation of the gearwheel is measured. The expected amount of rotation of the gearwheel for movement of the probe can be determined for the design tooth shape. Comparison of the actual amount with the expected amount of gearwheel rotation indicates the error in the flanked surface of the tooth.

3,631,604

WORKPIECE ALIGNING DIAL INDICATOR HOLDER

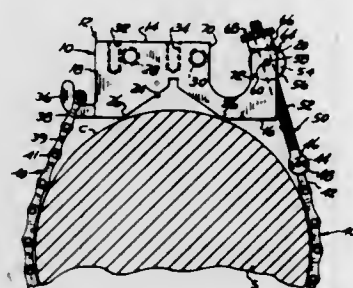
Stanley J. Schenavar, 12771 Hemingway, Detroit, Mich.

Filed July 15, 1969, Ser. No. 841,891

Int. Cl. G01b 3/30

U.S. Cl. 33—180 R

3 Claims



An elongated V-block has two pairs of threaded holes therein for the mounting of either of two conventional dial indicators. A chain connection projection on one end of the block receives any selected link of a work-encircling chain. The other end of the chain is pivotally connected to the forward end of a chain-tightening screw slidably engaging a rocking barrel pivotally mounted on the other end of the block. The rocking barrel rocks on its trunnions to constantly position the screw tangential to the workpiece regardless of its diameter and thereby subjects the screw solely to axial forces and eliminates oblique thrusts thereon. Threaded onto the screw above the trunnion barrel against a flat thereon is a thumb nut adapted to swing into a notch in the block when tightening the chain around a large-diameter workpiece.

3,631,605

DRYING SOLID POLYMER

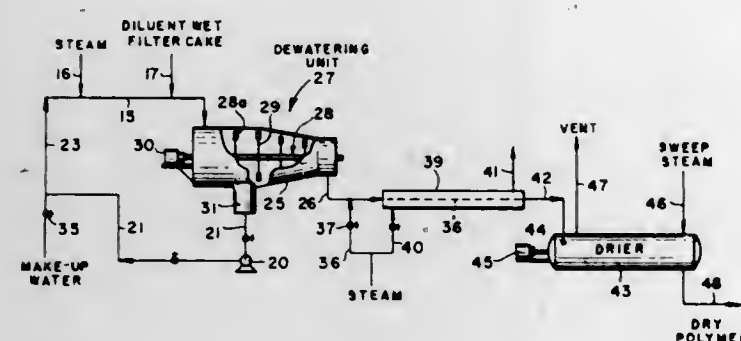
Roger Wylie, Baytown, and Ralph James, Jr., Channelview, Tex., assignors to Esso Research and Engineering Company

Filed Aug. 6, 1970, Ser. No. 61,534

Int. Cl. F26b 3/00

U.S. Cl. 34—9

24 Claims



Solid polymer of an alpha monoolefin having two to eight carbon atoms in the molecule which is wet with a diluent is dried by forming the wet polymer into a slurry with heated aqueous liquid and then drying the polymer by subjecting the slurry to centrifugal force in the dewatering portion of a drying zone to remove substantially all of the aqueous liquid and diluent and then completing the drying operation in the second portion of the drying zone by heating same to a sufficient temperature while continuing to subject the polymer to centrifugal force.

ERRATUMFor Class 34—10 see:
Patent No. 3,631,608

3,631,606

OPERATOR GUIDANCE SYSTEM

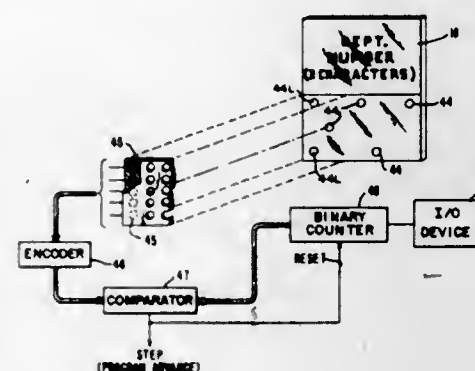
Allan C. Thorpe, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 1, 1970, Ser. No. 42,183

Int. Cl. G09b 5/02

U.S. Cl. 35—8 R

5 Claims



A plurality of serially arranged images each containing coded control data and associated instructional data are serially scanned by a selective decoding device which causes a display of associated instructional data when predetermined coded data is detected. The displayed instructional data is utilized for guiding a human operator in the performance of one or more functions. When the required function or functions have been completed, scanning is resumed until a next predetermined coded data is detected, at which time the above process is repeated. The scanning process continues until the last image in the serial string has been scanned at which time the selective decoding device may be changed to provide a different cycle or the same cycle may be repeated.

3,631,607

MOCK CIRCULATION

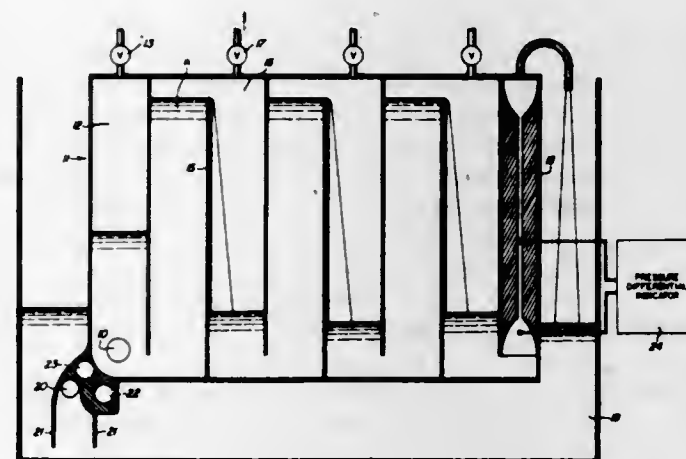
Willem J. Kolff, Salt Lake City, Utah, and Stephen C. Jacobsen, Boston, Mass., assignors to University of Utah

Filed Oct. 27, 1969, Ser. No. 869,714

Int. Cl. G09b 23/28

U.S. Cl. 35—17

5 Claims



The invention disclosed herein relates to a device for simulating the hydraulic impedance of the blood circulatory

system for the purpose of evaluating artificial hearts, heart valves, heart bypass methods, and control systems for artificial hearts. The evaluation of these items relates both to their overall performance and to the durability of their materials of construction.

3,631,608

PROCESS AND APPARATUS FOR TREATING**PARTICULARIZED SUBSTANCES IN A FLUIDIZED BED**

Arcangelo Maresca, and Giuseppe Ancilotta, both of Siracusa, Italy, assignors to Simcat-Societa Industriale Catanese S.p.A., Palermo, Italy

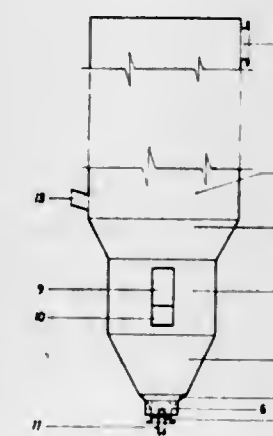
Filed Aug. 19, 1969, Ser. No. 851,358

Claims priority, application Italy, Aug. 21, 1968, 29351 A

Int. Cl. F27b 15/00

U.S. Cl. 34—10

19 Claims



A process and an apparatus for carrying out a fluidized bed-type operation wherein a central gas stream is insufflated upwardly through a bed of particles, comprising the addition of an auxiliary gas stream directed through the bed in an upwardly inclined direction towards the central stream.

3,631,609

TRAINING SYSTEM AND TACHISTOSCOPE FOR USE THEREIN

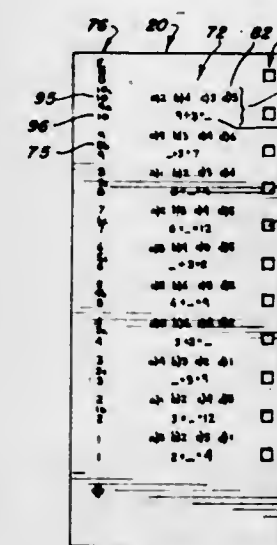
Steven A. Warren, 480 Saunders Road, Lake Forest, Ill.

Filed Dec. 29, 1969, Ser. No. 888,227

Int. Cl. G09b 3/06, 17/04

U.S. Cl. 35—9 E

10 Claims



A tachistoscopic device for use with a sheet of symbols to be recognized when momentarily exposed. The device in-

cludes a frame having a symbol viewing window, and a shutter is movable past the window to momentarily expose the symbol to be viewed. The sheet of symbols preferably includes a plurality of sets of symbols, each set including a symbol to be viewed, such as a question, and an evaluation symbol to be compared therewith, such as a multiple choice answer. The sheet also includes a marking zone for each question with each zone having a plurality of circumferentially spaced areas, each area corresponding to one answer of said multiple choice answers. A manually operable rotary marking device is mounted on the frame for marking a selected area of the sheet after the questions have been flashed and the multiple choice answers have been exposed.

3,631,610

METHOD AND APPARATUS FOR PRODUCING A VISUAL DISPLAY OF A SCENE BY DIRECT OPTICAL PROJECTION

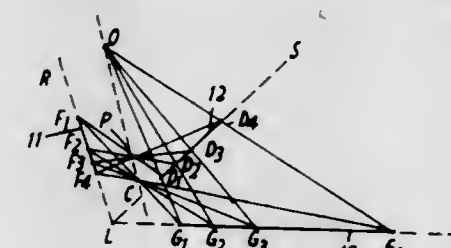
Albert Ernest Cutler, Barnet, England, assignor to Redifon Limited, London, England

Filed July 14, 1969, Ser. No. 841,464

Int. Cl. B64g 7/00; G09b 9/08

U.S. Cl. 35—12 N

5 Claims



Method and apparatus for producing a visual display, particularly for an aircraft flight simulator, comprising making a moving picture film record of a terrestrial surface and projecting the film onto a screen, the terrestrial surface plane, film gate plane and projection screen plane being colinear and the screen being viewed for accurate simulated perspective.

3,631,611

TEST SCORING METHOD AND APPARATUS

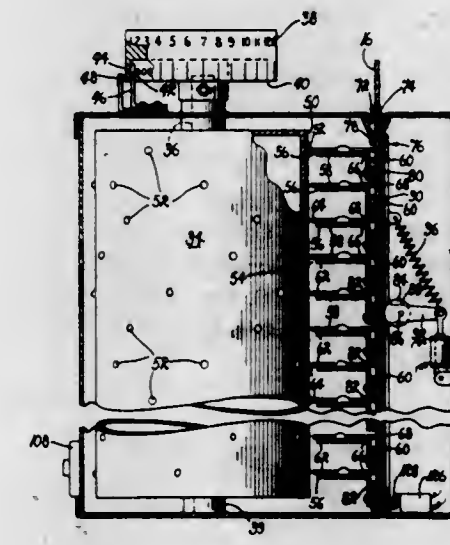
Kendrick M. Abell, 1405 East Revere Road, Fresno, Calif.

Filed Nov. 28, 1969, Ser. No. 880,802

Int. Cl. G09b 5/00

U.S. Cl. 35—48

10 Claims



This disclosure concerns a testing method and apparatus for rapidly scoring of student work papers. The method util-

izes a question sheet listing 20 multiple-choice-type questions, an answer sheet, providing fill-in pencil mark blocks for indicating the chosen answer, and an answer code set which contains numerous different codes, each designating which the multiple choice answer to a specific question should be the correct answer. The question sheets are prepared utilizing a particular answer code, by arranging the answers so that the correct answer from the various possible answers provided for each question is the choice specified by the answer code. Detection of the answer code is voided by using different codes from the answer code set. The apparatus has a rotary drum with peripheral code contacts and is movable to a plurality of positions. The answer card is placed in the apparatus and engaged by answer contacts which are so interconnected with the code contacts on the drum as to apply a particular answer code. Comparison of the student answers with the correct answers, for that answer code, is then made electrically utilizing the conductivity of the pencil marks on the answer sheet.

3,631,612

AN APPARATUS FOR TEACHING PURPOSES

Gerhard Westerberg, Haskovagen 7A Lahall 18350, Taby, Sweden

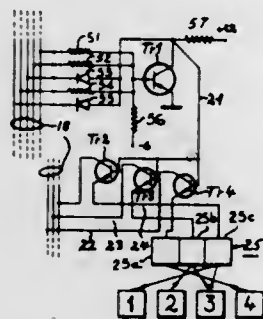
Filed Dec. 4, 1969, Ser. No. 882,337

Claims priority, application Sweden, Dec. 9, 1968, 16803/68

Int. Cl. G09b 7/06

U.S. Cl. 35—48 R

6 Claims



To decrease the number of interconnections necessary between a central comparison and monitor unit and a plurality of student-operated keyboard units, each keyboard unit has a specifically assigned connection code, in the binary system, and is connected according to this code to the wires in a cable; the monitor unit includes a scanning generator, scanning the wires, in binary code; upon coincidence of the scanned code with the connection pattern of a keyboard unit, a transistor in the keyboard unit is unblocked, permitting reading of student-operated keys connected to a second group of wires, preferably also in a binary coded system. A comparator, operated by a pulse generator in cyclical sequence with the scanning, compares the code in accordance with the student-operated keys with a preset code, for recording and display at the monitoring unit.

3,631,613

MULTIPLE-USE POUCH

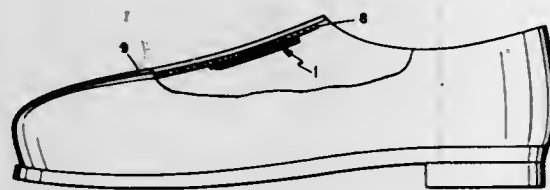
Charles C. Brettell, 3109 Ivy Street, San Diego, Calif.

Filed Aug. 10, 1970, Ser. No. 62,405

Int. Cl. A43b 00/00

U.S. Cl. 36—2.5 Q

1 Claim



A pouch for carrying emergency use items which can be either permanently or separately attached to a shoe.

3,631,614

ANTISLIP FOOTPIECE

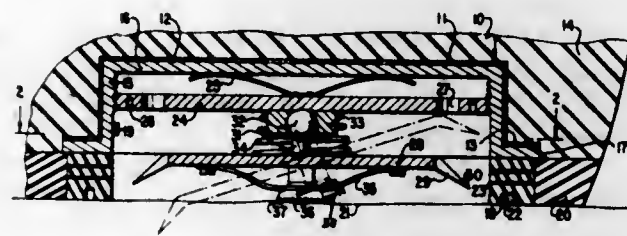
Clifford M. Rice, P.O. Box 6212, Alexandria, Va.

Filed Nov. 5, 1970, Ser. No. 87,130

Int. Cl. A43c 15/00

U.S. Cl. 36—61

9 Claims



An open bottom housing having a bottom tread surface mounts in its interior a circular wobble plate that is rotatable on the axis of the housing and tiltable on an axis of oscillation that is perpendicular to and intersects the housing axis. The periphery of the plate is constituted as means for penetrating a slippery surface which may underlie the housing tread surface. A spring-projected actuator carried by the wobble plate extends through the housing bottom on the axis of the housing for gripping engagement with the underlying surface. At the beginning of a slip, the actuator is displaced radially from the housing axis and correspondingly tilts the wobble plate in the direction of the slip; whereupon the low point of the plate extends through the housing bottom and penetrates the underlying surface, effectively stopping the slip immediately after it starts.

3,631,615

CRAWLER TRACTOR-SCRAPER COMBINATION

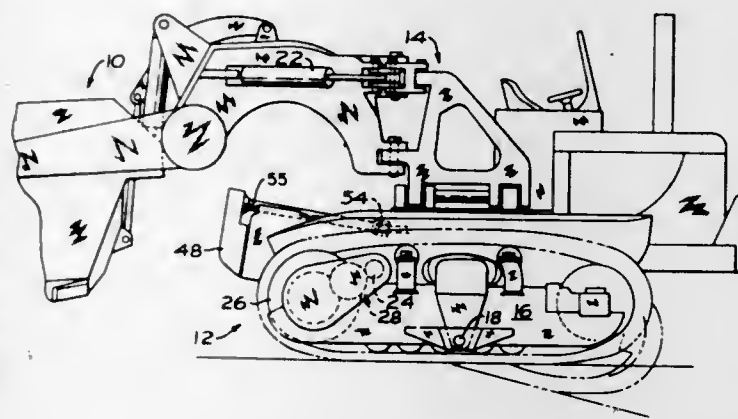
Harold L. Reinsma, Dunlap, and James E. Gee, Washington, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 25, 1969, Ser. No. 819,218

Int. Cl. B62d 55/06, 55/08; E02f 3/62

U.S. Cl. 37—126 R

5 Claims



In a crawler tractor-scraper combination, tractors having tracks independently supported at low, centrally located pivots by laterally extending yokes. Such tractors are positioned, at each end of a scraper and a chain of such tractor scrapers using three or more tractors and two or more scrapers may be formed.

3,631,616

ORNAMENTAL BAND

Delmer James Hill, 3133 Cortland Drive, Vestal, N.Y.

Continuation-in-part of application Ser. No. 697,416, Jan. 12, 1968, now Patent No. 3,521,798, dated July 28, 1970. This

application Feb. 9, 1970, Ser. No. 9,549

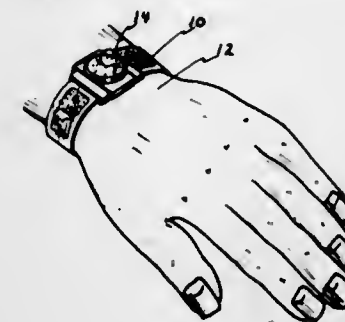
Int. Cl. G09f 3/14

U.S. Cl. 40—21 C

9 Claims

An ornamental band for displaying a series of inserts in a sealed transparent sleeve about the user's wrist. The band has

a buckle device that allows either side of the sleeve to be dis-



played depending upon the manner in which the user connects the sleeve's ends together.

3,631,617

TAMPERPROOF LABEL CONSTRUCTION

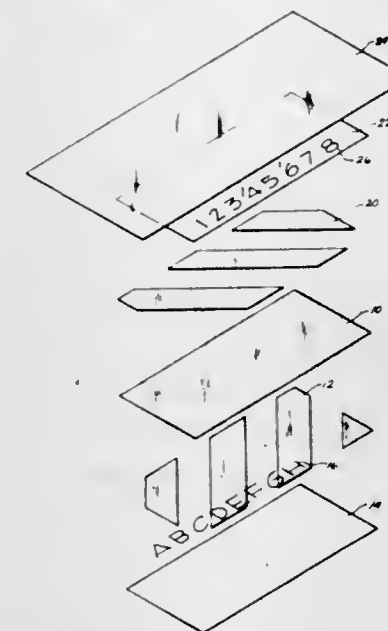
John A. Pekko, Whittier, Calif., assignor to Avery Products Corporation, San Marino, Calif.

Filed Oct. 27, 1969, Ser. No. 869,764

Int. Cl. G09f 3/02

U.S. Cl. 40—2.2

41 Claims



A tamperproof label is provided in which the underside of a transparent film is partially masked with a substance having limited adhesivity for the film and imprinting is applied to both the undersurface of the film and the mask. To form a tamperproof pressure-sensitive label, pressure-sensitive adhesive layer is applied over both the imprinted underside of the film and the mask, the adhesive layer having a greater adhesion for the mask than the adhesion of the mask for the undersurface of the transparent film. Once the label has been applied to a substrate any removal of the label will result in all or a portion of the adhesive layer, essentially corresponding to the pattern of the applied mask, to remain on the substrate with the printed mask. A portion of the imprinting will also be removed with the transparent film thereby destroying the intelligence of the imprint.

3,631,618

DEVICE FOR DISPLAYING CHANGEABLE INSCRIPTIONS ON INTERCHANGEABLE ROLL SCREENS

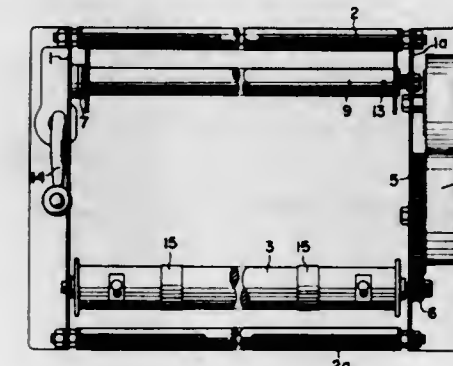
Ishi Habuka; Kazuko Habuka, and Takashi Habuka, all of 23-8, 3-Chome, Sengoku, Bunkyo-ku, Tokyo-to, Japan

Filed Oct. 9, 1969, Ser. No. 865,151

Int. Cl. G09f 11/24

U.S. Cl. 40—86 R

4 Claims



One of two rolls for rolling and unrolling a roll screen bearing inscriptions in a route or destination indicator of a vehicle is provided with a detachable mounting device for easy interchanging of that roller together with the screen with another roller supporting another screen with different inscriptions. Thus, screens can be readily and rapidly interchanged in the manner of roll films in a 35 mm. camera.

3,631,619

OVERHEAD TRAFFIC INFORMATION OR DIRECTIONAL SIGN

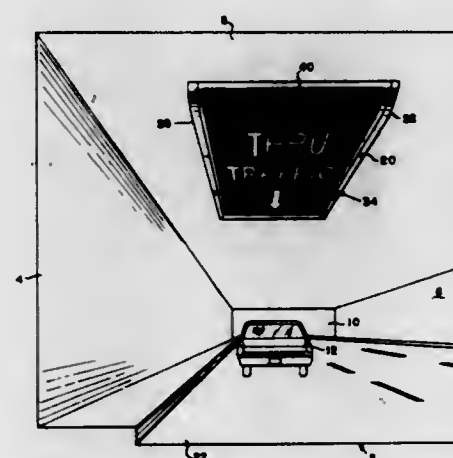
Joseph R. Campbell, McLean, Va., assignor to Samuel Scrivener, Jr., Washington, D.C.

Filed June 29, 1967, Ser. No. 649,973

Int. Cl. G09f 7/16

U.S. Cl. 40—125 N

7 Claims



A traffic sign for providing information or direction to drivers of vehicles, which is positioned above a roadway, for example in the roof of a vehicular tunnel, and has a visible lower surface which is substantially parallel or inclined to the roadway surface beneath it and which is formed of translucent material and is illuminated from above, the symbols or lettering of the sign being elongated in the direction of movement of the vehicle, resulting in a condition called anamorphosis.

3,631,620

BOLT OF BOLT-ACTION FIREARMS

Banri Ohira, Aichi-ken, Japan, assignor to Howa Kogyo Kabushiki Kaisha, Aichi-ken, Japan

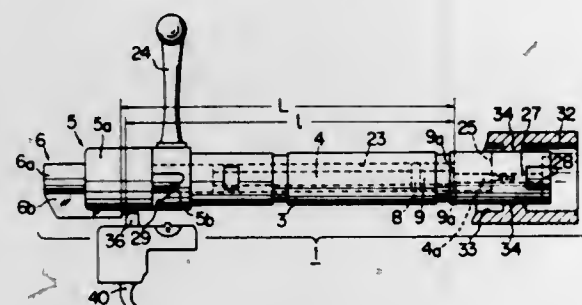
Filed June 25, 1969, Ser. No. 836,448

Claims priority, application Japan, June 29, 1968, 43/44839

Int. Cl. F41c 11/00, 17/06

U.S. Cl. 42-16

8 Claims



A firearm bolt assembly including a firing pin with an engagement part which is aligned with and permitted to enter an engagement slot in a bolt cylinder into a position whereby firing is possible only when the bolt cylinder is in its fully locked position. The driving force of the main spring initially borne by the engagement part in contact against a shoulder part of the cylinder is transferred, when the engagement part thus enters the slot, to the catch of the cooking piece thereby brought into contact with and arrested by the sear in preparation for firing.

3,631,621

LIFTER MECHANISM FOR AN AUTOMATIC SHOTGUN

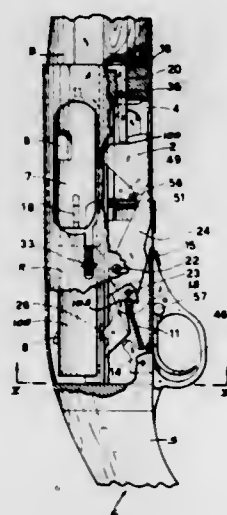
Luigi Tito, S. Barnaba Fondamenta Gherardini, 1-30100 Venezia, Italy

Continuation-in-part of application Ser. No. 801,094, Feb. 20, 1969, now abandoned. This application May 15, 1969, Ser. No. 824,817

Int. Cl. F41c 11/00, 13/00

U.S. Cl. 42-17

5 Claims



An automatic recoil-actuated shotgun having a spring-loaded magazine in the stock and a carrier in the receiver which lifts the shells into alignment with the barrel to permit the bolt to move the shell into the barrel for firing.

3,631,622

EXTRACTOR-EJECTOR SYSTEM FOR FIREARMS

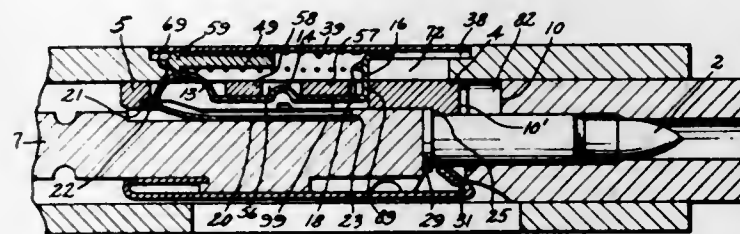
Merle H. Walker, Mohawk, and James M. Alday, Williamson, both of N.Y., assignors to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Sept. 8, 1969, Ser. No. 855,862

Int. Cl. F41c 7/00

U.S. Cl. 42-25

16 Claims



A unique design for an extractor-ejector system for firearms. The system allows for the firing of high-pressure rimfire ammunition by preventing cartridge case rupture. This is accomplished by supporting all areas of the case, particularly those areas usually exposed to such openings in the barrel and bolt face as are required for extractors and/or ejectors.

3,631,623

LASER IGNITION SYSTEM FOR FIREARMS

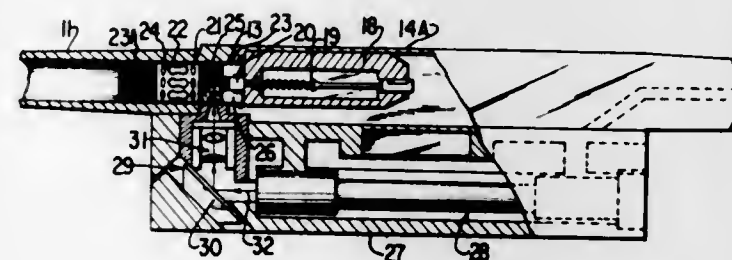
William G. Platt, Stratford, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Oct. 13, 1969, Ser. No. 865,770

Int. Cl. F41c 19/12

U.S. Cl. 42-84

9 Claims



A laser assembly is mounted on a firearm so as to direct a laser beam through an optical system to an explosive charge contained within the chamber of said firearm. The beam may be directed to the explosive through the side of a shell or through a plastic window inserted in the end of the shell in place of the usual primer. The trigger of the firearm connects the laser assembly to a source of electrical energy to actuate the laser so that a beam of energy is discharged therefrom.

3,631,624

AUTOMATIC FISHING LURE

Ernest Howard Edde, 276 White Bridge Road, Nashville, Tenn.

Filed Jan. 15, 1970, Ser. No. 2,992

Int. Cl. A01k 83/00

U.S. Cl. 43-35

1 Claim

A fishing lure in which a hook on a fish line is ejected from a protective chamber in a body member by the expansion of

a cylindrical helical spring normally held under pressure by a spring loaded trigger also contained within said body, the

greater cross-sectional area. The angled grooves having a spiral configuration create a turbulence in the water as the lure is moved which attracts the attention of the fish it is desired to catch. The angled grooves of translucent or transparent lures according to the invention results in increased refraction and reflection of light as the lure is moved through the water with resultant attraction of fish.



trigger being uncocked and said ejection spring released when a fish bites the lure.

3,631,625

FISHING LURES

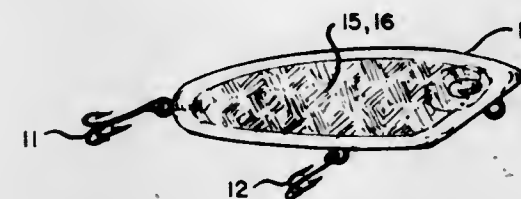
Charles S. Castner, Reading, Pa., assignor to Schuyler Development Corporation

Filed Oct. 3, 1969, Ser. No. 863,602

Int. Cl. A01k 85/00

U.S. Cl. 43-42.33

6 Claims



A fishing lure is provided having a body of clear cast plastic or clear, flexible and resilient latex surrounding a central birefringent film having crossed polarizing films on the opposite sides thereof. The lure may be in the shape of a minnow, frog or similar natural object or in the form of a spinner.

3,631,626

GROOVED FISHING LURE

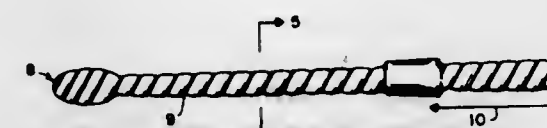
Francis P. Keenan, 1623 Montrose Drive, Tyler, Tex.

Filed Apr. 24, 1970, Ser. No. 31,611

Int. Cl. A01k 87/04

U.S. Cl. 43-42.24

3 Claims



An improved fishing lure of the elongated plastic or rubber wiggle type. The lures which are flexible, soft, and resilient are molded or cut with grooves at an angle or pitch within the range of 3° to 80° from a horizontal plane. The angled grooves give increased strength to the lure as a result of

3,631,627

FORCING BOXES FOR BULB PLANTS

Jacobus Leendert Van Zijverden, Dreef 4, Bennebroek, Netherlands

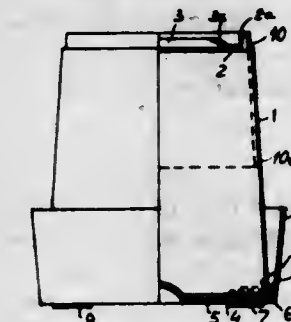
Filed Oct. 22, 1969, Ser. No. 868,453

Claims priority, application Netherlands, Oct. 24, 1968, 6815184

Int. Cl. A01g 9/02

U.S. Cl. 47-34

6 Claims



A forcing box for plants, particularly plants of the bulb variety in which a tubular body is provided with an open lower end and an upper end wall having a central opening for allowing a shoot of the bulb to project therethrough to the exterior of the body, with the lower end resting in a cover having an upstanding peripheral wall spaced from and surrounding the lower portion of the body, and at least the cover having means for spacing the lower end of the body from the cover to provide a slot for allowing water introduced into the cover to enter the interior of the body via the slot.

3,631,628

DOOR CONTROL MECHANISM

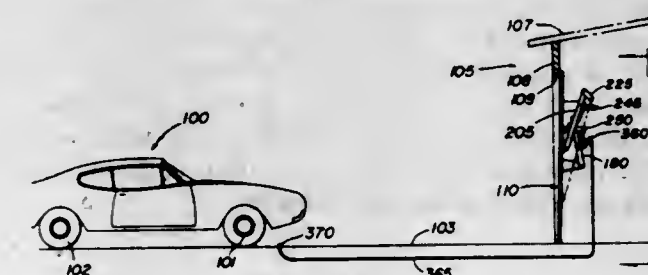
Erwin B. Bahnen, Oakbrook, Ill., assignor to Steiner American Corporation, Salt Lake City, Utah

Filed Oct. 29, 1969, Ser. No. 872,131

Int. Cl. E05f 11/54, 13/00

U.S. Cl. 49-200

28 Claims



A door control mechanism for controlling the movement of a one-piece door between the closed position and the open position thereof, wherein the door is biased toward the closed position thereof, the mechanism accommodating manual movement of the door to the open position followed by an automatic movement of the door to the closed position.

tion, followed by an automatic movement of the door to the open position, and then followed by a manual movement of the door to the closed position, the mechanism including a door bar pivotally mounted to the door for pivotal movement with respect thereto and for pivotal movement therewith in response to movement of the door between the closed and the open positions thereof, first latch mechanism having a door-bar-holding condition for holding the door in its open position and having a door-bar-releasing condition for permitting movement of the door to the closed position thereof, a door-driving device operative when connected to the door automatically to move the door from the closed position thereof to the open position thereof, a second latch mechanism having a device-connecting condition for connecting the door-driving device to the door and having a device-holding condition for maintaining the door-driving device out of operative connection with the door, a trigger for selectively operating the first and the second latch mechanisms and biasing means for selectively rendering the trigger operable to change the condition of only one of the first and the second latch mechanisms at one time.

3,631,629

DEVICE FOR LOCKING DOOR AND WINDOW LEAVES

Marcel Bercheux, Meudon la Foret, France, assignor to Boussois Souchon Neuvessel, Paris, France

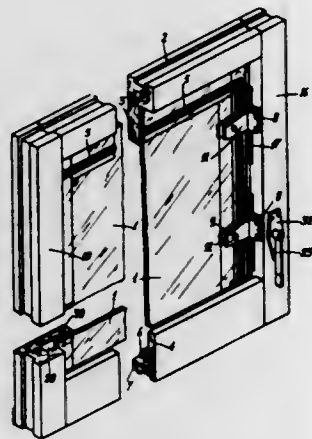
Filed Sept. 18, 1969, Ser. No. 858,956

Claims priority, application France, Oct. 2, 1968, 168390

Int. Cl. E05I 7/02

U.S. Cl. 49-256

2 Claims



The invention relates to a device for locking at least one leaf pivotally mounted in a frame by means of hinge plates which additionally permit the displacement of the leaf in translational motion with respect to the frame. The hinge plates are oriented parallel to the frame and means providing a connection between the hinge plates and the frame are provided for guiding the movement of displacement of the hinge plates so that said movement is carried out in the plane of said hinge plates and has an oblique component with respect to the vertical along at least a part of its path, said movement being controlled by an external lever.

3,631,630

REFRIGERATOR DOOR STRUCTURE

Herman L. Buffington, and Robert M. Stribling, both of Spartanburg, S.C., assignors to Beverage Air Company, Spartanburg, S.C.

Filed May 25, 1970, Ser. No. 40,204

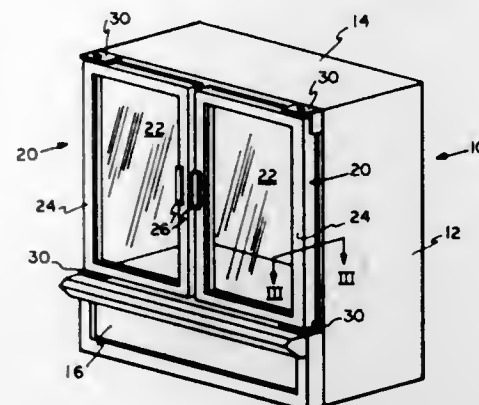
Int. Cl. E05d 7/00

U.S. Cl. 49-402

6 Claims

The construction and structure of a refrigerator door are disclosed. The door includes a central panel that is surrounded and held by a unique frame. The door frame is basi-

cally made of two sections, an outer metallic section and an inner rigid plastic section, the inner rigid plastic section being manufactured of a low thermal conductance material and being snap fitted to the outer section whereby the central



panel is held between portions of the outer and inner door frame sections. The door structure presents a complete thermal break across the access opening of the refrigerated compartment of a refrigerator on which it is mounted.

3,631,631

PNEUMATIC ABRASIVE CUTTING APPARATUS

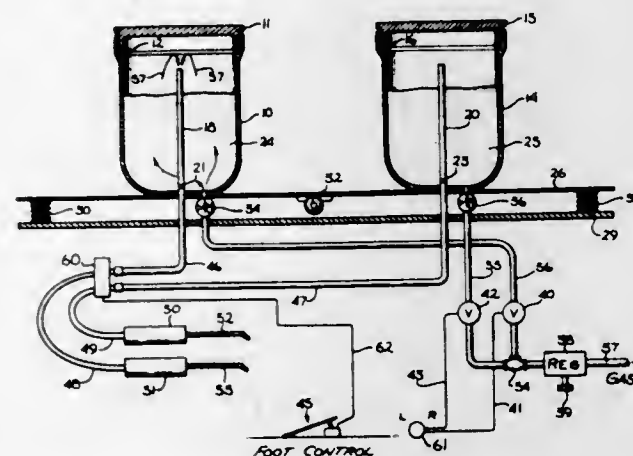
Jean I. Greenstein, Encino, Calif., assignor to Dental Gold Company, Los Angeles, Calif.

Filed Jan. 21, 1970, Ser. No. 4,533

Int. Cl. B24c 3/06

U.S. Cl. 51-8

9 Claims



An apparatus which utilizes a stream of gas to propel fine particles which is particularly useful in the manufacturing of dental restorations for functions such as cutting, cleaning and polishing, is disclosed. An abrasive powder is forced from a container by a stream of gas which first passes through the powder. The gas, after passing through the powder, flows through a tube disposed in the powder and then to a nozzle. An orifice disposed through the wall of the tube provides an even and continuous injection of powder into the stream of gas.

3,631,632

TILE EDGE GRINDING MACHINE

Malcolm A. Schweiker, Worcester, and Wayne C. Watson, Ambler, both of Pa., assignors to American Olean Tile Company, Inc., Lansdale, Pa.

Original application June 23, 1966, Ser. No. 559,943, now Patent No. 3,495,569. Divided and this application Feb. 2, 1970, Ser. No. 12,488

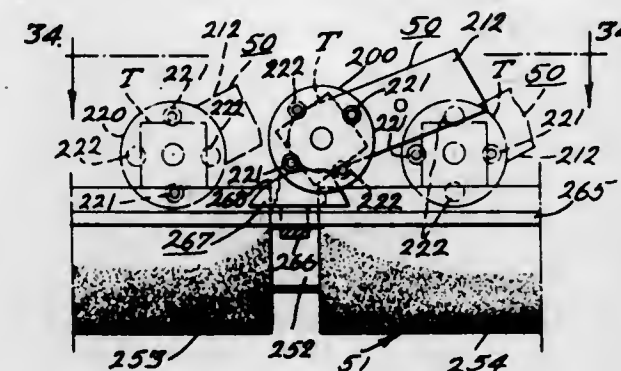
Int. Cl. B24b 7/00, 9/00

U.S. Cl. 51-76

9 Claims

Apparatus for removing sand particles from the edges of ceramic tile elements including tile clamp assemblies which

are adapted to automatically pick up the individual tile elements and successively present each of the tile element edges to a grinding wheel. The tile clamp assemblies are carried by an endless chain conveyor extending parallel to the axis of



rotation of the grinding wheels. Studs on the tile clamp assemblies engage cam surfaces adjacent the conveyor which rotate the tile clamp assemblies and tiles clamped therein to present the several tile edges to the grinding wheels.

3,631,633

GRINDING MACHINES

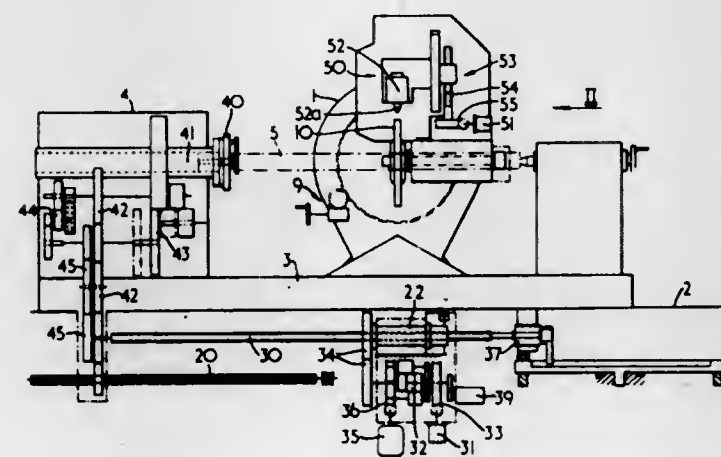
Raymond L. Palmer, Solihull, England, assignor to Coventry Gauge & Tool Company, Limited, Coventry, Warwickshire, England

Filed June 24, 1969, Ser. No. 836,099

Int. Cl. B24b 3/00, 49/00

U.S. Cl. 51-95

5 Claims



A grinding machine for thread or similar form grinding or cylindrical grinding is disclosed in which radial infeed of the grinding wheel head to a workpiece carried by a work-support arranged for relative traversing movement, is incrementally effected by a stepping motor drive on the wheel head to a lead screw via a gear drive having a driving and slidable engagement with the lead screw which latter cooperates with a fixed nut on the machine base, fluid pressure operated piston and cylinder means being provided and acting between the wheel head and lead screw for relative rapid initial feed and retraction movements of the wheel head as permitted by the sliding engagement of the stepping motor gear drive with the lead screw.

3,631,634

POLISHING MACHINE

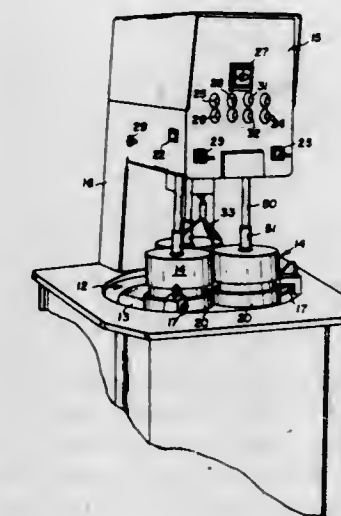
John L. Weber, 1025 Lexington Avenue, Spencerport, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,570

Int. Cl. B24b 5/00

U.S. Cl. 51-131

9 Claims



A polishing machine or similar abrading apparatus having a horizontal platen rotatable about a vertical axis with workpieces held against the platen by at least one vertically movable support head. Pneumatic means are provided to raise and lower the support head with the pneumatic means operatively disengaged from the support head in the operating position, and with adjustable dead weight means and position aligning idlers controlling the pressure and position of the support head during operation.

3,631,635

GRINDING AND POLISHING MACHINE

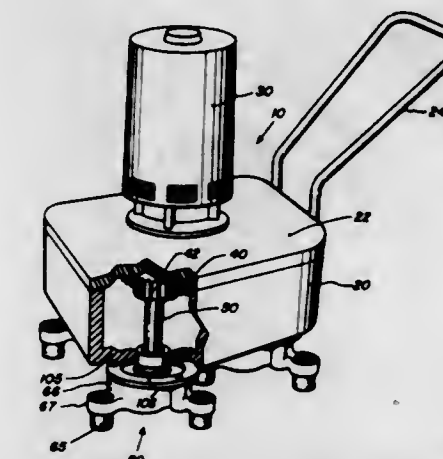
Kenneth W. Vezner, 6107 Fremont North, Minneapolis, Minn.

Filed Nov. 7, 1969, Ser. No. 874,857

Int. Cl. B24b 23/00

U.S. Cl. 51-177

8 Claims



An improved grinding and polishing machine incorporating a simplified flexible coupling between the driving shaft and the abrasive stone mounting structure which permits rigid mounting of the drive shafts and adjustment of the stone mounting frame relative to the shafts for proper spacing of the grinding stones on the machine.

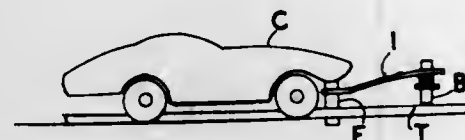
3,631,636

TRACK CLEANER FOR MINIATURE RACING CARS
Walter Nadolny, Box 383 (734 74th Str. Ocean), Marathon,
Fla.

Filed Dec. 30, 1969, Ser. No. 889,132
Int. Cl. B24b 23/00

U.S. Cl. 51—17R

2 Claims



A track cleaning brush attachment for miniature racing cars. A cleaning brush is spring loaded on a Tee-shaped member which is adapted to be pushed by the car so that the brush will clean the track. The brush is reversible and has one side of an abrasive surface and the other side of a polishing surface.

3,631,637

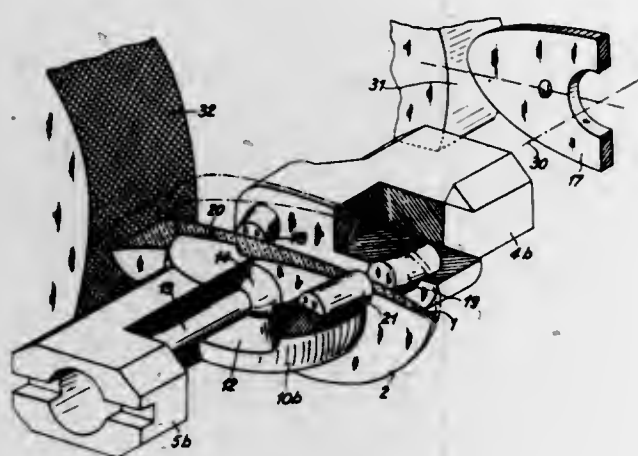
DEVICE FOR HOLDING AND CLAMPING AN OPTICAL LENS ON AN EDGING MACHINE

Luc Andre Tagnon, Paris, France, assignor to Societe Des Lunetiers, Societe en Commandite simple a Capital Variable, Paris, France

Filed Apr. 7, 1969, Ser. No. 813,887
Claims priority, application France, Apr. 25, 1968, 149,425
Int. Cl. B24b 17/00

U.S. Cl. 51—237 R

4 Claims



Device for holding and clamping a lens-blank on the spindle of a machine for grinding the edges of ophthalmic lenses, which comprises a fixed jaw and a clamping jaw, said jaws being coaxial, centered to the spindle axis and provided with bearing members respectively, said bearing members being adapted to engage the corresponding faces of said lens, the bearing member of at least said clamping jaw being of resilient character, this device being characterized in that said bearing member of at least one of said jaws is carried through the medium of a carrier element pivoted with at least 1° of freedom to the relevant jaw.

3,631,638

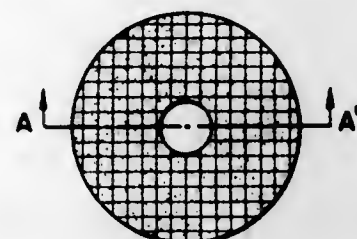
PROCESS FOR THE MANUFACTURE OF A GRINDING STONE

Takayuki Yoshikawa; Hironobu Maki, and Tadao Kamiya, all of Nagoya-shi, Aichi-ken, Japan, assignors to Nippon Toki Kabushiki Kaisha, Nagoya-shi, Aichi-ken, Japan
Filed Nov. 24, 1969, Ser. No. 879,462

Claims priority, application Japan, June 17, 1969, 44/47752
Int. Cl. B24d 11/00; C08h 17/12

U.S. Cl. 51—295

8 Claims



A process for the manufacture of a grinding stone characterized by compounding a liquid binder such as synthetic resin and rubber in liquid form, with powdery abrasive to form a compound thereof which is then printed on a support such as a glass fiber or synthetic resin fiber cloth, using the screen printing technique, to form a layer of the compound on the support, and then curing the compound layer to produce the grinding stone.

3,631,639

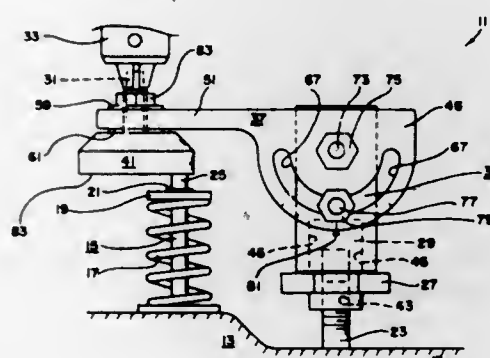
VALVE STEM GRINDING DEVICE

Leon Day, 3027 Tuca Lane, Memphis, and Jiles Joe McCandless, 2850 Collierville-Arlington Road, Collierville, both of Tenn.

Filed July 2, 1970, Ser. No. 51,803
Int. Cl. B24b 19/00

U.S. Cl. 51—241 VS

8 Claims



A portable grinding device for grinding squarely the end of a worn valve stem for a valve-in-head internal combustion engine. The device is removably attached to a stationary part of the engine and the above operation is performed without removing the head structure from the engine, i.e., the valve remains intact with the head structure. The device includes a guide pintle threadedly received by an upright stud (a stationary part of the engine adjacent the valve stem), brackets for swingingly supporting a rotatable grinding wheel above the end of the valve stem, and a journaled shaft having a grinding wheel attached at the lower end and the other end being adapted to receive the chuck of a conventional drill motor for rotating the grinding wheel. The guide pintle guidingly supports the major structure of the device and provides for swinging movement of the grinding wheel about the vertical axis of the guide pintle, enabling the rotating grind-

3,631,642

SELF-MOUNTING SIDING

William H. Stewart, c/o King Mfg. Co., Jaffrey, N.H.
Filed Sept. 3, 1969, Ser. No. 854,962
Int. Cl. E04d 3/363

U.S. Cl. 52—105

10 Claims



Siding having a bent-up lip along one edge which is provided with a row of nail holes or slots arranged above a bending line; e.g., a pressed bead or the like, so that the lip may be nailed in position and then the main body portion of the siding bent up approximately 90° after nailing, generally against the sidewall of the building. The lip has a locking edge for engaging the edge of a previously positioned siding of like nature, and the bending bead forms not only a location for the bending action but a stiffening rib and a location for the ensuing or subsequent siding or shingle which is to be positioned.

3,631,643

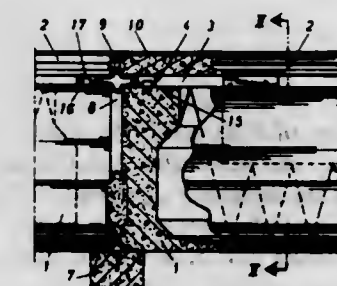
METHOD AND DEVICE FOR THE MANUFACTURE OF CONCRETE BUILDING ELEMENTS

Per Olof Jonell, Goteborg, and Sven Melker Nilsson, Kallered, both of Sweden, assignors to Ingenjorsfirman Nilcon Aktiebolag, Kallered, Sweden

Filed Sept. 29, 1969, Ser. No. 861,783
Claims priority, application Sweden, Oct. 1, 1968, 13227/68
Int. Cl. E04b 2/14, 2/64, 5/04

U.S. Cl. 52—122

3 Claims



The invention relates to building structures in which slabs are laid on beams, and in which it is desired to maintain the slabs coplanar irrespective of difference in level of the beams and slabs. The invention provides rubber wedges, used in pairs so as to be adjustable to different thicknesses, located between the slabs and beams at intervals and held in place by adhesive.

ERRATUM

For Class 51—326 see:
Patent No. 3,631,645

3,631,640

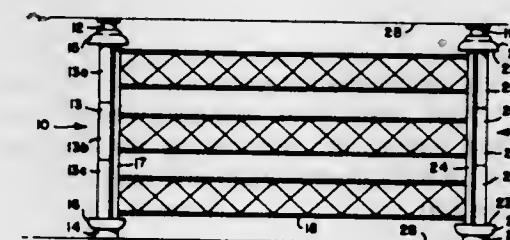
REMOVABLE STRUCTURE

Robert F. Dunne, 130 North 49th Street, Capitola, Calif.
Filed Jan. 26, 1970, Ser. No. 5,743

Int. Cl. E04b 2/74

U.S. Cl. 52—238

3 Claims



A removable structure to support a member between oppositely positioned support surfaces, wherein the supported member is attached to a pair of bar braces held by bar brace holders on retractable poles pressing against said support surfaces. Each bar brace holder forms a circumferential channel around its retractable pole, and one or more bar braces may be held within the channels of the bar brace holders in order to enable several supported members to be positioned in different arrangements.

3,631,641

GRINDING METHODS

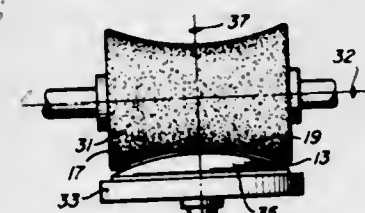
Harold W. Scholin, Park Ridge, Ill., assignor to Unirazor, Ltd., Northbrook, Ill.

Original application July 12, 1967, Ser. No. 652,743, now Patent No. 3,522,678, dated Aug. 4, 1970, which is a division of application Ser. No. 452,787, May 3, 1965, now abandoned. Divided and this application Oct. 2, 1969, Ser. No. 863,044

Int. Cl. B24b 1/00

U.S. Cl. 51—285

2 Claims



Method of grinding a spherical surface by relatively rotating a work piece in engagement with the shaped periphery of a grinding wheel while spinning the wheel about its axis.

3,631,644

SECTIONAL FRAME FOR REFRIGERATORS

Lamberto Mazza, Pordenone, Italy, assignor to Industrie A.

Zanussi S.p.A., Pordenone, Italy

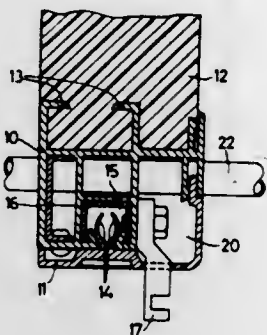
Filed Dec. 30, 1969, Ser. No. 889,071

Claims priority, application Italy, May 8, 1969, 8806 B/69

Int. Cl. E06b 3/00

U.S. Cl. 52-220

1 Claim



A composite section for refrigerator frames is provided with two members, one of which is anchored in the mass of heat insulating material and the other is detachably connected to the first-mentioned member so as to leave between the two members a plurality of cavities or spaces in which cables, tubes and the like can be housed.

3,631,645

METHOD FOR PROFILING BONDING NEEDLES

Harry da Costa, Scottsdale, and Charles G. Thornton,

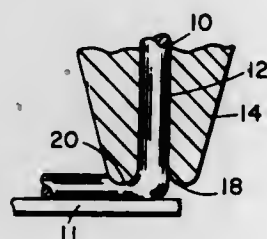
Phoenix, both of Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Sept. 18, 1969, Ser. No. 859,133

Int. Cl. B24b 1/00

U.S. Cl. 51-326

3 Claims



In the bonding of a conductive wire to an electrical apparatus, the wire runs down through the hole in a hollow needle and extends at an angle of about 90° with the needle at the tip thereof and the wire as it exits from the needle is bonded to a bonding pad comprising part of an electrical apparatus by a combination of pressure and heat. If the inside and outside profiles of the tip of the hollow needle are not properly rounded, bad bonds will result in that the wire may break. A method and a means are disclosed for giving the tip of the needle a proper smooth and rounded profile both internally and externally.

ERRATUM

For Class 52-238 see:
Patent No. 3,631,640

3,631,646

ROOF CONSTRUCTION FOR SILOS OR THE LIKE

Roger W. Wollin, and Larry L. Smiley, both of Lake Mills,

Wis., assignors to Fiberdome Incorporated, Lake Mills, Wis.

Original application Mar. 3, 1969, Ser. No. 803,541, now

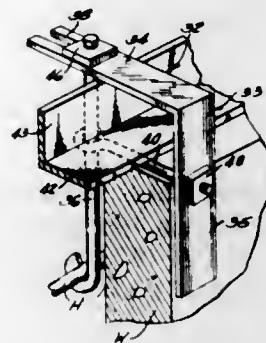
Patent No. 3,562,976, dated Feb. 16, 1971. Divided and this

application May 21, 1970, Ser. No. 39,453

Int. Cl. E04d 1/34

U.S. Cl. 52-713

3 Claims



A generally dome-shaped roof for silos or the like and fabricated from individual panels which are fastened together, and having bracket means for holding the roof down tightly on the top of the silo and also tightly against the outside of the silo.

3,631,647

WALL STRUCTURE WITH SNAP-ON HEADER AND SILL MEMBERS

Billie C. Merkin, Pittsburgh, Pa., assignor to Aluminum Com-

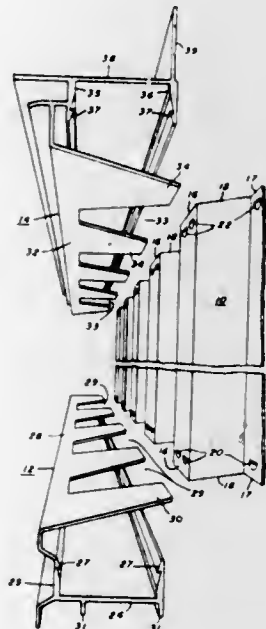
pany of America, Pittsburgh, Pa.

Filed Oct. 1, 1970, Ser. No. 77,122

Int. Cl. E04c 3/04, 5/03

U.S. Cl. 52-300

2 Claims



A rigid wall structure comprising at least one sheet metal panel having a profile of raised and valley portions extending the length of the member, and projections extending from both sides of the panel adjacent the ends thereof. Elongated sill and header members are disposed on the ends of the panel, the sill and header members having a profile of notches and tongues disposed in mating engagement with the

raised and valley portions of the panel on one side thereof. The sill and header members are further provided with integral ridge or shoulder portions extending lengthwise thereof engaging the projections on the panel to lock the members on the ends of the panel.

3,631,648

METHOD OF ERECTION OF HIGH-RISE BUILDING STRUCTURE FORMED OF MODULAR UNITS

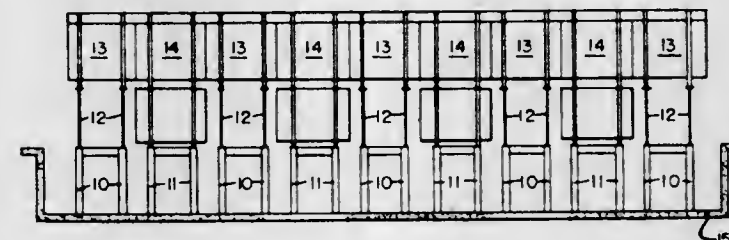
Stanley J. Filipek, and Frank Csapo, both of Avon, N.Y., assignors to Stirling Homex Corporation, Livingston, N.Y.

Filed Jan. 23, 1970, Ser. No. 5,296

Int. Cl. E04b 1/343, 1/348, 1/35

U.S. Cl. 52-745

6 Claims



A method of erection of a high-rise building structure formed of modular units. A row of building support structures is positioned on the foundation, preferably below grade level, one such supporting structure being provided for each modular unit. Alternate ones of the supporting structures are permanently fixed in place, but the remaining supporting structures have associated therewith a jacking means capable of raising a modular unit supported thereon by an amount at least equal to the height of such modular unit. In assembling the building, a plurality of modules is placed on the supporting structures and secured together, after which the interconnected modules are raised by the jacking means. After having been raised by an amount substantially equal to the height of a modular unit, an additional module is placed in each open space, i.e., on each of the alternately spaced supporting structures not having an associated jacking means. Thereafter, each jacking means can be lowered, with the row of interconnected modules now supported on the supporting structures not having the associated jacking means through the intervening alternately spaced modules. Additional modular units can then be placed in the alternate spaces now provided atop each structural support having the jacking means. The lowest level of modular units are now all interconnected and the above-described operation can be repeated for each additional story in the building.

3,631,649

MACHINE AND METHOD FOR PACKAGING A PLURALITY OF CYLINDRICAL ARTICLES

Kenneth S. Close, Macedon, N.Y.; Alson R. Harm, Colerain

Township, Hamilton County, and Charles R. Hood, Springfield Township, Hamilton County, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 1, 1969, Ser. No. 864,283

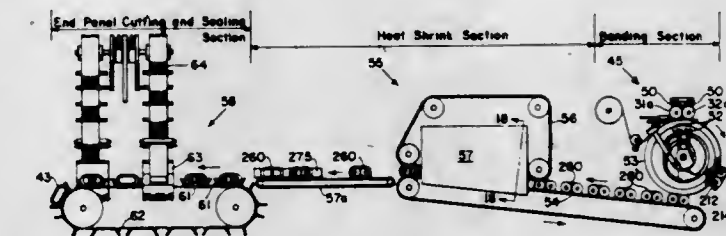
Int. Cl. B65b 11/48, 53/02, 61/00

U.S. Cl. 53-3

23 Claims

A machine and method for packaging cylindrical articles in multiples of two, preferably a single pair, in which the articles are delivered by an infeed conveyor section to a banding section which contains a banding drum. A length of heat shrinkable plastic film is cut and placed on the banding drum whereupon the articles are picked up in pairs and deposited on the cut film blank at a radially movable platform mounted in the banding drum. The free ends of the film are folded

partially around the articles by a pair of tucker arms coacting with the platform. As the drum rotates, a vacuum lift arm and a wing section coact to lap the ends of the cut film blank which then encircles the articles. A reciprocating heat sealer movable tangentially to the banding drum engages the lapped end portions of the film to form a seal and an encircling band around the articles. The banded articles are then deposited on a conveyor which moves them to heat shrink section in which the large upper and lower areas as well as selected side



portions of the banded articles are shielded as they are moved through a heat shrink tunnel. This causes the extended sides of the band to shrink down against the end surfaces of the articles while simultaneously making the band snug around the articles. The banded articles are then delivered to an end panel cutting and sealing section at which suitable end panels are die cut and heat sealed to at least one and preferably both ends of the banded articles in order to complete the formation of the package.

3,631,650

CLOSING OF CONTAINERS

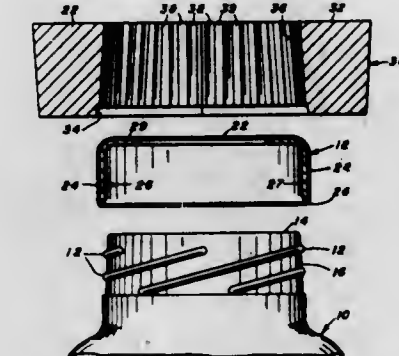
Charles J. Leftault, Jr., Richmond, Ind., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Aug. 29, 1969, Ser. No. 854,132

Int. Cl. B65d 41/02

U.S. Cl. 53-42

5 Claims



A closure having a depending skirt with a compressible liner material adhered to its inner surface is secured on a threaded container finish by reforming the skirt of the closure against a threaded container finish to form threads in the compressible material. The closure so secured can be rotatably removed from the container. Knurling may be formed in the closure skirt during application.

3,631,651

DEVICE FOR GROUPWISE PACKING OF BAGS

Georg Kopp, Neuhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

Filed Nov. 14, 1969, Ser. No. 876,852

Claims priority, application Switzerland, Nov. 19, 1968,

17237/68

Int. Cl. B65b 63/00, 35/38

U.S. Cl. 53-123

6 Claims

A device for groupwise packing of bags which are fed to a packaging station in the form of a band which comprises se-

ries of transversely and lengthwise connected bags. These bags are connected with each other by narrow compressed and welded linelike areas along which the band is cut transversely and lengthwise to form individual bags at a cutting

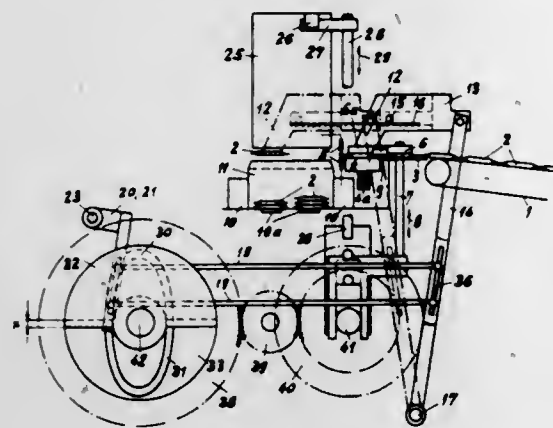


table which cooperates with suction heads which lift the individual bags from the table and then transfer the bags to an adjacent packaging container into which the individual bags are loaded in the form of a stack by removing the bags from the suction heads by strippers.

3,631,652

COUNTER LOADER PACKAGING MACHINE

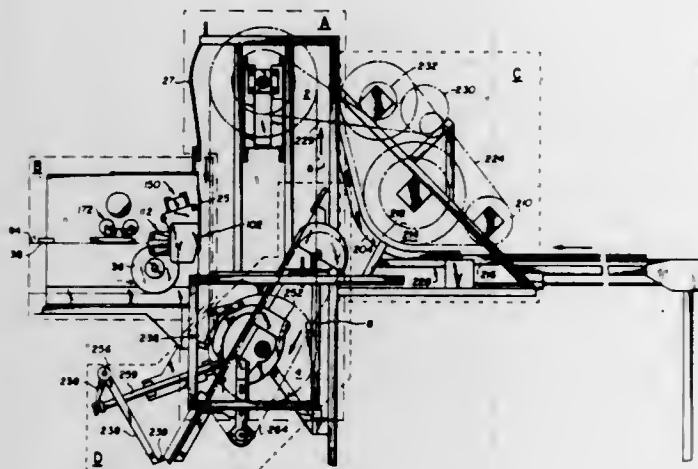
Sanford Redmond, 7 E. 74th Street, New York City, N.Y., and Frederick F. Sawicki, 207-06 23rd Ave., Bayside, N.Y.

Filed Oct. 10, 1969, Ser. No. 865,388

Int. Cl. B65b 63/02, 5/10

U.S. Cl. 53—124 D

40 Claims



A machine for automatically packaging a multiplicity of individual packages in a container. The packaging machine comprises an assembly for transporting empty containers (boats) to a loading station, a mechanism for serially conveying the packages to the boats at the loading station, and a boat-collating assembly for conveying the loaded boats to a manual loading station.

3,631,653

WRAPPING MACHINE

Erik O. Vilen, Niles, Ill., assignor to Triangle Package Machinery Company, Chicago, Ill.

Filed Oct. 29, 1969, Ser. No. 872,069

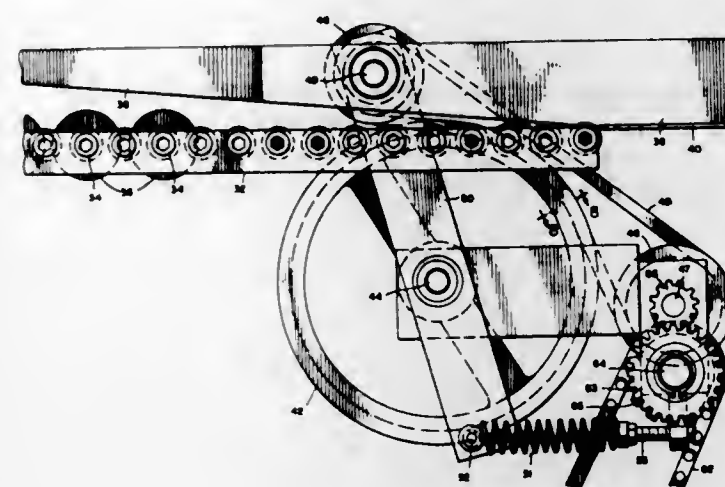
Int. Cl. B65b 7/08, 11/08

U.S. Cl. 53—378

10 Claims

A wrapping machine for wrapping packages with stretch film has means at each side of a conveyor for gripping out-

wardly extending end wing members of the film on an advancing partially wrapped package. This means moves in a forwardly and downwardly arcuate direction and pulls the



wing members to stretch the film taut over the package whereupon plow means folds the wings inwardly and upwardly against the bottom of the package for sealing.

3,631,654

GAS PURGE DEVICE

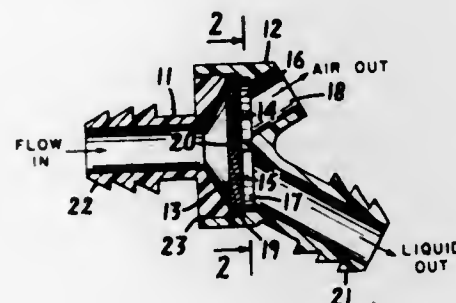
Phyllis Riely, Massapequa, N.Y., and Robert Skyles, Glenview, Ill., assignors to Pall Corporation, Glen Cove, N.Y., by said Riely and Baxter Laboratories, Inc., Morton Grove, Ill., by said Skyles

Filed Oct. 3, 1968, Ser. No. 764,694

Int. Cl. B01d 46/54

U.S. Cl. 55—159

17 Claims



Apparatus is provided for separating gases and liquids and particularly for removing and venting gases contained in liquids. The separation is obtained by interposing a filter which is wetted by liquid across the liquid outlet line; this filter passes the liquid but repels the gas. Another portion of the same filter is liquid repellent, and is interposed across a gas outlet line; this passes the gas to a vent, and repels the liquid.

3,631,655

MULTIPLE UNIT PRECIPITATOR APPARATUS

Hugh Mullen, Lebanon, Pa., assignor to Buell Engineering Company, Inc., Lebanon, Pa.

Filed Jan. 2, 1970, Ser. No. 348

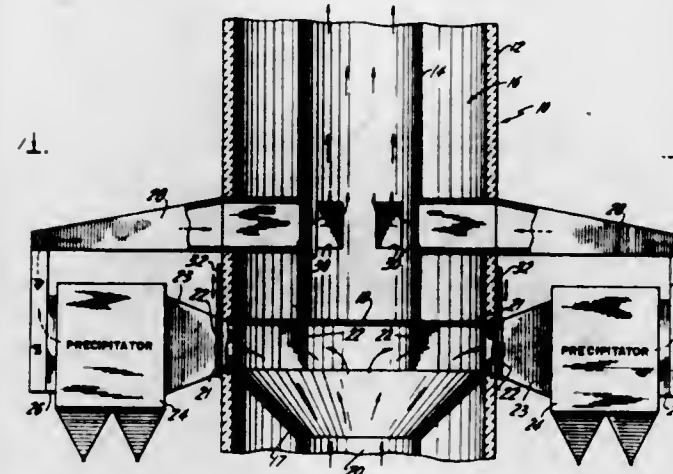
Int. Cl. B03c 3/36

U.S. Cl. 55—133

4 Claims

Apparatus for cleaning gases, such as industrial stack effluents and the like, comprises a plenum chamber for receiving and distributing the gases to be cleaned and a multiplicity of separately enclosed electrostatic precipitators connected

in parallel with each other to the plenum chamber. The precipitators are arranged relative to the plenum chamber, and the plenum chamber appropriately constructed, to distribute the gas flow volume substantially uniformly among the several precipitators and to provide improved cross section gas distribution conditions within each precipitator.



Each of the precipitators may be individually isolated from the gas flow and its enclosure opened for maintenance or repair. The remaining precipitators pick up the cleaning load carried by the one or more that are shut down without substantial impairment of the effectiveness of the cleaning.

3,631,656

APPARATUS FOR COOLING AND CLEANSING GAS UNDER PRESSURE

Gerhard Hausberg, Essen, Bredency, and Karl-Rudolf Hegemann, Essen, Bergerhausen, both of Germany, assignors to Gottfried Blohoff Bau Kompl. Gasreinigungs- und Wasserrückkühlanlagen, Ruhrallee, Essen, Germany

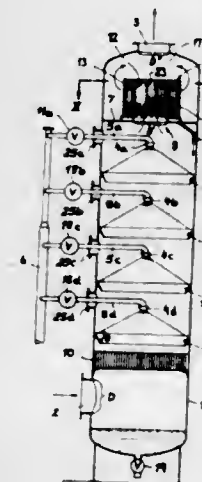
Filed Oct. 3, 1968, Ser. No. 764,733

Claims priority, application Germany, Oct. 4, 1967, P 16 01 122.6

Int. Cl. B01d 47/08

U.S. Cl. 55—257

4 Claims



An apparatus for cooling and cleansing a compressed gas without significant pressure loss has an unpacked scrubbing tower wherein the gas passes upwardly through one or more water sprays, and thence through a "dryer" downstream of this scrubbing tower. This dryer is an impingement separator, a uniflow cyclone, or both. The tower sustains no substantial pressure loss since its output opening is of substantially the same cross section as its input opening.

3,631,657

CENTRIFUGAL SEPARATOR VESSEL

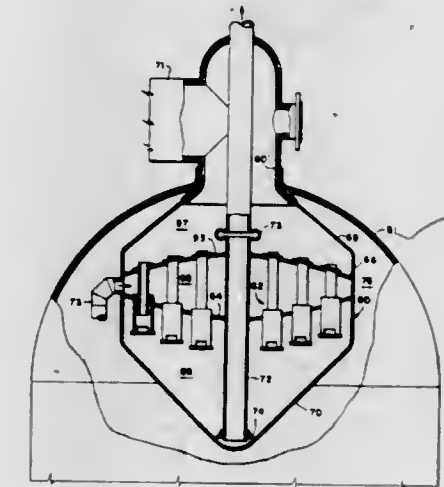
Joseph G. Wilson, New York, N.Y., assignor to Shell Oil Company, New York, N.Y.

Original application Jan. 19, 1968, Ser. No. 721,902, now Patent No. 3,541,766, dated Nov. 24, 1970. Divided and this application Feb. 16, 1970, Ser. No. 14,848

Int. Cl. B01d 45/12

U.S. Cl. 55—348

4 Claims



Apparatus for cleaning gas comprising a hollow outer vessel having an inner wall and a clean gas outlet communicating through the wall of the outer vessel with the interior of the outer vessel. An inner casing is attached to, supported by and within the outer vessel and has its vertical axis coincident with the vertical axis of the outer vessel. The inner casing is spaced from the inner wall of the outer vessel so as to form an annular space therebetween. Partition means is disposed within the inner casing sealingly dividing the inner casing into at least a pair of chambers. The first of these chambers has an opening therein communicating with the clean gas outlet of the outer vessel and a gas inlet operatively engages the second of these chambers for introducing gas burdened with particles into the second of these chambers. A plurality of centrifugal separators cooperates with the second of these chambers, each of these separators having an outer first tube with its upper end communicating with the interior of the second of these chambers. Particle and blowdown gas collecting means is located within the vessel and communicates with openings in the lower ends of the outer tubes of the separators. Each of the separators further includes a second tube mounted within each of the outer tubes having its upper end communicating with the interior of the second of the chambers. Swirl-producing means is located between the first and second tubes for producing a swirling motion to gas introduced within the first tubes and expandable structural means operatively engages the inner casing and is adapted to allow the inner casing to substantially expand and contract under apparatus operating conditions without damaging the structure of the outer vessel. A particle and blowdown gas outlet operatively engages the outer vessel and communicates with the particle and blowdown gas collection means for removing particles and blowdown gas from the apparatus.

3,631,658

DOUBLE DISC CLIPPER

Burton M. Green, 823 Riverside Drive, Ormond Beach, Fla.

Filed Feb. 2, 1971, Ser. No. 111,818

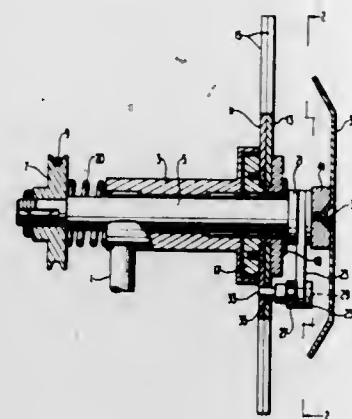
Int. Cl. A01d 35/26, 55/00

U.S. Cl. 56—11.3

4 Claims

A clipper for vegetation comprises a pair of discs having outwardly extending teeth that are slidably juxtaposed. The

discs are flat and of the same size and oscillate relative to each other in opposite directions about a common axis and in sliding contact with each other. A drive shaft coaxial with the discs penetrates the discs and carries a crank that drives an



arm to which two links are pinned, one of the links being pivotally connected to one of the discs and the other of the links carrying a pin that rides in an arcuate slot through that one disc and is pivotally connected to the other disc.

3,631,659

LAWN MOWER

Alexandre Horowitz, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

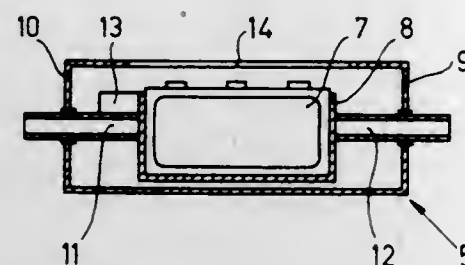
Filed June 15, 1970, Ser. No. 46,139

Claims priority, application Netherlands, June 18, 1969, 6909256

Int. Cl. A01d 53/00

U.S. Cl. 56—11.9

8 Claims



A lawnmower which is driven by a battery-fed electric motor, a pair of side frames carries the cutters and a roller adapted to roll over the lawn to be mowed. The batteries are accommodated in the roller which is in the form of a hollow cylinder.

3,631,660

ATTACHMENT FOR COTTON STRIPPER ROW UNIT TO MAINTAIN THE UNIT IN A PREDETERMINED BALANCED RELATION

William E. Rickel, Box 404; Thomas B. Oustad, and Tommie B. Harper, both of Box 159, all of Munday, Tex.

Filed Aug. 3, 1970, Ser. No. 60,455

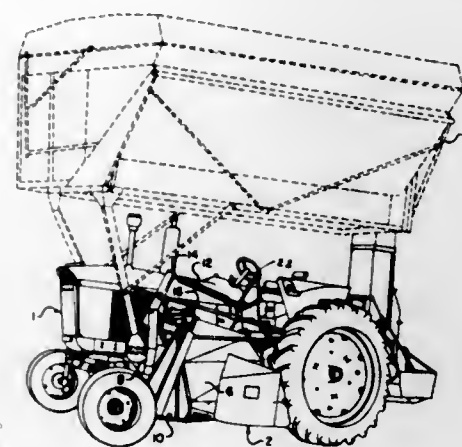
Int. Cl. A01d 45/20

U.S. Cl. 56—15.9

7 Claims

A spring-tensioned, counterbalancing arrangement which is used in conjunction with angulated ground-engaging shoes on a cotton stripper so as to maintain the cotton stripper row unit in light contact relation with the surface of the terrain to

enable the cotton stalks to be lifted and guided between the adjacent sides of the respective cotton stripper row units. This enables the picking up of the branches of the cotton stalk, thereby greatly increasing the recovery of cotton. The present arrangement enables the cotton stripper row unit to be adjusted with a counterbalancing spring so the shoes



thereof will glide lightly on the surface of the terrain so the angularity of the shoes will cause upward movement over any obstructions. By having the lever to which the spring attaches jointed and pivotally mounted enables the cotton stripper row unit to individually move upward or downward without manual attention, however, they can both be raised with the lift mechanism, when desired.

3,631,661

HAYMAKING MACHINE WHEREIN LEAVES ARE SEPARATED FROM STALKS IN THE COURSE OF HAY TRANSPORTATION

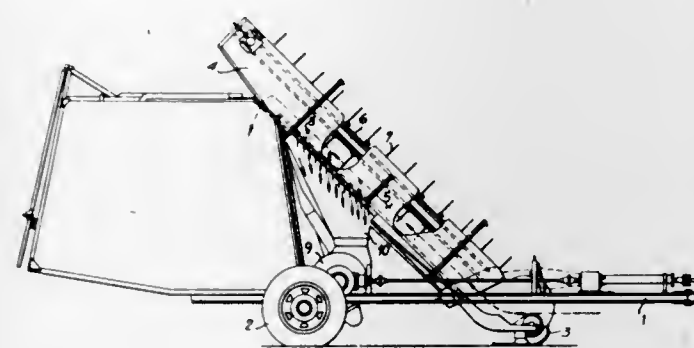
Fedor Nikolaevich Volkov, Kotelnicheskaya naberezhnaya, 1/15, korpus B, kv. 53; Mikhail Grigorievich Negrinovsky, ul. Raevskogo, 3, kv. 15, and Alexei Nikolaevich Pasik, Institutskiy proezd, 6, kv. 25, all of Moscow, U.S.S.R.

Filed Apr. 25, 1969, Ser. No. 819,198

Int. Cl. A01d 89/00

U.S. Cl. 56—364

3 Claims



A haymaking machine facilitating separation of leaves from their stalks connected to the hay during the course of transportation of the hay, adapted to pick up a stack of hay, feeding it into a container, separating from the hay leaves which are loosely attached to their stalks and pressing them into cylindrical granules.

The machine comprises a frame, wheels for moving the machine along the ground, a pickup attachment for hay, and means for the conveyance, separation and pressing of the separated leaves into granules. The machine also includes containers for collecting the hay and the granulated leaves.

3,631,662

MACHINE FOR THE MANUFACTURE OF A MULTISTRAND CABLE

Constant Bienfait, Delft, Netherlands, assignor to N. V. Nederlandsche Kabelfabrieken, Delft, Netherlands

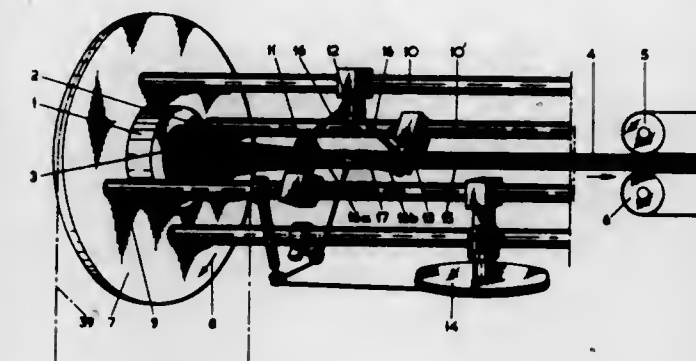
Filed Jan. 8, 1969, Ser. No. 789,819

Claims priority, application Netherlands, Jan. 11, 1968, 6800434

Int. Cl. D07b 7/02; H01b 13/02; B65h 81/08

U.S. Cl. 57—13

4 Claims



A machine for manufacturing a multistrand cable and comprising means for guiding a plurality of wires toward each other, means for temporarily positioning the wires so guided and means for permanently binding the plurality of wires so as to form a cable. The means for temporarily positioning the plurality of wires comprises an endless clamping strap which traverses the cable for only a small number of turns, the strap continually rotating around the axis of the cable.

3,631,663

TEXTILE MACHINE AND METHOD OF PROCESSING THREADS

Paul Krauss, Ebersbach; Ernst Roethke, Schorndorf, and Gerhard Tenholtern, Goepplingen-Ursenwang, all of Germany, assignors to Zinser-Textilmaschinen Gesellschaft mit beschränkter Haftung, Ebersbach, Germany

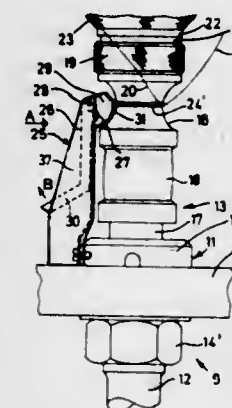
Filed Feb. 10, 1970, Ser. No. 10,245

Claims priority, application Germany, Feb. 12, 1969, P 19 06 824.7

Int. Cl. D01h 9/16

U.S. Cl. 57—34 TT

16 Claims



A thread is wound onto a carrier which is mounted on a rotatable support, until a package of predetermined size is formed on the carrier. Thereupon a plurality of terminal convolutions of the thread are taken about the rotatable support before the carrier with the package is removed from the support and the thread severed intermediate the carrier and the terminal convolutions. A new carrier is now mounted on the support and thread is again wound on the new carrier to form a package thereon; as the formation of the package on the new carrier proceeds the terminal convolutions are concomitantly abraded during rotation of the new carrier until they

are worn through and separate from the support before the new package is completed and new terminal thread convolutions are taken about the support. An apparatus for carrying out this method is also disclosed.

3,631,664

METHOD OF, AND APPARATUS FOR, DELIVERING YARNS TO TEXTILE MACHINES

Alexander W. P. Mackintosh, Evington, England, assignor to Macotex (Machinery) Limited, Loughborough, Leicestershire, England

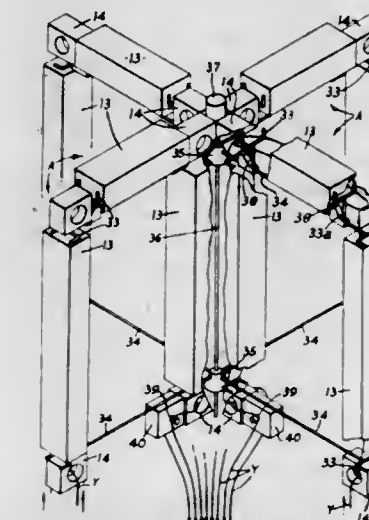
Filed Apr. 25, 1969, Ser. No. 819,159

Claims priority, application Great Britain, Dec. 11, 1968, June 14, 1968, 58878/68; 28304/68

Int. Cl. D01h 7/92; D02g 1/02

U.S. Cl. 57—34 HS

16 Claims



Associated with a knitting machine, apparatus for imparting false twist to yarns and delivering them to the machine. Knitting elements in the machine draw on the yarn intermittently and at varying speeds.

Apparatus comprises a processing unit including four assemblies of false twist heads and heaters mounted above the machine on a frame surrounding the latter. Each assembly processes two yarns and comprises four twist heads and three heaters, the latter being arranged in a common vertical plane in positions defining three sides of a rectangle, with a twist head disposed at each corner thereof. Movable yarn guides are provided to lift the yarns away from the heaters when the knitting machine stops.

3,631,665

SPINDLE-DRIVING AND SUPPORT MECHANISM

Eric Thomas Scriven, Wheathampstead, and Arthur Averil Paget, Harrogate, both of England, assignors to Scriven & Paget Limited, London, England

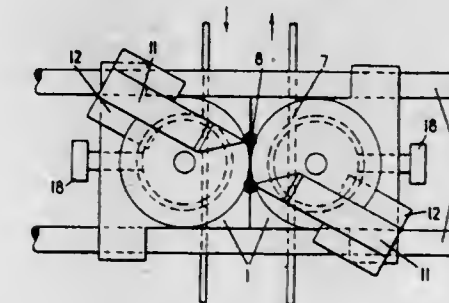
Filed Feb. 5, 1970, Ser. No. 8,993

Claims priority, application Great Britain, Feb. 6, 1969, 6,520/69

Int. Cl. D01h 7/92

U.S. Cl. 57—77.45

15 Claims



An improved spindle-driving and support mechanism particularly intended for driving a false twist spindle for false-

twisting textile machinery comprising a pair of closely adjacent coplanar wheels, of which one at least is driven, a spindle having its axis parallel with the rotational axes of the wheels and means maintaining the spindle in rolling contact with each of said wheels by subjecting the spindle to a magnetic attractive force in a plane which is parallel with the wheel axis and inclined at an acute angle to a median plane between the wheels and containing the spindle axis.

3,631,666

METHOD OF PREPARING BLENDED YARNS

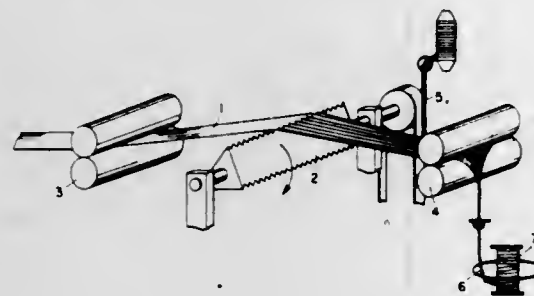
Charles W. Kim, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Jan. 15, 1970, Ser. No. 3,165

Int. Cl. D02g 3/36, 3/00, 3/06

U.S. Cl. 57-160

5 Claims



Blended yarns are prepared by plying and twisting a fibrillated film and an untwisted staple fiber roving. The fibrillated film forms a surface layer to ensheath the roving. The film to be fibrillated can be either of the flat type to form a staplelike surface layer or of striated type to form a continuous filament surface layer.

3,631,667

METHOD OF MAKING REINFORCEMENT FOR TIRES

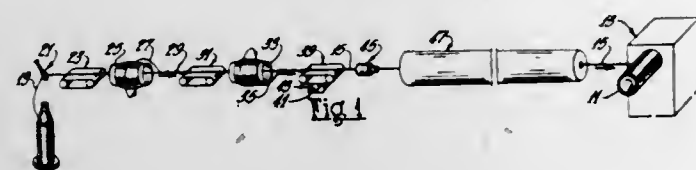
Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglass Corporation

Filed Aug. 29, 1967, Ser. No. 664,020

Int. Cl. D02g 3/48, 3/36; B60c 9/00

U.S. Cl. 57-162

15 Claims



A reinforcement system for pneumatic tires featuring combination cords of individually varying extensibility composed of elements of extensible character and, combined therewith, elements of relatively inextensible character; the combination cord of greatest extensibility being preselectively located in the region of the tire subjected to the greatest deflection whereby the stress incurred during average environmental usage or of a particular impact is not transferred to the elements of relatively inextensible character until the deflection has reached a value preselectively determined. The combination cords include an organic and a somewhat greater length of substantially inextensible material, e.g., glass, so combined therewith as to yield a unit length, and are tailor made to exhibit a particular degree of elongation depending upon the particular combination of variable lengths and the selection of organic elements to be combined with the glass.

3,631,668
CLOCK OR INDICATING DEVICE

Jan Walma, Haagweg 80, Monster, Netherlands

Filed Jan. 7, 1970, Ser. No. 1,877

Claims priority, application Netherlands, Feb. 12, 1969, 6902227

Int. Cl. G04b 13/02, 19/24

U.S. Cl. 58-7

4 Claims



A clock or suchlike indicating device consisting of a base-supported fixed clockdial, provided with a bearing and the transmission for the hands, and a movable plate parallel to said dial, said plate being coupled to the shaft of a motor which is housed in said base, this movable plate being pivotally fixed to the clockdial at one point at least, situated opposite to the motor shaft at a certain distance from the handshaft, and having a noncircular bore internally geared, capable of cooperating with a pinion protruding into this bore and connected to the handshaft, the construction being such that the motion of the movable plate with respect to the fixed clockdial is transformed from a circular motion at the driving point into a linear motion at the pivoting point in the clockdial.

3,631,669

SYNCHRONIZABLE CLOCK

Jean Fellrath, Neuchatel, and Claude Challandes, Sonceboz, both of Switzerland, assignors to Centre Electronique Horloger S.A., Breguet-Neuchatel, Switzerland

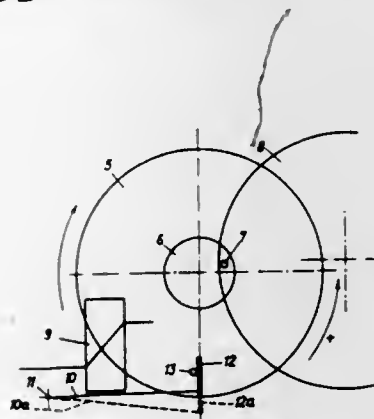
Filed Nov. 3, 1969, Ser. No. 873,439

Claims priority, application Switzerland, Nov. 5, 1968, 16466/68

Int. Cl. G04c 3/04

U.S. Cl. 58-28 D

4 Claims



Synchronizable clock with a mechanical resonator as regulator, especially receiver clocks synchronized by wireless

signals and synchronous clocks driven by alternating current having a mechanical regulator forming a principal part of a running reserve. A coupling is provided between the resonator and the hand mechanism, which only transmits one half of the counting impulses. There is also a regulating mechanism which is connectable to the resonator and which alters the spring force in the resonator according to intensity and position in proportion to the oscillating masses in such a manner that a reversal of the motion of the oscillating masses occurs in the region of the normal dead center.

3,631,670

DEVICE TO EXTRACT POWER FROM THE OSCILLATION OF THE SEA

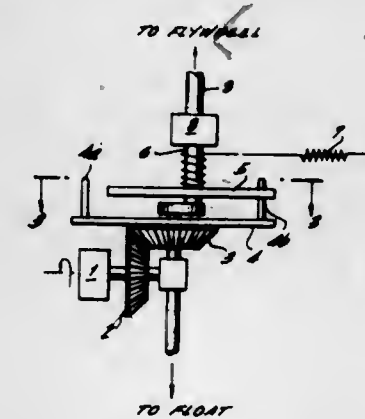
Takis P. Vasilakis, Paris, France, assignor to Treadwell Corporation

Filed Sept. 30, 1969, Ser. No. 862,244

Int. Cl. F03c 5/00

U.S. Cl. 60-22

4 Claims



The device consists of two floats having different natural oscillation frequencies. The floats are linked by a rocking rod. The floats are set into a bobbing motion relative to one another by oscillations on the surface of a body of water. A mechanism is provided for translating the rocking motion of the rocking rod into a rotary motion of a fly wheel. The fly wheel can be utilized to drive a generator.

3,631,671

EXHAUST SYSTEM FOR MARINE OUTDRIVE

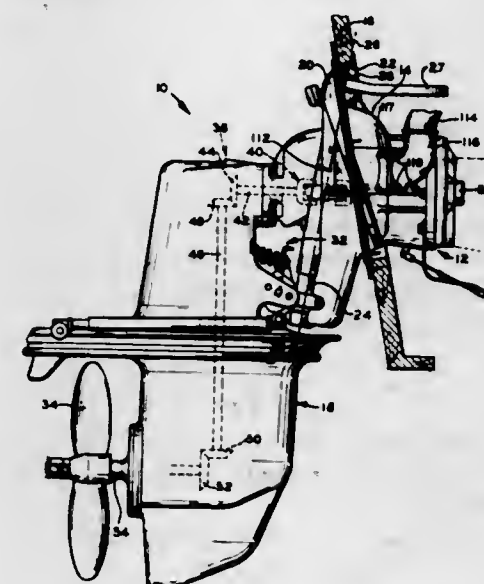
James T. Reynolds, Toledo, Ohio, assignor to Dana Corporation, Toledo, Ohio

Continuation of application Ser. No. 742,391, July 3, 1968, now abandoned. This application Aug. 17, 1970, Ser. No. 64,654

Int. Cl. F01n 7/08; B63h 21/32

U.S. Cl. 60-29

7 Claims



A marine outdrive unit is provided which includes an exhaust system in which there is proper cooling of the exhaust

gases and in which an easy connection to the prime mover can be made. Additionally, because of positioning and streamlining of the exhaust arrangement, it eliminates possible turbulence from the exhaust stream when the boat on which the outdrive unit is mounted is proceeding forwardly in high-speed operation.

The exhaust system comprises a pair of cavities which extend arcuately around the periphery of the outdrive housing and open at their inlet and outlet ends into angularly disposed flanges (relative to the axial extent of the marine outdrive unit) so as to provide easy connection to the marine drive engine and an exhaust flow which does not create turbulence adjacent to the propeller of the marine outdrive unit.

3,631,672

EDUCTOR COOLED GAS TURBINE CASING

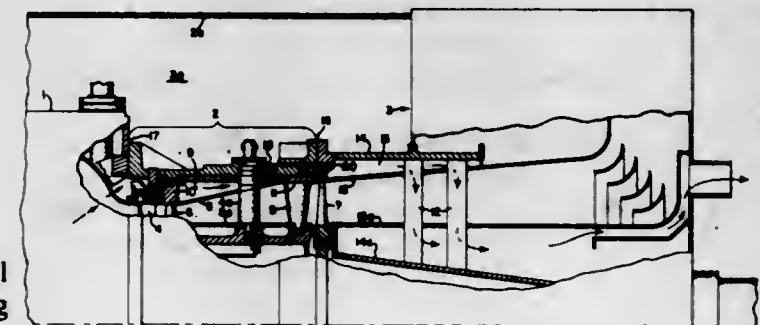
Richard W. Gentile, Schenectady, N.Y., and Wayne B. Moyer, deceased, late of Schenectady, N.Y. (by Carolyn Moyer, executrix), assignors to General Electric Company

Filed Aug. 4, 1969, Ser. No. 849,272

Int. Cl. F02c 7/18

U.S. Cl. 60-39.66

10 Claims



A cooling arrangement for a gas turbine power plant is disclosed in which cycle air is used in combination with atmospheric air as the cooling fluid. A plurality of eductor tubes with nozzles are disposed about the turbine casing and serve to direct pressurized cycle air into associated cooling holes. The cycle air gives momentum to the secondary atmospheric air and the cooling medium passes through the holes, removing heat therefrom. The use of cycle air in combination with atmospheric air also provides for compartment ventilation in a gas turbine of the enclosed type.

3,631,673

POWER GENERATING PLANT

Andre Georges Charrier, Saint-Cloud; Jean Marius Mascarello, Versailles, and Georges Alfred Rigollet, Paris, all of France, assignors to Electricite De France (Service National), Paris, France

Filed Aug. 5, 1970, Ser. No. 61,310

Claims priority, application France, Aug. 8, 1969, 6927390

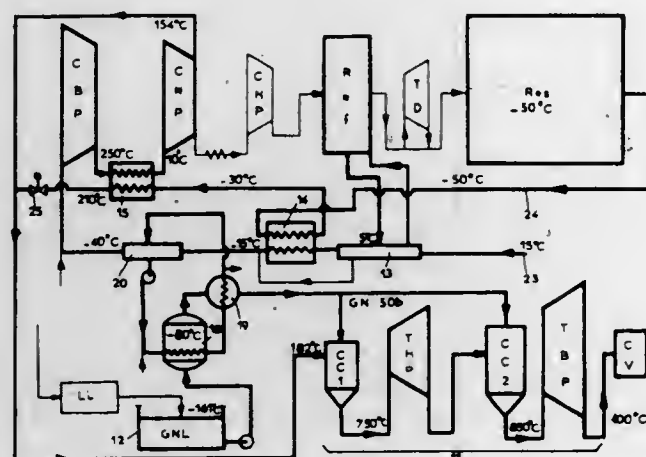
Int. Cl. F02c 1/04

U.S. Cl. 60-39.18 B

6 Claims

A method for generating power during peak-load hours and accumulating energy during minimum-load hours, in which during minimum-load hours, air is compressed, refrigerated and accumulated under pressure in storage tanks, and during peak hours power is recovered in turbines which are supplied with compressed air by said storage tanks, wherein during peak hours, the air compressors used in the accumulating period for the storing of compressed air, are fed with external air which is refrigerated by a counterflow of

cold air proceeding from said storage tanks, and the two combustor, said apparatus including a snout assembly defining an inlet passage for receiving pressurized air and delivering same to the inlet of a carbureting apparatus. One wall of the inlet passage includes an exhaust manifold, actuation of



pressurized airflows are mixed and conveyed to said turbines for generating power.

3,631,674

FOLDED FLOW COMBUSTION CHAMBER FOR A GAS TURBINE ENGINE

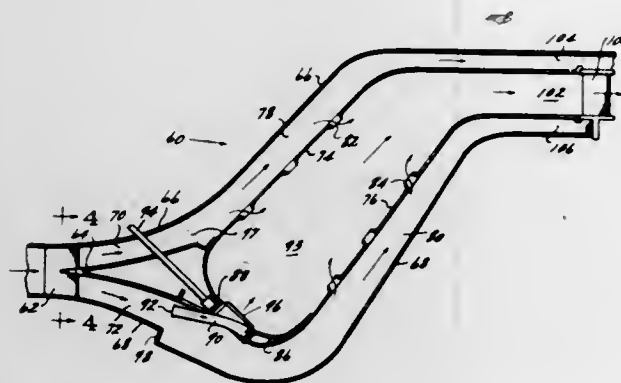
Jack R. Taylor, Cincinnati, Ohio, assignor to General Electric Company

Filed Jan. 19, 1970, Ser. No. 3,797

Int. Cl. F02c 3/00

U.S. Cl. 60—39.36

11 Claims



A folded flow combustion chamber is provided for use in an aircraft gas turbine engine. The combustion zone is angled with respect to the engine center line and the primary diffusion region partially surrounds the primary combustion zone in order to substantially shorten the overall axial length of the combustor. An annular splitter vane which surrounds a corner of the combustor divides and directs the flow into two combination diffuser-cooling passageways which surround the combustion zone. The primary combustion flame stabilization is a well developed conventional type design and the secondary air dilution system uses the crossflow penetration of conventional designs.

3,631,675

COMBUSTOR PRIMARY AIR CONTROL

Robert W. Keiter, and Jack R. Taylor, both of Cincinnati, Ohio, assignors to General Electric Company

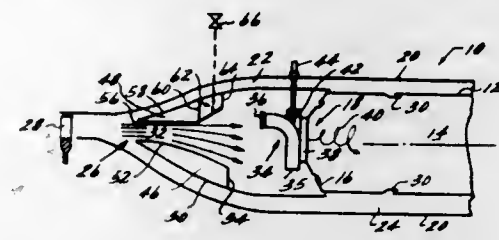
Filed Sept. 11, 1969, Ser. No. 862,149

Int. Cl. F02c 9/14

U.S. Cl. 60—39.65

9 Claims

Apparatus is disclosed for aerodynamically varying the fuel/air ratio delivered to a primary combustion zone of a



which serves to divert the flow of pressurized air away from the opposite wall and thereby vary the amount of air entering the carbureting apparatus. The exhaust manifold may be replaced by a ventilating manifold and step which utilize the Coanda effect for the same purpose.

3,631,676

DUAL-RATIO MASTER CYLINDER

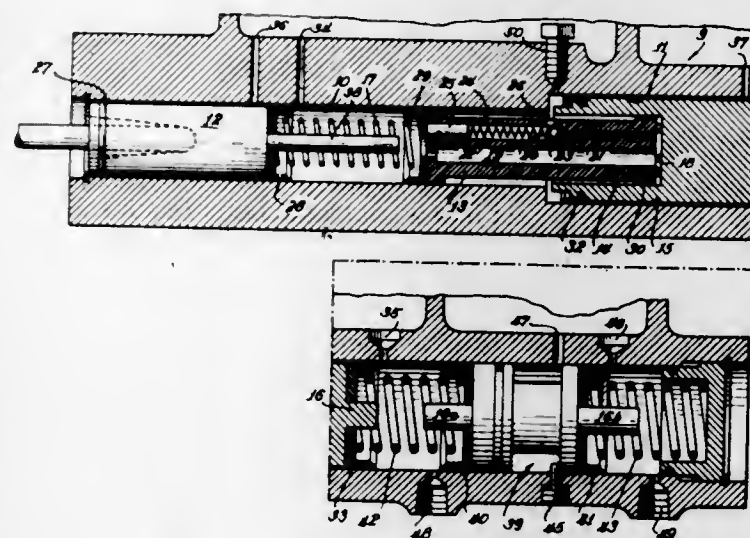
Frederick A. Krusemark, Maywood, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Sept. 18, 1970, Ser. No. 73,396

Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 A

8 Claims



The present invention is a dual-ratio master cylinder comprising a housing with coaxially disposed cylinders of different diameters which have pistons of matching diameters operable therein. The larger of the pistons has a bore therein of a diameter matching the diameter of the smaller of the two cylinders. An additional piston matching the diameter of the bore and the diameter of the small cylinder is disposed therein and urged into contact with a wall in the bore by means of a spring interposed between it and the small piston. The additional piston is provided with a fluid passage therethrough and a valve-type sensing means which provides fluid communication with the cylinders at a predetermined value of the valve-type sensing means.

3,631,677

COMPRESSOR DISCHARGE PRESSURE COMPUTER

Raymond L. Williams, Cincinnati, Ohio, assignor to General Electric Company

Filed Mar. 16, 1970, Ser. No. 19,593

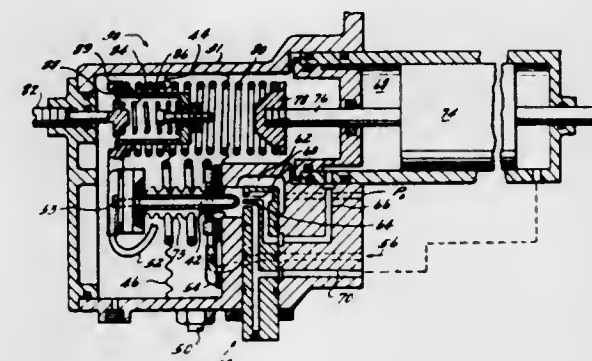
Int. Cl. F02k 3/10

U.S. Cl. 60—243

12 Claims

A servomechanism or pressure computer is shown which utilizes the jet nozzle servo principle. An input shaft is posi-

tioned for slight rotational movement within a sealed housing with the rotational position of the input shaft controlling the ultimate position of a jet nozzle which delivers servo fuel to either end of a power piston. Torque inputs are provided to the input shaft by a single input bellows, which operates against an evacuated bellows, and by a feedback spring which is connected to one end of the power piston. The servo jet nozzle is completely sealed with respect to the remainder of the servomechanism housing thereby preventing servo jet



fuel from reaching the remainder of the mechanism. In operation, an input pressure is sensed by the bellows and thereby causes rotation of the input shaft and subsequent movement of the jet nozzle which repositions the power piston to a point wherein the feedback force generated through the feedback spring equals the input force generated by the bellows. The position of the power piston may be utilized to control any parameter, and in one embodiment, is utilized to control fuel delivery to an augmentor fuel system of an aircraft gas turbine engine.

3,631,678

EXHAUST SYSTEM

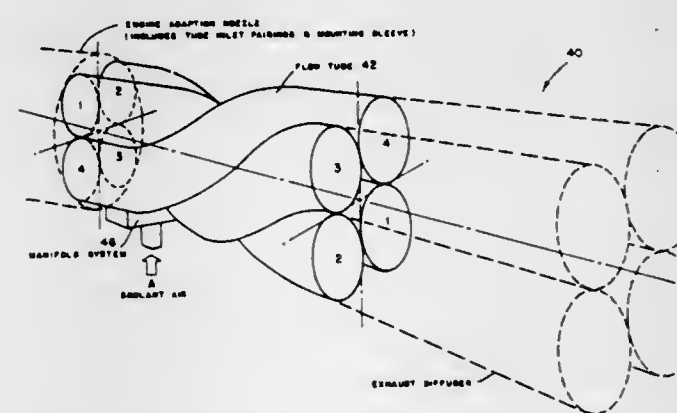
Jerry L. Reed, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Nov. 2, 1970, Ser. No. 86,003

Int. Cl. F02k 1/26

U.S. Cl. 60—264

9 Claims



Exhaust systems with a group of exhaust tubes wherein the group of tubes contains a torsional rotation of 180° or more. The group is covered with an outer shroud and coolant is forced to flow in the interstices between tubes.

ERRATUM

For Class 60—299 see:
Patent No. 3,631,792

3,631,679

APPARATUS TO CONFINE AND RECOVER OIL SPILLAGE AT SEA

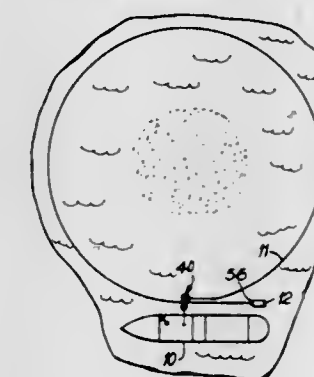
Paul Flech, 171 East 77th St., New York, N.Y.

Filed July 24, 1969, Ser. No. 844,301

Int. Cl. E02b 15/04

U.S. Cl. 61—1 F

14 Claims



The apparatus is a floating loop barrier which can be looped to surround a large water area covered with oil. The loop can be reduced so that the originally thin oil film which cannot escape, will gain more height so that it can be pumped out, separated from the water. The barrier is reduced by having one end passed through an eye at the other end and pulled by a boat. The barrier comprises a flexible steel cable or rope core surrounded by inflated sleeve sections attached in tandem. The barrier can be reeled onto a ship and the inflated sections separated from the rope. The sleeves are deflated and stored on the ship while the rope is wound on a drum for storage on the ship.

3,631,680

CONSTRUCTION OF TUNNELS

John Crawford Thomson, Croydon, Surrey, England, assignor to Tube Headings Limited, Croydon, Surrey, England

Filed June 24, 1969, Ser. No. 835,949

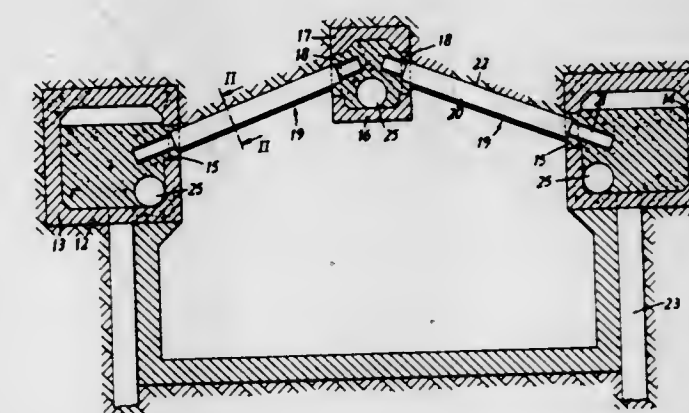
Claims priority, application Great Britain, June 25, 1968,

30,423/68

Int. Cl. E01g 3/00

U.S. Cl. 61—42

2 Claims



Horizontally spaced tubes are located within the ground substantially horizontal with the ground surface and by working from within at least some of the tubes support means is constructed between the tubes. The tubes and support means form a structure defining the roof and at least part of the side of the tunnel under construction and after the structure has been formed the ground beneath the structure is excavated.

3,631,681

MINE ROOF-SUPPORTING MEANS

Laurence William Taylor, Woodthorpe; Frank Town, Burton Joyce, and Emil Omilek, Nottingham, all of England, assignors to W. E. & F. Dobson Limited, Nottingham, England

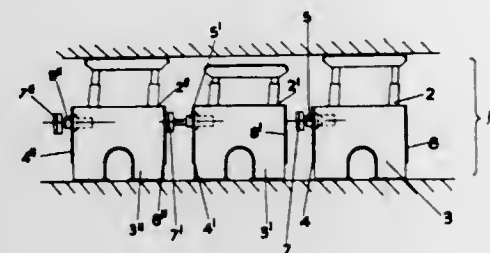
Filed Oct. 30, 1969, Ser. No. 872,684

Claims priority, application Great Britain, Nov. 2, 1968, 52,034/68

Int. Cl. E21d 15/44

U.S. Cl. 61—45 D

2 Claims



Mine roof support means comprising a hydraulic roof support having side guide means adapted to be rendered operative and inoperative by hydraulic jacks under control of timing control means, so that in use with similar adjacent support, the side guide means is rendered operative for guiding one of the supports relative to the other when one of the supports is in roof supporting condition hydraulically and is acting as an anchorage support, and the other support is in non-roof supporting condition and is hydraulically being displaced relative to the anchorage support.

3,631,682

REINFORCED CONCRETE CRIBBING

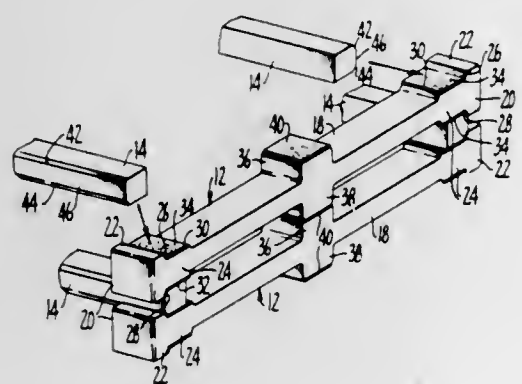
William K. Hiltfiker, and Harold O. Hiltfiker, both of Eureka, Calif., assignors to Hiltfiker Pipe Co., Eureka, Calif.

Filed Jan. 26, 1970, Ser. No. 5,838

Int. Cl. E02d 17/00, 17/04

U.S. Cl. 61—47

7 Claims



A reinforced concrete cribbing comprised of a stacked plurality of headers and stretchers. The stretchers are chamfered along the edges thereof to be disposed outwardly and incorporate primary steel reinforcing rods only on the outwardly disposed sides thereof. The headers are necked down intermediate their ends and are provided with integral middle supports. Additionally, the headers are chamfered in such a manner as to cooperate with the chamfered edges of the stretchers. Load distributing means is provided between the headers and stretchers.

3,631,683

RECTIFICATION BY PRECOOLING AND DIVIDING THE FEED GAS INTO PARTIAL STREAMS

Heiner Tanz, Doernigheim, and Otto Kaiser, Rodenbach, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt, Germany

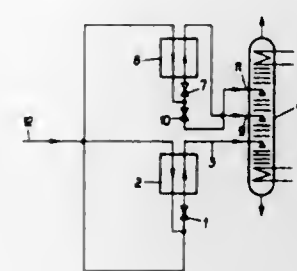
Filed Jan. 21, 1969, Ser. No. 792,589

Claims priority, application Germany, Jan. 26, 1968, P 16 01 257.0

Int. Cl. F25j 1/00, 5/00

U.S. Cl. 62—28

1 Claim



Improved rectification of a feed gas is achieved by precooling and dividing the precooled feed gas into two or more partial streams that are then introduced at different levels in the rectification zone.

3,631,684

STEP-BY-STEP CONTROL OF REFRIGERANT RETURN IN A COMPRESSOR-CONDENSER-EXPANDER SYSTEM

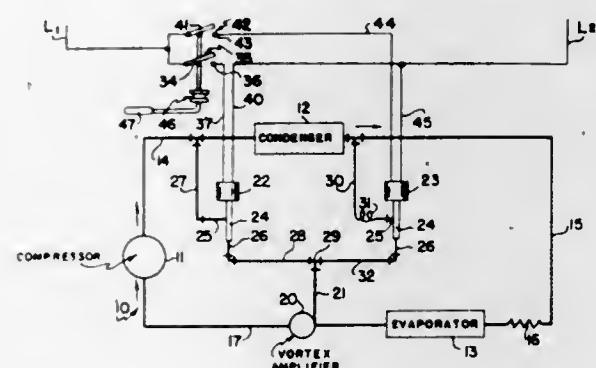
James E. Randall, Worthington, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Filed Sept. 4, 1970, Ser. No. 69,621

Int. Cl. F25b 5/00

U.S. Cl. 62—117

6 Claims



A step-by-step control of the cooling unit of a compressor-condenser-expander-type refrigerating system is provided in which the flow of refrigerant from the evaporator to the compressor is throttled by a vortex amplifier. The signal flow for the vortex amplifier is derived from the high-pressure side of the system and comprises hot gas from ahead of the condenser and condensed gas from the discharge of the condenser. The flows of hot gas and condensed gas are controlled individually by separate temperature responsive valves which open and close at different temperatures so that the vortex amplifier produces different degrees of throttling of flow of refrigerant from the evaporator to the compressor in accordance with the cooling load on the evaporator. In a modified form of the invention, a single valve admits a mixture of hot gas and condensed gas to the signal line of the vortex amplifier to throttle the flow of refrigerant to the compressor.

3,631,685

CONTROL APPARATUS FOR DELAYING RESTART OF REFRIGERATING APPARATUS

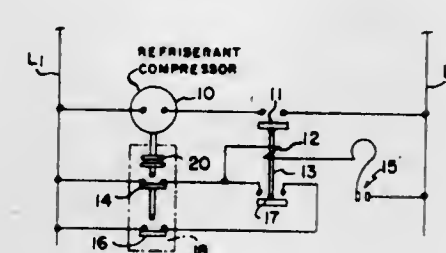
Clyde L. Young, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Continuation-in-part of application Ser. No. 851,558, Aug. 20, 1969, now abandoned. This application Feb. 2, 1970, Ser. No. 7,761

Int. Cl. F25d 29/00

U.S. Cl. 62—158

7 Claims



The power circuit of an electric motor of a compressor-condenser-expander-type refrigerating system is controlled by a switch operated by a solenoid, the circuit of which is controlled by a series-arranged thermostatic switch and pressure-responsive switch, the latter being closed when the compressor discharge pressure is relatively low and is opened as the pressure increases to a minimum normal operating pressure. A holding circuit switch for the solenoid is closed by energization of the solenoid and shunts out the pressure-responsive switch. Any interruption in the solenoid circuit causes deenergization of the solenoid and the circuit cannot be reestablished until the pressure-responsive switch is closed in response to the reduction in head pressure to a nominal starting value. In one form of the invention a switch is connected in parallel circuit with the pressure-responsive switch and the holding switch and is closed by a thermostat in response to an abnormally high ambient temperature of the refrigeration system so that the compressor may be started although the pressure responsive switch is open by reason of high-ambient temperatures.

3,631,686

MULTIZONE AIR-CONDITIONING SYSTEM WITH REHEAT

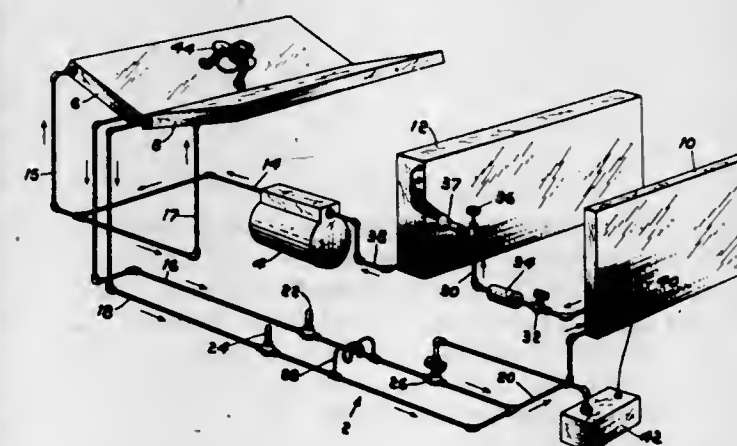
Franz A. Kautz, Southampton, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed July 23, 1970, Ser. No. 57,669

Int. Cl. F25b 29/00

U.S. Cl. 62—173

4 Claims



An improved air-conditioning reheat system having a control valve responsive to the airstream temperature leaving the

reheat coil for restricting refrigerant flow through one of two parallel refrigerant condensers upstream of the reheat coil when increased reheat is called for thereby flooding one condenser with liquid refrigerant and reducing the total condenser capacity to allow a combination of saturated liquid and vapor refrigerant from the other condenser to be delivered to the reheat coil serially connected between the condensers and the evaporator. The reheat coil, which functions as a liquid-to-air heat exchanger during normal operation with low reheat, then becomes a condenser to provide additional transfer capability. A bypass capillary allows a trickle of liquid refrigerant from the flooded condenser into the refrigerant flow path to prevent the flooded condenser from becoming logged with oil and to control the amount of uncondensed vapor refrigerant being fed to the reheat coil.

3,631,687

SENSING MEANS FOR AIR-CONDITIONING SYSTEMS AND THE LIKE

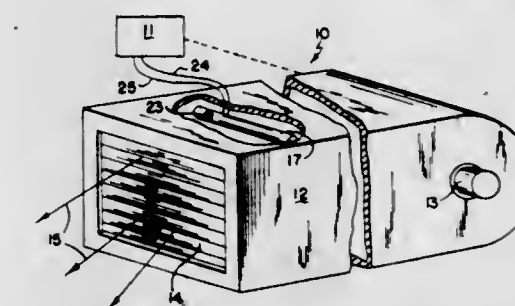
Robert E. Brooks, Worthington; John M. Ewart, Columbus, and James E. Randall, Worthington, all of Ohio, assignors to Ranco Incorporated, Columbus, Ohio

Continuation-in-part of application Ser. No. 852,402, Aug. 22, 1969, now abandoned. This application Mar. 4, 1970, Ser. No. 16,289

Int. Cl. F25b 1/00

U.S. Cl. 62—227

13 Claims



A thermistor for effecting control of a heat exchanger in an air-conditioning system is located in a closed ended tube inside an air duct and extending transversely thereof. The tube has a series of spaced openings in a first section thereof which faces upstream of the moving air in the duct and a second section of the tube has a single opening facing downstream. The thermistor is located in a closed wall section of the tube intermediate the first and second sections. The total area of the single opening facing downstream is greater than the total area of the openings facing upstream, and the area of the cross section of the tube interior is greater than the total area of the ports facing upstream. In one form of the invention the areas of the openings in the tube facing upstream progressively increase as the distance of the openings from the transistor increase.

3,631,688

SHAFT COUPLING LOCKING DEVICE AND TOOL FOR INSTALLATION THEREOF

Irvin Quick, Greenwood, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 19, 1970, Ser. No. 81,843

Int. Cl. F16d 3/18

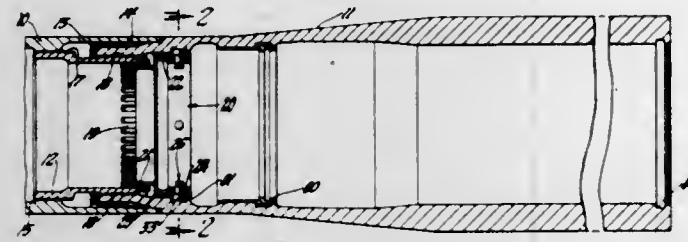
U.S. Cl. 64—9 R

5 Claims

A shaft coupling locking device to lock the coupling between the telescoping compressor and turbine shafts of a gas turbine engine. A coupling threaded to the compressor shaft and turbine shaft of the engine, which are splined together for transmission of torque, is locked in position by means of a locking device having radially biased lock pins en-

gageable in a locking groove in one of the shafts to prevent rotation and axial displacement of the threaded coupling. A

circuit for stopping the machine. Alternatively the body of the feelerlike member can provide the electrical connection



special tool is used to engage the lock pins for installation or removal of the locking device.

3,631,689

YARN-TENSIONING MEANS FOR WARP-KNITTING MACHINES

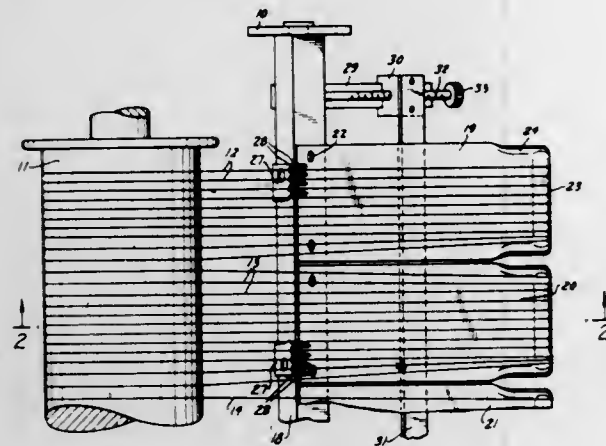
Rudolph G. Bassist, Lancaster, Pa., assignor to Travis Mills Corporation, a part interest

Filed May 7, 1970, Ser. No. 35,360

Int. Cl. D04b 27/12, 27/14

U.S. Cl. 66—86 R

6 Claims



Threads to be laid-in are supported between the warp beam and the knitting instrumentalities by individual resilient thread support members, which may be plates of resilient material, such as sheet metal. Each thread support provides tension in a different group of threads. Means are provided to vary the resiliency of the thread support members.

3,631,690

LATCH NEEDLE KNITTING MACHINES

Peter M. Findlay, Leicester, and Raymond Henry Phillips, Birstall, Leicester, both of England, assignors to The Bentley Engineering Company Limited, Leicester, England

Filed Mar. 11, 1970, Ser. No. 18,532

Int. Cl. D04b 15/08, 35/18

U.S. Cl. 66—111

6 Claims

The latch opener is in the form of a feelerlike member which is pointed and directed laterally of a needle. A wedge-shaped blade is inserted into the bent over point of the feelerlike member and is insulated therefrom. The blade forms an electrical connection by way of a wire upon contacting a latch. Engagement of a needle shank on the opposed side of the feeler member does not create an electrical

with an errant latch. The point of the feelerlike member is coated with or formed of an electrically insulative material.

3,631,691

APPARATUS FOR LIQUID-TREATING FIBER MATERIALS AND DRYING SAID MATERIALS

Friedrich Wilhelm Johann Karrer, Strandvagen 37, Stockholm, Sweden, and Alberto Pedretti, Via Chelini 9, Rome, Italy

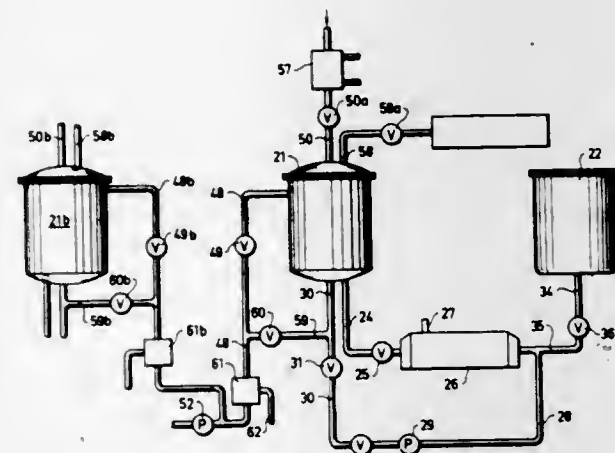
Filed June 2, 1969, Ser. No. 829,408

Claims priority, application Sweden, May 31, 1968, 7396/68

Int. Cl. D06f 17/02

U.S. Cl. 68—20

2 Claims



An apparatus for the liquid treatment and drying of fiber materials has a container with first and second chambers communicating with each other, and means located within the container support the material in a position between the chambers so that they communicate with each other solely through the intermediary of the material. The suction side of a vacuum pump is connected to the first chamber for evacuating it during treatment of the material, and to the second chamber through a condenser to facilitate drying of the material by means of air and/or steam introduced through a conduit into the first chamber.

3,631,692

MACHINE FOR WASHING FABRICS

Felice Garzotto, Valdagno, Italy, assignor to Rimar S.p.A., Trissino (Vicenza), Italy

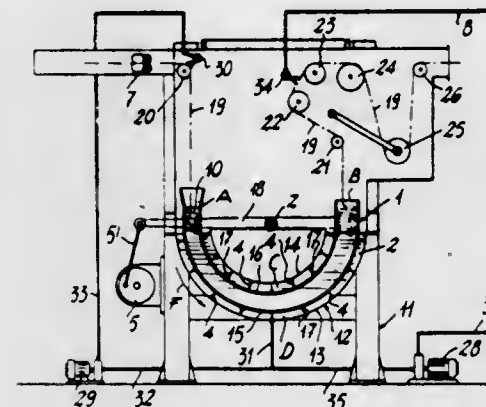
Filed Mar. 10, 1970, Ser. No. 18,138

Claims priority, application Italy, Mar. 26, 1969, 14594-A/69

Int. Cl. B05c 3/134

U.S. Cl. 68—62

6 Claims



A new machine for washing fabrics is disclosed, having a washing chamber housed within a stationary tank and capable of swinging around a fixed axle. The fabric is continuously fed at an end of said chamber and comes out from the opposite end, the opposite walls of said chamber having an increasing relative distance from the first to the second end, and the cross section of said chamber along a plane perpendicular to said fixed axle having a substantially semicircular shape. Said washing chamber is provided with a set of blades, opposite and alternatively disposed with respect to a second set of blades which are integral with said stationary tank, and is also provided with a plurality of holes. The solvent contained in the tank, during the swinging movement of the washing chamber, is dragged by said blades to cross alternatively the opposite walls of said chamber through said plurality of holes, whereby the washing operation is improved. Guiding rolls and prewashing devices are also provided upstream of the washing chamber and drying rolls and spraying devices for additional washing are further provided downstream of said washing chamber.

3,631,693

CONTROL DEVICE FOR FEEDING ANIMAL SKINS TO LONGITUDINAL CUTTERS

Alfredo Morletto, Castellamonte, Turin, Italy

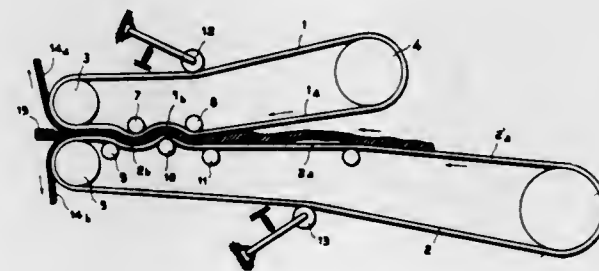
Filed May 7, 1969, Ser. No. 822,589

Claims priority, application Italy, May 10, 1968, 51606 A/68

Int. Cl. C14b 1/18

U.S. Cl. 69—10

2 Claims



A pair of uniformly running and converging conveyor belts move animal skins to a transverse, adjustable knife. The belts may take a wavy form just prior to the discharge end thereof and either one of the belts or the support roller therefor may be resilient.

3,631,694

SECURITY DEVICE FOR LOCKING GASOLINE ACCELERATOR PEDAL OF AUTOMOBILE

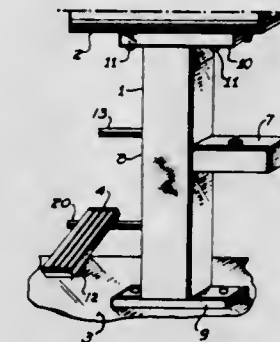
Joseph O. Teroux, 180 Pine St., Holyoke, Mass.

Filed Apr. 3, 1970, Ser. No. 25,400

Int. Cl. B60r 25/04

U.S. Cl. 70—202

4 Claims



This invention is concerned with a device for preventing the theft of an automobile. A bar is placed beneath the accelerator foot pedal. The bar is connected to a vertical ratchet which elevates the bar upwardly and downwardly. The vertical ratchet controls the height of the bar. The ratchet is secured into a fixed position by a locking means. The locking means is controlled by a key mechanism. When the user of an automobile desires to leave the vehicle locked, he pulls the vertical ratchet upwardly so that the bar is against the foot pedal at its top position and turns the key engaging the ratchet teeth into a locked position. The user of the automobile cannot push the gasoline pedal downwardly because the bar is now locked into a stationary position so that the gasoline pedal cannot be pushed downwardly; and, accordingly, no gasoline can be fed to the motor.

3,631,695

MORTISE LOCK WITH LATCHBOLT AND DEADBOLT, ESPECIALLY FOR HOTEL GUEST ROOM DOORS

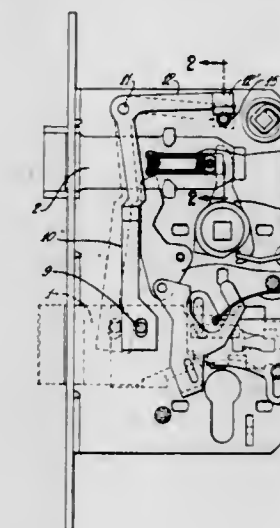
Reinhold Perlick, Velbert, and Klaus Duerhagen, Langenberg, both of Germany, assignors to Eaton Yale & Towne GmbH, Velbert/Rhineland, Germany

Filed Apr. 29, 1970, Ser. No. 32,929

Int. Cl. E05b 41/00

U.S. Cl. 70—432

3 Claims



A mortise lock is equipped with a lever of bellcrank shape, through which a deadbolt controls an indicator stud or button that is positioned a considerable distance above the deadbolt and the latchbolt retracting knob. The lever coacts with the indicator stud through a cam portion that is symmetrical to permit operation without regard to the hand of installation.

3,631,696

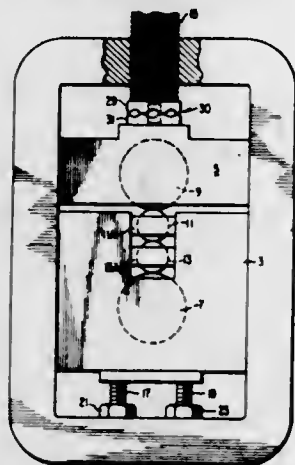
PRESSURE RELIEF MECHANISM

Willard B. Williams, R.D.#2, Pulaski, Pa.

Filed May 25, 1970, Ser. No. 40,307

Int. Cl. B21d 55/00

U.S. Cl. 72-4



A pressure relief mechanism for the work rolls in a rolling mill strand with a frame in which a hold-down device exerts the desired pressure on the work rolls. The relief mechanism includes a plurality of disc-shaped members with opposing projections positioned between the hold-down device and the work rolls. The projections of the members can be placed in more or less register to vary the pressure between the work rolls. Excessive pressure on the work rolls is relieved by moving at least one of the members relative to the other to intermesh their projections, thereby allowing limited vertical movement of one of the work rolls to relieve pressure between the rolls.

3,631,697

ROLLING MILL WORKPIECE DELIVERY THICKNESS CONTROL

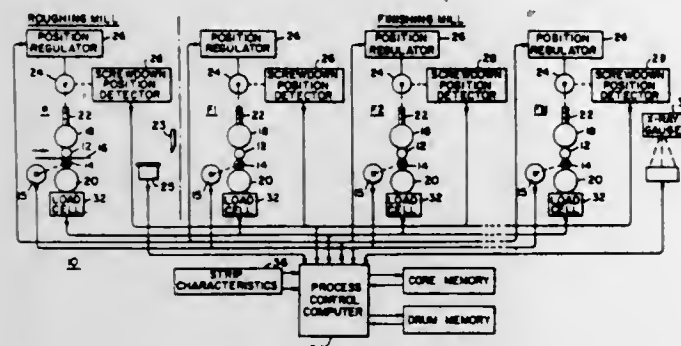
Anthony D. Deramo, Swissvale; Andrew W. Smith, Jr., Pittsburgh; Frank E. Wallace, Irwin, and Robert J. Goldbach, McKeesport, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 25, 1969, Ser. No. 852,627

Int. Cl. B21b 37/00

U.S. Cl. 72-8

22 Claims



A workpiece delivery thickness control is provided for use with a programmed digital process control computer for controlling each operating stand of a rolling mill to improve mill setup relative to at least one selected operational variable, such as stand roll force, for a workpiece of known gauge and grade. For this purpose predetermined ratio comparisons are made between the measured value of the selected variable and the predicted value of that variable, for each stand operation with a workpiece. These ratio comparisons, determined in a predetermined manner in relation to previous rolling experience for each stand relative to the same gauge and grade category of workpiece, are stored in a classified memory location to improve subsequent operation with the

8 Claims

same category of gauge and grade workpieces. The ratio comparison after each workpiece is rolled is weighted together in a predetermined manner for each stand operation with the ratio determined from previous rolling experience with a similar workpiece to provide operation control information for improving the stand operation with a subsequent workpiece to provide a desired delivery gauge for that workpiece.

3,631,698

METHOD AND APPARATUS FOR HOT STRAIGHTENING ELONGATED METAL WORKPIECES

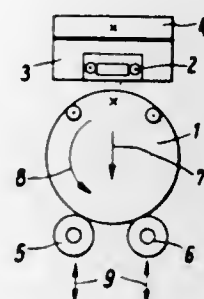
Gerhard Seulen, and Friedhelm Reinke, Remscheid, Germany, assignors to AEG-Elotherm GmbH, Remscheid-Hasten, Germany

Original application Oct. 20, 1967, Ser. No. 676,753, now abandoned. Divided and this application Dec. 29, 1969, Ser. No. 1,928

Int. Cl. B21d 26/14

U.S. Cl. 72-56

13 Claims



A method of straightening bent metal workpieces by non-mechanical means, namely by the use of magnetic flux generated by inductive heating moving the heated workpiece against stop members whereby straightening is achieved.

In a preferred form of the invention the workpiece is quench hardened as well as straightened.

The invention may be applied either to ferromagnetic or nonferromagnetic workpieces.

3,631,699

ELECTROPNEUMATIC AND ELECTROHYDRAULIC REFORMING OF TUBING AND THE LIKE

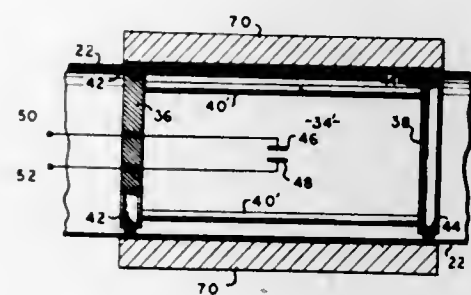
Donald J. Roth, Chicago Heights, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Original application Mar. 19, 1965, Ser. No. 441,017, now Patent No. 3,555,866. Divided and this application Apr. 15, 1970, Ser. No. 28,739

Int. Cl. B21d 26/12

U.S. Cl. 72-56

7 Claims



Disclosed herein are apparatus and method for the electropneumatic and electrohydraulic reforming and the like of members such as, for example, container bodies and the like. The force generated for performing the reforming is created through the application of electrical energy to a pair of electrodes positioned within a chamber to provide an electrical

discharge within such chamber. The electrical discharge creates a plasma bubble between the electrodes and such bubble continues to grow as continued power is supplied to the electrodes. Also disclosed are apparatus and method for severing and flanging members using similarly developed force. The force so created drives the wall of the member or workpiece against an adjacent die to perform the desired operation or operations.

3,631,700

ELECTROHYDRAULIC METAL-FORMING MACHINE

Mitsuo Kosaka, Kyoto, Japan, assignor to Shimadzu Seisakusho Ltd., Kyoto, Japan

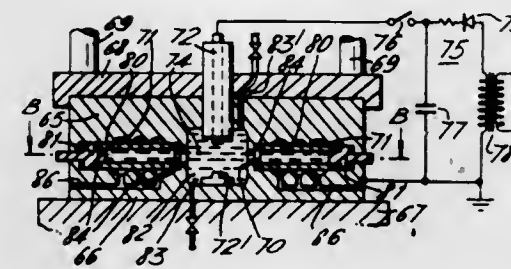
Filed Aug. 7, 1969, Ser. No. 848,286

Claims priority, application Japan, Aug. 10, 1968, 43/56843

Int. Cl. B21d 26/12

U.S. Cl. 72-56

4 Claims



An electrohydraulic metal-forming machine which is capable of simultaneously forming a plurality of sheet-metal or tubular workpieces into the same or different shapes or configurations by electric discharge. The machine comprises a discharge chamber to be filled with a liquid and a pair of electrodes having a gap disposed in the discharge chamber. A plurality of dies of the same or different shapes or configurations are arranged either radially about the discharge chamber in liquid communicating relation thereto or in such a manner that the working surfaces of the dies constitute part of the inner surface of the discharge chamber. A workpiece is put in or applied against each of the dies so that electric discharge causes an impulsive pressure to be generated in the liquid to deform all the workpieces simultaneously to conform to the shape or shapes of the dies.

3,631,701

DEVICE FOR SHOCK-DEFORMATION OF WORKPIECES

Heinrich Hertel, Tannenberglallee 38, and Dietrich Ruppig, Bolchenerstrasse 10, both of Berlin, Germany, assignors to said Hertel, by said Ruppig

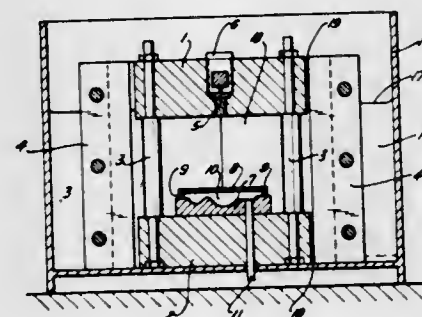
Filed Sept. 24, 1969, Ser. No. 860,752

Claims priority, application Germany, Sept. 25, 1968, P 17 77 209.7

Int. Cl. B21d 26/08

U.S. Cl. 72-56

14 Claims



An explosive performing device comprises a chamber composed of a plurality of walls. Either the top and bottom wall

are movable toward and away from one another between a chamber-closing and a chamber-opening position; alternately the top and bottom wall may be stationary and the circumferential wall could be composed of at least two sections which are so movable. The inertia of the movable walls is so selected that it at least substantially equals the shock pressure necessary for producing the energy level required to obtain the deformation of a workpiece into conformance with the surface contour of one or more dies located in the interior of the pressure chamber. An explosive device serves to produce a sudden increase in pressure in the chamber. Energy-consuming connecting means connects those walls which are movable relative to one another and serves to consume shock-pressure energy in excess of the predetermined energy level during the relative movement of the walls from chamber-closing to chamber-opening position.

3,631,702

SELF-LOCKING THREADED FASTENERS

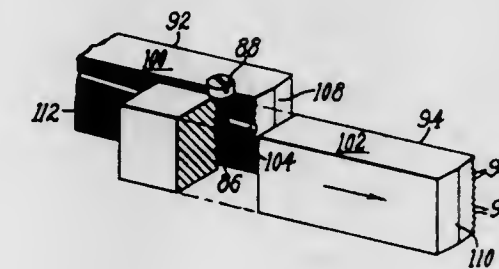
Howard I. Podell, Larchmont, N.Y., assignor to United Shoe Machinery Corporation, Flemington, N.J.

Original application May 23, 1968, Ser. No. 731,416, now Patent No. 3,530,920. Divided and this application Nov. 26, 1969, Ser. No. 877,574

Int. Cl. B21h 3/06

U.S. Cl. 72-88

3 Claims



A self-locking threaded fastener such as a screw in which locking action is obtained from at least one locking zone, parts of two adjacent turns leaning toward each other and including between them a groove of reduced thread angle. The threads on the product are advantageously formed by rolling with novel dies including a lock forming area in which normal internal support for the flanks of developing thread ridges are removed during the latter part of the thread-rolling operation thereby causing the pressure applied to external flanks to result in leaning of the locking turn portions toward each other.

3,631,703

GEAR ROLLING DIE AND METHOD OF USE

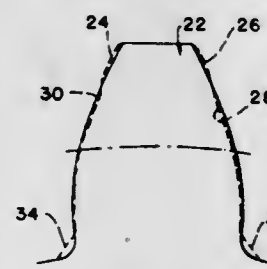
Benjamin F. Bregl, Grosse Pointe Shores; Warren C. McNabb, Detroit, and David W. Daniel, Birmingham, all of Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed Oct. 15, 1969, Ser. No. 866,628

Int. Cl. B21h 5/00

U.S. Cl. 72-108

16 Claims



A gear rolling die in the form of a gear having teeth generally conjugate to the desired form of teeth on the work

gear, but provided with protuberances adjacent the tips of the teeth to form undercuts adjacent the roots of the work gear. Preferably, the die teeth are provided with inclined ramps adjacent the roots for engagement with the corners of the gear teeth provided by the intersections of the top and side surfaces of the teeth thereof. In gear production the undercuts are provided in rough rolling and form spaces into which material is displaced during finish rolling.

3,631,704

APPARATUS FOR ROLL FORMING TOOTHED WORKPIECES

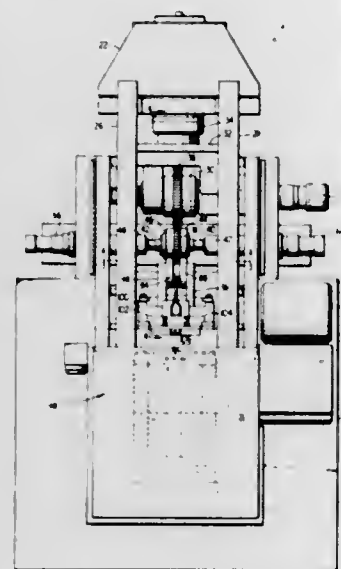
John Leonard, Fayetteville, and Martin S. Wenger, Jr., Chambersburg, both of Pa., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Jan. 12, 1970, Ser. No. 2,104

Int. Cl. B21h 5/02

U.S. Cl. 72-102

3 Claims



Apparatus for forming toothed workpieces by rolling them in high-pressure contact with a single forming die. The workpieces are held in precise relation with the die during at least the final stage of the rolling operation by a support assembly having one or more pilot surfaces, each pilot surface being in rolling contact with a pair of rigidly mounted backup members. The pilot surface or surfaces and the backup members locate the axis of the workpiece with respect to the axis of the forming roll. Separate support members positively locate the workpiece along its axis during the rolling operation.

3,631,705

FRAME ANCHOR TOOL

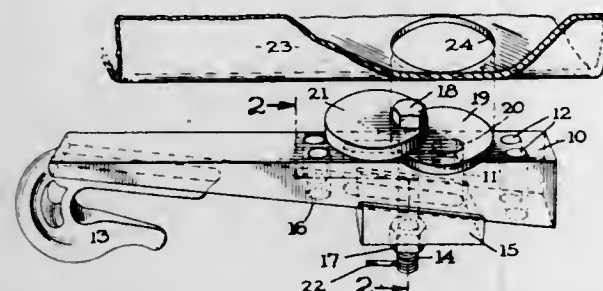
Stanley A. McCaffrey, 2100 24th Ave., Gulfport, Miss.

Filed Apr. 24, 1970, Ser. No. 31,660

Int. Cl. B21d 1/00

U.S. Cl. 72-293

5 Claims



A frame anchor tool for engaging a vehicle frame to be straightened grips the frame while pressure is applied thereto the straighten the frame. The tool has a sliding body portion with a hook thereon to engage a fixed object. The body is slotted and a bolt extends through the slot with a sliding

wedge mounted on the bolt beneath the body. A spacer is mounted on the bolt to be received in one of the openings in the frame and a cam is also mounted on the bolt above the spacer. The cam and spacer are aligned and the cam inserted through the hole in the frame and then rotated over the surface of the frame to hold the tool in position. When a force is exerted on the hook the body portion slides and is wedged against the frame to hold the frame in position for straightening.

3,631,706

METHODS OF AND APPARATUS FOR FORMING AN ARTICLE HAVING A TUBULAR PORTION

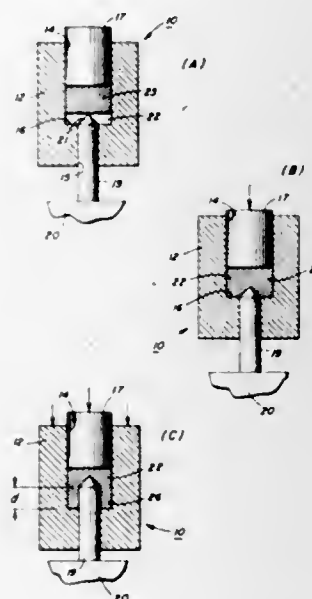
John Wesley Archer, Trenton County, and Francis Joseph Fuchs, Jr., Princeton Junction, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 25, 1969, Ser. No. 802,040

Int. Cl. B21k 21/02

U.S. Cl. 72-354

14 Claims



Method of and apparatus for forming articles, and in particular, for forming articles from billets of solid plastic material wherein a billet to be deformed is positioned within and confined by a die having a variable shape die cavity, pressure is exerted upon the billet to increase the ductility of the solid plastic material thereof by an amount sufficient to allow deformation of the billet to form the article without fracture of the solid plastic material, and varying the shape of the variable shape die cavity in such a manner as to form the article while maintaining the solid plastic material in a state of increased ductility during deformation.

3,631,707

HEMOSTATIC CLIP APPLICATOR

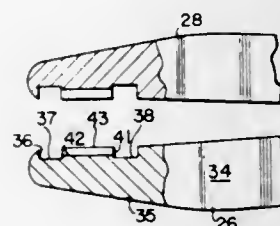
Alphonse K. Miller, Merrick, N.Y., assignor to Edward Weck & Company, Inc., Long Island City, N.Y.

Filed June 13, 1969, Ser. No. 832,947

Int. Cl. B21d 9/08

U.S. Cl. 72-410

3 Claims



An applicator for hemostatic clips of unitary U-shaped construction. This applicator is formed with facing recesses in the jaws which are adapted to receive, retain and apply a

hemostatic clip. The recesses are isolated from the rearward portion of the jaw faces by means of notches cut into the faces at the rearward end of the recesses.

3,631,708

LIQUID BATH REFERENCE CAVITY

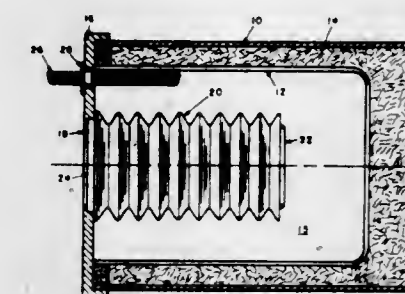
Robert T. Ensor, Redding, Conn., assignor to Barnes Engineering Company, Stamford, Conn.

Filed Dec. 11, 1969, Ser. No. 884,098

Int. Cl. G01j 5/00

U.S. Cl. 73-1 F

2 Claims



An improved liquid-bath-type reference cavity is provided, in which the cavity is formed by a closed-end metallic bellows. The walls of the bellows are fabricated from good thermal conducting materials with very thin wall thickness, which increases the effective surface area in contact with the liquid and provides a rapid stabilization of the cavity to the temperature of the liquid bath in which it is immersed.

3,631,709

HIGH-SPEED CALIBRATION OF LIQUID FLOW METERS

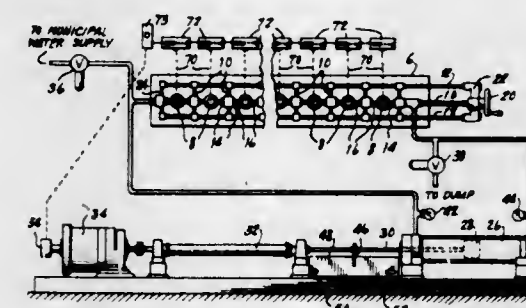
Edward C. Smith, Madison, and Carl P. Kimball, Cromwell, both of Conn., assignors to Neptune Meter Company, New York, N.Y.

Filed Apr. 6, 1970, Ser. No. 25,783

Int. Cl. G01f 25/00

U.S. Cl. 73-3

13 Claims



High-speed concurrent calibration of a plurality of liquid flow meters connected in series is carried out at several different flow rates. Each meter drives a register through a reduction gear. Meters which cannot be corrected to acceptable registration range by selection among available reduction gears having different gear ratios are rejected; an optimum gear ratio is selected for each of the accepted meters.

The registration of each meter is measured at each of three separate flow rates established and maintained by a hydraulic system during three successive phases of a single stroke of the piston of a hydraulic cylinder driven by an electric motor under programmed control. The three measured registrations for each meter are combined electronically to indicate if the meter can be brought within an acceptable registration range at all three flow rates by one of several available gear ratios;

one of the measured registrations is used to determine which of several available gear ratios brings the meter closest to, but not above, a predetermined registration range.

A particular embodiment of the invention is useful in similarly calibrating a single gas meter at a time.

3,631,710

METHOD AND APPARATUS FOR EVALUATING FUELS

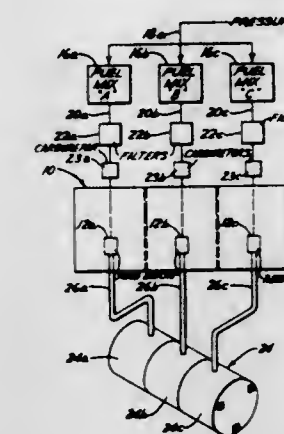
David Lunifeld, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jan. 2, 1970, Ser. No. 146

Int. Cl. G01n 33/22

U.S. Cl. 73-35

7 Claims



Testing of a plurality of different two-cycle fuel oil mixtures in a single engine simultaneously is achieved. The conventional balance tube interconnecting the two-cycle engine's reed blocks is replaced by a composite surge chamber which permits pressure communication between the reed block assemblies while preventing any fluid flow communication between them.

3,631,711

COMPARING POSITION AND CONFIGURATION OF AN OBJECT WITH A STANDARD

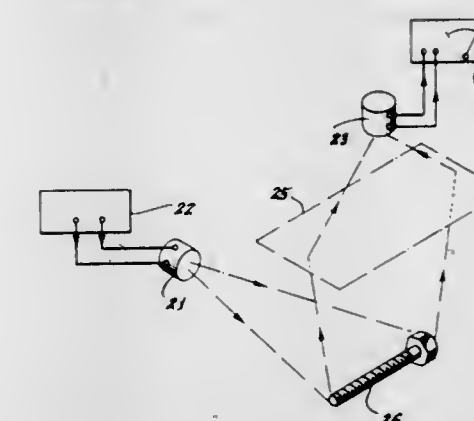
Justin L. Kreuzer, Stamford, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Jan. 2, 1968, Ser. No. 695,071

Int. Cl. G01n 29/04

U.S. Cl. 73-67.5 H

1 Claim



A method of determining deviations of an object under test from a standard object which includes providing a record, such as a holographic record, of a coherent wave front as modified by impinging on the standard object, illuminating the record with a coherent wave front modified by impinging on the test object, and comparing the focusing of the test object modified wave with the maximum which is achieved when the object corresponds to the standard. In a preferred form the wave modifications are produced by reflection from the objects. The record may be either reflective or transmis-

sive and the coherent radiation may be either acoustic or electromagnetic.

3,631,712

METHOD AND APPARATUS FOR DETERMINING SLUMP IN CONCRETE

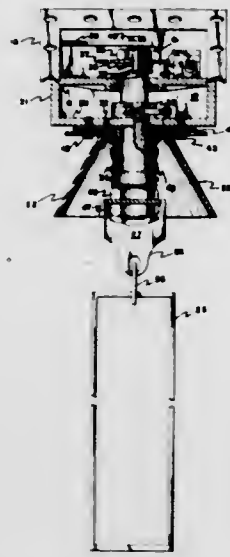
Julian J. Mercier, 11302 East 4th Ave., Spokane, Wash.

Filed Feb. 24, 1970, Ser. No. 13,551

Int. Cl. G01n 11/00

U.S. Cl. 73—54

7 Claims



The method involves the steps of emerging in a semiplastic concrete mass a rectangular sample cage having two opposing vertical upstanding open sides mounted on a strain gauge, having indicia thereon correlated with the known slump of comparable materials as obtained from the method of rodding concrete in a cone, withdrawing the sample cage vertically upward out of the mass, permitting the semiplastic concrete material in the sample cage to stabilize to a position of natural repose, and weighing the mass. The apparatus comprises a sample cage of the character described to a commonly known strain gauge, which apparatus including a locking mechanism may be mounted in a commonly known mixing drum.

3,631,713

EARLY DETECTION OF METAL FATIGUE WITH A COHERENT OPTICAL CROSS-CORRELATION PROCESS

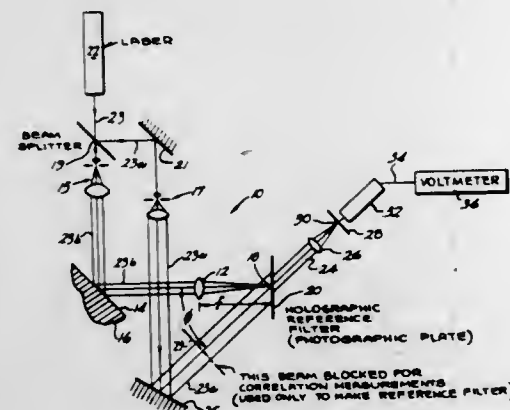
Emanuel Marom, Oak Park, and Rolf K. Mueller, Brighton, both of Mich., assignors to The Bendix Corporation

Filed Aug. 2, 1968, Ser. No. 749,637

Int. Cl. G01m 7/00

U.S. Cl. 73—67.3

8 Claims



A process for early detection of metal fatigue by coherent optical cross correlation of light from a test surface at time t_k with a holographic filter of the same test surface made at an earlier point in time t_0 . Early indication of fatigue is evidenced by minute translational displacement of the test surface's microstructure at time t_k with respect to the hologram of the same test surface made at an earlier time t_0 . The

setup includes a spherical lens to produce the Fourier transform of the image of the test surface both for making the holographic reference filter and for the subsequent cross-correlation test. Light passing through the holographic reference filter during cross correlation is converted to a substantially DC voltage by conventional photoelectrical techniques. A decrease in correlation, indicating the beginning of fatigue, is read out directly as a decrease in the DC voltage. The method is one shot noncontacting technique which is statistical in nature and can thus test relatively large surfaces, like an area of an airframe 2 feet square, in a single test.

3,631,714

ULTRASONIC INSPECTION PROBE

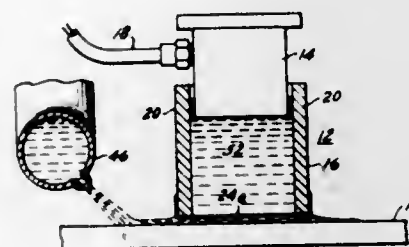
Russell N. Cressman, Center Valley, and Walter J. Bantz, Allentown, both of Pa., assignors to Bethlehem Steel Corporation

Filed Nov. 20, 1969, Ser. No. 878,480

Int. Cl. G01n 29/00

U.S. Cl. 73—71.5

4 Claims



A carriage is adapted to be moved relative to a flat workpiece during the ultrasonic inspection thereof. A housing containing a row of transducers in suspended from the carriage whereby, as the housing or carriage traverses undulations in the surface of the workpiece, the row of transducers is maintained horizontal and transversely disposed to the direction of movement of the carriage relative to the workpiece. In addition, the bottom of the housing is maintained at a constant distance from the workpiece, while the vertical axes of said transducers are maintained perpendicular to the plane of the workpiece.

The transducers are ultrasonically coupled to a column of water contained in said housing. A jet of water provides a continuous flow of water between the bottom of said housing and the flat surfaces of said workpiece oppositely disposed therefrom. The housing is supported relative to said flat surface such that there is sufficient surface tension to maintain a continuous layer of water between the opposing surfaces of said flat surfaces and said bottom.

3,631,715

SKI AND BOOT RELATIVE FORCE INDICATORS

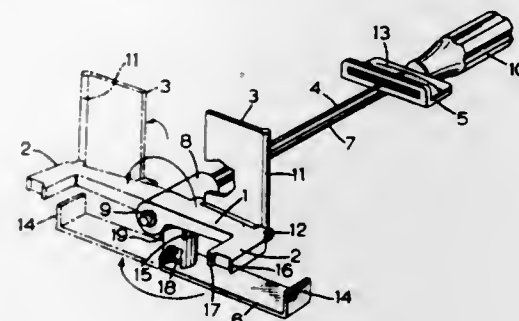
Peter Isaac, 65 North Service Road, Apt. No. 609, Mississauga, Ontario, Canada

Substitute for application Ser. No. 525,244, Feb. 4, 1968, now abandoned. This application Jan. 12, 1970, Ser. No. 2,421

Int. Cl. G01l 5/03

U.S. Cl. 73—133

5 Claims



This invention relates to improvements to devices for measuring the forces required to separate a boot from a ski binding. The trend today is towards ski bindings with mechanical

heel units in place of cable bindings which have been popular for so many years. Testing devices now available are not suitable for checking these bindings. The patent application describes two basic devices which will check these new bindings. One is adapted exclusively for checking ski bindings and the other serves an additional function as a boot press and carrier.

3,631,716

FORCE VARIATION MARKER FOR TIRES

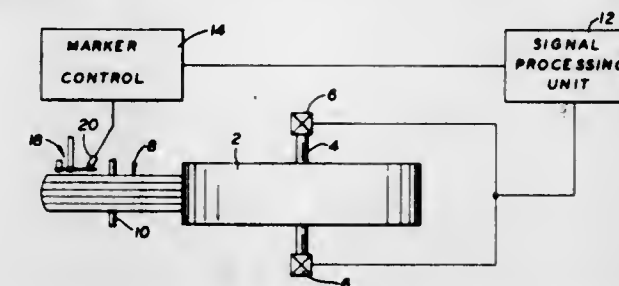
Freydoun Monajjem, Mayfield, Ky., assignor to The General Tire & Rubber Company

Filed Feb. 17, 1970, Ser. No. 12,008

Int. Cl. G01m 17/02

U.S. Cl. 73—146

6 Claims



A marking pen or similar marking device is used to mark a rotating tire to indicate the location at which a given force variation, as measured by a tire uniformity machine, is generated. As the tire is rotating against the load drum of a uniformity machine, the point on the tire at which this force variation is produced passes beneath the marker at which time a solenoid is activated to abruptly move the marker toward the sidewall of the tire and to cause the marker to mark the tire with a suitable marking fluid such as ink. The abrupt movement of the marker causes it to eject a small amount of the marking fluid and to deposit the fluid on the tire sidewall. To protect the marker from damage in the event that it comes into contact with the rotating tire, the marker is mounted on a carriage that is pivotally held in a support whereby the frictional contact between the marker and tire will cause the marker to move in the direction of movement of the tire in an arcuate path that carries it away from the tire. The marker solenoid is operated by a very simple relay circuit activated by a signal from the tire uniformity machine.

3,631,717

CALORIE MEASURING DEVICE

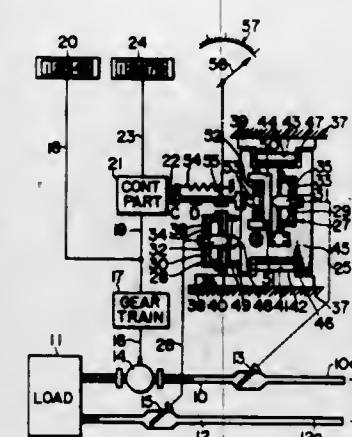
Mahiko Kato, Tokyo; Isamu Saito, and Kensuke Aizawa, both of Yokohama, all of Japan, assignors to Tokico Ltd., Kawasaki, Kanagawa-ken, Japan

Filed Feb. 26, 1970, Ser. No. 14,540

Claims priority, application Japan, Feb. 26, 1969, 44/14520; Apr. 19, 1969, 44/30477

U.S. Cl. 73—193 R

4 Claims



A calorie-measuring device comprising a flowmeter arranged in a pipeline through which a heat carrier flows to a

load wherein heat is emitted or absorbed, the flowmeter measuring the flow quantities of the heat carrier. A device is disposed in the pipeline for detecting the temperature in the pipeline before and after the load and it provides a signal indicative of temperature difference. A further device serves for multiplying the values of flow quantity and temperature difference to indicate the caloric value of heat emitted or absorbed in the load.

3,631,718

ELECTROMAGNETIC FLOWMETER

Tetsuya Sato, No. 34 4-Chome, Hirano, Shinga-cho, Ibo-gun; Haruo Miyatake, No. 2417 Kaneoka-cho, Sakai, and Osamu Kato, No. 50, 2-Chome, Natsato-cho, Nishujodogawa-ku, Osaka, all of Japan

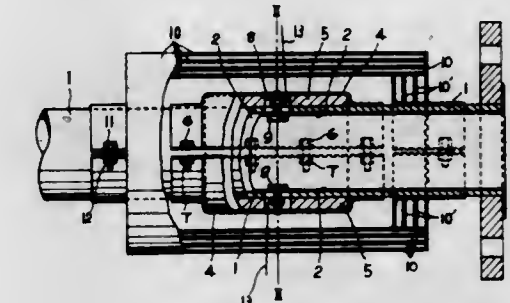
Filed July 14, 1970, Ser. No. 54,823

Claims priority, application Japan, July 24, 1969, 44/69803

Int. Cl. G01p 5/08

U.S. Cl. 73—194 EM

3 Claims



An electromagnetic flowmeter comprising a conduit of nonmagnetic material for passing therethrough a liquid to be measured, a permanent magnet of cylindrical shape mounted on the outer circumferential surface of said conduit in concentric relationship, two radial openings formed in two positions diametrically opposed to each other on said permanent magnet in substantially the central portion axially of the magnet, two electrodes mounted in said two radial openings respectively, and external magnetic field shield means mounted around said permanent magnet in enclosing relationship.

3,631,719

FLUID SPEED MEASURING SYSTEM

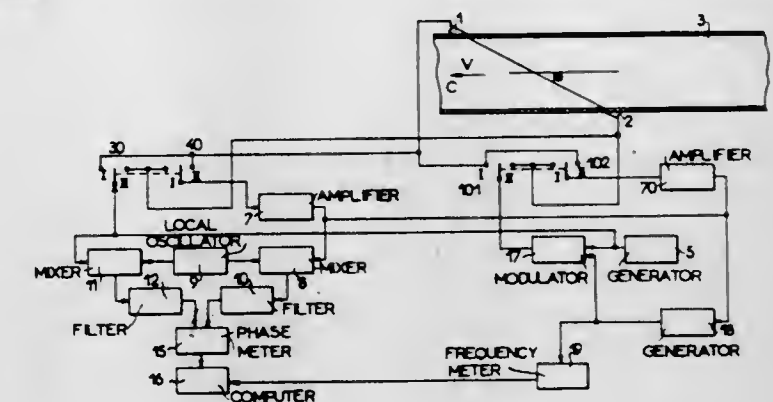
Henri Charvier, and Jean-Louis Vernet, both of Blvd. Murat (16^e), Paris, France

Continuation-in-part of application Ser. No. 398,826, Sept. 11, 1964, now abandoned. This application July 25, 1969, Ser. No. 844,953

Int. Cl. G01p 5/00

U.S. Cl. 73—194

2 Claims



The present invention relates to fluid speed discharge measuring devices comprising an oblique path terminated by two

transducers and along which ultrasonic waves are propagated in opposite directions. The velocity of the fluid is determined as a function of the repetition frequencies of wave packets circulating from one transducer to the other and vice versa and also by taking into account the differential time delay obtained from phase shift measurement made at the carrier frequency of the wave packets.

3,631,720

DISPOSABLE THERMOMETER

Berel Weinstein, New York, N.Y., and Zsigmond L. Sagi, Parsippany, N.J., assignors to Bio-Medical Sciences, Inc., New York, N.Y.

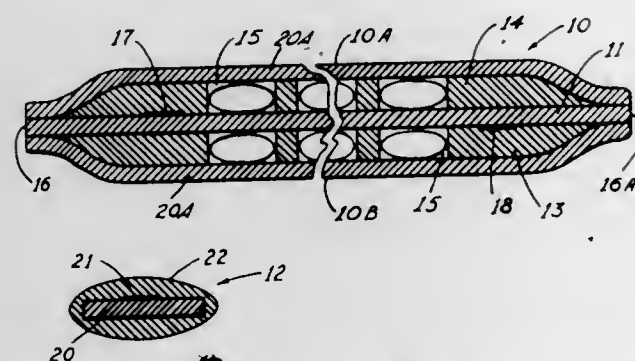
Filed Oct. 22, 1969, Ser. No. 868,410

Int. Cl. G01k 11/08

U.S. Cl. 73—358

1 Claim

U.S. Cl. 73—386



A disposable clinical thermometer for single usage which includes a carrier layer and a plurality of individual temperature-indicating elements distributed over at least one surface of the carrier layer; each element having a temperature indicating marking thereon and a fuseable organic material coating normally concealing the marking, but fuseable at a predetermined temperature, the fuseable material being displaceable to expose the marking to view.

3,631,721

CLINICAL THERMOMETER OF SYNTHETIC MATERIAL USING NONTXIC THERMOMETRIC MATERIAL

Bernard Nollen, Hamburg-Marienthal, and Hans Schuhmann, Schlat, both of Germany, assignors to Internationaler Dienst für Betriebsberatung und Marktforschung GmbH

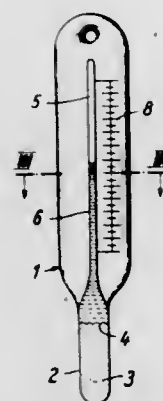
Filed Dec. 24, 1969, Ser. No. 887,891

Claims priority, application Germany, Jan. 2, 1969, P 19 00 088.5

Int. Cl. G01k 5/32, 1/04, 5/14

U.S. Cl. 73—368.3

8 Claims



The thermometer comprises a bulb with a capillary tube of highly transparent plastic material. The thermometric sub-

stance in the bulb is a mixture of crystalline organic compounds with melting points lying close to each other, i.e. a mixture of eicosane, heneicosane and docosane. The indicating liquid in the capillary tube is separated from the thermometric substance by a diaphragm. The temperature range of the thermometer can be varied by suitable selection of the organic compounds and by additives. The thermometer can be manufactured from plastic material.

3,631,722

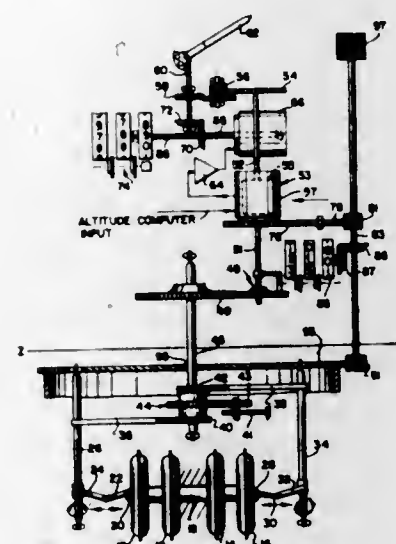
NONLINEAR COUNTER

John Richard B. Steacie, Carleton Place, Ontario, Canada, assignor to Leigh Instruments Limited, Ontario, Canada

Filed July 7, 1969, Ser. No. 839,353

Int. Cl. G011 7/12

8 Claims



A device for converting input rotary motion to output rotary motion according to nonlinear function, having a cylindrical cam with a curved way (input) and annular cam follower (output) sliding on the cam and following the curved way, and a threaded pinion meshing with the cam follower and constraining it to move axially along the cam as the cam follower rotates.

An altimeter having a pressure-altitude barometric pressure setting mechanism including the aforesaid rotary converter.

3,631,723

PRESSURE-RESPONSIVE INSTRUMENT

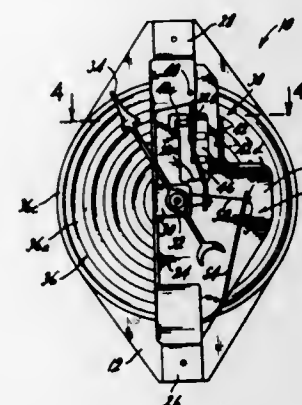
Heinz Eberhard, Kinnelon, and Anton Menzer, Teaneck, both of N.J., assignors to Springfield Instrument Company, Inc., Hackensack, N.J.

Filed June 15, 1970, Ser. No. 46,326

Int. Cl. G011 7/14, 19/04

U.S. Cl. 73—410

4 Claims



A motion-transmitting and amplifying mechanism for a pressure-responsive instrument, such as an aneroid barome-

ter, which includes a readily calibrated capsule coupled by a motion-amplifying leverage system to an indicator which includes a pointer journaled to move about a calibrated dial plate.

3,631,724

PROCESS OF LIQUID CHROMATOGRAPHY FOR DOSED INTRODUCTION OF SMALL AMOUNTS OF LIQUID INTO A FLOW OF CARRIER LIQUID

Helmut Oster, Karlsruhe; Ernst Ecker, Neureut; Frank Wichmann, Karlsruhe; Frank Oppermann, Neureut, and Erich Joss, Karlsruhe, all of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

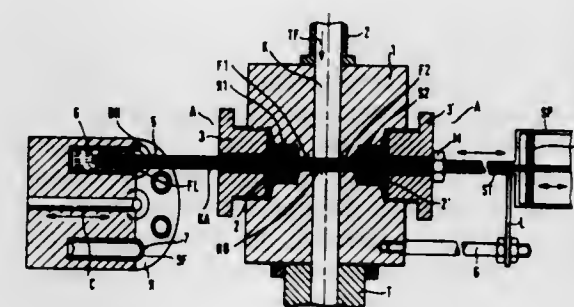
Filed Jan. 19, 1970, Ser. No. 3,904

Claims priority, application Germany, Jan. 20, 1969, P 19 02 620.1

Int. Cl. G01n 1/12

U.S. Cl. 73—422 GC

13 Claims



In the practice of liquid chromatography a tubule with at least one opening is arranged transversely in relation to the flow of the carrier liquid and is movable in an axial direction. In a first position the opening is situated outside of the flow of carrier liquid and the liquid to be dosed is charged into the interior of the tubule through the opening. Thereafter, the tubule is shifted into a second position so that the opening is then situated in the range of the flow of the carrier liquid. Thereupon, the liquid contained in the tubule is injected through the opening into the flow of the carrier liquid. The process prevents a pressure surge from being propagated in the flow of the carrier liquid.

3,631,725

AUTOMATIC TRANSFER FLASK

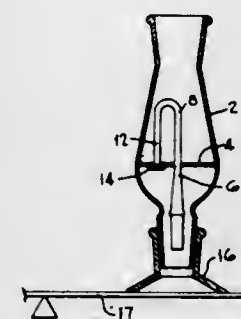
James Velasco, Beltsville, Md., assignor to The United States of America as represented by the Secretary of Agriculture

Filed Nov. 25, 1969, Ser. No. 870,514

Int. Cl. G01n 1/10

U.S. Cl. 73—422 GC

2 Claims



An automatic transfer flask having a solid partition through which one arm of a U-tube extends. The other arm

of the U-tube terminates in a well in the partition. A sample can be weighed directly into the flask and transferred automatically through siphoning action in the U-tube to a chromatographic column or other receptacle by adding sufficient solvent to bring the liquid level in the flask above the bend in the U-tube.

3,631,726

LIQUID SAMPLE HANDLING SYSTEM AND METHOD

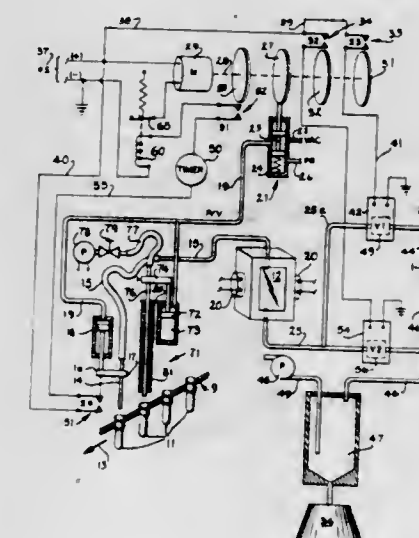
Waite M. Shelton, Mercer Island, Wash., assignor to Van Waters & Rogers, Division of VWR United Corporation, Brisbane, Calif.

Filed Feb. 2, 1970, Ser. No. 7,771

Int. Cl. G01n 1/14

U.S. Cl. 73—423 R

12 Claims



A system and method for automatically handling fluid sample transported in open containers along a predetermined path employs the steps of submerging the end of a suction probe beneath the surface of sample in one of the containers while connecting the other end of the probe to form a path in fluid communication to an analysis chamber where the liquid sample is to be examined. A bubble of vacuum is introduced into the analysis chamber to withdraw a related portion of sample from the container into the analysis chamber. The portion of sample remains in the analysis chamber for a period sufficient to obtain analysis thereof, and, subsequently, by applying suction to the analysis chamber and probe, the sample portion and remaining sample in the open-topped container are withdrawn for discharge. Subsequently, the path of sample is purged by drawing large volumes of air through the path for a period sufficient to remove any residue of the sample therefrom. In addition, preliminary steps of submerging the end of a hollow probe into the sample are taken whereby by pumping air through the hollow probe, bubbles are injected into the sample to stir it prior to its use in the analysis chamber. As the hollow stirring probe is withdrawn, means are provided for wiping the exterior thereof with absorbent material to remove residue of sample clinging to the stirring probe.

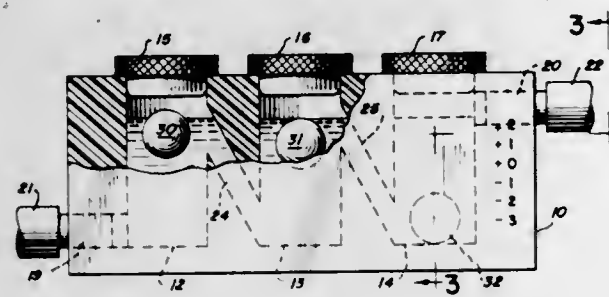
3,631,727

DEVICE FOR MEASURING SPECIFIC GRAVITY OF FLUIDS

Fred K. White, Glen Ellyn, Ill., assignor to Mulwhiteson Development Company, Glen Ellyn, Ill.
Filed Dec. 10, 1969, Ser. No. 883,836
Int. Cl. G01n 9/10

U.S. Cl. 73-440

6 Claims



This invention is directed to a device for continuously monitoring or testing the specific gravity of a fluid. The device consists of a plurality of chambers connected in series. Each chamber contains a ball capable of floating at a different predetermined specific gravity. Fluid is sequentially passed through the chambers and the specific gravity of the fluid in each chamber will determine whether the ball in the chamber will or will not float. Floatation of each ball can be used to determine a specific gravity range or change.

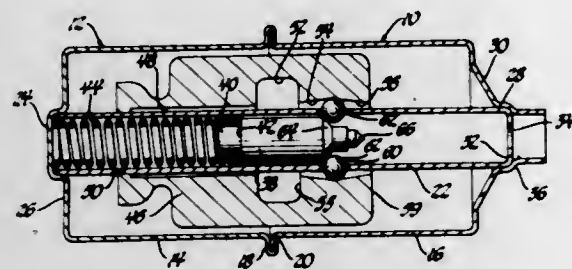
3,631,728
SENSOR

Otakar P. Prachar, Santa Barbara, and Harold ShROUT, Goleta, both of Calif., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 27, 1970, Ser. No. 32,092
Int. Cl. G01p 15/04; H01h 35/14

U.S. Cl. 73-492

3 Claims



A sensor wherein an operator such as a firing pin is resiliently biased in one axial direction within a guide tube toward actuated position. A plurality of balls freely received within apertures in the guide tube engage a radially outwardly tapered shoulder of the operator and a tapered annular internal wall of a seismic mass to hold the operator against movement. In the unidirectional embodiment of the sensor, the narrower opening of the tapered wall has a diameter less than the diametric distance between the points of tangency of any two of the balls with the tapered wall. The axial movement of the seismic mass under an acceleration pulse of predetermined amplitude and time forces the balls radially inwardly of the operator shoulder until the narrower opening of the tapered wall passes the balls and the balls are released to release the operator. In the bidirectional embodiment of the sensor, an asymmetrical tapered wall is joined to the first tapered wall and the balls are located in engagement with both walls at the juncture of the wider openings thereof when the seismic mass constrains the balls.

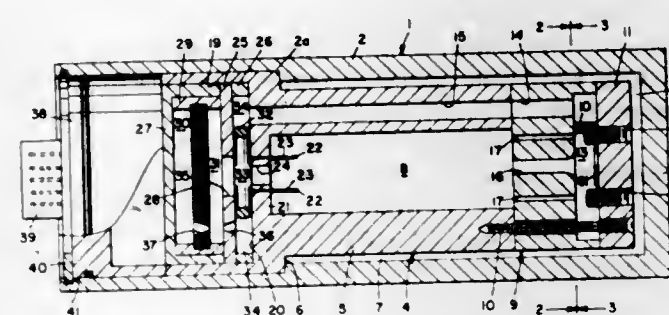
3,631,729

FLUID JET DEFLECTION-TYPE INSTRUMENT WITH JET BUOYANCY CONTROL

Alvin G. Moore, Cumberland, Md., assignor to Hercules Incorporated, Wilmington, Del.
Filed June 5, 1969, Ser. No. 830,826
Int. Cl. G01p 15/00

U.S. Cl. 73-516

4 Claims



An instrument wherein the deflection of a fluid jet induced, for example, by the angular movement of the instrument produces a signal proportional to the deflection; and particularly, such an instrument having means for adjusting the temperature of the fluid to control the buoyancy of the jet relative to the surrounding fluid. This expedient is used, for example, to balance the density of the jet fluid and the surrounding fluid to neutralize the buoyancy of the jet and thereby eliminate jet deflection induced by acceleration, or to induce a predetermined temperature differential between the jet fluid and the surrounding fluid and thus through induced buoyancy, to render the instrument responsive to acceleration.

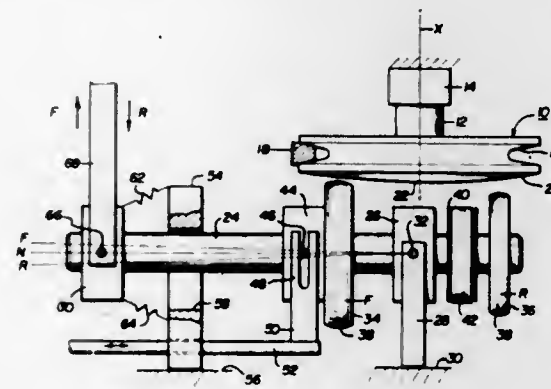
3,631,730

FRICTION DRIVE TRANSMISSION MECHANISM

Howard D. Hadler, and Andrew Blasaw, both of Winneconne, Wis., assignors to J. I. Case Company, Racine, Wis.
Filed Sept. 15, 1970, Ser. No. 72,369
Int. Cl. F16h 15/08, 13/10

U.S. Cl. 74-194

6 Claims



A variable speed forward and reverse friction drive mechanism composed of a driving disc which has a lateral friction surface for selective engagement with either one of a pair of driven friction discs, which are supported on an output drive shaft for transmittal of rotational driving power from the driving disc to the driven discs when engaged by the drive disc; the improved construction of the arrangement is such that (1) either one or both of the driven discs are shiftable along the output drive shaft for varying the drive engaging position on the driving disc to obtain infinite variations in speed ratio, (2) the driven discs are pivotally supported relative to a stationary axis of the driving disc for selective engagement of one driven disc at a time and (3) the driving disc may be pivotally supported relative to a stationary axis around which the driven discs rotate for selective drive engagement with either one of the driven discs.

3,631,731

PUSH-PULL TRANSMISSIONS

George Hawtree, Llanelly, and Edgar Hoyle, Swansea, both of Wales, assignors to Bowden Controls Limited, Llanelly, Wales

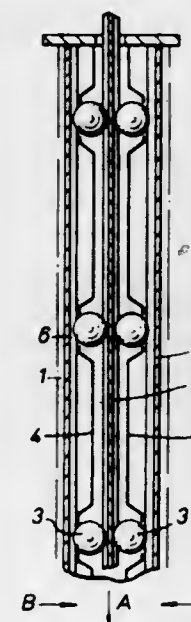
Filed Apr. 3, 1970, Ser. No. 25,556

Claims priority, application Great Britain, Apr. 3, 1969, 17,624/69

Int. Cl. F16c 1/10

U.S. Cl. 74-501 R

5 Claims



A push-pull transmission of the type in which a central strip is longitudinally displaceable between two rows of caged rolling elements, e.g., balls, arranged to roll on outer tracks in a conduit by longitudinal displacement of the strip, the feature being that the conduit is contracted after assembling the transmission to take up tolerances and ensure contact of the rolling elements with the strip and the outer tracks. Contraction may be such as to preload the balls, i.e., subject them to some radial pressure. The conduit may be contracted substantially uniformly over its whole length, such as progressively by rotary swaging.

3,631,732

ADJUSTABLE BELT ASSEMBLY

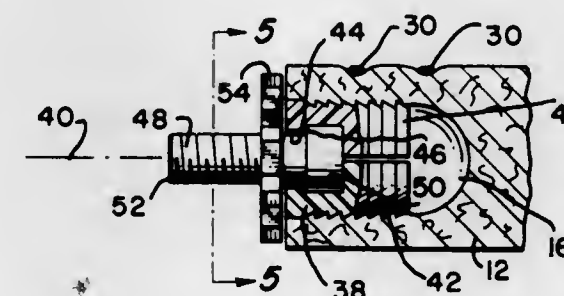
Edward Kleban, 337 South Maple Ave., Basking Ridge, N.J.

Filed Mar. 6, 1970, Ser. No. 17,255

Int. Cl. F16g 1/00, 13/02

U.S. Cl. 74-231 J

7 Claims



An adjustable belt assembly, usable with machinery for communicating torque between a plurality of movable members, having mutually, threadedly engageable coupling elements at terminal ends of a disconnected belt. In one embodiment, the coupling elements are wholly confined within the cross-sectional area of the belt material; in another, portions of the coupling elements extend from the belt surface and receive a bolt for closing the ends of the belt.

3,631,733

ELASTIC POWER TRANSMISSION BELT

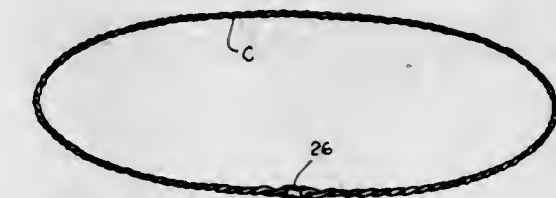
N. H. Thompson, Jr., Anderson, S.C., assignor to Superior Bands, Inc., Anderson, S.C.

Filed Oct. 16, 1970, Ser. No. 81,315

Int. Cl. G01f 3/02; D02g 3/32

U.S. Cl. 74-238

6 Claims



An elastic power transmission belt formed from a single elongated monofilament strand of polymeric material, which is smooth and nonporous. A twist is placed in the polymeric material and the ends are joined to form a loop. A back twist is placed in the loop, and the ends of the loop are joined to form a continuous belt. The joint is carried intermediate the ends of the loop.

3,631,734

SELF-ADJUSTING BELT TIGHTENER

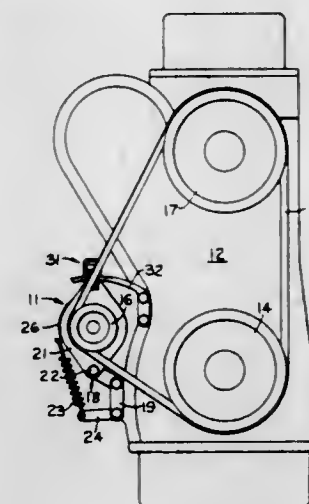
Donald E. Wagner, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed May 27, 1970, Ser. No. 40,828

Int. Cl. F16h 7/12, 7/10

U.S. Cl. 74-242.11 R

12 Claims



An arrangement for positioning a tensioning member, such as the drive pulley of an alternator or generator associated with an engine assembly, against a flexible continuous drive means, such as a drive belt, to automatically maintain the drive means in a tightened position. The arrangement includes spring means for resiliently urging the tensioning member against the drive means in a direction to cause tensioning thereof, and stop means for preventing movement of the tensioning member in opposition to the spring force while permitting movement in the tensioning direction.

3,631,735

GAS TURBINE ENGINE GEARBOXES

William V. McCarty, Cincinnati, Ohio, assignor to General Electric Company

Filed July 2, 1970, Ser. No. 51,797

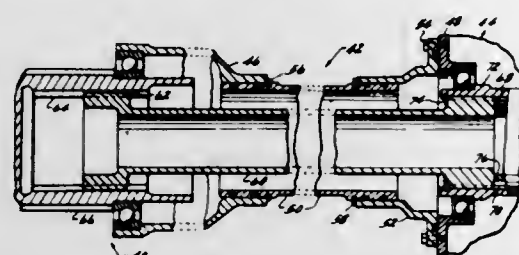
Int. Cl. F16h 57/00, 57/02; F16c 3/10

U.S. Cl. 74-405

3 Claims

A first gearbox is mounted on the casing of a gas turbine engine and driven by a radial shaft from the engine's rotor.

An axial shaft connection from the first gearbox drives a lateral projections at the ends of the tubular sections. The second gearbox. This shaft connection can be broken and free end of the articulated arm is provided with means, such



3,631,736

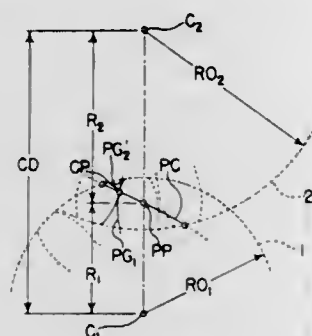
GEAR TOOTH FORM

Oliver E. Saari, Niles, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 29, 1969, Ser. No. 888,633

Int. Cl. F16h 55/06

U.S. Cl. 74-462



Improved form for the profiles of a pair of mating gears having conjugate gear teeth provides substantially constant relative curvature at each point of contact. A differential equation, as well as a more easily solvable approximate solution for the differential equation is given to enable the path of contact of the pair of gears to be determined. The improved tooth form incorporates the major advantages of involute gearing but is able to take substantially higher loading, requires no undercut for gears having a low number of teeth, and provides more intimate contact. The tooth form may be cut with standard machines but has especial utility in powder metal gears since tooth strength can often be increased sufficiently to permit powder metal gears to replace cut gears.

3,631,737

REMOTE CONTROL MANIPULATOR FOR ZERO GRAVITY ENVIRONMENT

Frederic E. Wells, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

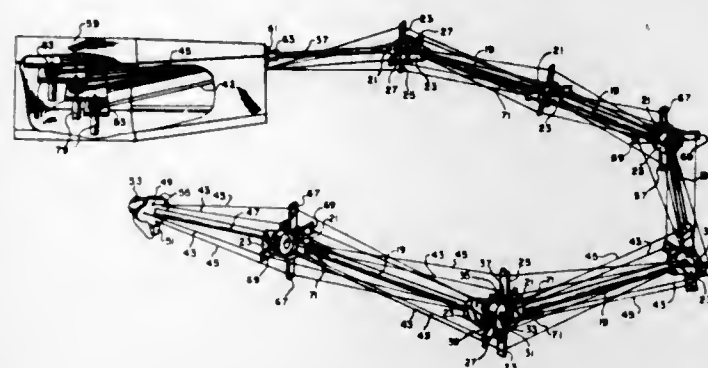
Filed Sept. 18, 1970, Ser. No. 73,283

Int. Cl. G05g 1/00

U.S. Cl. 74-469

8 Claims

A manipulator for handling objects remotely in a zero gravity environment comprising a plurality of rigid tubular sections joined end-to-end by flexible joints to form an articulated arm based at one end and free at the other end. Each of the rigid sections is manipulated by slender control cables attached to the respective sections and selectively extended and retracted. The cables are guided along the length of the articulated arm by means including the tubular sections, apertured disks at the flexible joints, and apertured



as a grapple or an electromagnet, for holding an object being handled.

3,631,738

SLEEVE MOUNTING

Stephen James Harper, Stoke, England, assignor to Rootes Motors Limited, London, England

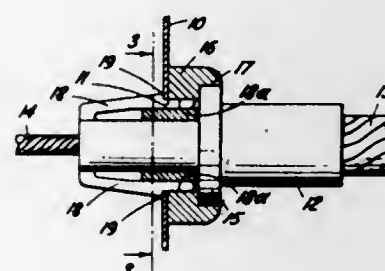
Filed Jan. 27, 1970, Ser. No. 6,179

Claims priority, application Great Britain, Feb. 7, 1969, 6,821/69

Int. Cl. F16c 1/10

U.S. Cl. 74-501 R

9 Claims



A sleeve has a radially movable abutment resiliently mounted thereon for retaining the sleeve in an aperture by engaging one side of the wall adjacent the aperture. A release member projects from the abutment at a location adjacent the sleeve forwardly of the abutment to enable the abutment to be released from the wall from the other side thereof.

3,631,739

ADJUSTABLE ACCELERATOR FOOT PEDAL

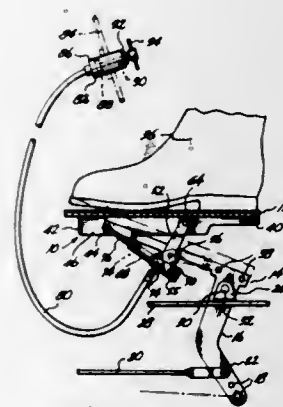
Rulon D. McArthur, Route 3, Bitterroot Road, Missoula, Mont.

Filed Aug. 5, 1970, Ser. No. 61,269

Int. Cl. G05g 1/14

U.S. Cl. 74-513

11 Claims



An accelerator foot pedal for a motor vehicle having a footrest portion which is angularly adjustable with respect to

a support frame on which it is pivotally mounted. The support frame includes a heel portion extending outwardly therefrom and through the floor or fire wall of the vehicle which is adapted to be connected to the throttle control linkage of the vehicle. A control lever is pivotally mounted at a point between its ends on the support frame. One end of the control lever is connected to a manually controlled actuating means such as a hydraulic cylinder and piston which is adapted to move the control lever with respect to the support frame. The opposite end of the control lever is in contact with the footrest portion and is adapted to angularly position it with respect to the support frame in response to the movement of the actuating means.

3,631,740

LATCH ARRANGEMENT FOR VEHICLE SEAT ADJUSTERS AND THE LIKE

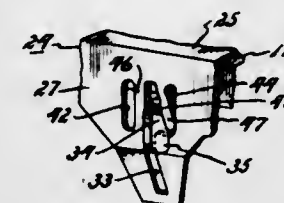
James A. Gavan, Center Line, Mich., assignor to American Motors Corporation, Kenosha, Wis.

Filed July 23, 1970, Ser. No. 57,676

Int. Cl. G05g 5/06; F16m 13/06; B60n 1/08

U.S. Cl. 74-527

9 Claims



An improvement in a latch arrangement particularly adapted in vehicles to seat adjusters or the like to resist unlockment upon impact occurrence. The latch arrangement having a latch member with arm moveable therewith in a guidance arrangement having preformed marginal wall areas adapted, upon being impacted by the arm with a force of predetermined magnitude, to destruct and form a reception area wherein the arm is received in a displacement arrangement securing the latch member from travel from its latched position.

3,631,741

TRANSMISSION

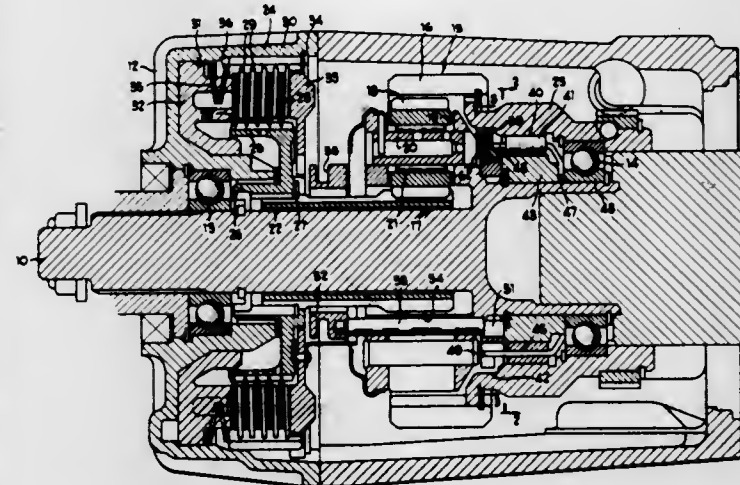
Donald W. Kelbel, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Aug. 7, 1970, Ser. No. 61,957

Int. Cl. F16h 3/44, 57/10

U.S. Cl. 74-781

16 Claims



An overdrive transmission adapted to be coupled as an auxiliary transmission to a conventional change speed transmission of an automobile and comprising planetary gearing

3,631,742

DENTAL DRIVE

Erich Hoffmeister, Biberach/Riss, Germany, assignor to Kaltenbach & Voigt, Biberach/Riss, Germany

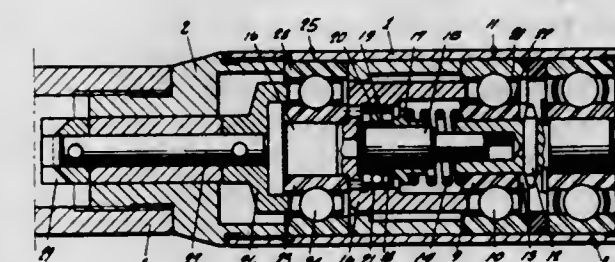
Filed Mar. 31, 1970, Ser. No. 24,227

Claims priority, application Germany, Apr. 1, 1969, G 69 13 202

Int. Cl. F16h 13/06

U.S. Cl. 74-798

7 Claims



A dental drive comprising a housing in or on which a prime mover is carried which has a rotatable output shaft. A drive shaft is journaled for rotation in the housing and provided with connecting means for connecting a dental tool therewith so that the tool is rotated by the drive shaft. A first epicyclic ball gear is mounted in motion-transmitting relationship with the output shaft to receive motion from the same, and at least one second epicyclic ball gear is mounted in motion-transmitting relationship with the first gear and with the drive shaft for receiving from the first gear motion which it transmits to the drive shaft.

3,631,743

FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

Konrad Eckert, Stuttgart-Bad Cannstatt, and Franz Eheim, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 16, 1970, Ser. No. 29,114

Claims priority, application Germany, May 2, 1969, P 19 22 383.7

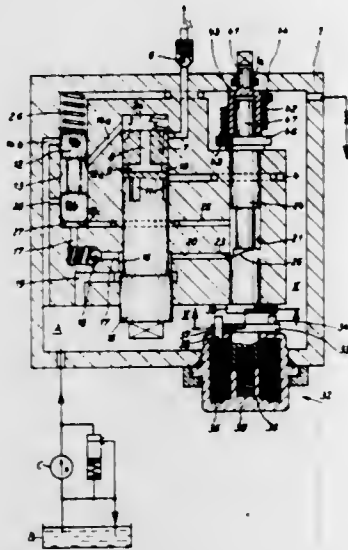
Int. Cl. B60k 21/00

U.S. Cl. 74-860

7 Claims

In a fuel injection pump of the type wherein the r.p.m. control of the internal combustion engine is effected by throttling to a greater or lesser extent a regulator fluid dis-

placed by a regulator shuttle, there are provided means to vary the largest possible flow passage section for said regula-



tor fluid, in response to shifting gears in said engine, for varying the maximum r.p.m. thereof.

3,631,744

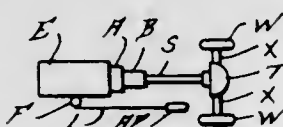
HYDRODYNAMIC TRANSMISSION

Alfred P. Blomquist, Farmington; Kameswar R. Kaza, Oak Park, and Ismail Y. Egrikavuk, Detroit, all of Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Filed Dec. 22, 1969, Ser. No. 887,018

Int. Cl. B60k 21/08

U.S. Cl. 74-868

7 Claims



Automatic power transmission having gearing adapted to be connected in different modes to produce different driving ratios. A hydraulic control circuit is provided with a kickdown servo unit having two pistons. The circuit also includes a control valve for 1-2 shifting the transmission.

3,631,745

METHOD OF FABRICATING METAL DIES

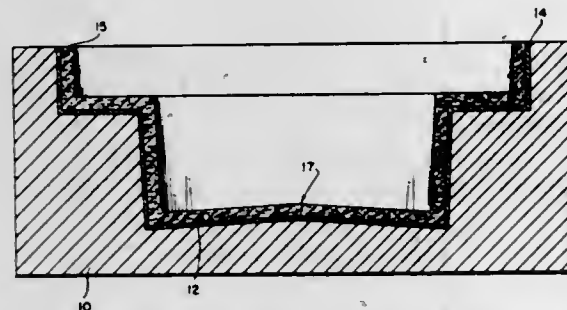
George J. Walkey, Burbank, and Frank N. Adgate, Granada Hills, both of Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Original application July 6, 1967, Ser. No. 657,720, now Patent No. 3,533,271, dated Oct. 13, 1970. Divided and this application May 22, 1970, Ser. No. 39,807

Int. Cl. B21k 5/20

U.S. Cl. 76-107 R

20 Claims



A method of fabricating by thermal spraying a die or mold in regard to the manufacture of a high-strength material

product, titanium being an example of the material of such product. A wooden or plaster pattern is made or cast into the form of the die or mold, and thereafter an inorganic matrix or substrate of a predetermined thickness is cast thereover. The matrix is oven or air cured, after which it is separated from the pattern and the die material is thermally sprayed over same after the matrix has been preheated to the temperature of the sprayed material. The preheat temperature is maintained during the thermal spraying process. The combination is then placed in a preheated oven, for slow cooling. Due to different contracting rates of the materials of the matrix and die, a clean metallic die surface results. After such cooling, the combination is separated and any excess spray is removed. A reinforcing mixture is then introduced into the cavity formed in the die. Upon cooling and hardening of such mixture, the die or mold is provided with great structural integrity in its shell and provides for a tough, high-temperature characteristic. A modified embodiment of and illustrative examples of dies or molds formed from this process are included in the disclosure.

3,631,746

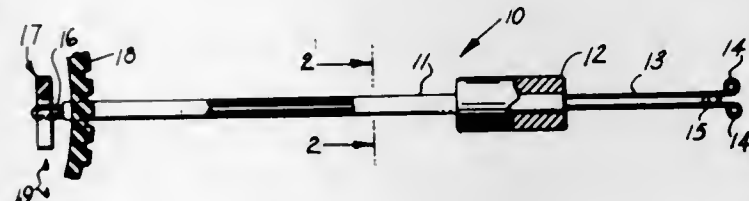
TUBELESS TIRE REPAIR TOOL

Walter Rarog, 8045 Artesian, Detroit, Mich.
Filed Mar. 17, 1970, Ser. No. 20,363

Int. Cl. B60c 25/16

U.S. Cl. 81-15.7

3 Claims



A device for repairing tubeless tires. This device consists of a flattened and elongated steel tube for the purpose of keeping the wire within, rigid and keeping it from bending or breaking while repairing the tubeless tire.

The looped end of the wire serves as a probe for the tire puncture and also allows the plug which is prelubricated to be drawn into the puncture.

3,631,747

STUD DRIVER

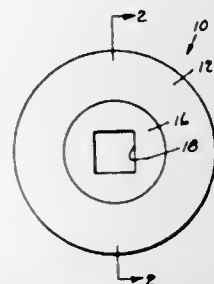
Eugene Frank Flor, Pinole, Calif., assignor to Grove Valve and Regulator Company, Oakland, Calif.

Filed Mar. 20, 1970, Ser. No. 21,423

Int. Cl. B25b 13/52

U.S. Cl. 81-64

2 Claims



A driver for a threaded stud comprising a thick-walled circular receptacle of rubber or the like with an internal diameter to fit snugly over a stud and with coupling means adapting it to be driven by a rotary driving member. The driver threads a stud inward by frictional engagement and, when the stud is placed, the driver may simply be pried free of the stud, the receptacle walls being resilient enough to disengage from the stud.

3,631,748

HOSE APPARATUS

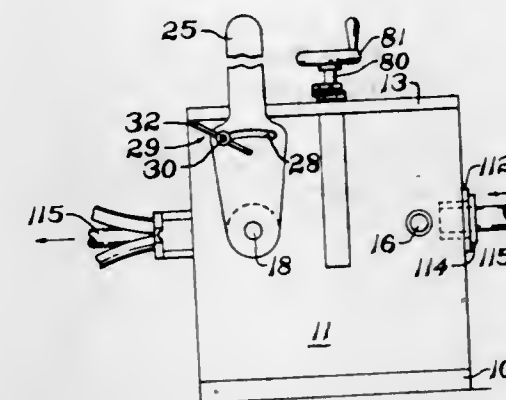
Mathew Kuts, Akron, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.

Filed Jan. 28, 1970, Ser. No. 6,527

Int. Cl. B26d 3/00

U.S. Cl. 83-105

7 Claims



An apparatus for removing a lead sheath from a hose utilizing spaced adjustable rotary cutters in cooperation with feeding means operating forwardly and rearwardly of the cutters. The feeding means aids in the centering of the passage of the sheathed hose. Splitting means are provided to separate the lead from the hose after conveyance away from the rotary cutters.

3,631,749

DEVICE FOR MODIFYING THE PATH OF A CONTINUOUS ROD AS MANUFACTURED BY A MACHINE SUCH AS A CIGARETTE-MAKING MACHINE

Raymond Poupin, Fleury-les-Aubrais, France, assignor to Service d'Exploitation Industrielle des Tabacs et des Allumettes, Paris, France

Continuation of application Ser. No. 648,304, June 23, 1967.

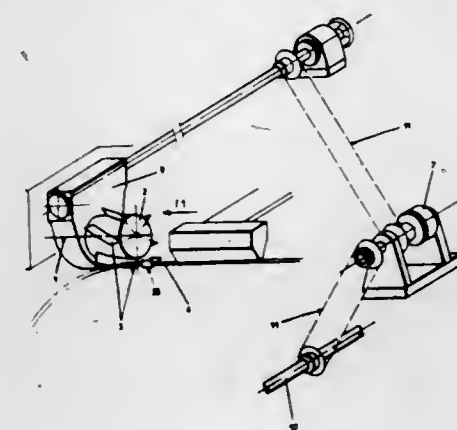
This application Dec. 8, 1969, Ser. No. 880,469

Claims priority, application France, June 27, 1966, 66976

Int. Cl. B26d 7/06

U.S. Cl. 83-106

13 Claims



In a device for modifying the path of a continuous rod which is manufactured by a machine such as a cigarette-making machine comprising means for diverting said rod and cutting means, the provision of cutting means adapted to cut the rod, the latter being either in the diverted or nondiverted position, for instance a rotary drum which carries on its periphery a plurality of blades having opposite cutting edges.

3,631,750

SHEET-CUTTING MECHANISM

Eduard Hanni, Rosengartenstrasse 10, 4800 Zofingen, Switzerland

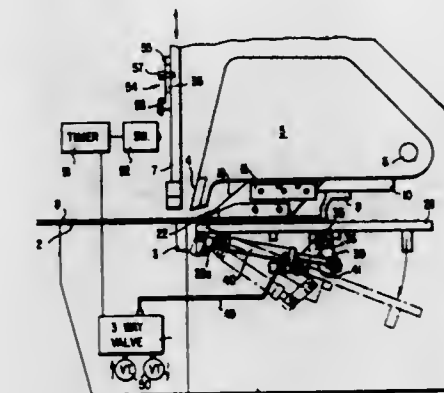
Continuation-in-part of application Ser. No. 746,183, July 19, 1968, now abandoned. This application Apr. 9, 1970, Ser. No. 26,844

Claims priority application Austria, 6822/67

Int. Cl. B26d 7/06

U.S. Cl. 83-157

11 Claims



A sheet-cutting mechanism which comprises a feed table having a stationary support portion and a tiltable support portion. The tiltable support is arranged to support the portion of the sheet to be cut off during the cutting operation, and thereafter it is tilted to an inclined position to cause the cutoff portion to slide off. The tiltable support is then returned to its normal feed position wherein it is in planar relation to the stationary portion of the feed table. The support is tilted to its inclined position and returned to its normal position by means of a cylinder and piston unit, which is controlled by valve means actuated in response to the movement of a member-forming part of the cutting mechanism.

3,631,751

CUTTING MACHINE FOR FABRICS AND THERMOPLASTICS

Gunter Stumpf, 7421 Mehrstetten, am Kreis Munsingen, Germany

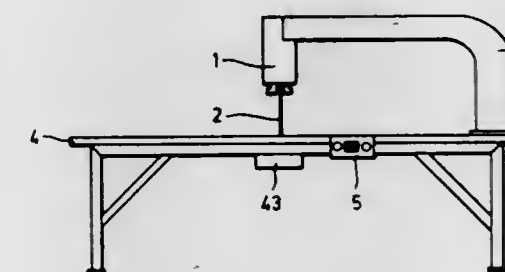
Filed Jan. 23, 1970, Ser. No. 5,189

Claims priority, application Germany, Dec. 2, 1969, P 19 60 473.0

Int. Cl. B26d 5/08

U.S. Cl. 83-171

10 Claims



A cutting machine has a reciprocally driven blade engaged by a guide unit at the free end of the blade. A blade-driving member is fixed above a cutting table on a projecting arm rigidly connected to the table and the guide unit is fixed beneath a plate on the table. Conversely the guide unit can be mounted on the supporting arm and the driving member beneath the plate on the table.

3,631,752

SUBSURFACE IRRIGATION PIPELINE DEVICE

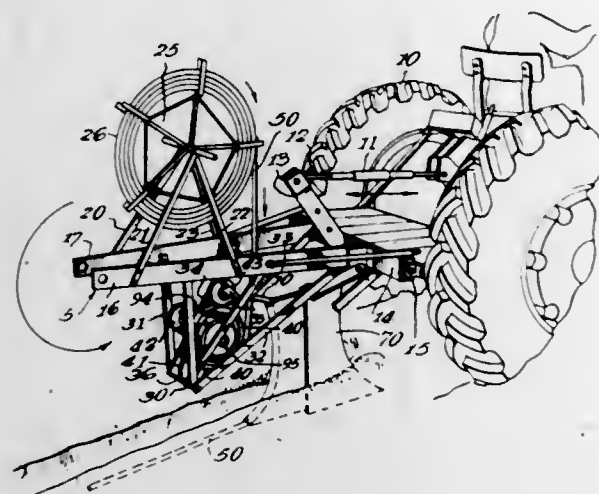
Karl H. Frantzen, Omaha, Nebr., assignor to Northern Natural Gas Company, Omaha, Nebr.

Filed Dec. 17, 1969, Ser. No. 885,722

Int. Cl. B26f 1/24

U.S. Cl. 83—308

11 Claims



A device for making orifices in a pipe comprising a rotatable member over which pipe is adapted to be placed and a rotating orifice-making member, which is substantially free of any movement along its longitudinal axis, adapted to make an orifice in the pipe.

3,631,753

MATERIAL PUNCH

George Thomas William Hall, Kijkduin, ZH; Jan Hendrik Sebastiaan Van Ijzerloo, and Nicolaas A. Althuisen, both of The Hague, all of Netherlands, assignors to International Standard Electric Corporation, New York, N.Y.

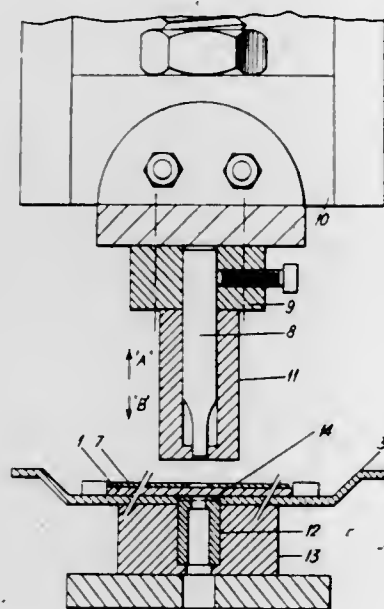
Filed Dec. 8, 1969, Ser. No. 883,045

Claims priority, application Netherlands, Dec. 11, 1968, 6817802

Int. Cl. B23q 3/18

U.S. Cl. 83—399

6 Claims



Apparatus for punching material wherein a workpiece is retained in, and transported by, a punching jig. The punching jig has one or more apertures formed therein, these apertures corresponding to the apertures to be punched in said workpiece. A guide plate, having apertures formed therein which

correspond in size and position to those of the punching jig, is placed over the workpiece thereby sandwiching the workpiece between the guide plate and the punching jig. A punch-and-die combination is used to punch the desired apertures in the workpiece, the punch and die being aligned with the apertures of the guide plate and the punching jig by approximately locating the jig through use of the guide plate and subsequently fitting the periphery of the die into the appropriate aperture of the jig.

3,631,754

VIOLIN SUPPORT

Joseph Kun, 1292 Chattaway Ave., Ottawa 8, Ontario, Canada

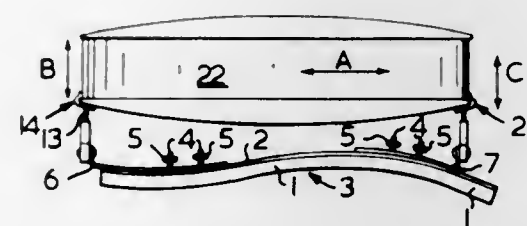
Filed Jan. 19, 1970, Ser. No. 3,614

Claims priority, application Canada, Feb. 26, 1969, 044,064

Int. Cl. G10d 1/02

U.S. Cl. 84—280

3 Claims



A violin support for correct holding of the instrument when playing has a longitudinal rest member with two fork-shaped jaws at the ends thereof. The jaws engage the sidewall of the instrument and their position is adjustable with regard to the rest member in upright and longitudinal directions to enable proper positioning of the instrument and to allow the use of the support for various sizes of violins. The rest member is hand deformable and thus adjustable to the shape of the player's shoulder portion backing the support.

3,631,755

BASS TROMBONE VALVE MECHANISM

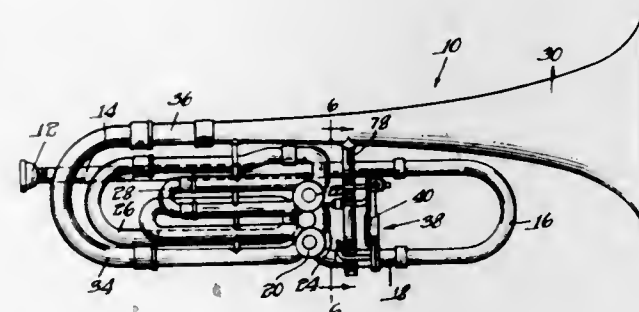
Alvin Glantz, Las Vegas, Nev., and Arvid Walters, Elkhorn, Wis., assignors to G. Leblanc Corporation, Kenosha, Wis.

Filed May 6, 1970, Ser. No. 35,062

Int. Cl. G10d 7/10, 9/04

U.S. Cl. 84—388

5 Claims



A slide valve bass trombone of the usual type is disclosed herein and includes conventional upper and lower rotary valve assemblies for extending the range of the instrument. The trombone is further provided with a unitary valve actuator assembly which is mechanically linked to both of the valve assemblies so that an operator may alternatively actuate a predetermined one of said assemblies or both of the assemblies simultaneously, depending upon the manner in which the operator manipulates the unitary actuator.

3,631,756

APPARATUS AND METHOD FOR TUNING MUSICAL INSTRUMENTS

Robert C. Mackworth-Young, Garden House, Windsor Castle, Berkshire, England

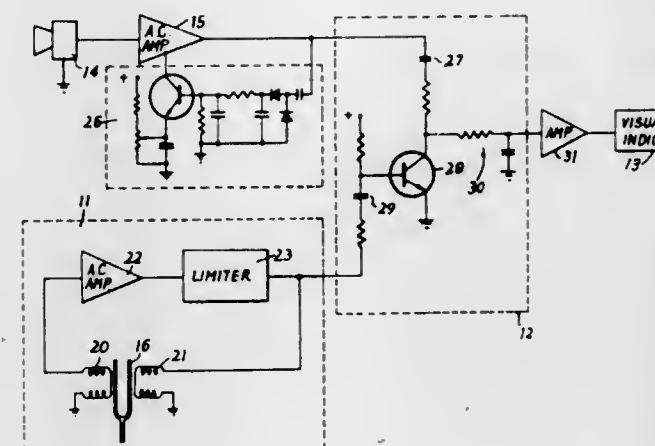
Filed Apr. 20, 1970, Ser. No. 29,849

Claims priority, application Great Britain, Apr. 22, 1969, 20,574/69

Int. Cl. G10g 7/02

U.S. Cl. 84—454

9 Claims



An apparatus for tuning a musical instrument comprising a generator of electric oscillations of reference frequency including an array of tuning forks which can be brought, in succession, into register with a driving coil for maintaining the adjacent tuning fork in oscillation. A pickup coil provides a signal dependent on vibrations of the said tuning fork. The signal is amplified by an amplifier and fed on the one hand to the driving coil and on the other hand to a frequency comparator with a "magic eye." A microphone, for picking up oscillations from a vibratory element of the musical instrument to be tuned, is connected through an amplifier to the frequency comparator.

3,631,757

NUT GUARD DEVICE

Leslie Parkin, Bobbers Mill, England, assignor to TRW Inc., Cleveland, Ohio

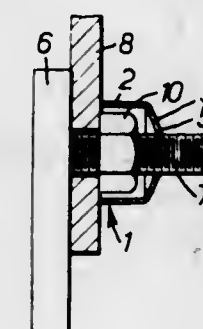
Filed Oct. 1, 1969, Ser. No. 862,852

Claims priority, application Great Britain, Oct. 3, 1968, 47,005/68

Int. Cl. F16b 37/02

U.S. Cl. 85—36

1 Claim



A guard for a nut assembly with a threaded bolt comprises a cup-shaped member which forms a shroud for the nut and is secured in assembly by the shank of the bolt being gripped by resilient tongues extending from the edge of an opening in the base of the cup.

3,631,758

PROCESS FOR GROOVING FLUID-BEARING BARS, AND RESULTING ARTICLES

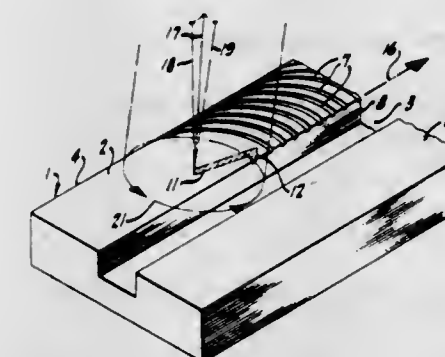
Cecil A. Laach, Jr., Los Altos, Calif., assignor to Industrial Modulator Systems Corporation, Cupertino, Calif.

Filed Aug. 22, 1969, Ser. No. 852,216

Int. Cl. B23c 3/32

U.S. Cl. 90—11 C

12 Claims



Process for forming a series of spaced, generally uniform, curved grooves of tapered configuration in a surface of a bar intended for use in a fluid-bearing track structure or the like, and the grooved bar which results from utilizing such process. Material is cut or ground from the bar surface by a rotary cutter or cylindrical grinder, the axis of rotation of which is set at compound angles and is inclined in the direction of movement of the bar and also in a direction transverse to such direction of movement. Each of the curved grooves progressively decreases in depth and width from one end thereof towards its other end to define a nozzle configuration. In the preferred embodiment illustrated, the bar being grooved is moved continuously beneath a continuously rotating cutter.

3,631,759

AUTOMATIC TRACER ASSEMBLY FOR COPYING MACHINE TOOLS

Otto Renner, Rorschacherberg/SG, Switzerland, assignor to Starrfrasmachinen A.G., St. Gallen, Switzerland

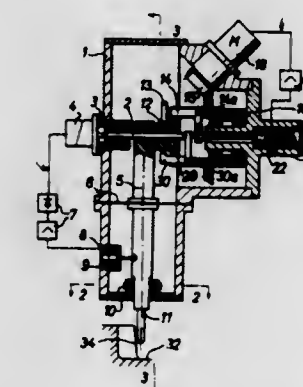
Filed Nov. 26, 1968, Ser. No. 778,946

Claims priority, application Switzerland, Nov. 27, 1967, 16620/67

Int. Cl. B23c 1/16

U.S. Cl. 90—62

9 Claims



The tracer assembly for copying machine tools comprises a tracer mounted intermediate its length in a housing by means of a diaphragm so as to be capable of oscillating in all directions and moving in axial direction, for tracing the pattern and controlling the feed movement of the machine tool. This tracer assembly comprises an automatic precontrol unit to impart to the tracer a contact pressure towards the pattern according to the direction of the contacting tangent between

the pattern and the tracer tip and situated in the copying line plane. A feeling member is provided which is responsive to tracer deflections occurring outside of the copying line plane, and which is coupled with a correcting element acting against the precontrol unit.

3,631,760

PNEUMATIC TORPEDO LAUNCHER WITH HYDRAULIC OPERATED SNUBBER

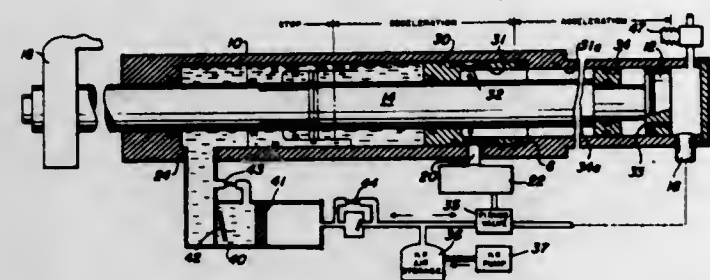
Stephen F. Moran, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 5, 1969, Ser. No. 882,566

Int. Cl. F15b 15/22; F01b 7/10

U.S. Cl. 91-402

6 Claims



Short power strokes of the ram of a catapult are obtained by high-pressure air, and the snubbing action for stopping and returning the ram is by high-pressure oil. An exhaust port in the cylinder and a floating sleeve valve marks the end of the power stroke and the beginning of the ram deceleration. Snubbing is against a cushion of oil placed end-to-end with a cushion of air. The system is closed so that no tell-tale air bubbles escape.

3,631,761

HYDRAULIC ACTION DEVICES WITH INERTIA INSENSITIVE SNUBBING CIRCUIT

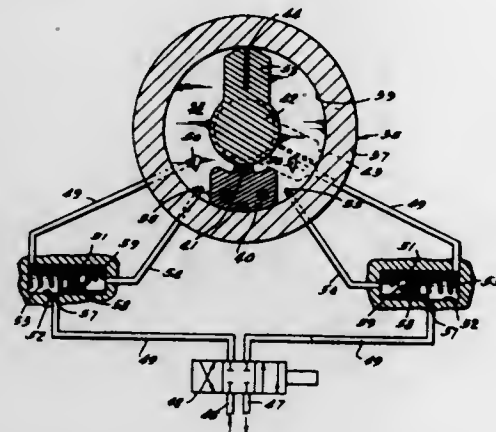
Rollin Douglas Rumsey, Buffalo, N.Y., assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Original application Sept. 18, 1967, Ser. No. 668,716, now Patent No. 3,419,114, dated Dec. 31, 1968, Continuation of application Ser. No. 523,426, Jan. 27, 1966, now abandoned. Divided and this application Aug. 29, 1968, Ser. No. 756,228

Int. Cl. F15b 15/22, 11/08, 13/042

U.S. Cl. 91-408

17 Claims



A hydraulic action device such as a buffer, actuator, and the like, comprises means defining a working chamber from which hydraulic fluid is arranged to be displaced through one or more passages by a member such as a wing shaft vane, and the like, operative under substantial load variables, and a valve is referenced directly to the working chamber independently of and in control of at least one of the passages for effecting a substantially uniform rate of deceleration of the member irrespective of load, force or inertia. Anticavitation valve means and speed control valve means may be provided.

3,631,762 MECHANISM FOR CONTROLLING A VEHICLE FROM A REMOTE LOCATION

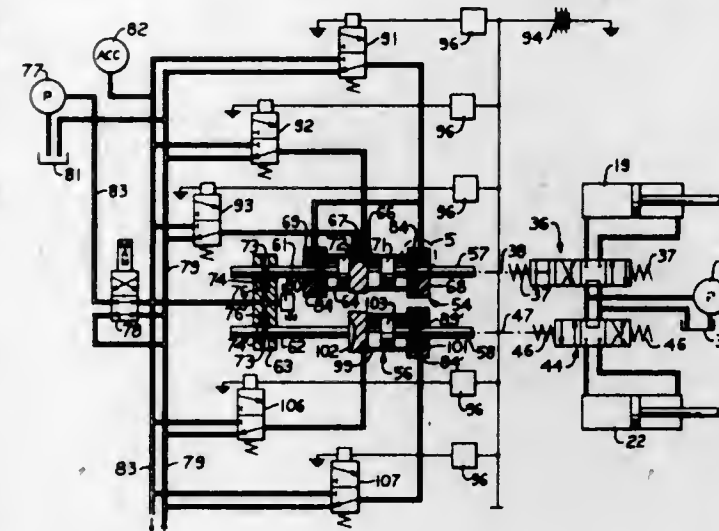
Joe E. Fuzzell, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 14, 1970, Ser. No. 71,764

Int. Cl. F15b 11/16

U.S. Cl. 91-411 R

7 Claims



Control linkages of a crawler tractor loader which are normally manipulated by an operator may be shifted by hydraulic jacks controlled by solenoid valves and electrical switches which respond to electrical signals received from a remote location by radio or a cable or the like. When the controls are manipulated by an operator on the vehicle, the jacks may move as necessary to avoid interference with the operator control. To provide for remote control, hydraulic means serve to clamp one end of the jacks whereby extension and retraction of the jacks necessarily operates the control linkages. To shift control linkages to any of a series of predetermined positions, certain jacks may have a compound construction with two pistons and have rods extending from each end. The pistons may be operated individually or jointly to achieve a variety of degrees of extension and contraction of the jack.

3,631,763

POWER TRANSMISSION

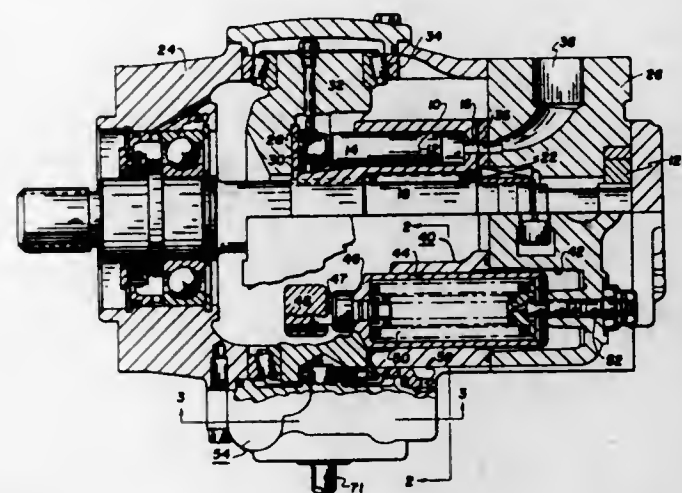
Kenneth Court, Detroit, Mich., assignor to Sperry Rand Corporation, Troy, Mich.

Filed Jan. 2, 1970, Ser. No. 173

Int. Cl. F01b 13/04; F04b 1/20

U.S. Cl. 91-506

8 Claims



A variable displacement fluid pump or motor has an oscillatable displacement-controlling member. A servomotor positions the member under the control of a rotary servo valve

on the axis of oscillation. The porting in the valve provides for greater than 90° travel of its input member while maintaining substantial hydraulic balance upon the movable valve members.

3,631,764

HYDRAULIC PUMPS OR MOTORS OF THE ROTATING BARREL-TYPE

Rene Lucien, Hauts De Seine, France, assignor to Meisner, Paris, France

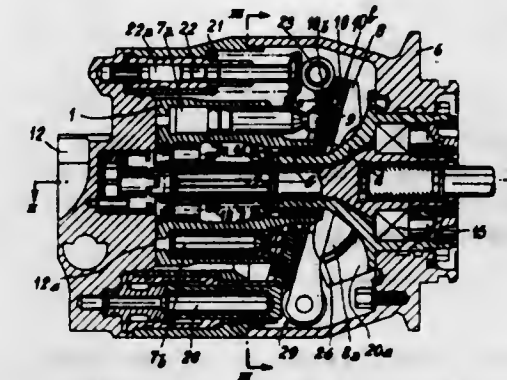
Filed Dec. 3, 1968, Ser. No. 780,699

Claims priority, application France, Dec. 4, 1967, 130,810

Int. Cl. F04b 1/12, 1/26

U.S. Cl. 91-506

1 Claim



A hydraulic pump or motor has a fixed cylindrical casing provided with a bottom having a slide face with first and second orifices formed therein. A barrel is supported in the casing for rotation about an axis and has cylinders with pistons sliding therein. The cylinders are alternately put into communication with the first and second orifices. The barrel is connected to a shaft for rotation therewith. A bearing is provided inside the barrel between the barrel and a support therefor. The bearing is of a small diameter and disposed at the point of application on the axis of said barrel of the resultant of shearing forces applied to said pistons so as to absorb these forces. The bearing is so constructed as to permit the barrel to effect slight angular movements with respect to said support and therefore with respect to the axis of rotation of said shaft. A plate is provided for reciprocally moving the pistons. The plate comprises two laterally spaced convex cylindrical portions having a common axis and a common diameter and arranged symmetrically with respect to the geometric axis of said shaft by which it is supported against two elements having a recess with a shape complementary to that having a recess with a shape complementary to that of said convex portion. These elements are rigidly fixed to said support and form an integral part thereof such that said plate can thereby pivot with respect to said support.

3,631,765

SINGLE-STAGE AND MULTISTAGE HYDRAULIC CYLINDERS, WITH PROTECTION AGAINST TWISTING

Otto Neumeister, Muhlacker 13a, D-7106 Neuenstadt am Kocher, (Baden Wurttemberg), Germany

Filed Feb. 13, 1970, Ser. No. 11,200

Claims priority, application Germany, Feb. 15, 1969, P 19 07 689.2

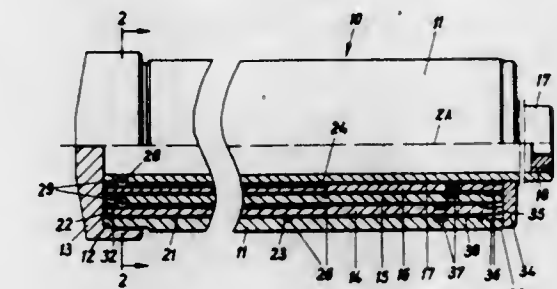
Int. Cl. F01b 7/20

U.S. Cl. 92-52

8 Claims

Relative rotation between the members of a multistage hydraulic unit comprising a cylinder member, a piston member and telescopic tube members interposed between the piston and cylinder is prevented by a ball or rounded projection on one element extending into a longitudinal groove of the next adjacent element. The grooves are of arcuate cross section with a depth less than the thickness of the

respective member, and extend from near the inner end of the member to a point spaced from the outer end. Outer end



portions of the member have smooth surfaces providing a fluidtight seal between them.

3,631,766

LINEAR HYDROMOTOR

Hillebrand Johannes Josephus Kraakman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

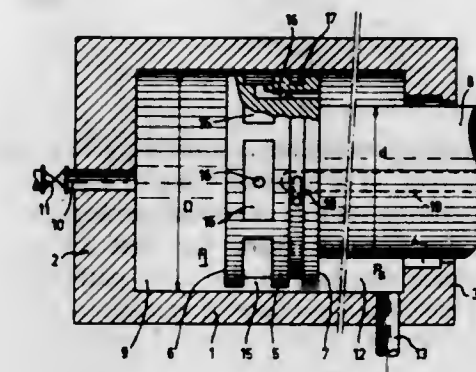
Filed Sept. 10, 1969, Ser. No. 856,626

Claims priority, application Netherlands, Sept. 18, 1968, 6813312

Int. Cl. F01b 31/00; F16j 1/00

U.S. Cl. 92-162

2 Claims



A linear hydromotor consisting of a cylinder closed by covers at both ends in which a piston having two flat surfaces and one cylindrical surface is linearly movable, the piston being provided on at least one flat side with a piston rod extending in the axial direction and passed through the cover situated on the relative side of the cylinder so as to be linearly movable and sealed. The flat surfaces are subjected to the influence of a medium under pressure, and at least three hydrostatic bearings and an annular groove open to the atmosphere are regularly distributed along the cylindrical surface of the piston.

3,631,767

ACTUATING CYLINDER

Ernst Meier, Frankfurt am Main, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

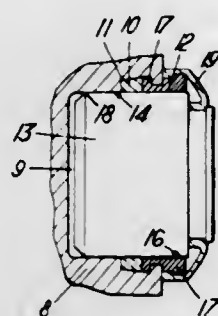
Filed Feb. 9, 1970, Ser. No. 9,864

Claims priority, application Germany, Feb. 17, 1969, P 19 07 873.0

Int. Cl. B60t 1/110; F16j 15/00

U.S. Cl. 92-165

6 Claims



A disc brake wheel cylinder in which the open end of the cylinder is protected by a wear- and corrosion-resistant insert in the form of a collar which is retained by a groove in the wall of the cylinder.

3,631,768

BAG-PROCESSING MACHINE

Josef Breidenbach, Bergisch Gladbach, Germany, assignor to Gebrüder Holler GmbH, Bergisch Gladbach, Germany

Filed Nov. 18, 1969, Ser. No. 877,627

Claims priority, application Germany, Nov. 19, 1968, P 18 09 659.8

Int. Cl. B31b 1/14, 19/14

U.S. Cl. 93-33 R

6 Claims



A bag-processing machine comprises a first arrangement for advancing bags in a predetermined path at a first speed past a first operating station. A second arrangement is spaced in direction downstream from the first arrangement and serves to advance the bags in the same path but at a higher second speed past a second operating station. Transfer means is arranged intermediate the first and second arrangements and receives the bags from the first arrangement at the first speed, engages them by suction and transfers them to the second arrangement at the aforementioned second speed.

3,631,769

CARDBOARD SETTING-UP MACHINE

Martin Hammerle, Mülheim/Baden, Germany, assignor to Rheinmetall GmbH, Düsseldorf-Nord, Germany

Filed June 26, 1970, Ser. No. 50,088

Claims priority, application Germany, July 11, 1969, P 19 35 243.3

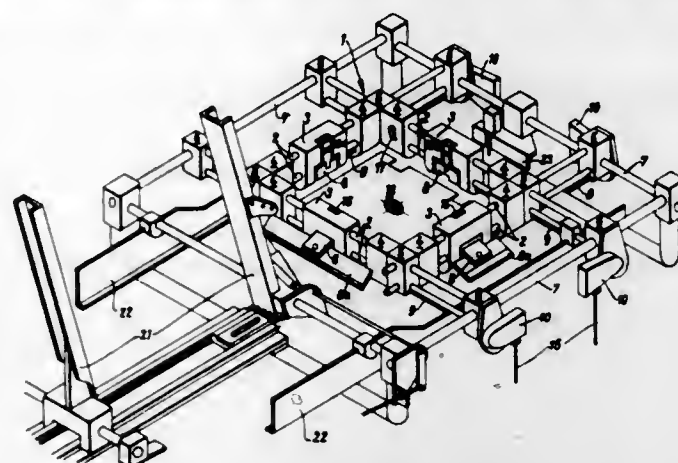
Int. Cl. B31b 1/44

U.S. Cl. 93-51 R

11 Claims

A device for setting up of flatly disposed cardboard blanks by insertion of the latter into a folding shaft by means of a stamp, whereby the folding means of the blank are engaged against the upright wall portions by means of swingable folding members, which comprises a folding shaft composed of

individual structural stones and an inner rod system comprising a plurality of rods. The individual structural stones are guided displaceably and securably on the rods. Carrying



stones grip the ends of the rods. An outer rod system disposed axis parallel to the inner rod system and includes carrying rods, and the carrying stones are in turn displaceable and securable on the carrying rods.

3,631,770

MACHINE FOR MAKING BAGS OF PAPER OR PLASTICS FILM AND WHICH IS EQUIPPED WITH A ROTARY DELIVERY CYLINDER

Friedrich Kratzert, Schlossberg via Rosenheim, and Hermann Rucker, Hülben via Urach, both of Germany, assignors to Windmoller & Holscher, Lengerich of Westphalia, Germany

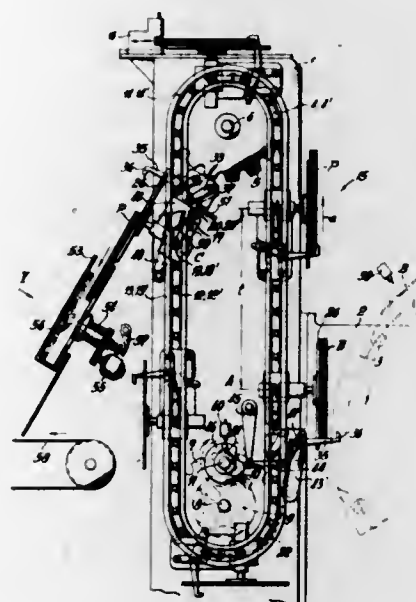
Filed Mar. 24, 1970, Ser. No. 22,160

Claims priority, application Germany, Mar. 28, 1969, P 19 16 130.9

Int. Cl. B65h 33/00

U.S. Cl. 93-93 DP

21 Claims



An apparatus adapted to receive a predetermined number of bags from a bagmaking machine equipped with a rotary delivery cylinder and to form a bag packet therefrom, the apparatus comprising a plurality of gripping means located on an endless conveyor, said gripping means movable from a first position adjacent said rotary delivery cylinder where a predetermined number of bags is gripped to a second position remote from the delivery cylinder where the gripping means together with the bags are transported to stapling and discharge stations by the intermittent movement of the conveyor.

3,631,771

STACKING AND WITHDRAWAL APPARATUS FOR BAGMAKING MACHINE

August Schwarzkopf, and Friedhelm Mundus, Lengerich of Westphalia, both of Germany, assignors to Windmoller & Holscher, Lengerich of Westphalia, Germany

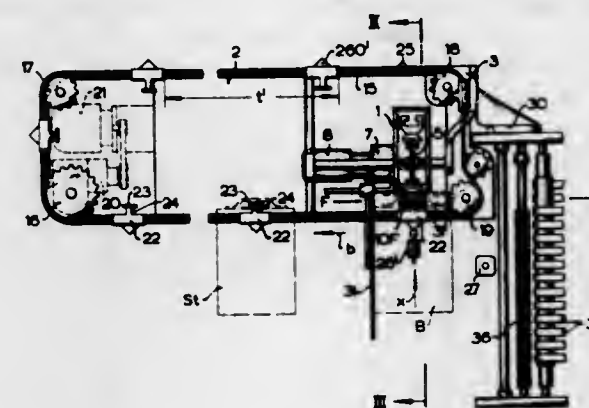
Filed Oct. 21, 1969, Ser. No. 868,022

Claims priority, application Germany, Oct. 28, 1968, P 18 05 724.4

Int. Cl. B65h 33/00

U.S. Cl. 93-93 DP

10 Claims



Stacking and withdrawal apparatus for a bagmaking machine for the delivery of carrier bags having handholes formed therein or welded-on handles by means of a plurality of conveyors provided with prongs having a cross section conforming to the shape of the handholes.

3,631,772

METHOD AND APPARATUS FOR CHARACTERIZING PHOTORESIST

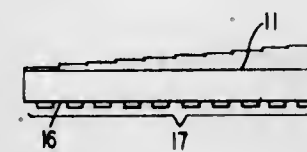
Robert K. Curran, Stirling, and Robert E. Kerwin, Westfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 9, 1969, Ser. No. 840,315

Int. Cl. G03b 43/00

U.S. Cl. 95-1

5 Claims



The margin for error in exposing photoresist during mask making is reduced by online use of a new test mask. The mask consists of a glass plate coated on one face with a gradient of deposited chromium. On the reverse face, in the direction of the gradient, a linear array of microtest patterns in chromium are deposited. Resolution capability and optimum exposure for a required resolution of circuit pattern and for a given batch of photoresist are determined by coating a sample wafer and exposing through the test mask.

3,631,773

UNIQUE IDENTIFICATION CARD CAMERA SYSTEM WITH LIGHT SEALED DATA CARD INSERTION ARRANGEMENT

Donald E. Moodie, Nashua, N.H., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 8, 1969, Ser. No. 864,630

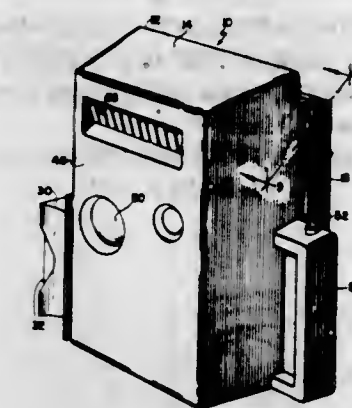
Int. Cl. G03b 17/24

U.S. Cl. 95-1.1

12 Claims

A camera system which employs a lens-shutter element to form an image of a subject positioned exteriorly of such

system on a sheet of photographic material, a lens element for forming an image of a data card insertable into such system on the same sheet of photographic material and an arrangement for limiting light rays intersecting a first selected section of such photographic material to those from the subject and for limiting light rays intersecting a second selected section of such material to those from the data card. A data



card container is removably insertable into the camera system and includes a portion extending exteriorly of the camera's housing having an elongated opening to facilitate the removable insertion of the data card into the camera. This container seats in a spring clip within the camera system and includes a light-sealing chamber adjacent its elongated opening.

3,631,774

PHOTOCOMPOSING APPARATUS WITH IMPROVED CHARACTER RECORDING APPARATUS AND METHODS

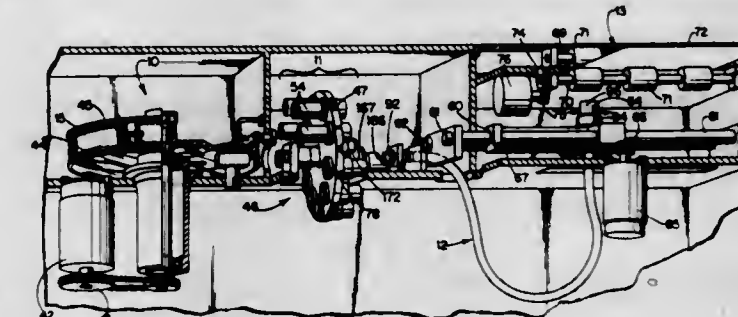
James A. Todd, Haverhill, Mass., assignor to Graphic Systems, Incorporated, Lowell, Mass.

Filed June 5, 1970, Ser. No. 43,764

Int. Cl. B41b 13/10

U.S. Cl. 95-4.5

4 Claims



A photocomposing machine is illustrated as comprising a character display station, an optical projection station, and a recording station which includes a coherent fiber optics bundle for transmitting the image formed at the output of the projection station to a photosensitive recording material. Image enhancing apparatus and methods are shown for substantially completely eliminating from the recorded characters any image degradation attributable to broken fibers or to fiber interstitial patterns. More particularly, the disclosed image enhancement is accomplished, in part, by a pair of light-dispersing prisms, one at the input to the fiber bundle and the other at the output therefrom. The first prism acts to disperse light from each object point across a number of fibers such that no fiber carries more than a fraction of the light energy constituting the object point. The second prism recombines the dispersed character images to form an achromatic character image. By the use of the prisms, any energy voids in the image at the bundle output due to broken fibers

or fiber interstitial patterns appear as low-energy streaks or patterns. A photosensitive recording material is exposed to the image to form a latent character image which is developed to high contrast to substantially completely eliminate any image defects attributable to such energy voids.

3,631,775

PHOTOCOMPOSING APPARATUS AND METHOD FOR VARYING CHARACTER MAGNIFICATION

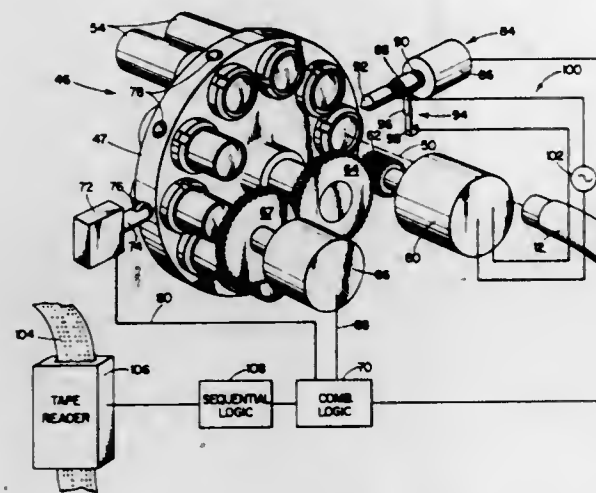
James A. Tidd, Haverhill, Mass., assignor to Graphic Systems Incorporated, Lowell, Mass.

Filed June 5, 1970, Ser. No. 43,765

Int. Cl. B41b 13/10

U.S. Cl. 95-4.5

11 Claims



This disclosure depicts apparatus and method for selectively varying character magnification during photocomposition. Photocomposing apparatus is shown as including means for displaying a character to be recorded and a plurality of lenses of different focal length mounted upon a rotatable lens turret. Novel turret indexing means is disclosed as comprising turret monitoring means for determining coarsely when a selected one of the lenses is approaching an axis along which the characters are projected, switch means actuated by cam means on the turret for determining when the selected lens is substantially on the projection axis, and extremely accurate turret locking means which is responsive to inputs from the turret-monitoring means and the switch means for locking the turret with the selected lens located precisely on the projection axis.

3,631,776

PHOTOGRAPHIC CAMERA HAVING BACKUP SYSTEM FOR AUTOMATIC FILM SPEED INSERTION

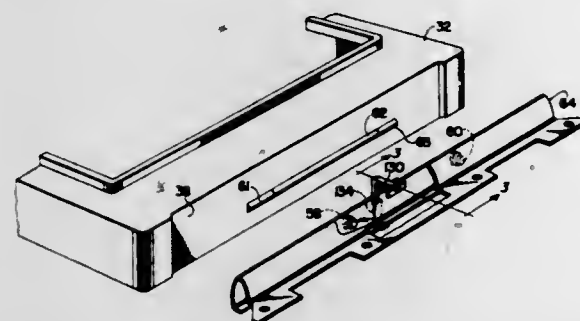
John P. Burgarella, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1970, Ser. No. 6

Int. Cl. G01j 1/00

U.S. Cl. 95-10 C

16 Claims



A photographic camera configured to receive a film cassette which supports either thermistors or resistors having re-

sistance values corresponding to film speed. This film speed is automatically inserted into an exposure control system with the insertion of the cassette into a camera. A backup arrangement is provided which inserts a standby resistor element into the system in the instance of an open circuit condition at the camera-cassette resistor unit interface.

3,631,777

AUTOMATIC CAMERA SHUTTER

Kunio Mita, Kita-Adachi-gun, Saitama-ken, Japan, assignor to Asahi Kogyo Kogyo Kabushiki Kaisha, Tokyo, Japan

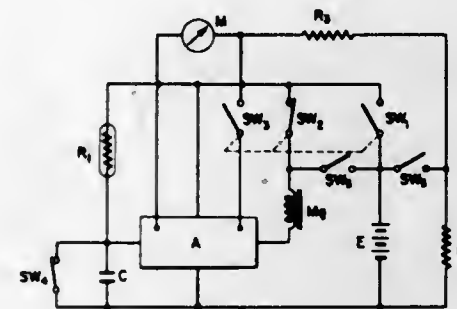
Filed July 24, 1969, Ser. No. 845,941

Claims priority, application Japan, July 30, 1968, 43/65243

Int. Cl. G03b 7/08

U.S. Cl. 95-10 CT

3 Claims



A light-controlled automatic camera shutter comprises a timing circuit including a series connected photoconductor and capacitor, a solid-state switch controlled by the capacitor charge and a network for measuring the photoconductor resistance including a meter for preindicating the exposure time. Normally open first and third and closed second switches are concurrently actuatable, the resistance measuring network being connected to a battery through the first switch, a shutter closure release solenoid being connected to the battery through the solid-state switch output and the first and second switches in series, and the third switch connecting the meter in the resistance measuring network. The first switch or a fourth switch is actuated by the initiation of the shutter opening to energize the solenoid solid-state switch network.

3,631,778

AUTOMATIC PHOTOGRAPHIC APPARATUS FOR A CAMERA

Joachim Von Albedyll, Augsburg; Karl Wagner, Ottobrunn, and Hans-Peter Huber, Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 28, 1969, Ser. No. 870,019

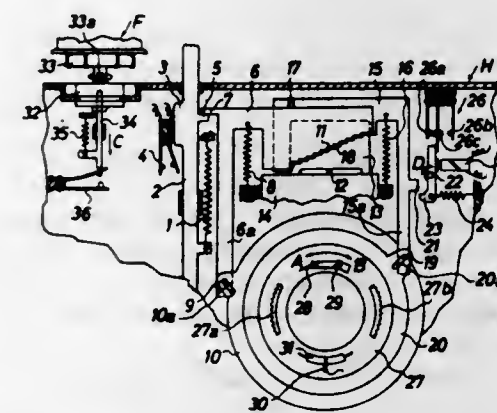
Claims priority, application Germany, Oct. 31, 1968, P 18 06

484.1

Int. Cl. G03b 7/08, 7/16

U.S. Cl. 95-10 CE

10 Claims



A photographic camera wherein the needle of the light meter is scanned to serve as a means for determining the

setting of the shutter and diaphragm units during operation in daylight. A resistor which is variable by the focusing member of the camera is connected in circuit with the light meter when the camera is used for operation in artificial light. The connection of the variable resistor into the light meter circuit, in addition to or as a substitute for a photosensitive receiver, can take place in response to attachment of a source of artificial light or automatically when the intensity of scene light is below a predetermined value.

3,631,779

ELECTRONIC FLASH DEVICE FOR A CAMERA

Kunihiko Hori, and Kense Okuno, both of Kawasaki-shi, Japan, assignors to Nippon Rogaku K.K., Tokyo, Japan

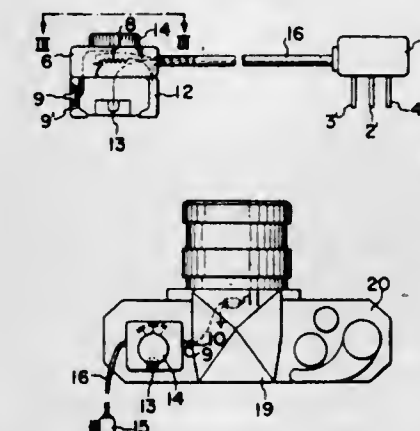
Filed July 16, 1969, Ser. No. 833,590

Claims priority, application Japan, June 24, 1968, 43/53474

Int. Cl. G03b 9/70

U.S. Cl. 95-11.5 R

1 Claim



A lamp device for indicating the completion of the charge in an electronic flash lamp unit having a synchro circuit connectable to a synchro-contact circuit in a camera. The device consists of a cable for picking up a voltage applied to both poles of the flash tube, through terminals thereof which are provided at the side of the electronic flash lamp unit. The indicating lamp may be built into an indicating lamp adapter or the camera body, for example, the view finder. A voltage adjusting device is provided between the indicating lamp and the terminals in such a manner that the adjusting device is connected to at least one terminal of the synchro circuit of the flash unit.

3,631,780

LATCH MECHANISM FOR A FOLDING CAMERA

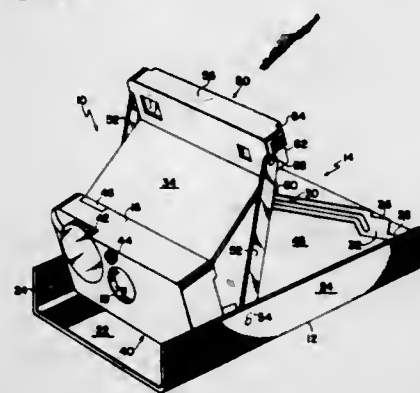
Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 28, 1969, Ser. No. 845,130

Int. Cl. G03b 19/02

U.S. Cl. 95-11 R

8 Claims



A folding camera including first and second members pivotally coupled to each other for movement between extended and folded positions and an erecting system for guiding such movement. The erecting system includes a pair of links and a rangefinder-viewfinder mounted near one end of each of the links. The rangefinder-viewfinder is provided

with a locking mechanism for cooperating with structure on one of the aforementioned members to lock the members and erecting system against relative movement when the camera is in the folded position.

3,631,781

AUTOMATIC PHOTOGRAPHING APPARATUS

Arnold Reginal Kennington, and Arthur Ernest Smith, both of 5 Bolton Road, London W.4, England

Filed Feb. 20, 1969, Ser. No. 805,959

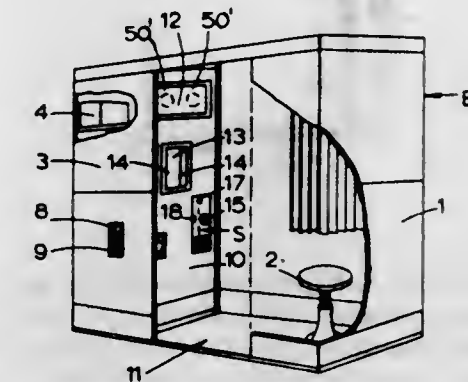
Claims priority, application Great Britain, Feb. 21, 1968,

8,387/68

Int. Cl. G03b 17/50

U.S. Cl. 95-14

8 Claims



An automatic photographic apparatus includes a booth having an operating compartment and a compartment in which a subject to be photographed can be positioned, and a viewing panel between the two compartments. A camera unit is arranged in the operating compartment and includes two cameras, the unit being slideable in a linear path to place either of the cameras in an operative position adjacent the viewing panel so that a photograph can be taken through the panel. A rotatable shaft extends from the unit. A linear track extends in a plane at right angles to the path of the unit with a guide roller arranged to run in the track, and there is a link between the roller and shaft. Rotation of the shaft causes the unit to slide in its path. That camera is operated which is positioned adjacent the viewing panel.

3,631,782

FILM CARTRIDGE HAVING A LENS APERTURE STOP

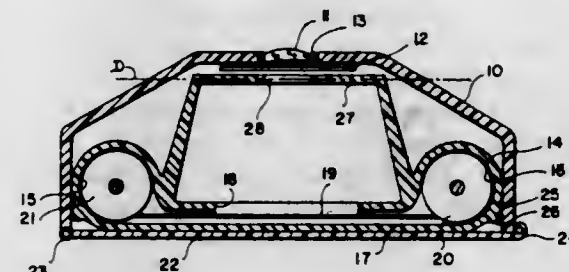
John H. Eagle, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 5, 1968, Ser. No. 781,364

Int. Cl. G03b 17/26, 7/00

U.S. Cl. 95-31 CA

7 Claims



A film cartridge provided with means defining an aperture stop for determining the exposure aperture of cameras in which the cartridge is adapted for use. Cartridges according to the invention are of particular utility in cameras of the type having a fixed exposure aperture and a single shutter speed for reducing the effective size of the exposure aperture of the camera in accordance with the speed of the film contained in the cartridge.

3,631,783

CASSETTE CAMERA

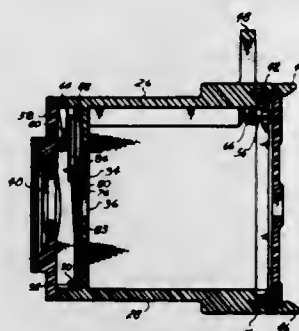
Richard B. Jones, Highland, Calif., assignor to Perfect Film & Chemical Corporation, New York, N.Y.

Filed Jan. 28, 1969, Ser. No. 794,722

Int. Cl. G03b 19/04

U.S. Cl. 95—31 FL

2 Claims



A camera for use with film cassettes having an open-ended body adapted to releasably hold and be light sealed by a conventional film cassette is provided. The camera includes a winding knob secured to the body to permit manual advancement of the film in said cassette, a unique slidable two-blade lever operated shutter mechanism disposed in the body for selective exposure of each film frame, and a film frame positioning pin disposed in said body and adapted to successively engage a series of sprocket holes on the film corresponding to each frame to meter the film as it is advanced from frame to frame. The pin permits movement of the film only upon actuation of the shutter mechanism.

3,631,784

REFLEX CAMERA HAVING A PRISMATIC VIEWFINDER AND PHOTOELECTRIC EXPOSURE METER

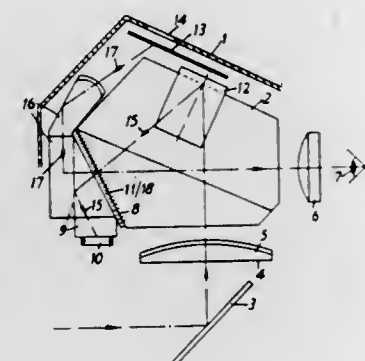
Rolf Jurenz, Dresden, Germany, assignor to Kombinat Veb Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany

Filed Feb. 14, 1969, Ser. No. 799,256

Int. Cl. G03b 19/12

U.S. Cl. 95—42

4 Claims



A reflex camera has a prismatic viewfinder, a photoelectric exposure meter and two light guides. The light guides are positioned together on one surface of the viewfinder prism. The first light guide directs light from the viewfinder onto the photoconductive cell of the exposure meter. The second light guide directs light from the direction of the exposure measuring indicator of the exposure meter through the viewfinder.

3,631,785

AUTOMATIC FOCUSING DEVICE

David E. Perlman, and Daniel F. Wiktorak, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

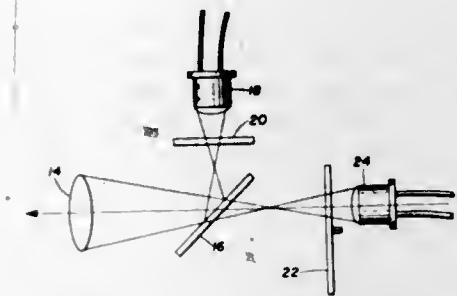
Continuation of application Ser. No. 786,024, Dec. 23, 1968.

This application July 30, 1970, Ser. No. 64,113

Int. Cl. G03b 3/00

U.S. Cl. 95—44

11 Claims



This disclosure relates to an automatic focusing device for use in a photographic camera having a lens system movable in predetermined incremental displacements between near and hyperfocal positions in relation to a subject to be photographed. The light reflected from a preselected area on the subject is divided into two light paths, one unmodulated and the other modulated at a predetermined frequency by a rotating reticle serving as a filter to convert spatial into temporal frequencies. Provision is made for subtracting the intelligence in the two light paths to eliminate the large steady-state light component reflected from the subject, and the small modulation resulting from the relative displacement between the successive focused image of the subject and the rotating reticle is utilized to detect a null signal when the subject is in focus for the purpose of arresting displacement of the lens system.

3,631,786

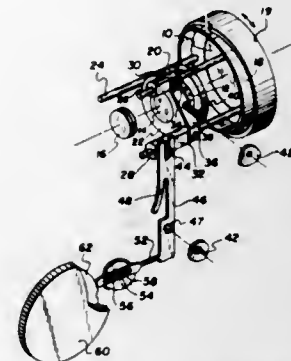
ADJUSTING MECHANISM FOR ZOOM LENS SYSTEM
Arthur H. Crapsey, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 23, 1970, Ser. No. 57,661

Int. Cl. G03b 3/00

U.S. Cl. 95—45

9 Claims



A motion picture camera includes a taking lens system having a zooming component and a compensating component which are movable in opposite linear directions for varying the magnification of the system. These components are carried by lens mounts attached to sleeves slidably mounted on rods. Each sleeve carries a pin which is inserted in slots in opposite ends of a linking lever. That lever is pivoted in a camera housing about a point intermediate its ends. One of the sleeves is also attached to the end of a second lever by a pin-in-slot arrangement. The second lever

is pivotally mounted in the housing intermediate its ends, and the other end of the second lever is flexibly attached to a slide which is linearly movable along a path perpendicular to the axis of rotation of the second lever and spaced therefrom. A manually operable zooming knob is connected to the slide via a cam, whereby rotation of the zooming knob moves the slide and thereby the zooming elements. The knob is rotatable through 360°, and detents are provided in the cam surface to indicate maximum wide angle and maximum telephoto positions.

3,631,787

DIAPHRAGM SETTING DEVICE FOR DIAPHRAGM BLADES

Terushige Shimizu, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

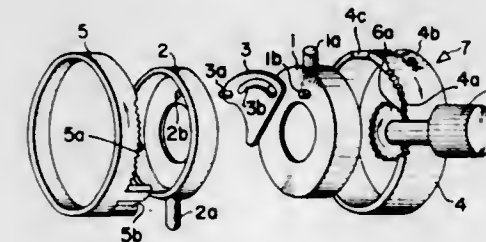
Filed Sept. 19, 1969, Ser. No. 859,367

Claims priority, application Japan, Sept. 24, 1968, 43/82759

Int. Cl. G03b 9/02

U.S. Cl. 95—64 R

4 Claims



A device for positioning the blades of an optical diaphragm by pivotally connecting each diaphragm blade to a first rotating ring and slidably connecting each diaphragm blade to a second rotating ring by means of a cam groove in the diaphragm blade. Mutually opposed rotation of the first and second rotating rings pivots each diaphragm blade to provide the desired setting for the diaphragm aperture.

3,631,788

SUPPLY AIR DEVICE FOR INJECTION OF PERFEBLY COLD VENTILATION AIR

Birger Larkfeldt, Barnarp/Jonkoping, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden

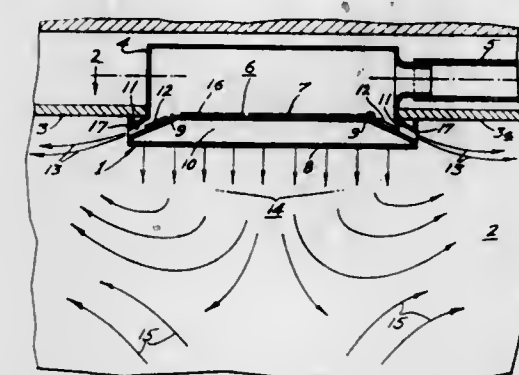
Filed Mar. 18, 1970, Ser. No. 20,745

Claims priority, application Sweden, Mar. 19, 1969, 3849/69

Int. Cl. F24f 13/06

U.S. Cl. 98—40 D

6 Claims



An air supply device adapted to be mounted in a hung ceiling for injecting cold air from a duct extending parallel to the ceiling surface above the hung ceiling. The device consists of a pressure box having an air distribution chamber in its bottom formed between a pair of perforated plates which operate to distribute the air vertically downward and eliminate any horizontal component generated in the duct. To avoid the fouling of the ceiling surface surrounding the

distribution chamber by the dirty secondary room air, airflow gaps are provided surrounding the distribution chamber to inject air streams substantially parallel to the ceiling surface radiating outwardly from the distribution chamber. Airflow-regulating means are provided in each gap and in the distribution chamber to insure mixture of the air with secondary room air so as to avoid the draughts normally experienced from cold air inlet grilles.

3,631,789

METAL CHIMNEY WITH CERAMIC LINING

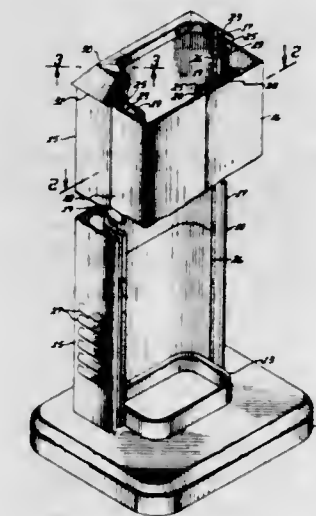
Lewis R. Kinsey, 108 South 25th St., Phoenix, Ariz.

Filed Sept. 28, 1970, Ser. No. 76,098

Int. Cl. E04f 17/02; F23f 17/02

U.S. Cl. 98—58

5 Claims



This invention is directed to extruded structural members snapped together to form a metallic chimney for surrounding a ceramic tile lining. The metallic chimney comprises two pairs of extruded members wherein each pair is identical in configuration. Each member has an turned flange at one side extending along its full length which is turned back on itself to form an open ended slot extending outwardly of the member. A protuberance is arranged within the slot for engaging with a catch. The opposite side of each member is provided with a catch for engaging with the protuberance of an adjacent member. The members are alternately positioned to form a column with the catch at one side of each member engaging with the protuberance in the slot of the side of an adjacent member.

3,631,790

AUTOMATIC CLOSING LOUVER

Robert W. Olsen, Chatham Borough; David P. Rodgers, Summit, both of N.J., and George A. Viehmann, deceased, late of New Providence, N.J. (by said Camille V. LaPalme and George A. Viehmann, Jr., coexecutors), assignors to Construction Specialties, Inc., Cranford, N.J.

Filed Sept. 23, 1969, Ser. No. 860,200

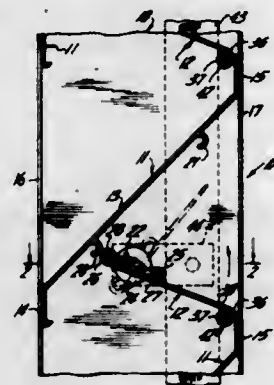
Int. Cl. F24f 13/06

U.S. Cl. 98—110

11 Claims

A compact louver assembly including fixed blades inclined in the direction of air movement and movable blades pivotally supported at their opposite ends intermediate the fixed blades. The movable blades are swung from a normal, closed position either by the movement of air against the blades or by other applied actuating forces. The movable blades are interconnected for simultaneous pivotal movement, and each pivots about an axis intermediate its central longitudinal axis and one edge of the blade. The members interconnecting the movable blades may be biased to maintain

the louver closed until the movable blades are swung open by the movement of air against them. When closed, the movable



parts of the assembly extend no farther forward or rearward than would the parts of a normal fixed louver assembly.

3,631,791

FOUNDRY MOLD VENTILATION SYSTEM

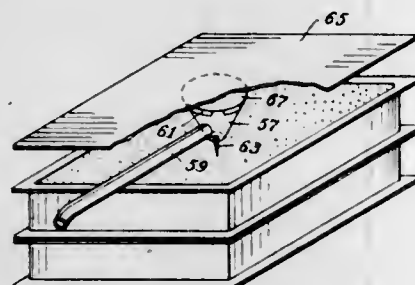
Robert A. Harris, Hoboken, and Spencer Harris, Kinnelon, both of N.J., assignors to Harris-Muff, Inc.

Filed Apr. 23, 1969, Ser. No. 818,723

Int. Cl. F23j 11/08; B22d 45/00

U.S. Cl. 98—115 R

3 Claims



A technique for removing steam, smoke and fumes given off by a foundry mold during cooling of poured metal wherein each mold within a foundry is individually vented through either a vacuum hose connection with an exhaust system permanently built into the foundry or by an individual mold self-contained collection device. Several specific devices are disclosed which capture the fumes and smoke immediately above and around the mold.

3,631,792

SONIC INTERNAL COMBUSTION ENGINE EXHAUST AFTERBURNER

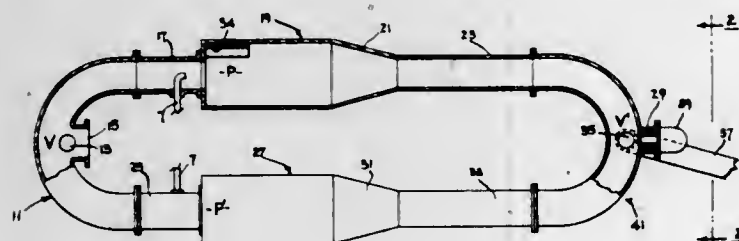
Albert G. Bodine, 7877 Woodley Avenue, Van Nuys, Calif.

Filed June 15, 1970, Ser. No. 46,107

Int. Cl. F02b 75/10; F01n 7/10

U.S. Cl. 60—30 R

7 Claims



An internal combustion engine exhaust afterburner utilizes a valveless catalytic combustor in which acoustic resonant

combustion is maintained, using the exhaust effluents of the engine. The sound wave action aids in keeping the catalytic surfaces clean by scrubbing action, the catalyst aiding in maintaining a resonant combustion.

3,631,793

VESSEL INSERT FOR THE PREPARATION OF BEVERAGES

Hugo Bednartz, Deichstr. 26, 295 Leer, Germany

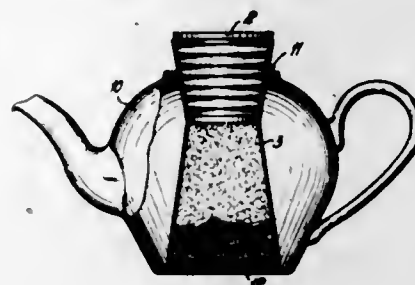
Filed June 23, 1969, Ser. No. 835,375

Claims priority, application Germany, June 21, 1968, P 17 78 935.4

Int. Cl. A47j 31/18

U.S. Cl. 99—295

10 Claims



An insert for the infusion and filtering of beverages having residual matter such as coffee and tea, consisting of a retaining unit which is capable of being seated in the top portion of the vessel, and a disposable insert for placement into the retaining unit. The disposable insert is constructed from fleece paper for containing tea leaves or coffee grounds while in contact with the solution within the vessel.

3,631,794

APPARATUS FOR CONDENSING AND SQUEEZING A MEDIUM

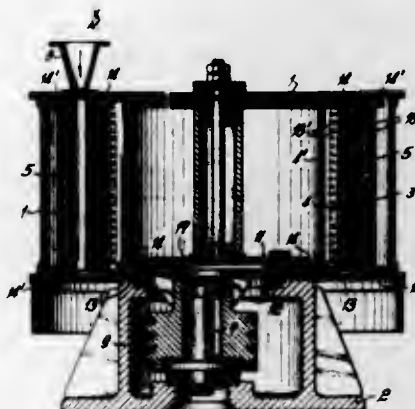
Albert Wehner, Haus 35, 7881 Wieladingen, Germany

Filed Apr. 22, 1970, Ser. No. 30,802

Int. Cl. B30b 9/20

U.S. Cl. 100—121

6 Claims



Apparatus for separating solids from gaseous or liquid substances which comprises two open-ended cylindrical drums mounted within a casing. The drums are eccentrically arranged one within the other, and the inner drum rotates on a shaft mounted on the casing. In the chamber between the drums is a belt, which is resiliently deformable and has a series of open-ended chambers that are recurrently constricted and expanded, substances being introduced in the expanded state and discharged in the constricted state. The outer drum is rotated by power means and the inner drum is operatively connected to the outer drum to be driven thereby.

3,631,795

PRESSURE PLATE WITH CONTROLLED ALLOWABLE TILT

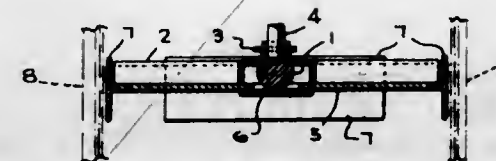
John H. Maxwell, Montreal, Quebec, Canada, assignor to J. H. Maxwell Mfg. Inc., Pierre, Quebec, Canada

Filed July 6, 1970, Ser. No. 52,187

Int. Cl. B30b 15/06

U.S. Cl. 100—240

5 Claims



The pressure plate with controlled allowable tilt is used to compact waste material, in order to reduce it in volume within the confines of a container. The pressure plate pivots on a ball, the neck of which is attached to the rod of the pressure cylinder, and with further control provided by the tilt plates attached to the edges of the pressure plate, the angle of tilt will put no undue stresses on the cylinder rod pressure plate or the container inside which it travels.

3,631,796

SELECTIVE VACUUM BLOCKOUT MEANS ON WORK SUPPORT TABLES IN SILK SCREEN APPARATUS

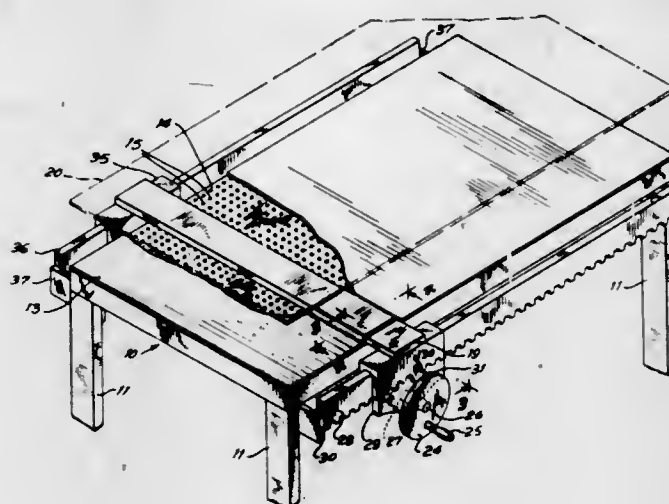
Patrick Hastings, Merrick, N.Y., assignor to Audrey J. Hastings, Merrick, N.Y.

Filed Aug. 29, 1969, Ser. No. 854,228

Int. Cl. B41f 15/20

U.S. Cl. 101—126

3 Claims



A silk screen printing apparatus which consists of a worktable provided with a plurality of holes which are connected to a source of vacuum for holding down a flexible workpiece. Spanning across the worktable is a vacuum blockout consisting of a flat slider which selectively covers over portions of the vacuum bed underneath the workpiece, so that the workpiece will be slightly raised in elevation underneath the slider due to the release in vacuum on that portion of the workpiece, and the thickness of the slider. A silk screen can then be lowered over the worktable and will contact only that portion elevated by the vacuum blockout slider.

3,631,797

HAMMER FOR HIGH-SPEED PRINTER

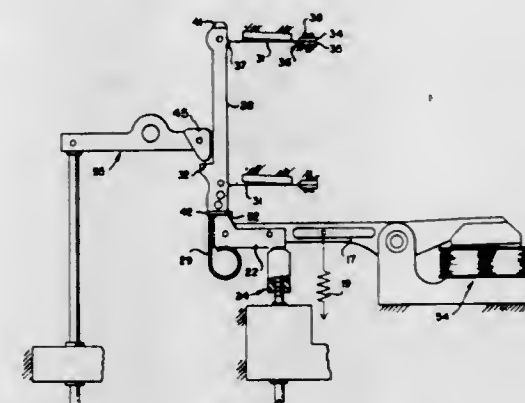
Lynn M. Johnston, West Milton; Chester G. Jones, Kettering; Frederick G. Krebs; Stephen D. Marcey; Harold D. Neal, all of Dayton, all of Ohio, and Samuel A. Redman, Garden City, N.Y., assignors to The National Cash Register Company, Dayton, Ohio

Filed Oct. 6, 1969, Ser. No. 863,780

Int. Cl. B41j 9/20; B21p 17/00

U.S. Cl. 101—93 C

13 Claims



A resilient nonmetallic printer hammer made of composite material and having relatively large size and small mass is disclosed. The hammer employs a frontal insert member for printing contact and a rearward insert for energy dissipation and driving. An attached spring assists in hammer retraction and in frictional dissipation against a mating member at the rearward face.

3,631,798

PNEUMATIC DOCTORING OF SOLID INK PARTICLES FROM INTAGLIO PLATE

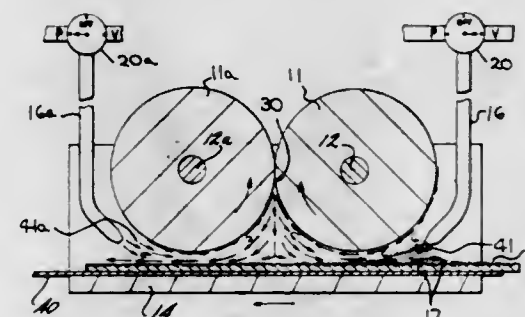
Douglas F. St. John, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Continuation-in-part of application Ser. No. 663,581, Aug. 28, 1967, now abandoned. This application Apr. 23, 1970, Ser. No. 31,395

Int. Cl. B41f 9/08

U.S. Cl. 101—167

11 Claims



An apparatus and method for pneumatically doctoring excess particulate printing materials from a gravure printing element by utilizing a flowing boundary layer as an air knife.

ERRATUM

For Class 99—450.7 see:
Patent No. 3,631,818

3,631,799

RUBBER STAMPER WITH INTERCHANGEABLE PRINTING BLOCKS

Takaji Funahashi, No. 1, 2-Chome, Kitatako-machi, Nishi-ku, Nagoya-shi, Aichi-ken, Japan

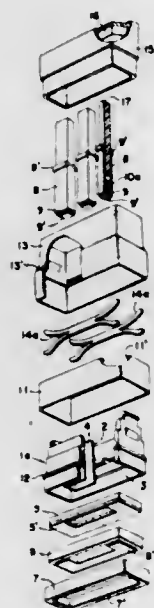
Filed Mar. 3, 1969, Ser. No. 803,613

Claims priority, application Japan, Mar. 1, 1968, 43/15842

Int. Cl. B41k 1/08, 1/50

U.S. Cl. 101-327

1 Claim



This invention provides a rubber stamper in which a type block or blocks requiring frequent replacement is positioned removably within another type block or blocks infrequently replaced thereby permitting continuous stamping operation providing consistently clear marks without requiring external ink pad.

3,631,800

INK SYSTEM FOR PRINTING MACHINES

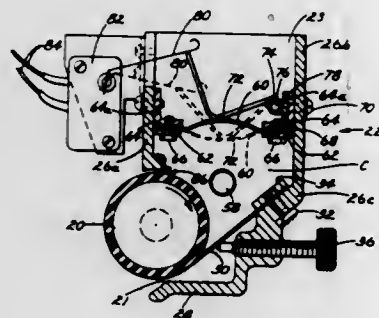
Albert E. Mignone, Shaker Heights; Donald J. Miller, Lakewood, and Raymond J. Schmidlin, Lydhurst, all of Ohio, assignors to Addressograph Multigraph Corporation, Cleveland, Ohio

Filed July 30, 1968, Ser. No. 748,709

Int. Cl. B41f 31/06

U.S. Cl. 101-350

8 Claims



An ink system is provided wherein ink is pumped from a container to an enclosed ink fountain, thereby eliminating exposure of the ink to the atmosphere. A flexible diaphragm constitutes a cover for the ink fountain. In its retracted and distended positions the diaphragm, by electrical means, controls the starting and stopping of the pump to assure an adequate supply of ink in the fountain and automatic replenishing of the ink used.

3,631,801

CLAMP ASSEMBLY FOR SKEWING AND SECURING A PRINTING PLATE

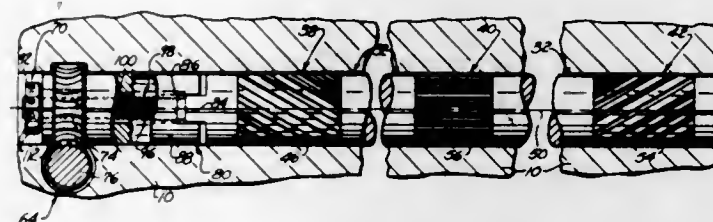
Hans J. Luehrs, Westerly, R.I., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed Sept. 25, 1969, Ser. No. 860,899

Int. Cl. B41f 27/10

U.S. Cl. 101-378

16 Claims



An improved clamp assembly for securing a printing plate to a cylinder of a printing press includes a rotatable shaft having teeth which meshingly engage corresponding teeth on plate clamp members. The teeth on the shaft are angled in opposite directions relative to a longitudinal axis of the shaft. Therefore, when the shaft is moved axially, a camming action occurs between the teeth on the shaft and the teeth on the clamp members. This camming action moves the clamp members in opposite directions to skew the printing plate relative to the cylinder. When the shaft is rotated, the clamp members are moved in the same direction to advance or retard the plate relative to the cylinder.

3,631,802

DETONATOR COMPRISING N-NITRO-N-METHYLGLUCAMINE PENTANITRATE

Joseph W. Lawrence, Lexington, Ohio, assignor to Atlas Chemical Industries, Inc., Wilmington, Del.

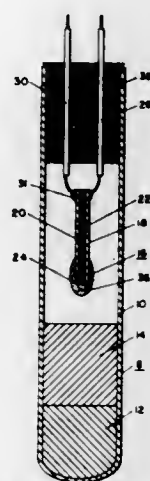
Original application Oct. 17, 1967, Ser. No. 675,860, now Patent No. 3,491,140, dated Jan. 20, 1970. Divided and this

application June 11, 1969, Ser. No. 862,544

Int. Cl. F42c 11/00

U.S. Cl. 102-28 M

8 Claims



A method is disclosed for preparing new N-nitro-N-lower alkyl glucamine pentanitrate. These new compounds possess explosive characteristics similar to pentaerythritol tetranitrate (PETN) and may be similarly employed in explosive devices such as primers, boosters and explosive initiators.

3,631,803

EJECTOR SENSOR FUZE

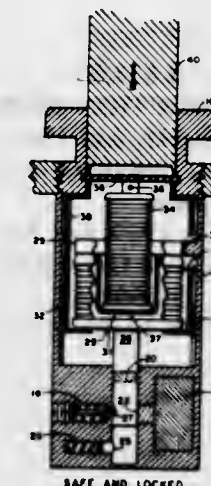
Edward J. Davis, Riverside, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Apr. 24, 1968, Ser. No. 725,266

Int. Cl. F42c 5/00, 15/00, 15/28

U.S. Cl. 102-70 R

1 Claim



A pneumatically operated fuze utilizing the force of the missile ejection position to break the hermetic seal and unlock the arming mechanism. The hermetic seal is a membrane covering the housing in which the fuze is mounted. The locking means are brackets which are straightened by the downward movement of the ejection piston. A bellows is then exposed to the dynamic pressure and expands causing the arming mechanism to arm.

3,631,804

OMNIDIRECTIONAL SPRING MASS INITIATOR (U)

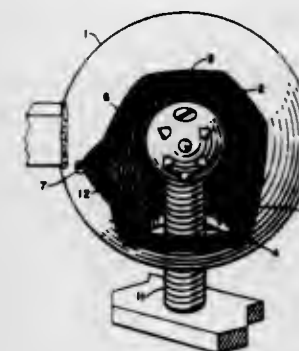
Matthew E. Anderson, Ontario, and Edward J. Davis, Riverside, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Aug. 20, 1968, Ser. No. 754,166

Int. Cl. F42c 1/00

U.S. Cl. 102-73

4 Claims



An omnidirectional spring mass initiator system for use in a weapon system responsive to any direction of weapon-target impact comprising a chamber of any geometric shape, said chamber having at least one opening into said chamber; a flexible support means having a secured end and another end which is operatively positioned for insertion into the chamber through said at least one opening; and an accelerometer mass-contacting means attached to said other end of the support means. The contacting means is responsive to deceleration and, when inserted into the chamber, positioned in the center, thereof, so as to be capable of con-

3,631,805

AMUSEMENT DEVICE

Anton Schwarzkopf, Munsterhausen/Schwaben, Germany, assignor to Firma Anton Schwarzkopf Stahl- und Fahrzeugbau, Munsterhausen (Schwaben), Germany

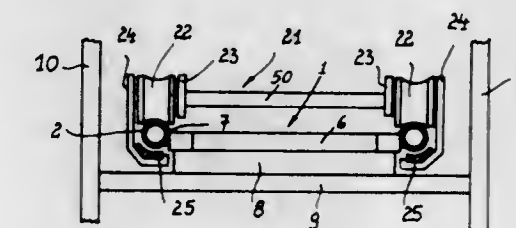
Filed Mar. 7, 1969, Ser. No. 805,221

Claims priority, application Germany, July 30, 1968, P 17 03 916.6

Int. Cl. A63g 21/04

U.S. Cl. 104-63

14 Claims



A roller coaster with a figure-8-shaped track section has a hoisting section on one side of a loop enveloping the figure 8, followed by a descending section extending over the entire opposite side of that loop from the highest to the lowest track level passing around the end of the loop at a tilt angle 80°, thereupon continuing upwardly beneath the hoisting section to the other end of the loop; there follow two intersecting, undulating S-curves, defining the figure-8 portion of the track, and finally a convoluted home stretch. The track is formed by parallel tubular rails interconnected in their axial plane by transverse and diagonal struts elevated above the bed of a supporting trestle by pedestals providing clearance for brake member which are suspended from the outer ends of the wheel axles of the carriages externally of the rails and pass around the latter to their undersides.

3,631,806

CONVEYOR SYSTEM FOR THE INDIVIDUAL TRANSPORT OF VARIOUS OBJECTSMaurice Barthalon, 78 avenue Henri Martin (XVI^e), Paris, France

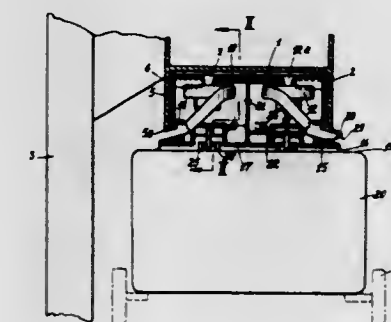
Filed Feb. 24, 1969, Ser. No. 801,726

Claims priority, application France, Mar. 8, 1968, 142921

Int. Cl. B60v 1/02, 3/04; B61b 13/08

U.S. Cl. 104-89

56 Claims



A conveyor system comprising a track and a row of transporter elements movable along this track and guided by it,

each of these movable transporter elements comprising means of guidance with respect to the track and a device permitting a detachable connection with an object to be transported. Each transporter element is mounted to slide along the track, it comprises means cooperating with other means carried by the track to ensure the support by relative attraction to the latter. The device for detachable connection between the transporter element and the object comprises means ensuring a mutual attraction between them.

3,631,807

ELEVATED RAILWAY SYSTEM

Eusebio Cortes Cherto, Paseo de Gracia No. 71, Barcelona, Spain

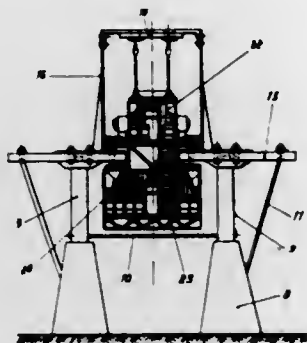
Filed Nov. 17, 1969, Ser. No. 877,331

Claims priority, application Spain, Nov. 15, 1968, 360313

Int. Cl. B61b 3/02; B61d 13/02; E01b 25/22

U.S. Cl. 104-89

6 Claims



An elevated railway system having a pair of horizontally spaced rails disposed a substantial distance above the ground, and a rail vehicle rollingly supported on the rails. The rail vehicle is divided into upper and lower compartments, with at least a major portion of the upper compartment being above the rails and at least a major portion of the lower compartment being disposed below the rails. The drive wheels which support the vehicle on the rails are preferably provided with opposed frustoconical shapes which mate with corresponding beveled surfaces provided on the rails. The drive wheels are disposed adjacent the floor which divides the vehicle into its upper and lower compartments, and are preferably driven by electric motors disposed within the upper compartment.

3,631,808

LINEAR MOTOR POWERED RAILWAY

Gaston Moyse, La Courneuve, France, assignor to Moyse S. A., La Courneuve, France

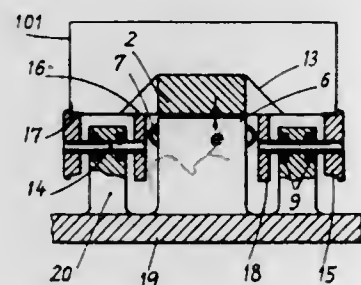
Filed Dec. 26, 1968, Ser. No. 787,006

Claims priority, application France, Jan. 9, 1968, 135266

Int. Cl. B60l 13/00; B61b 13/00; B61c 9/38

U.S. Cl. 104-148 LM

3 Claims



An improvement in fixed flat-inductor linear induction motors for propelling railway vehicles or like movable bodies along an established route comprising an armature fixedly

mounted on said vehicle and a flat inductor extending along the route and rigid with support means. Runway means and carrier wheel means are mounted between the support means and the vehicle. The carrier wheels are mounted on a common axle and include, on each side of the vehicle, a main wheel and an auxiliary roller rotatably rigid with each other. The auxiliary rollers are mounted in the vicinity of the motor armature and coact with an additional runway to compensate, when rolling, for the magnetic attraction exerted by the inductor on the armature.

3,631,809

LINEAR INDUCTION MOTOR RAIL

Albert Benjamin John Reece, and Harry Rodney Heap, both of Stafford, England, assignors to Tracked Hovercraft Limited, London, England

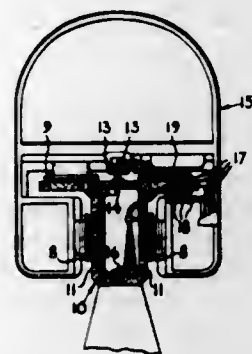
Filed June 13, 1969, Ser. No. 833,023

Claims priority, application Great Britain, June 26, 1968, 30,593/68

Int. Cl. B10l 13/00; E01b 25/00

U.S. Cl. 104-148 LM

5 Claims



A rail for a linear induction motor is formed of nonmagnetic manganese steel alloy which is found to satisfy the requirements for a good linear motor rail. In particular it has a sufficient resistivity to produce a high starting thrust and is hard enough for the application of friction brakes. The rail is shown used for a high-speed tracked air cushion vehicle.

3,631,810

LATERALLY MOVABLE RAILWAY VEHICLE TRUCK

Alan John Bing, London, England, assignor to British Railway Board, London, England

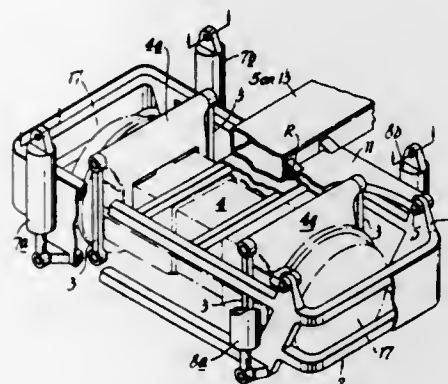
Filed May 26, 1969, Ser. No. 827,555

Claims priority, application Great Britain, May 29, 1968, 25,847/68

Int. Cl. B61f 3/00, 5/24, 5/44

U.S. Cl. 105-171

10 Claims



A railway vehicle comprises a bolster supported by each wheel-set through a lateral suspension. The bolster is connected to the vehicle body to constrain it to move laterally with the bolster under centrifugal force by an amount related to the stiffness of said lateral suspension, but permitting

lateral tilting of the body relatively to the bolster. Actuating means are provided to tilt the vehicle body relatively to said bolster through an angle related to the centrifugal force acting on the vehicle body, simultaneously with the lateral displacement of the body to counteract the effects of centrifugal force.

3,631,811

RAILWAY CAR BODY BOLSTER CENTER PLATE ASSEMBLY

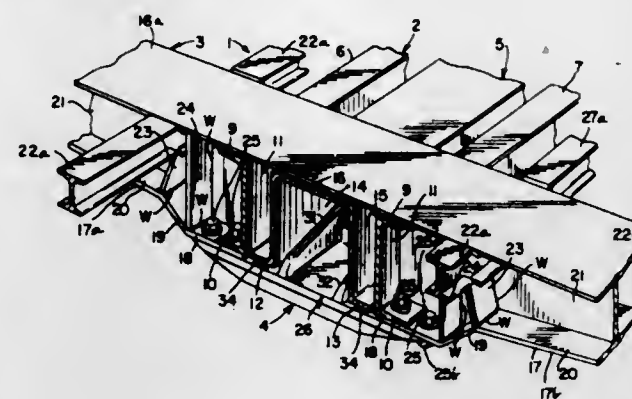
Andrew J. Christian, Chicago; John H. Spence, Chicago Heights, both of Ill., and Tung Han Yang, Munster, Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Apr. 14, 1969, Ser. No. 815,705

Int. Cl. B61f 1/02, 5/16; F16c 17/04

U.S. Cl. 105-199 C

13 Claims



A body bolster center plate assembly of a cushioned underframe railroad car including a center plate arrangement including a coped mounting plate portion with tab portions and having an upper bowl surrounding center filler portion including a pair of longitudinally extending top-mounted reinforcing elements on either side of the center plate bowl and a bottom pair of transversely extending reinforcing elements on either side of the bowl, and a bolster arrangement having flat underside portions for attaching to the flat tab portions of the center plate arrangement and securing means for providing flush flat contact between the flat tab portions of the center plate arrangement and the flat portions of the bolster arrangement. The arrangement also has an upright gusset reinforcing structure including a pair of spaced apart gusset means attached to the bolster structure for reinforcing same in the areas of connection between the center plate arrangement and the bolster structure.

3,631,812

FLEXIBLE HOPPER CLOSURE ACTUATING MECHANISM

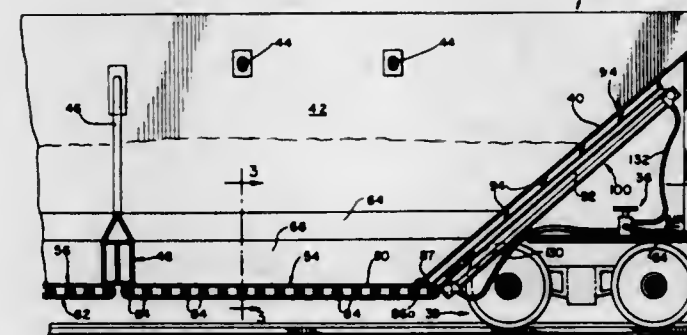
Charles L. Winslow, Jr., 120 Margaret Drive, Hampton, Va.

Filed Nov. 4, 1969, Ser. No. 873,897

Int. Cl. B61d 7/20, 7/22, 7/28

U.S. Cl. 105-240

22 Claims



Means is provided defining an opening to be closed. This opening may be a discharge outlet at the bottom of a railway

hopper car. The closure means comprises a flexible closure member having fixed portions, the closure member being substantially continuous between these fixed portions, and the closure means may comprise an endless belt. A plurality of interconnected antifriction rollers are disposed within and confined by the closure member, and power operated means is connected with the rollers for moving the rollers along a guide track to progressively peel away the closure means from one end of the opening toward the other end thereof when it is desired to remove the closure means from the opening.

3,631,813

RACK AND TOGGLE HOPPER GATE-ACTUATING MECHANISM

George B. Dorey, 540 Cote Saint Antoine Road, Westmount, Quebec, Canada

Filed Nov. 3, 1969, Ser. No. 873,239

Int. Cl. B61d 7/20, 7/22, 7/26

U.S. Cl. 105-282 P

7 Claims



The improvement relates to a cog and rack mechanism for moving a sliding gate by means of a rotatable shaft having oppositely facing cogs fixedly secured thereto for engagement with rack teeth and wherein the cogs are extended lengthwise beyond the racks for gripping an operating bar therebetween. More particularly the improvement makes use of a structure wherein the engagement between the cogs and rack passes through toggle locked cycles effective at each half revolution of the shaft.

3,631,814

HOPPER CAR CLOSURE ACTUATING MECHANISM

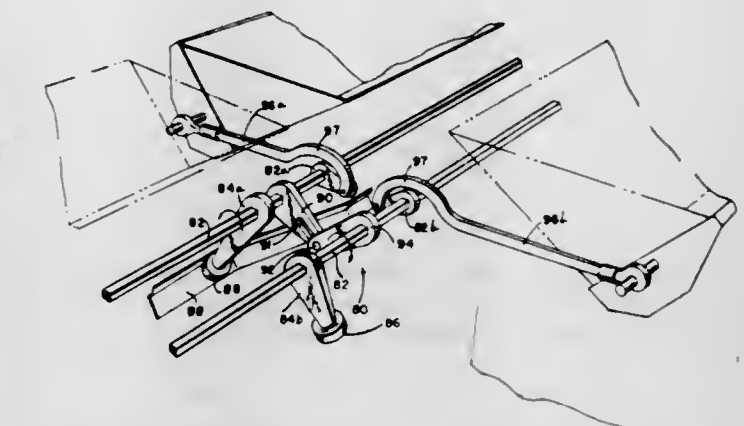
William R. Shaver, Munster, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Original application Dec. 1, 1966, Ser. No. 598,440, now Patent No. 3,459,317, dated Aug. 5, 1969. Divided and this application Apr. 24, 1969, Ser. No. 819,080

Int. Cl. B61d 7/18, 7/30; B65d 67/24

U.S. Cl. 105-290

5 Claims



This invention relates to operating mechanism for vehicle discharge means, and, more in particular, relates to mechanism required to open the doors of the side-type discharge hopper railroad whereby the load, such as coal, may be discharged from the side of the railroad car into rail side below car lading storage pit as it passes along a certain point of the railroad track over which it traverses.

3,631,815

RAILWAY TANK CAR BOLSTER

James C. Heap, Munster, and Laurence J. Schlink, Griffith, both of Ind., assignors to Union Tank Car Company, Chicago, Ill.

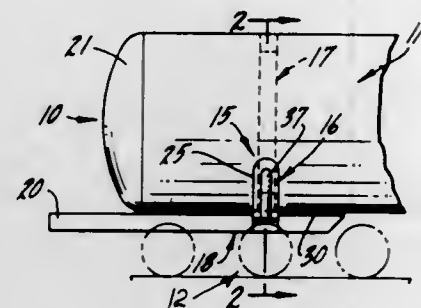
Filed Nov. 14, 1969, Ser. No. 876,737

Int. Cl. B61d 5/06; B61f 1/00, 1/14

U.S. Cl. 105-358

11 Claims

U.S. Cl. 105-401



A tank bolster construction including an outer body bolster structure underlying the tank at each truck centerline. This outer body bolster structure is shallow in configuration so as to accommodate wheel trucks which might normally be expected to interfere. The outer bolster cooperates with a ring bolster extending around the tank at the truck centerline to dissipate stress at this point. At opposite ends of a stub sill, bolster partial ring structures effectively dissipate stress induced by eccentric loads acting on the stub sill, particularly in the instance where the tank car employs span bolster truck assemblies.

3,631,816

HINGED COVERED HOPPER CAR

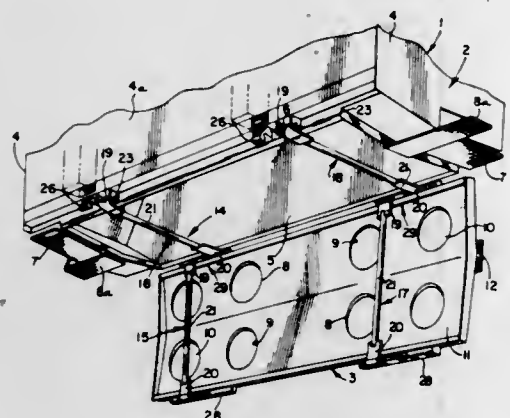
Roy W. Miller, Highland, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 22, 1969, Ser. No. 887,249

Int. Cl. B61d 32/00

U.S. Cl. 99/450.7

17 Claims



A covered hopper car having a removable and releasably lockable hinged roof pivotally connected to the top of the car body and provided with releasable hinges on each side of the upper car body and each side of the roof for pivotally connecting by pivot pins each side of the car roof with each side of the car body wherein releasable locks are mounted on each of the car body sides and releasably connecting with a respective roof hinge and the car body hinges being tied to the roof hinges by tension rods whereupon tipping of the car toward an upside down position for dumping, results in releasing of one side of the roof from its respective car side while the other roof side remains pivotally connected to the other car body side to permit dumping of the contents through the open top of the car.

3,631,817

RAILWAY CAR SIDE CONSTRUCTION

Thomas J. O'Neill, Evergreen Park, Ill.; Norman M. Szala, Hammond, Ind., and William Van Der Stuyt, Park Forest, Ill., assignors to Pullman Incorporated, Chicago, Ill.

Filed Jan. 12, 1970, Ser. No. 2,016

Int. Cl. B61d 1/00

11 Claims

U.S. Cl. 105-401

5 Claims



A railway car side includes a plurality of vertically extending horizontally spaced posts of hat-shaped configuration connected to corrugated stiffener panels supporting outer sheathing. The corrugated panels have end portions extending adjacent to flanges of the hat sections and are connected to the posts by means of flanged brackets which extend diagonally from the webs of the hat sections to the corrugations.

3,631,818

PIZZA SAUCE APPARATUS

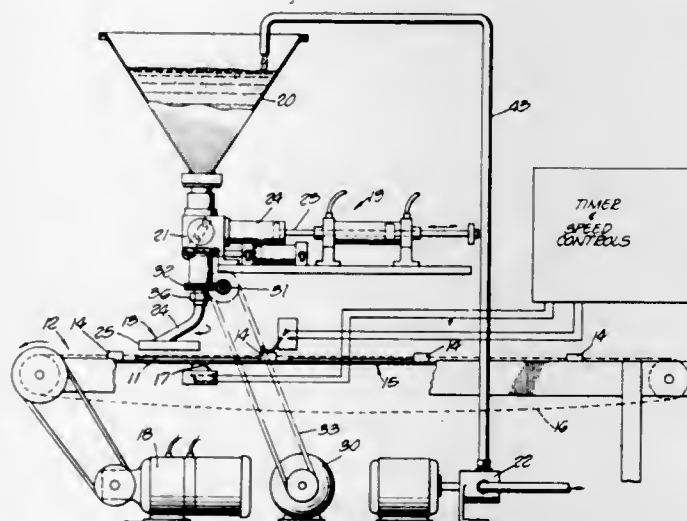
Santo Zito, Los Angeles, Calif., assignor to DOB, a division of Fairmont Foods, Co., Los Angeles, Calif.

Filed Nov. 28, 1969, Ser. No. 880,880

Int. Cl. A21c 9/04

U.S. Cl. 99-450.7

8 Claims



An apparatus and method are provided for applying pizza sauce to a plurality of pizza shells in which: an indexing conveying assembly moves the shells into position beneath a plu-

3,631,821

SHELVING ASSEMBLIES

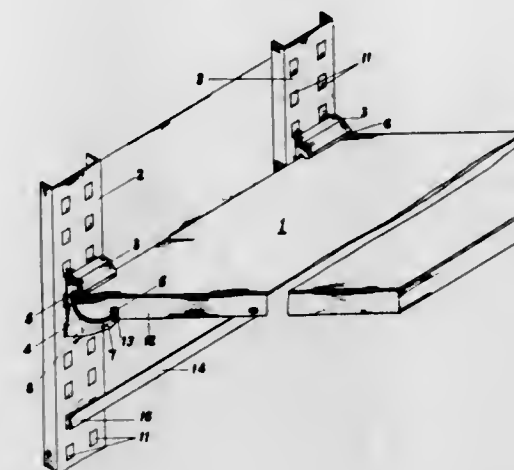
Basil Zachariou, 4 Fir Street, Houghton, Johannesburg, Republic of South Africa

Filed Sept. 11, 1969, Ser. No. 857,031

Int. Cl. A47g 29/02

U.S. Cl. 108-152

13 Claims



The invention is concerned with shelving assemblies including supporting brackets which brackets are in the form of channel-sectioned clips shaped to engage upright columns and to hold the rear edge of a shelf member, the brackets being readily adjusted and interchangeable and being also of short length.

3,631,822

WASTE BURNER

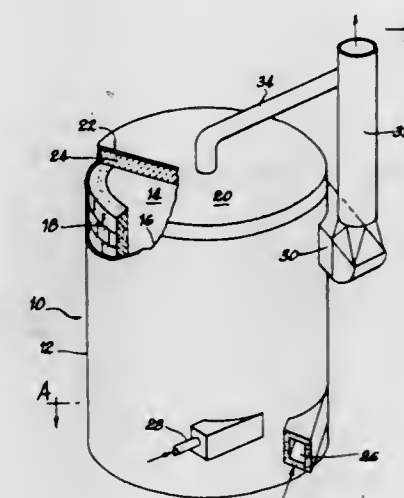
Glenn Arthur Near, Whitehall, Mich., and Howmet Corporation, Greenwich, Conn.

Filed Feb. 25, 1970, Ser. No. 14,074

Int. Cl. F23g 5/12

U.S. Cl. 110-8 C

10 Claims



A burner for disposing of waste materials by combustion including a housing defining a substantially closed combustion chamber, means for injecting at least one flame to the combustion chamber tangential thereto, means for discharging combusted materials from the combustion chamber and means for creating a static pressure in the combustion chamber to provide for a retention time of waste materials in the chamber to permit complete combustion.

3,631,819

BAKING OVENS

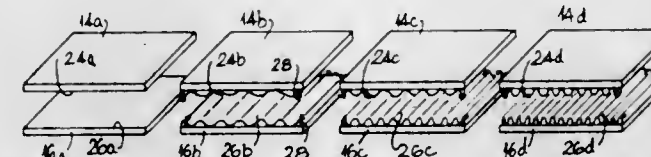
Boleslaw Houchman, 11 Chatham Sofer Street, Tel Aviv, Israel

Filed July 10, 1969, Ser. No. 840,712

Int. Cl. A21b 1/10, 1/14

U.S. Cl. 107-57 R

6 Claims



A baking oven comprises a heated tunnel divided into a plurality of zones, a conveyor passing through the zones, a burner for supplying hot gases to the zones, and two (or one) radiators for each zone. Each radiator includes a radiator surface element, some of which have a corrugated or ribbed surface and others of which have a flat surface.

3,631,820

DISPLAY DEVICE

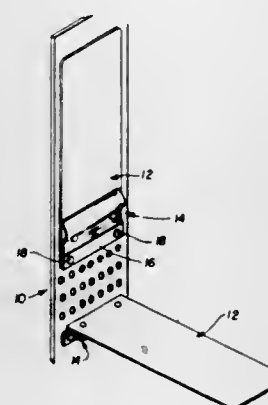
Russell E. Taber, 510 Dogwood Valley Drive N.W., Atlanta, Ga.

Filed July 24, 1969, Ser. No. 844,425

Int. Cl. A47f 5/12, 7/00; E05f 1/12

U.S. Cl. 108-2

8 Claims

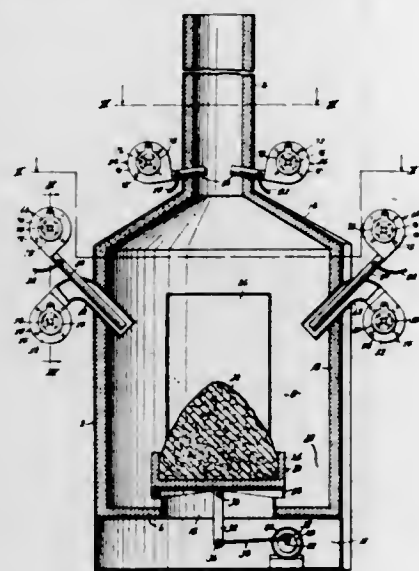


Structure for displaying stacked merchandise including a shelf or separator of more or less rigidized material which is flexibly hinged by a unique spring to a back panel in such a way that the shelf or separator will stabilize the layers of merchandise vertically stacked upon each other. The shelf or separator will by virtue of the flexible spring hinge, automatically arc toward a vertical position on a variable axis when all merchandise is removed from its upper surface.

3,631,823 INCINERATOR

Clifford A. Scogin, 42 Vassar, Sugar Creek, Mo.
Filed Feb. 3, 1970, Ser. No. 8,371
Int. Cl. F23g 5/12

U.S. Cl. 110—8 A



An incinerator for heavy refuse consisting of a furnace chamber having a stack and a platform for refuse in the lower portion thereof, burners and blowers for directing flame and combustion air against the surface of the refuse on said platform and to create whirling or vortex air currents in the furnace chamber, said platform being oscillatably tiltable to constantly alter the attitude of the refuse to the air currents, and afterburners in the stack for completing the combustion of the gases rising from the furnace chamber.

3,631,824

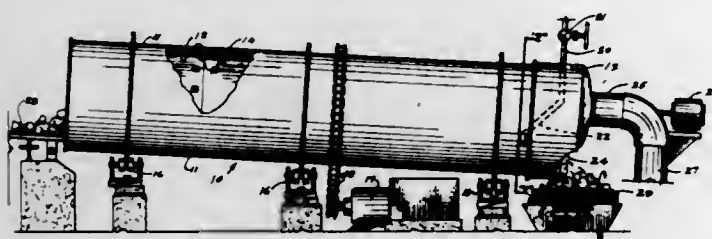
COMBINATION INCINERATOR AND SMOKE ELIMINATOR

Harry A. Smuck, 6050 Ritchie Highway, Anne Arundel County, Md.

Filed Feb. 19, 1970, Ser. No. 12,760
Int. Cl. F23g 5/06

U.S. Cl. 110—14

6 Claims



A garbage and trash incinerator having revolving inclined drum into which the garbage and trash are fed and then gradually progress through rotation and gravity and are burned as they progress therethrough, a water spray positioned adjacent the discharge end of the drum for extinguishing any remaining fire and embers, and an exhaust gas purifier through which the exhaust gases from the revolving drum are forcibly passed and are treated with water sprays to wash the same and remove any soluble and fine solid matter from said exhaust gases.

3,631,825 APPARATUS FOR DISTRIBUTING AND SPREADING MATERIAL

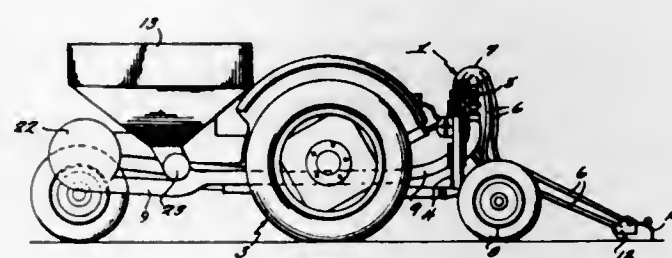
Heinrich Weiste, 4771 Sieningsen, Post Western 23 Utrecht Soest, Germany

Filed Jan. 23, 1967, Ser. No. 610,873
Claims priority, application Germany, Jan. 22, 1966, W 40776

Int. Cl. A01c 7/16

U.S. Cl. 111—11

7 Claims



A method and apparatus for sowing seeds and fertilizers is provided wherein the material to be distributed is carried pneumatically from a source to supply to the point of distribution. A device is provided for pneumatically conveying the material to be distributed, and also, a metering or measuring device may be combined with the pneumatic conveying system for uniformly distributing seed, fertilizer, or any other material. Further, the system provides for carrying the bulk of the material to be distributed on a tractor or other vehicle so that lightweight implements may be combined to assist in the distribution of the material and its ultimate mixing into the earth. The method includes the steps of moving seed or fertilizer from a central source of supply by means of an air stream, and then, spreading the material by a conveyor among several distributor heads and ultimately to implements which serve to mix the material into the earth.

3,631,826

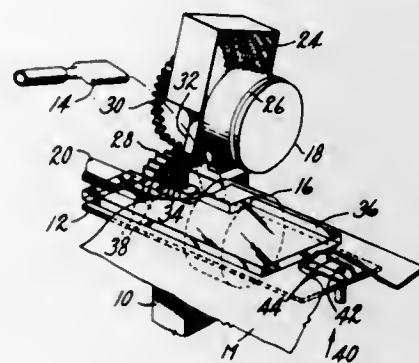
SHEET ORIENTING DEVICES

Paul E. Morgan, Melrose, Mass., assignor to USM Corporation, Flemington, N.J.

Filed Feb. 6, 1970, Ser. No. 9,185
Int. Cl. D05b 35/02, 35/10

U.S. Cl. 112—141

7 Claims



Sheet material, for instance fabric, is edge-guided automatically in conjunction with work-feeding mechanism of a machine. The edge guidance means includes an edge gage in combination with an airflow device arranged to direct a stream of air substantially parallel with the material in a channel slidably confining it to urge the edge of the material progressively into contact with the edge gap. By way of illustration only, the invention is shown herein as used in a margin-coating machine, and in a hemming device.

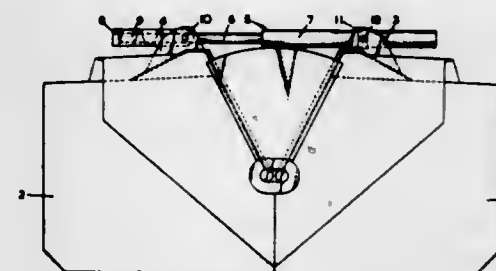
3,631,827

HOPPER BARGE

Bartele Van der Werff, Capelle A/D IJssel, Netherlands, assignor to A. Vuyk & Zonen's Scheepswerven N.V., IJssel, Netherlands

Filed Jan. 2, 1970, Ser. No. 335
Int. Cl. B63b 35/30

U.S. Cl. 114—29



A hopper barge comprises two longitudinal buoyancy chambers hinged together beneath the deck and defining over a part of their lengths a passageway interposed therebetween, which chambers can be adjusted relative to each other by means of at least one hydraulic cylinder located above the deck and hingedly connected thereto. According to the invention, the or each hydraulic cylinder has both the hinged connection of the piston rod and the hinged connection of the cylinder to the associated barge section spaced the same distance from the vertical longitudinal center plane of the barge and located near the middle of the piston rod and the middle of the cylinder, respectively.

3,631,828

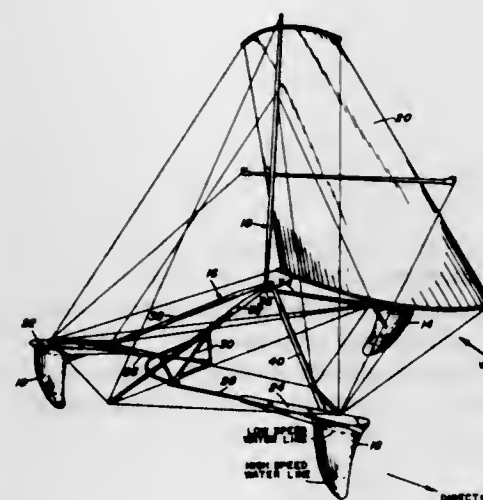
SAILBOAT HYDROFOILS

Bernard Smith, 503 Sampson, Dahlgren, Va.

Filed Jan. 19, 1970, Ser. No. 3,739
Int. Cl. B63h 9/00; B63b 1/18

U.S. Cl. 114—39

6 Claims



A hydrofoil craft having curved buoyant hydrofoils supporting a light frame which is driven by sail. During high winds the curved hydrofoils prevent the craft from "jumping" out of the water by creating a reverse or negative lift and in effect "hooking" the water.

3,631,829

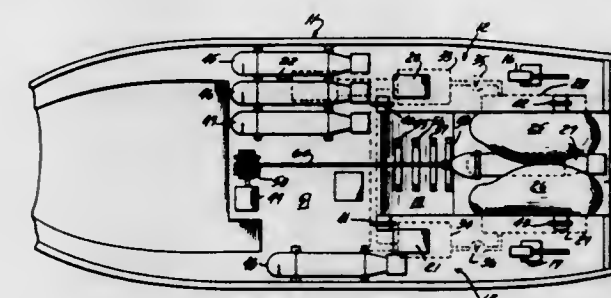
SMALL BOAT WEAPON RETRIEVER

Frederick W. Kamph, Middletown, R.I., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 27, 1970, Ser. No. 23,214
Int. Cl. B63b 35/44

1 Claim U.S. Cl. 114—43.5

6 Claims



A boat with a catamaran aft portion which forms a well into which captured weapons may be floated and secured for hauling aboard is provided. A weapon is secured in the well by inflated bags which press against opposite sides thereof, causing the weapon to follow the motion of the boat. A nose harness is then fastened about the weapon after which it is drawn up a ramp over rollers to the deck where it is secured.

3,631,830

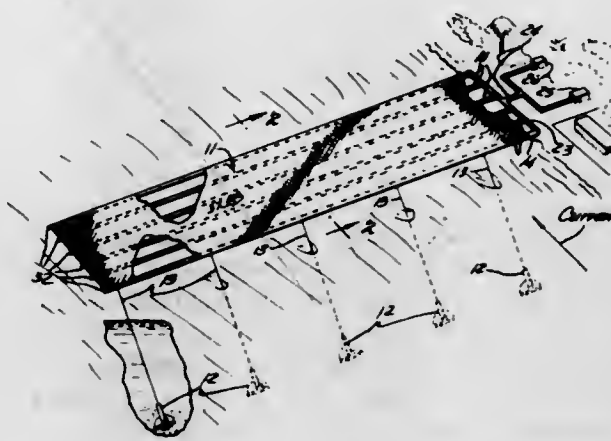
DOCKING FACILITY AND METHOD

Robert E. Welch; Raymond E. Kelly, and Russell S. Ward, all of Panama City, Fla., assignors to The United States of America as represented by the Secretary of the Navy

Filed July 6, 1970, Ser. No. 52,351
Int. Cl. B63c 7/08, 7/18

U.S. Cl. 114—50

10 Claims



An inflatable structure is disclosed comprising a plurality of pneumatic chambers which are mechanically attached to a woven metallic fabric surface. A system of cooperating valves and pumps selectively fill the pneumatic chambers with either a gas or another fluid to alter the buoyancy of the assembly. The structure is sunk to the bottom of a ship-berthing area and remains in said position until just prior to the landing of a watercraft, whereupon said structure is caused to be buoyant, raising itself and any explosive devices which might have been secreted in the berthing area.

3,631,831

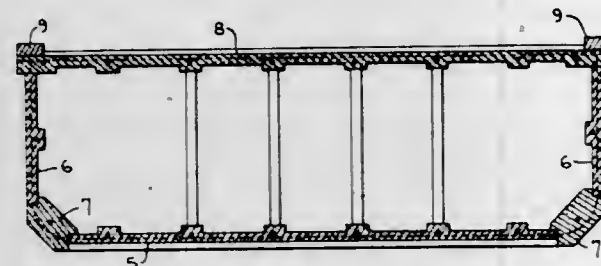
IMPROVEMENTS IN OR RELATING TO CONCRETE STRUCTURE

William Morley Sutherland, Auckland, New Zealand, assignor to Certified Concrete Limited, Auckland, New Zealand
Filed Nov. 5, 1968, Ser. No. 773,420
Claims priority, application New Zealand, Nov. 6, 1967, 150594

Int. Cl. B63b 1/04, 5/14

U.S. Cl. 114—65 A

5 Claims



The manufacture of a channel-shaped ferroconcrete unit in which a ferroconcrete bottom slab and two ferroconcrete side slabs having pretensioned tendons or passageways passing from the bottom slab to the remote edge of each side slab are arranged in channel formation with the tendons being stressed whereby suitable stress loads in the tendons are realized within the bottom slab and side slabs. The pretensioned tendons pass around radiused bends at each junction between the bottom slab and one of the side slabs.

3,631,832

TANKER CONSTRUCTION

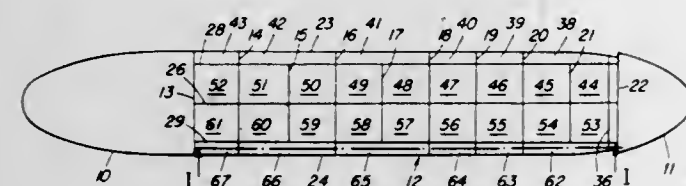
Manuel F. Rodriguez, Glen Rock, N.J., assignor to Mobil Oil Corporation

Filed Aug. 25, 1969, Ser. No. 852,562

Int. Cl. B63b 25/08

U.S. Cl. 114—74 R

1 Claim



A tanker comprising center tanks formed above bottom ballast tanks, and wing tanks extending the height of the tanker. The center tanks are dimensioned to carry a predetermined amount of persistent oil, and the width of the wing tanks are sized to provide the tanker with a capacity to carry a volume of nonpersistent oil having a weight equal to that of the predetermined amount of persistent oil.

3,631,833

MARINE PROPULSION POWER-ASSIST STEERING MECHANISM

William J. Shimanckas, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed June 16, 1969, Ser. No. 833,548

Int. Cl. B63h 21/26

U.S. Cl. 115—18

13 Claims

Disclosed herein is a marine propulsion unit steering mechanism which includes a double-acting hydraulic piston and cylinder assembly having a piston rod supporting a piston, a cylinder mounted for movement on the piston rod and piston. One of the piston rod and the cylinder is con-

nected to a steering arm provided on the marine propulsion unit and the other of the piston rod and cylinder is connected to the transom of a boat. Also included is a hydraulic fluid



control with a spool valve connected through the piston rod to a remote actuator to control the flow of a continuous supply of hydraulic fluid to and from the assembly.

3,631,834

PRESSURE-BALANCING OIL SYSTEM FOR STERN TUBES OF SHIPS

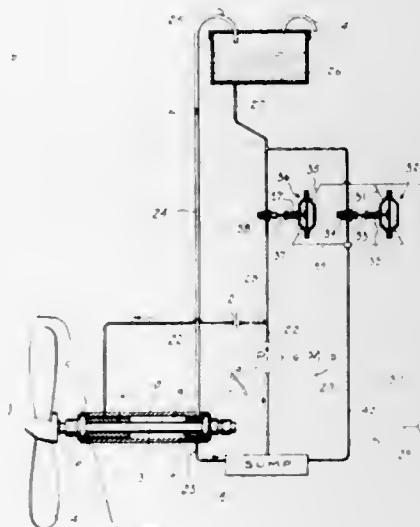
Willis W. Gardner, Waukesha, and Richard L. Rafferty, Menomonee Falls, both of Wis., assignors to Waukesha Bearings Corporation, Waukesha, Wis.

Filed Jan. 26, 1970, Ser. No. 5,560

Int. Cl. B63h 5/06

U.S. Cl. 115—34 R

8 Claims



The oil pressure in the stern tube is maintained by the oil height in a standpipe. Valves, which are responsive to the water pressure at the level of the stern tube are arranged to automatically control the oil level in the standpipe to thereby increase or decrease the oil pressure in the stern tube and thereby maintain said pressure at a desired value above the water pressure at the level of the stern tube.

3,631,835

MAGNESIUM BIMETAL AND SYSTEM FOR FLAME SPRAYING METALS ON MAGNESIUM SUBSTRATE

Hugh C. Hamontre, Riverside, and Hugh M. D. Kessler, Corona, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy
Filed Feb. 26, 1969, Ser. No. 802,526

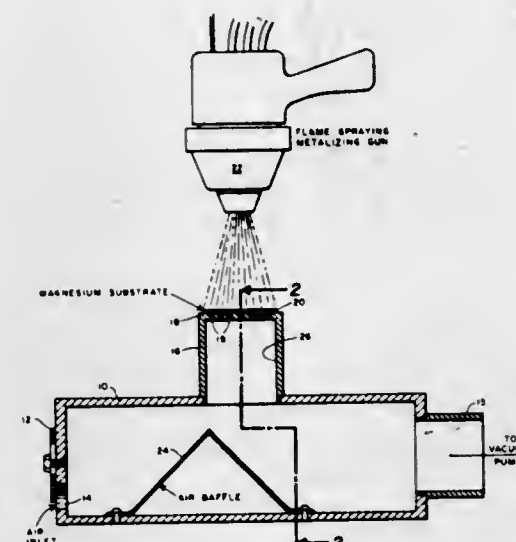
Int. Cl. B05c 11/12, 11/00

U.S. Cl. 118—47

1 Claim

An oxyacetylic process for depositing and bonding a layer

of other metal onto a sheet of magnesium without igniting



the magnesium by flame spraying using a flame spray gun.

3,631,836

FIXED GRADIENT LIQUID EPITAXY APPARATUS

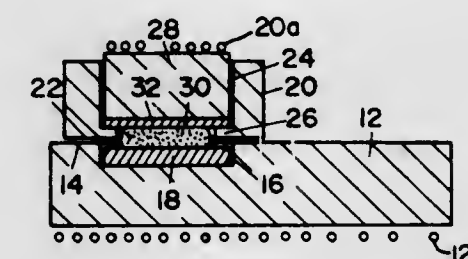
Gary N. Jarvela, and Loren L. Pyle, both of Scottsdale, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 6, 1969, Ser. No. 848,019

Int. Cl. B05c 3/02

U.S. Cl. 118—415

6 Claims



A method and apparatus for growing an epitaxial layer on a semiconductor substrate by the use of liquid phase transport and a fixed temperature gradient are disclosed. The apparatus consists of a lower block and a movable upper block which slides across the lower block. The lower block has one or more recessed portions suitable for holding one or more semiconductor wafers, such as gallium arsenide, on which an epitaxial layer is desired. The upper block similarly has one or more centerbores with slideable pistons disposed therein. A solvent such as gallium and a semiconductor source material such as a gallium arsenide wafer are located in the centerbore below the piston. Growth of the epitaxial layer on the substrate occurs at an elevated temperature when the centerbore of the upper block is in registration with the recessed portion of the lower block and the lower block is at a temperature that is slightly lower than the temperature of the upper block. The method includes the step of sliding the blocks so that the centerbore is out of registration with the recessed portion of the lower block thereby removing the solvent from the surface of the epitaxial layer to terminate the epitaxial growth.

3,631,837

DEVICE FOR MASKING THE CLOSABLE AREA OF A CONTAINER DURING THE COATING OF THE CONTAINER

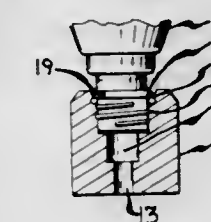
David G. Carl, Sylvania; Richard C. Kietzman, and William A. Knapp, both of Toledo all of Ohio, assignors to Owens-Illinois, Inc.

Filed Nov. 24, 1969, Ser. No. 879,081

Int. Cl. B05c 11/00

U.S. Cl. 118—504

3 Claims



Apparatus for masking the closure attaching portion of a container to prevent the coating of said closure attaching portion while permitting the spreading of a coating material over the remaining surface of the container.

3,631,838

DEVICE FOR DRY DEVELOPMENT IN ELECTROPHOTOGRAPHY

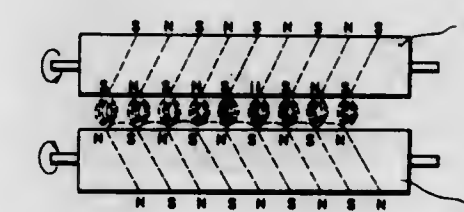
Teizo Kushima, and Masaya Ogawa, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Original application May 16, 1968, Ser. No. 729,681, now Patent No. 3,557,751. Divided and this application Mar. 2, 1970, Ser. No. 15,412

Int. Cl. B05b 5/02

U.S. Cl. 118—637

1 Claim



An electrophotographic developing device using developing powder containing a tuner and a carrier, which developing powder is applied to each photosensitive paper being developed by a magnetic developing roller. The magnetic developing roller consists of a plurality of sliced permanent magnets with spacers inserted between adjacent magnets. The sliced permanent magnets facilitate formation of magnetic brush ears of the developing powder on the peripheral surface of the magnetic developing roller, so as to insure even distribution of said developing powder over the entire span of the photosensitive paper.

3,631,839

HYGENIC, VARIABLE CONFINEMENT AREA PIGPEN

Pascual Agustin Postigo, Fernandez Gimenez, 13, Segovia, Spain

Filed Oct. 1, 1969, Ser. No. 862,669

Claims priority, application Spain, Oct. 2, 1968, 141985

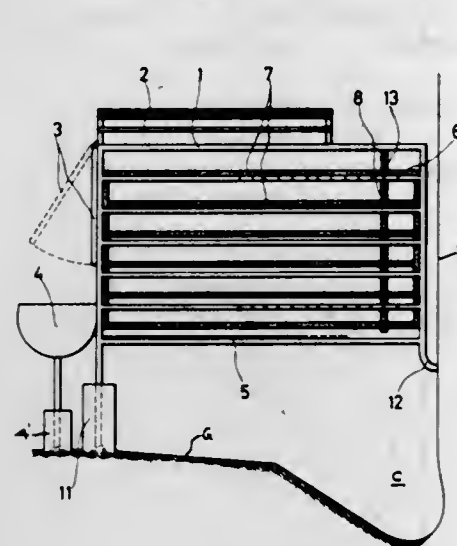
Int. Cl. A01k 01/02

U.S. Cl. 119—20

4 Claims

An open framework pigpen particularly adapted for the raising and fattening of pork in which the pen includes replaceable wall portions for adjusting the confinement area in

relation to animal growth and more particularly includes displaceable longitudinal and transverse walls, and in which the pen is relatively open and elevated, promotes circulation of



air, includes a refuse canal to facilitate other removal of excreta and the like as well as permitting the pigs and pen to be readily washed, decontaminated, etc.

3,631,840

ELECTRONICALLY TIMED ANIMAL FEEDER

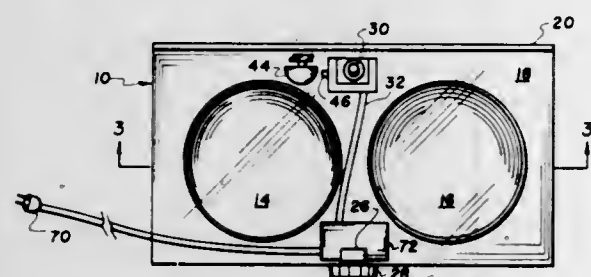
Ann M. McCormack, 66 Lyon Road, Waldwick, N.J.

Filed Sept. 23, 1969, Ser. No. 860,361

Int. Cl. A01k 05/00

U.S. Cl. 119-51.12

3 Claims



An electronically timed animal feeder having one or more removable bowls containing animal food supported within an enclosed container incorporating a spring-loaded locked lid. A timer, which can be set at a desired predetermined time, includes a solenoid or an actuator which is activated by the timer to unlock the lid and open it to expose the bowl and its food content so that the animal can eat at the set time.

3,631,841

AUTOMATICALLY OPERATED FEEDING DEVICE

Eugene M. Poirot, Golden City, Mo.

Filed Dec. 15, 1969, Ser. No. 884,868

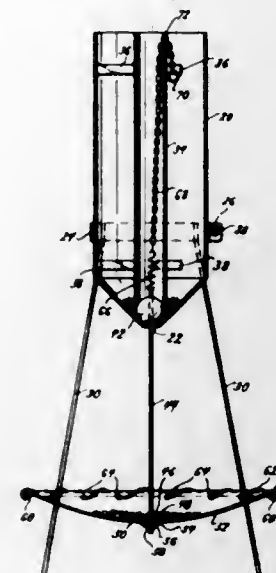
Int. Cl. A01k 5/02

U.S. Cl. 119-57

15 Claims

Feed is dispensed automatically by a device which has a feed-holding container and which has a supporting surface, below that container, that permits a valve element, adjacent the outlet of that container, to move toward open position whenever the weight of the feed on that surface falls below a lower limit and that causes that valve element to move toward closed position whenever the supply of feed on that surface is replenished. The valve element is enclosed by a

tube which is mounted within the feed-holding container; and that tube assures free and unimpeded movement of that valve element by keeping the feed from overlying that valve element.



3,631,842

HEATING APPARATUS

Paul Lunde Hededam, Frederiksund, Denmark, assignor to

Falkenberg, Stalindustries, S/A, Frederiksund, Denmark

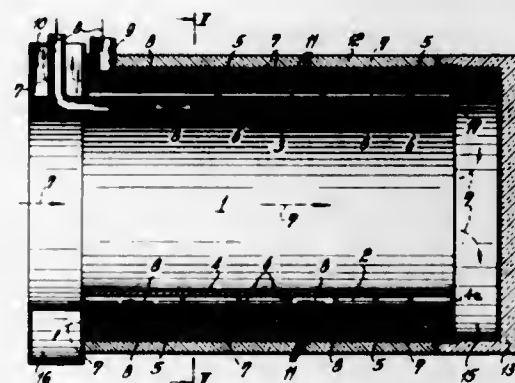
Filed Sept. 16, 1970, Ser. No. 72,774

Claims priority, application Germany, Nov. 24, 1969, P 19 58 884.2

Int. Cl. F22b 7/12

U.S. Cl. 122-149

10 Claims



An apparatus for heating of oil has an elongated burner tube provided with an inlet end for the admission of combustible fuel in direction longitudinally of the tube, and an outlet end for the combustion gases. An inner channel concentrically surrounds the burner tube and defines at least one helical path encircling the same and extending between the ends thereof. An outer channel system concentrically surrounds the inner channel system and defines at least one additional helical path which encircles the inner system and also extends between the two ends. An inlet for oil to be heated communicates with the outer channel system adjacent the inlet end and an outlet for the oil communicates with the inner system adjacent the inlet also so that oil circulates first through the outer channel system and then through the inner channel system. A passage connects the outer system with the inner system adjacent the outlet end of the burner tube to make such circulation possible. A plurality of straight tubes surround the burner tube peripherally and traverse the additional helical path between the inlet and outlet end within the confines of the outer channel system. Guide means guides

combustion gases from the outlet end of the burner tube into the conduits.

tor, in response to pressure variations in the inlet manifold of an internal-combustion engine. Consequently air pollution by

3,631,843

FLUID ADDITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

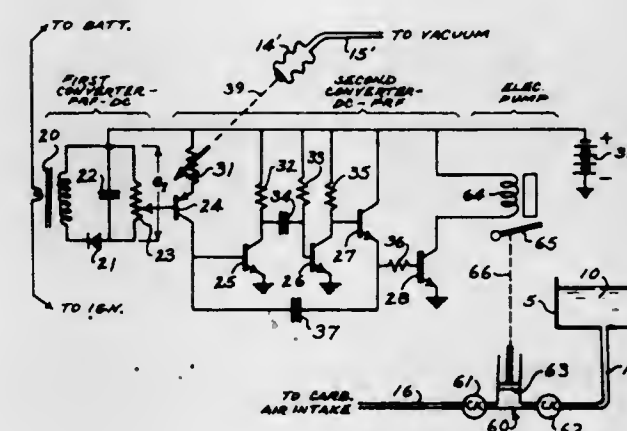
John O. Yeiser, 302 Cleveland Drive, Huntington Beach, Calif., and John O. Yeiser, III, 24961 Clemens Lane, Mission Viejo, Calif.

Filed Dec. 9, 1969, Ser. No. 883,388

Int. Cl. F02d 19/00, 19/12; F02b 47/02

U.S. Cl. 123-25 L

3 Claims



A system for adding water or other combustion-affecting fluid to the intake system of an internal combustion engine, to utilize expansion of such fluid into steam within the cylinders, as caused by the heat of explosion of the fuel, to increase power; to reduce smog-producing exhaust emissions; and to reduce the percentage of lead-containing and/or other toxic additives needed in the fuel. The fluid is pumped to the intake at a rate proportional to the engine speed, and in an inverse relation to the intake manifold vacuum. In one embodiment, a pump is driven mechanically from the engine and a valve is controlled by the vacuum. In another, a fixed-stroke electric pump is driven by an electronic pulse-generating circuit, the pulse rate being determined by two inputs, viz, a DC rate voltage derived from the ignition primary circuit, and a variable resistance actuated from the vacuum. In another, a variable-stroke pump is driven from an electronic pulse-generating circuit, the pulse rate being derived from a DC voltage determined by the ignition primary circuit pulse rate, while the stroke of the pump is mechanically controlled by a diaphragm or bellows exposed to the intake vacuum. The system is adapted for retrofit to existing engines with a minimum of engine modification and labor.

3,631,844

IDLING REGULATOR FOR INTERNAL-COMBUSTION ENGINE CARBURETORS

Claude Chavant, Issy Les Moulineaux, France, assignor to Chrysler France, Paris, France

Filed July 30, 1970, Ser. No. 59,618

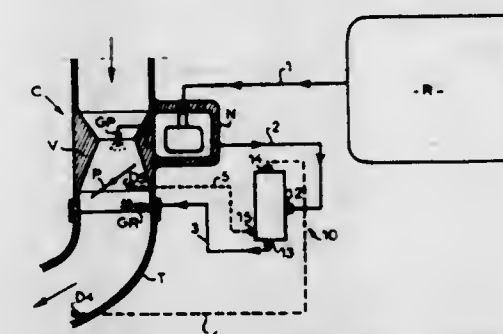
Claims priority, application France, Oct. 16, 1969, 6935476

Int. Cl. F02d 9/00

U.S. Cl. 123-97 B

8 Claims

A regulator provided with an inertia-block resiliently connected to a slidable pressure-responsive member controls automatically the feeding of fuel to the idling jet of a carbure-



unburnt fractions of the exhaust gases at idling speed and during deceleration is substantially prevented.

3,631,845

SPARK TIMING CONTROL FOR INTERNAL-COMBUSTION ENGINE

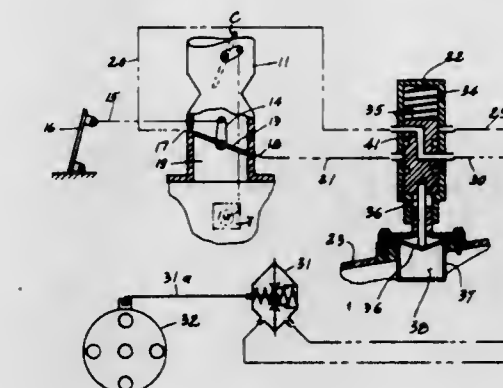
Brooks Walker, and Fred V. Hall, both of 1280 Columbus Avenue, San Francisco, Calif.

Continuation-in-part of application Ser. No. 630,882, Apr. 14, 1967, now abandoned. This application Sept. 26, 1969, Ser. No. 871,428

Int. Cl. F02p 5/04

U.S. Cl. 123-117 A

8 Claims



This invention pertains to an automatic disconnect of the engine operated spark advance until the engine water jacket temperature has reached a predetermined temperature to reduce smog producing emissions and heat up the engine more rapidly. An engine water temperature responsive valve connects closed throttle valve suction, from the manifold to a spark control actuator to retard the spark timing when the water is below the predetermined temperature and connects closed throttle valve suction, when the engine jacket water temperature is above the predetermined temperature to the actuator to advance the spark timing.

3,631,846

BRICK CLEANING APPARATUS

Harry Bambi, 500 Penn Road, Norristown, Pa.

Filed May 6, 1968, Ser. No. 726,806

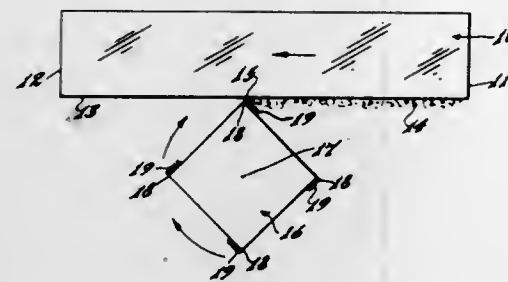
Int. Cl. B28d 1/00

U.S. Cl. 125-26

4 Claims

A device for reclaiming used brick including a rotating

striker member having a square cross section to provide cor-



ners while impact as the bricks are advanced into a position to be acted upon.

3,631,847

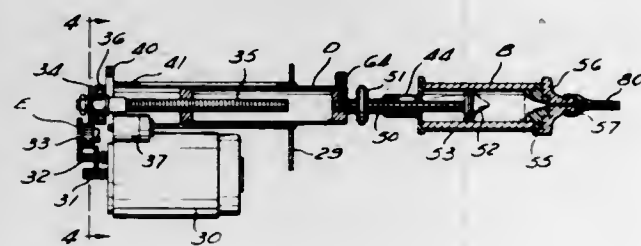
METHOD AND APPARATUS FOR INJECTING FLUID INTO THE VASCULAR SYSTEM

James C. Hobbs, II, 4384 Ingraham Highway, Miami, Fla.
Continuation of application Ser. No. 531,834, Mar. 4, 1966, now abandoned. This application Mar. 25, 1969, Ser. No. 810,292

Int. Cl. A61b 6/00; A61m 5/00, 5/20

U.S. Cl. 128-2 R

24 Claims



A method for use in the study and diagnosis of vascular systems in which liquids of a wide range of viscosities and for various purposes may be injected into such a system at constant predetermined rates and volumes.

Apparatus to inject radiopaque fluid into a vascular system comprising a syringe, a plunger in the syringe, a catheter connecting the syringe to the vascular system, means to move the plunger in the syringe, and means to measure and control the speed of the plunger in the syringe throughout the period of injection.

3,631,848

EXTENSIBLE CATHETER

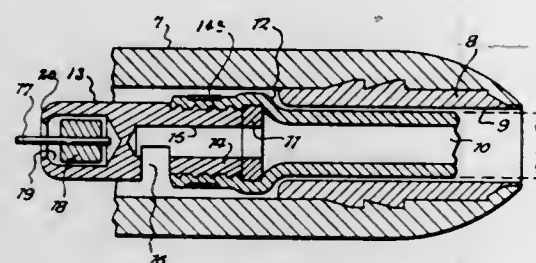
Wolf F. Muller, Southampton, N.Y., assignor to United States Catheter & Instrument Corporation, Glens Falls, N.Y.

Filed Sept. 4, 1968, Ser. No. 757,365

Int. Cl. A61b 05/02; A61m 25/00

U.S. Cl. 128-2.05 R

6 Claims



A flexible cardiac or vascular catheter provided at its distal end with a smaller extensible and retractable flexible tubular

extension particularly adapted to reach normally inaccessible treatment locations in vessels or branches thereof, the extension being movable axially of the catheter by means of a control wire the proximal end of which projects from the proximal end of the catheter.

3,631,849

PHASE-LOCK DOPPLER SYSTEM FOR MONITORING BLOOD VESSEL MOVEMENT

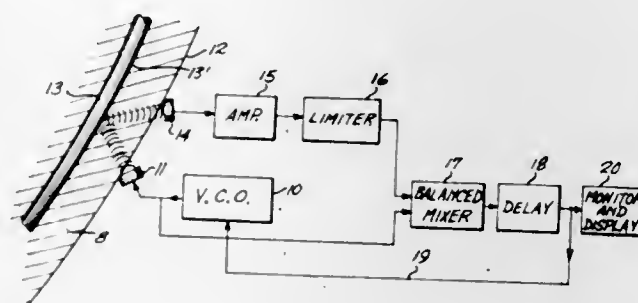
Elwood G. Norris, Seattle, Wash., assignor to Medical Development Corporation, Salt Lake City, Utah

Filed Dec. 5, 1969, Ser. No. 882,518

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 R

5 Claims



An apparatus for monitoring movement of a blood vessel in an animal body. A pair of transducers are disposed adjacent the skin of an animal body in the general region of the blood vessel. One of the transducers has the output of a voltage-controlled oscillator connected thereto and directs an ultrasonic signal at the vessel. Because of Doppler effect, the portions of this ultrasonic signal which are reflected to the other transducer have a different frequency, and thus phase, than the transmitted signal. The magnitude and sign of this phase difference is detected by feeding both the received signal and the transmitted signal to a balanced mixer. The output signal from the balanced mixer is supplied to a monitor and display device and additionally through a delay circuit to the voltage-controlled oscillator to adjust its frequency so that the phase thereof is always locked to further movements of the blood vessel.

3,631,850

PRESSURE TRANSDUCER APPARATUS FOR MICROHEMOCIRCULATION STUDIES

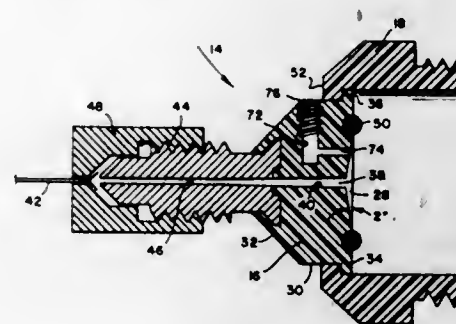
Joseph Emile Levesneur, Richmond, Va., assignor to The United States of America as represented by the Secretary of the Navy

Continuation-in-part of application Ser. No. 656,951, July 28, 1967, now abandoned. This application Nov. 13, 1969, Ser. No. 876,566

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 D

7 Claims



The transducer has a closed chamber or pressure dome formed of a flat base having a diaphragm portion and

sidewalls that converge into a central opening by which it is coupled to a tube or microcannula which, preferably, is a flexible polyethylene tube having a tip or needle at its end for insertion into microvessels. A pressure transmitting fluid characterized by having a high wettability, low surface tension and physiological compatibility fills the pressure dome and the tube so that circulatory pressure changes are transferred to the diaphragm to cause diaphragm displacement. A sensor is responsively coupled to the diaphragm to detect the displacements and provide the data for the microhemocirculatory studies. A greatly improved frequency response of the transducer is achieved by minimizing the volume of the chamber, the preferred chamber volume being no greater than about 0.25 cc. Also, the internal diametric area of the cannula or tube preferably is no greater than about 0.28 mm. Improved operation results when the design parameters of the transducers are based upon the following relationship:

$$\text{chamber volume} = \frac{(\text{volume displacement}) (\text{cannula ID area})}{K (\text{diaphragm area})}$$

in which K is a dimensionless proportionality constant having a value of about 3.789×10^{-6} .

3,631,851

CABLE

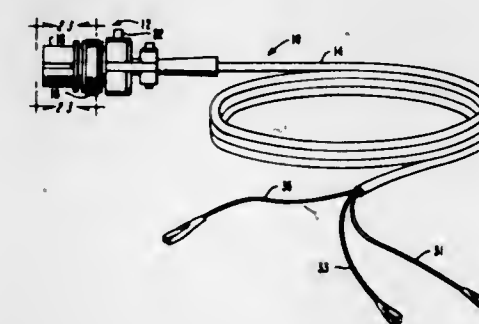
Joseph Alexander Hesen, Burbank, Calif., assignor to Del Mar Engineering Laboratories, Los Angeles, Calif.

Filed May 28, 1970, Ser. No. 41,368

Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 R

9 Claims



The three-lead exercise cable is characterized by a connector portion having five pins mounted therein for attachment to a standard socket in an electrocardiogram machine. A housing is connected to the connector portion, and the pins in the connector portion extend into the housing. Inside the housing, three of the pins are wired together. One wire for the three-wire cable extends from the three wired pins for connection to the body of the patient. Similarly, two other wires extend from the two remaining pins for connection to the body of the patient to form a three-lead exercise cable, which is compatible with a standard electrocardiogram machine. To eliminate muscle noise or electromagnetic interferences, filtering devices may be mounted in the housing.

3,631,852

DISPOSABLE SPECULUM FOR ANIMALS

John A. Hay, Maple Plain, and Donald W. Johnson, St. Paul, both of Minn., assignors to Fuller Laboratories, Inc., Eden Prairie, Minn.

Filed Oct. 24, 1969, Ser. No. 869,173

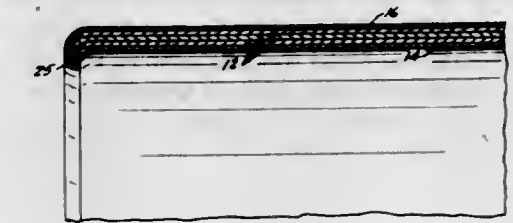
Int. Cl. A61b 1/00, 1/22

U.S. Cl. 128-3

1 Claim

A disposable speculum for animals formed with a rigid

paper core having a metallic liner on the interior surface



thereof for reflecting light and a coating of silicone material on the exterior surface thereof to facilitate usage.

3,631,853

GENITAL ERECTOR

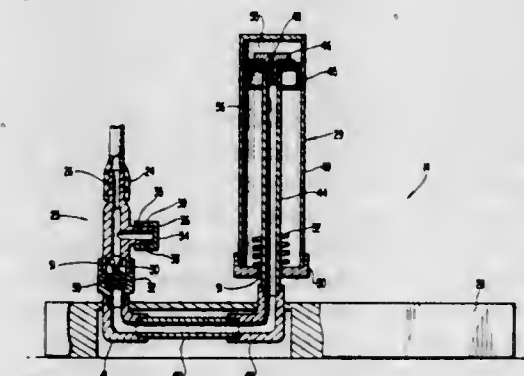
Marvin A. Burdette, Jr., 107 Melrose Circle, Douglasville, Ga.

Filed Sept. 25, 1969, Ser. No. 860,870

Int. Cl. A61f 5/00

U.S. Cl. 128-79

2 Claims



Apparatus for aiding the erection of the male genital organ including a transparent tube for placement about the male genital organ and in abutment with the scrotum, and a vacuum pump for evacuating the transparent tube and inducing the erection of the organ. A flexible hose extends between the tube and the pump so that the pump can be oriented at substantially any position with respect to the tube. The pump is a hand operated reciprocating piston pump mounted in an upright attitude on a base for convenient operation by a paraplegic in a prone position.

3,631,854

INFLATABLE MEDICAL ASSEMBLIES

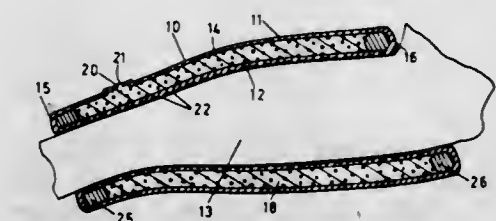
Robert Howard Fryer, Aberfoyle Mill, Aberfoyle, Ontario, Canada

Filed May 19, 1969, Ser. No. 825,667

Int. Cl. A61f 5/04

U.S. Cl. 128-90

3 Claims



This invention provides inflatable, double-walled resilient sleeves for use in forming surgical casts about human and

animal body members. In use, such a sleeve is first disposed about the body member and a liquid-curable material such as a foamable polyurethane prepolymer composition, is introduced into the space between the inner and outer walls of the sleeve to inflate the latter. Curing of the liquid material then provides the required rigidification of the sleeve. The invention also embraces the casts so formed and a method for forming the resilient sleeves, usefully by a dipping technique using a novel forming member.

3,631,855

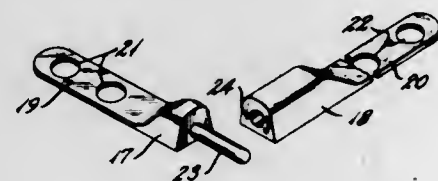
BIVENT CAST AND ADJUSTER

Yngurd M. Fehlan, 154 So. Brunswick St., Old Town, Maine
Filed May 28, 1969, Ser. No. 828,549

Int. Cl. A61F 5/04

U.S. Cl. 128-90

2 Claims



The bivent cast adjuster of the present invention is composed of structure designed to be incorporated in a cast, applied to a portion of the body of a human or other animate being during the application of the cast and before it hardens. This structure designates one or more areas where the cast may be cut with the structure thereafter utilized for securely maintaining the cut parts in the proper adjusted fixed relation. The invention also contemplates the use of shims of appropriate thickness to maintain the separated parts in the desired relation and proximity.

3,631,856

SUBSTITUTE SMOKING ARTICLE DISPENSING OXYGEN TO PROVIDE A PHYSIOLOGICAL LIFT

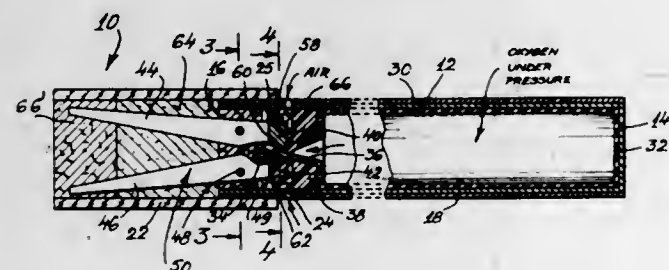
Harold V. Taylor, Scarsdale, N.Y., assignor to Ruth E. Taylor, Scarsdale, N.Y., a part interest

Filed Sept. 22, 1969, Ser. No. 859,837

Int. Cl. A61M 15/06

U.S. Cl. 128-208

6 Claims



A simulated smoking article has a container of oxygen under pressure in a tubular casing. A valve assembly operated by orally exerted pressure discharges the oxygen into a mixing chamber. A mixture of air and oxygen is then passed to the mouth of the user. A flavorful, fragrant filler in the chamber imparts a pleasant flavor and odor to the gaseous mixture. The supply of oxygen can be replenished without removal of the container from the casing.

3,631,857
FLEXIBLE MALE URINAL RECEPTORS
Horace P. Maddison, 3500 S.E. Concord #41, Milwaukee, Oreg.

Filed June 30, 1969, Ser. No. 837,604

Int. Cl. A61F 5/44

U.S. Cl. 128-295

1 Claim



The device is a flexible male external urinal adapted to the secured to a patient's body by a leakproof seal of closed bubble elastic foam plastic of annular configuration.

3,631,858

SEVER CORD

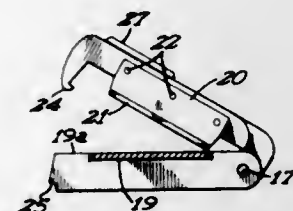
Robert A. Ersek, 8806 Minnetonka Blvd., Minneapolis, Minn.

Filed July 14, 1969, Ser. No. 841,202

Int. Cl. A61B 17/08, 17/32; B26B 17/00

U.S. Cl. 128-318

9 Claims



Means for simultaneously clamping and severing the umbilical cord of a newly born infant and comprising generally elongated clamping jaw and cutting jaw members held in substantially side-by-side relationship with each jaw member having hinge means at one end thereof to accommodate substantially simultaneous pivotal closing of said jaw members, and latch means at the other end thereof for retention of said jaw members in closed disposition upon completion of the closure stroke. A severable web means is secured laterally to each of said jaw members for the severable retention of the jaw members in their side-by-side relationship. Cutting blade means are secured to the cutting jaw and project into the bite zone of the cutting jaw, the cutting blade means being arranged to sever an umbilical cord disposed within said jaw upon the initial portion of the closure stroke, and to sever the web means upon continuation of the closure stroke. The clamping jaw is provided with clamping face means along the inwardly directed faces of the clamping jaw for the secure clamping of the umbilical cord upon closure and latching of the clamping jaw.

3,631,859

INSTRUMENT FOR USE IN THE TREATMENT OF INTRACRANIAL VASCULAR DISORDERS

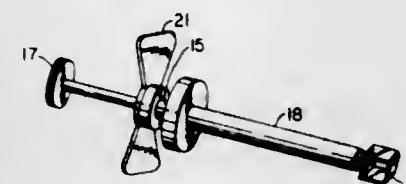
William Gayle Crutchfield, Department of Neurological Surgery School of Medicine University of Virginia, Charlottesville, Va.

Filed Mar. 6, 1970, Ser. No. 17,081

Int. Cl. A61B 17/12

U.S. Cl. 128-346

2 Claims



An artery clamp useful in the treatment of intracranial aneurysms and other vascular disorders is provided by a clamp assembly including a clamp support plate, a yoke member having the limbs thereof in releasable engagement with the plate, a pressure plate mounted for reciprocation between and orthogonal to the limbs of the yoke member, a pressure plate reciprocating stem mounted in threaded engagement in the clamp support plate and in rotatable engagement at one end thereof with the pressure plate and shaped at the other end for engagement with a rotatable member of a control assembly and a control assembly including a tubular support member having a resilient end portion adapted for latching engagement with the clamp support plate, a rotatable pressure plate actuating member slidably and rotatably mounted in the tubular support member and having an end portion engageable with the outwardly projecting end portion of the pressure plate reciprocating stem of the clamp assembly for rotation thereof, a sleeve member slidably mounted on the tubular support member for urging the resilient end portion of the support member into latching engagement with the clamp support plate, disengageable lock means for preventing movement of the clamp lid actuating member in the tubular member, and disengageable lock means for preventing movement of the sleeve member on the tubular support member.

3,631,860

VARIABLE RATE PACEMAKER, COUNTER-CONTROLLED, VARIABLE RATE PACER

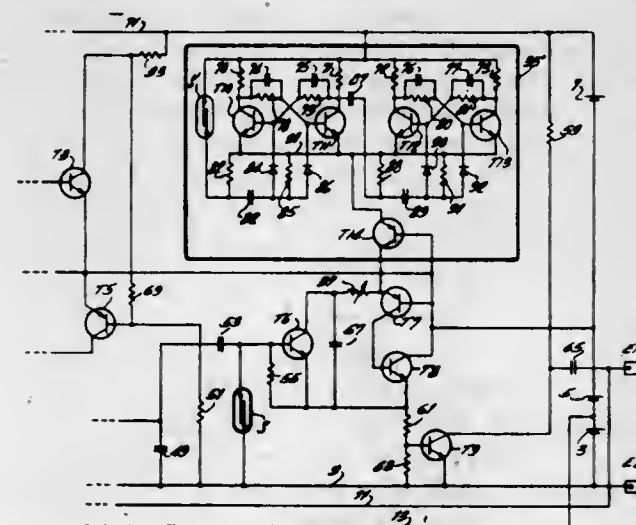
Michael Lopin, Cambridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Oct. 27, 1969, Ser. No. 869,463

Int. Cl. A61A 1/34

U.S. Cl. 128-419 P

10 Claims



A variable rate pacemaker having two flip-flops for defining four possible states. Each state determines the magnitude of a

charging current which in turn determines the rate of the pacer. The flip-flops, arranged in a counter configuration, are cycled by a monostable magnetic reed switch which is pulsed by placing an external magnetic field in the vicinity of the patient's chest. The magnetic reed switch is used only for cycling the counter to establish the proper rate of operation; the reed switch is not required for maintaining the charging current once it is established. Reliability of operation is improved because, unlike the prior art, mechanical switches are not required for maintaining the selected charging current level.

3,631,861

CORN THRESHING CYLINDER AND CONCAVE

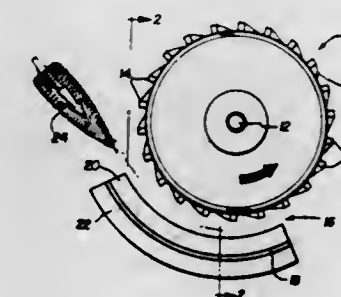
Fred J. Skahill, Davenport, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Mar. 3, 1970, Ser. No. 16,120

Int. Cl. A01F 11/06

U.S. Cl. 130-6

3 Claims



An agricultural combine for shelling corn comprises a cylinder with helical ridges and a concave having guide ribs perpendicular to the axis of the cylinder. The helical ridges impart both a longitudinal translation and an axial spin to the ears of corn, and the guide ribs cause the ears to be aligned parallel therewith. The alignment of the ear results in the corn being shelled by the abrasion of one ear against another, thus reducing the cracking of the kernels while increasing the vigor of the shelling action.

3,631,862

SUPPORTING AND ADJUSTING MEANS FOR AGRICULTURAL MACHINES SUCH AS COMBINE HARVESTERS

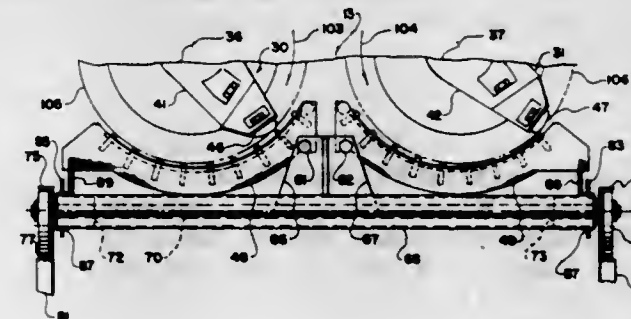
Edward William Rowland-Hill, Lancaster, and Edwin O. Margerum, Paradise, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed June 30, 1970, Ser. No. 51,251

Int. Cl. H01F 12/28

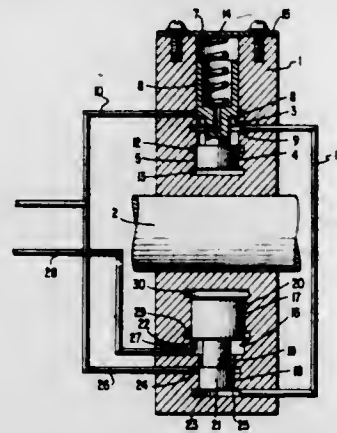
U.S. Cl. 130-27 L

11 Claims



Supporting and adjusting mechanism for concaves of agricultural machines such as combine harvesters. The mechanism comprises cams for supporting the concaves on fixed parts of the frame and supporting linkages having dif-

force acting on the secondary valve element for producing a secondary governor pressure larger than the primary governor pressure.



nor pressure at a varying rate. This governor may produce a stable governor pressure since the governor pressure is not affected by variations in line pressure.

3,631,872 GOVERNORS

John Saxon Ivey, and Bernard John Frost, both of Hitchin, England, assignors to Borg-Warner Limited, Letchworth, Herts, England

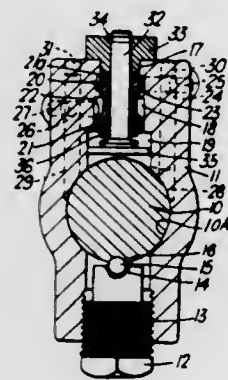
Filed Mar. 30, 1970, Ser. No. 23,949

Claims priority, application Great Britain, Apr. 2, 1969, 17,394/69

Int. Cl. G05d 13/36, 13/02

U.S. Cl. 137-56

5 Claims



A governor for a hydraulically controlled automatic transmission having a one-piece housing including a valve member slidable in the housing and connected to a governor weight to cause movement thereof, and therefore selective opening and closing of parts in the housing, in response to rotational speed variation of the housing. A bolt threaded to the housing on the opposite side thereof to the governor weight acts as a counterbalance, secures the housing to the output shaft of the transmission and forces the housing tightly against the shaft whereby fluid passages in the housing and shaft are sealingly interconnected.

3,631,873

FLUIDIC LOGIC SYSTEM FOR CAUSING SELECTIVE FLOW OF A FIRST OR SECOND FLUID THROUGH A COMMON ELEMENT

Joshua Swithenbank, and David Shaw Taylor, both of Sheffield, England, assignors to National Research Development Corporation

Filed June 5, 1969, Ser. No. 830,647

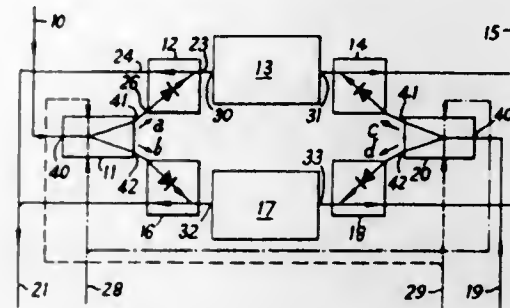
Int. Cl. F15c 1/12, 1/16

U.S. Cl. 137-81.5

8 Claims

Fluid flow control arrangements, particularly for a heat exchanger or a reactor in which first and second fluids are

directed alternately to a common element such as a heat exchange surface, by means of flow control devices of the fluid logic type thereby avoiding use of mechanical valves



3,631,874

FLUIDIC OVERSPEED SENSOR FOR A POWER TURBINE

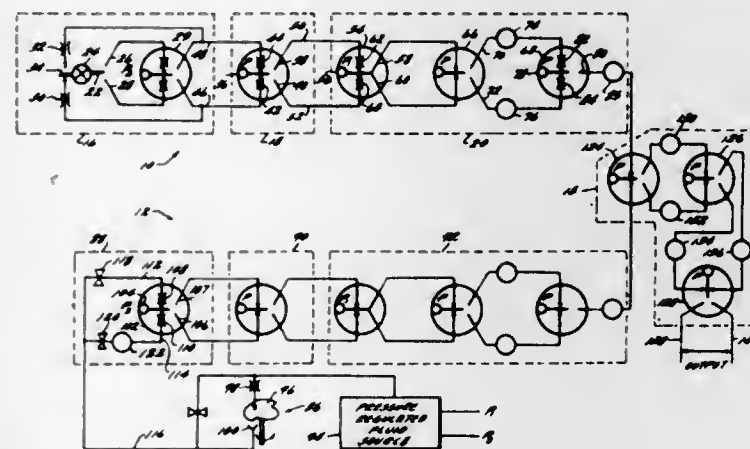
Donald L. Rexford, Schenectady, N.Y., assignor to General Electric Company

Filed Mar. 6, 1970, Ser. No. 17,124

Int. Cl. F15c 1/12

U.S. Cl. 137-81.5

4 Claims



A fluidic sensor having two parallel frequency-to-analog circuits whose output is summed to provide an error signal is disclosed.

3,631,875

FLUID IMPACT DEFLECTOR AMPLIFIER

Robert Eugene Raymond Ducousset, Clamart; Claude Fernand Emile Larmurier, Paris, and Jean-Noel Gaston Andre Rolland, Montrouge, all of France, assignors to Compagnie Des Compteurs, France

Filed Dec. 8, 1969, Ser. No. 882,883

Claims priority, application France, Dec. 13, 1968, 178096

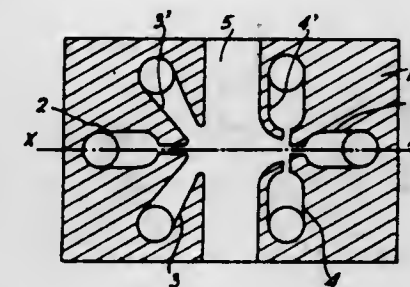
Int. Cl. F15c 1/20

U.S. Cl. 137-81.5

2 Claims

An impact deflection fluid amplifier comprising a plate provided with a main supply channel and a secondary supply channel placed coaxially so as to transmit two opposing jets, the jet coming from the main supply channel having a higher pressure, two control channels placed facing each other, per-

pendicularly to the common axis of the supply channels and on the side of the main supply channel, and two regenerating



channels placed symmetrically in relation to said axis, on the side of the secondary supply channel.

3,631,876

ACKNOWLEDGE-MONITOR LOGIC DEVICE WITH MEMORY

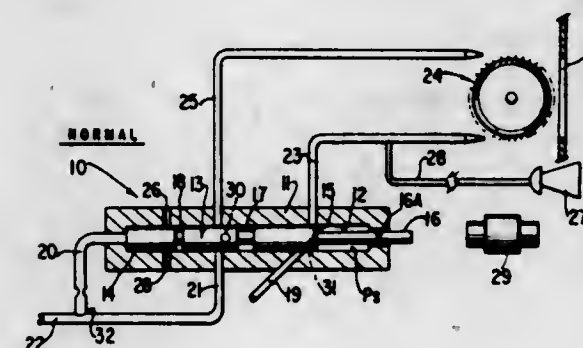
Kenneth W. Mischewich, Fairfield, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Sept. 15, 1969, Ser. No. 857,900

Int. Cl. G05d 11/00

U.S. Cl. 137-87

7 Claims



A fluid-operated logic device suitable for operating an annunciator system, or the like, which device has a bore with a piston valve member slidable therein. The piston has a transverse alert crossover to permit fluid flow between a constant pressure conduit and an alert conduit leading to an alert indicator. The piston is also provided with a crossover which permits communication between a conduit in which pressure increases in response to the detection of trouble and a monitor conduit leading to a monitor alarm. A conduit branches from the trouble conduit and is connected to the casing to act against the head end of the piston valve member. Upon an increase in pressure in the trouble circuit, the piston will be moved to the alert position where the alert alarm will be given until this condition has been acknowledged, the kinetic energy of the moving piston being employed. The piston is then returned to its normal position by an acknowledge arrangement, but should the trouble condition persist, the piston will return to and remain in its monitor position to indicate that the trouble condition has not been removed. When the trouble disappears, fluid pressure will move the piston to its normal position.

3,631,877

VENTING VALVE FOR HYDRAULIC JACK

John M. Barosko, Kenosha, Wis., assignor to Tenneco Inc., Racine, Wis.

Filed July 17, 1970, Ser. No. 55,888

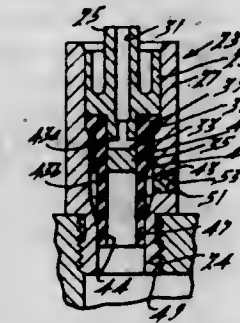
Int. Cl. F16k 15/14

U.S. Cl. 137-102

9 Claims

A filler plug and venting valve assembly to regulate the pressure in the liquid reservoirs of hydraulic jacks comprises

a housing that is mounted on the jack to open into the reservoir. It contains a flexible valve sleeve that responds to the difference in pressure between the reservoir and atmosphere



3,631,878

PILOT-OPERATED FLUID PRESSURE REGULATOR

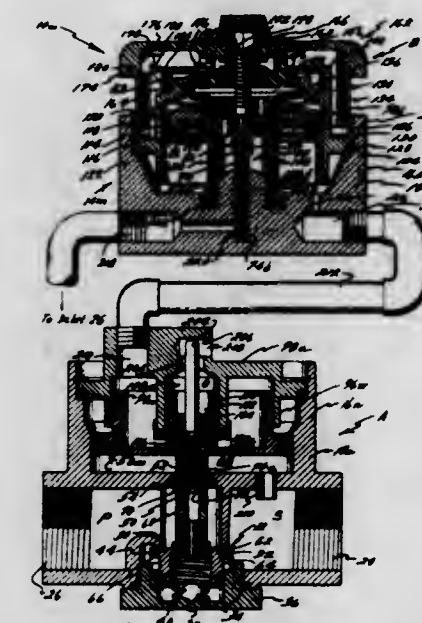
John Vander Horst, Lakewood, Colo., assignor to Wilkerson Corporation, Englewood, Colo.

Filed June 23, 1969, Ser. No. 835,542

Int. Cl. G05d 11/00

U.S. Cl. 137-116.3

17 Claims



This invention relates to a pilot-operated fluid pressure control device that includes a main flow control valve and an actuating mechanism for the latter that includes a pilot section and a main section operatively and functionally interconnected by a common pilot control pressure chamber defined between a pair of pressure-responsive means mounted for independent relative reciprocating movement. The pilot section of the actuating mechanism houses one of the pressure-responsive means and it functions as an adjustable spring rest, the equilibrium position of which is determined by the location of an externally adjustable element of a three-element pilot control valve. Fluid pressure within the pilot control pressure chamber counterbalances the biasing force exerted on the pressure-responsive means within the pilot section by a spring, compressible elastic member or other biasing means acting against the opposite face thereof. The other pressure-responsive means is located within the main section with one face exposed to the control pressure in

the pilot control pressure chamber and the other to the secondary or delivered pressure. An increase or decrease in the secondary pressure above or below that offset by the control pressure induces a response in the main section pressure-responsive means that closes or opens the main valve operatively connected thereto so that said secondary pressure is returned to and maintained at the preset level thus, once again, restoring equilibrium. An increase or decrease in secondary pressure also acts through the main section pressure-responsive means to bring about a corresponding change in the control pressure and it, in turn, actuates a three-way pilot control valve so as to bleed or add fluid to the pilot control pressure chamber to again establish the equilibrium. If the secondary pressure is still too high after the main flow control valve has closed, the pressure-responsive means within the main section functions as a relief valve to interconnect a controlled pressure chamber and an ambient pressure chamber thus dumping the excess fluid. The control pressure within the pilot control pressure chamber is selectively connected to both atmospheric pressure and the main upstream line pressure through the three-way valve which functions automatically to maintain the control pressure at a preset level.

3,631,879

PNEUMATIC OSCILLATOR

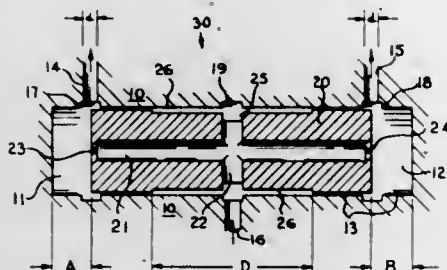
Ralph H. Larson, Edina, Minn., assignor to The Bendix Corporation

Filed Aug. 5, 1969, Ser. No. 847,649

Int. Cl. G01p 15/02

U.S. Cl. 137-119

9 Claims



A fluid oscillator has a movable cylinder dividing a cavity into two chambers. Passages in the cylinder connect the inlet with each of the chambers. Outlets in each of the chambers are located so that motion of the cylinder alternately increases the size of one of the outlet openings while decreasing the size of the other outlet opening.

3,631,880

SUCTION ARRANGEMENT FOR PUMPS

William B. Hanel, Media, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed Apr. 2, 1970, Ser. No. 25,105

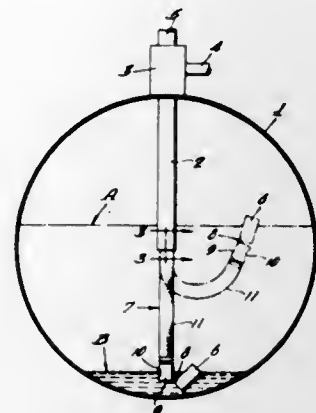
Int. Cl. F16t 1/20; F04b 21/00; B67d 5/60

U.S. Cl. 137-172

2 Claims

A flexible hose, supported at one end by a float in a subterranean liquid fuel storage tank, provides a floating suction or intake for the discharge pump of the fuel dispensing apparatus. For use with an aboveground or surface-type discharge pump, the float and the hose are sized to be insertable into the tank from above the same, by way of the

suction pipe mounted in the tank, after the lower portion of the suction pipe has been cut off. The floating suction ar-



angement can also be used with discharge pumps of the submersible type.

3,631,881

PNEUMATIC INTERCONNECTION BOARD

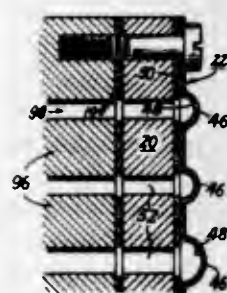
Hoel L. Bowditch, Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Continuation-in-part of application Ser. No. 772,601, Nov. 1, 1968, now abandoned. This application Oct. 6, 1969, Ser. No. 864,108

Int. Cl. F15c 5/00, 1/06, 3/04

U.S. Cl. 137-271

34 Claims



A laminated board made of two sheets of aluminum and providing closed conduits for transmitting fluid pressures between pneumatic components secured to the board. One sheet is press-formed to provide groove-like channels; the other sheet is sealed to the first sheet and is formed with connection holes leading to the passages defined by the press-formed channels. The two sheets are bonded together by an epoxy preform having a configuration matching that of the circuit board and sealing the passages from leakage.

3,631,882

DIAPHRAGM VALVE

William Kenneth White, Jr., Westport, Conn., assignor to Grinnell Corporation, Providence, R.I.

Filed Jan. 29, 1970, Ser. No. 6,743

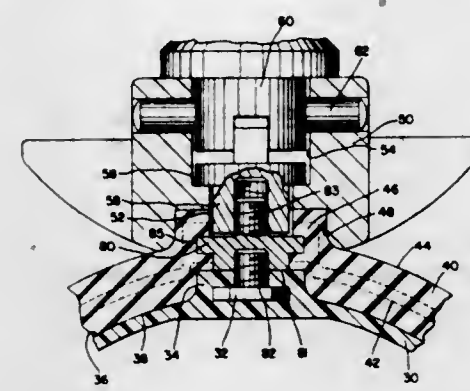
Int. Cl. F16k 7/16

U.S. Cl. 137-312

2 Claims

A diaphragm valve having an inert diaphragm and the

resilient backing sheet in which a means is providing for ap-



plying a direct lifting force to both the diaphragm and the backing sheet.

3,631,883

SCREW EXTRUDER WITH MEANS FOR METERING LIQUID ADDITIVES INTO A CYLINDER SECTION OF THE SCREW EXTRUDER

Wolfgang Guenther, Ludwigshafen, and Guenter Jeckel, Landau, both of Germany, assignors to Badische Anilin & Soda-Fabrik AG, Ludwigshafen, Germany

Filed Apr. 3, 1969, Ser. No. 813,062

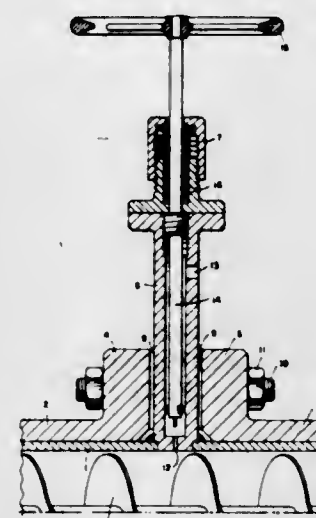
Claims priority, application Germany, Apr. 3, 1968, P 17 78

166.7

Int. Cl. F16k 51/00

U.S. Cl. 137-317

4 Claims



Screw extruder fitted with a liner and an injection valve which is located between the feed opening and the die of the extruder for metering liquid additives into a cylinder section of the screw extruder, wherein the cylinder section is divided into two flanged segments and the body of the injection valve is located between the flanges of the segments of the cylinder section and secured to the undivided liner which is embraced by the segments of the cylinder section.

3,631,884

COMPENSATOR FOR TEMPERATURE-CAUSED LENGTH CHANGE

Carl V. Von Linsowe, San Jose, Calif., assignor to John T. Page, Portland, Oreg., a part interest

Filed Feb. 5, 1970, Ser. No. 8,842

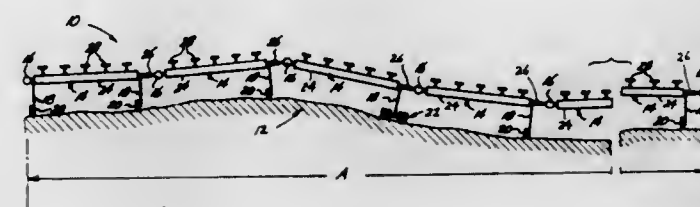
Int. Cl. B05b 9/02; E01h 3/02

U.S. Cl. 137-344

6 Claims

An elongated structure whose effective length is substantially independent of changes in ambient temperature. The

structure includes between its ends an elongated portion whose length varies directly with changes in ambient temperature operatively connected end-to-end to a plunger and cylinder assembly whose effective length varies inversely with



changes in ambient temperature. Positive-temperature-coefficient fluid is provided in a chamber in the cylinder whereby expansion of this fluid shortens the assembly and contraction of the fluid lengthens the assembly.

3,631,885

APPARATUS FOR CONTROLLING LIQUID LEVEL IN TANKS AND FOR ACTUATING FLUSHING CISTERNS

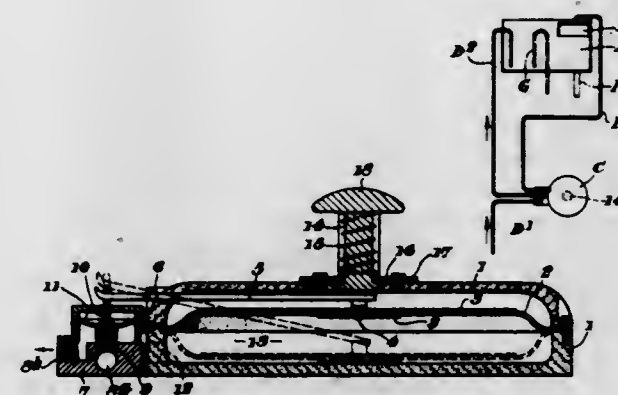
George Hanson-Graville, 23 Garden Close, Banstead, England

Filed June 23, 1969, Ser. No. 835,621

Int. Cl. E03d 1/10

U.S. Cl. 137-403

6 Claims



Flow cutoff means of a liquid flow control device is actuated by movement of a displaceable part operably associated with an air chamber of said device, this air chamber having provision for connection to an air space in an upper part of a tank, so that increase of air pressure in said chamber created by rise of liquid in the tank will move said displaceable part which in turn will operate the cutoff means to cutoff liquid flow to the tank.

3,631,886

COMBINED INLET AND PRESSURE RELIEF VALVE

Paul W. Heiden, Trumbull, Conn., assignor to National Distillers and Chemical Corporation, New York, N.Y.

Filed Aug. 27, 1970, Ser. No. 67,448

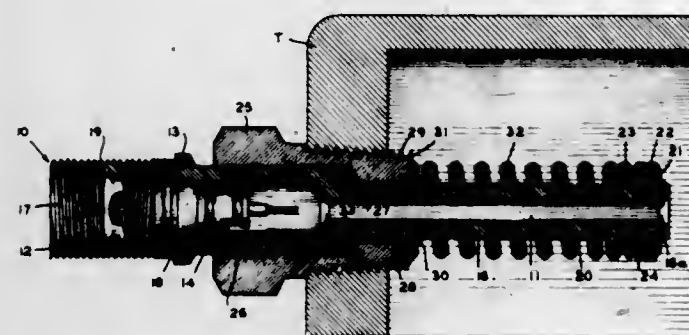
Int. Cl. F16k 15/20

U.S. Cl. 137-493.6

3 Claims

An air inlet valve for pressure tanks, pneumatic tires, and the like, the valve comprising a tubular insert with a tire valve core and a mounting body nut, the insert having a snug sliding fit within said body nut and under normal pressure conditions being maintained in sealed relationship by means of spring pressure. When pressure conditions arise in excess of a predetermined value, the excess pressure will result in

the retraction of the insert thereby opening the seal between the insert and mounting body nut and relieving excess pres-



sure between the mating interior surface of the body nut and exterior surface of the insert to the outside atmosphere.

3,631,887

FLUID-FLOW-REGULATING APPARATUS

Werner Schlechtriem, Fellbach, and Eckhard Anton, Asperg, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 14, 1970, Ser. No. 63,720

Claims priority, application Germany, Aug. 28, 1969, P 19 43 693.2

Int. Cl. F16k 15/18

U.S. Cl. 137—522

10 Claims

An apparatus for regulating the flow of an operating fluid to and from a user device. Housing means has a cylinder chamber and a passage for flow of the operating fluid. Valve means is movable in the passage between a normally closed position and an open position in which it permits flow of the operating fluid in pressurized condition to the user device. Control fluid inlet means communicates with the cylinder chamber for admitting a control fluid under pressure into the latter. A valve control piston is operatively associated with the valve means and movable in the cylinder chamber from a rest position via an intermediate position to a control position in which later it displaces the valve means to open position to permit operating fluid to flow away from the user device. First and second channel means are provided in the piston and each communicates with the chamber. The first channel means has a larger and the second channel means has a substantially smaller cross-sectional area and only the first channel means communicates with the inlet means during movement of the piston from its rest position to its intermediate position, while only the second channel means communicates with the inlet means during movement of the piston from its intermediate position to the control position.

3,631,888

REGULATION OF OPERATING FLUID FLOW TO AND FROM A USER DEVICE

Eckhard Anton, Asperg, and Werner Schlechtriem, Fellbach, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 24, 1970, Ser. No. 66,490

Claims priority, application Germany, Aug. 28, 1969, P 19 43 692.1

Int. Cl. F16k 15/18

U.S. Cl. 137—522

10 Claims

A cylinder chamber is provided in a housing and a passage for flow of operating fluid to and from a user device. A valve is arranged in this passage movable between a normal closed position and an open position in which it permits the flow of pressurized operating fluid to the user device through the passage. A valve control piston is operatively associated with the valve and movable in the cylinder chamber from a rest position via a first and a subsequent second intermediate

position to a control position in which latter it displaces the valve to open position so as to permit operating fluid to flow from the user device through the passage. First and second control fluid inlets each communicate with the cylinder chamber for admitting respective streams of control fluid under pressure into the same. The first inlet communicates with the chamber in all positions of the piston. Control means on the piston serves to establish communication between the chamber and the second inlet when the piston moves from its first intermediate position to the second intermediate position, and for terminating this communication when the piston moves from the second intermediate position to the control position.

3,631,889

FLOW REGULATOR AND FLOW RATE TESTING APPARATUS

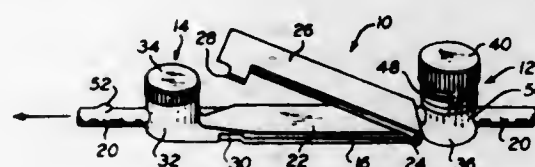
Berel Weinstein, New York, N.Y., assignor to Bio-Medical Sciences, Inc., New York, N.Y.

Original application July 26, 1968, Ser. No. 747,993, now Patent No. 3,543,753. Divided and this application Sept. 29, 1970, Ser. No. 76,384

Int. Cl. F16k 31/50; F16d 55/14

U.S. Cl. 137—556.6

6 Claims



A combination flow regulator and flow rate testing apparatus including conduit means together with a pair of spaced valves associated therewith. One of the valves includes means for indicating the position thereof for adjustably establishing a selected flow rate of fluid therethrough. The conduit means also includes a flexible wall portion of reduced thickness which pulsates in response to undue fluctuations in the rate of flow of fluid therethrough.

3,631,890

FLOW EXTENDING BYPASS VALVE

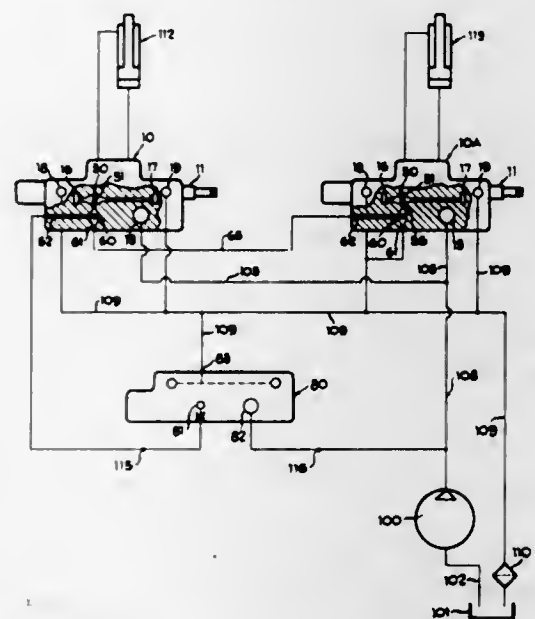
Kenneth G. McMillen, Newcastle, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Apr. 6, 1970, Ser. No. 25,779

Int. Cl. F15b 11/00

U.S. Cl. 137—596.13

22 Claims



A load-responsive hydraulic system for controlling a fluid actuated device, including at least one manual control valve

and a differential pressure actuated bypass valve adapted to bypass excess fluid at a low differential pressure when no fluid is being directed to the fluid actuated device. The bypass valve includes fluid-responsive means to automatically adjust the bypass valve to bypass fluid at a higher differential pressure when a fluid motor is actuated and thereby extend the flow capacity of the manual control valve.

3,631,891

SILENT VALVE

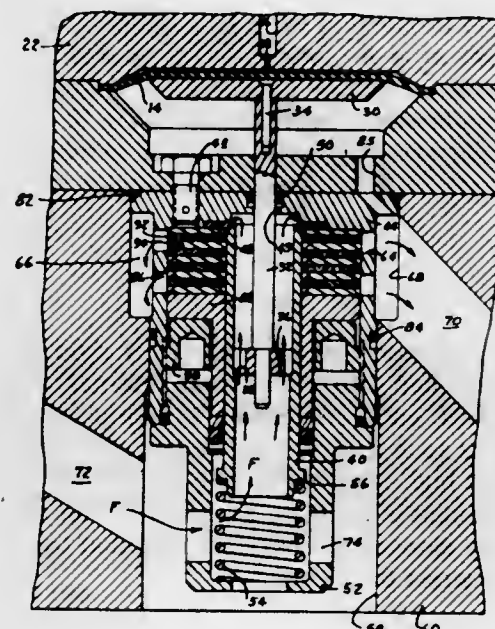
Richard S. Brumm, Orinda, Calif., assignor to Grove Valve and Regulator Company, Oakland, Calif.

Filed Feb. 26, 1970, Ser. No. 14,390

Int. Cl. F16k 1/52, 3/26

U.S. Cl. 137—625.3

4 Claims



A silent valve with tubular, axially operated valve closure plug. An outlet passage is radially outward of the closure plug, and intermediate it and the closure plug is a stacked series of flat annular discs, formed alternately of porous material and of impermeate material. The impermeate discs confine the flow through the porous discs primarily to radially outward directions. The inner surfaces of the porous discs are uncovered progressively as the closure plug moves toward open position.

3,631,892

RETURN MONITOR WITH LOGIC DEVICE

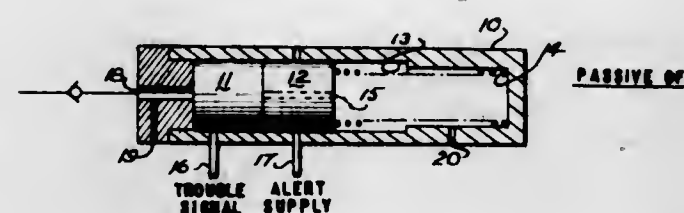
Kenneth W. Miesvich, Fairfield, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Jan. 16, 1970, Ser. No. 3,364

Int. Cl. G06d 1/02; F16k 11/10

U.S. Cl. 137—608

3 Claims



A fluid-operated logic device for use in conjunction with an annunciator system, the device including a pair of slidable pistons which are moved together when there is a trouble signal which has been acknowledged by the operator. When

the system returns to normal, and there is an alert signal present, the pistons separate and provide a return to normal signal until the device is returned to an off position by interrupting the alert supply.

3,631,893

SAFETY CONTROL VALVE

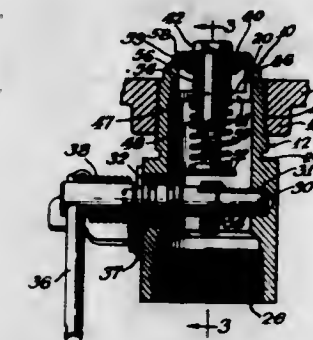
Wendell L. Scaman, Allen, Tex., and William A. Etter, Marshalltown, Iowa, assignors to Fisher Controls Company, Inc., Marshalltown, Iowa

Filed May 2, 1969, Ser. No. 821,242

Int. Cl. F16k 17/30

U.S. Cl. 137—630

2 Claims



A safety control valve to be disposed on a tank for loading and unloading liquefied gas therefrom. The safety control valve includes a valve body having a valve seat at an end thereof within the tank and a main valve plug cooperating therewith. A pilot valve plug slidably carries the main valve plug. An operator actuates the pilot valve plug to bleed pressure from the tank and permit opening of the main valve plug. The main valve plug will close if there is excess flow above a predetermined value, due, for example, to a break in the pipeline downstream of the valve.

3,631,894

AIR START VALVE

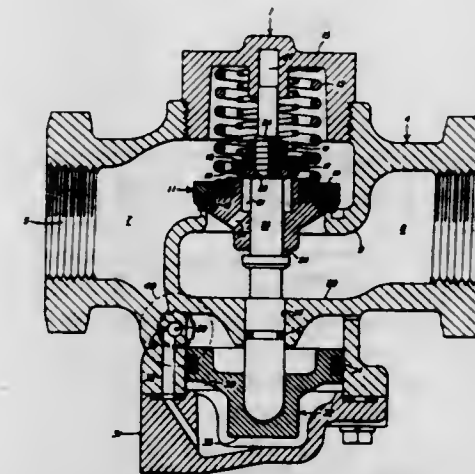
Virgil L. Frantz, Salem, Va., assignor to Graham-White Sales Corporation, Salem, Va.

Filed Sept. 19, 1969, Ser. No. 859,312

Int. Cl. F16k 1/54

U.S. Cl. 137—630.15

6 Claims



A fluid-actuated air valve adapted to apply operating air in two pressure stages to an air motor by a pair of normally closed operating heads mounted on a common stem and automatically opening in sequence in response to fluid pressure applied to a common actuated head.

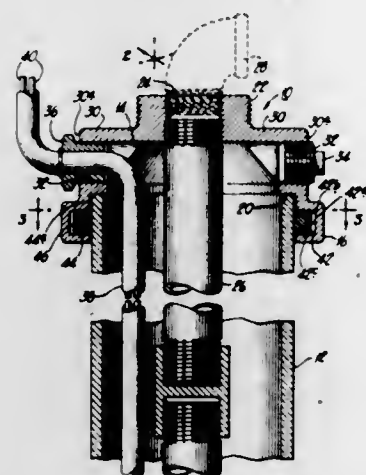
3,631,895 WELL CAP

Conrad R. Medina, Des Plaines, and Edward A. Cox, Lake Zurich, both of Ill., assignors to Clayton Mark and Company, Evanston, Ill.

Filed Feb. 2, 1970, Ser. No. 7,549
Int. Cl. F16I 55/10

U.S. Cl. 138-89

9 Claims



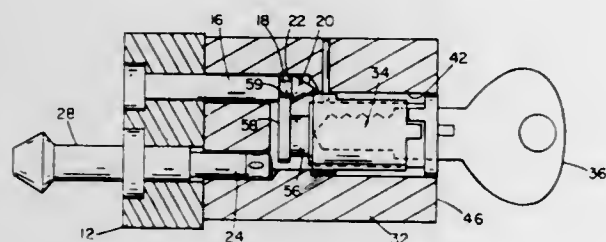
A well cap for the end of a well casing includes end wall means and annular skirt wall means depending therefrom adapted to be telescoped around an upper end portion of said casing. Annular sealing chamber means are defined on an inside surface of the skirt wall means radially outwardly of the sidewall of said casing. A deformable sealing ring is mounted in the chamber means for sealing between the skirt wall and the well casing. A compression ring means in the chamber means around the sealing ring compresses the ring radially inwardly against the sidewall of the casing.

3,631,896 LOCK FOR MOTOR BOAT

Wallace Meigs, Nourse Street, Westboro, Mass.
Filed Mar. 9, 1970, Ser. No. 17,581
Int. Cl. F16I 55/10

U.S. Cl. 138-89

2 Claims



For use in a motor boat having a motor, a fuel container, means for providing fluid communication between the motor and the container, and connecting structure including a fuel orifice and a connector adjacent the orifice located on one or both of the motor and fuel container, a lock comprising a locking portion lockably engageable with the connector and a sealing portion arranged to cover the fuel orifice when the locking portion is thus lockably engaged. Such locks may be used both on the motor and on the fuel container.

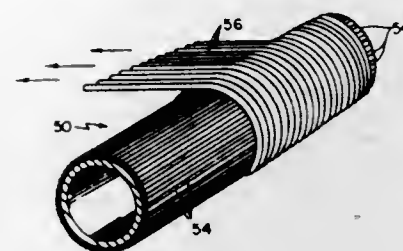
3,631,897 PRESTRESSED TUBULAR ARTICLE

Herbert Corliss Fischer, and Herbert Corliss Fischer, Jr., both of 3 Sawyer Road, Wellesley, Mass.

Continuation-in-part of application Ser. No. 856,901, Sept. 4, 1969, now Patent No. 3,533,203, which is a continuation of application Ser. No. 617,583, Feb. 21, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 388,416, Aug. 10, 1964, now Patent No. 3,208,838, which is a continuation-in-part of application Ser. No. 464,309, June 16, 1965, now Patent No. 3,431,687, which is a continuation-in-part of application Ser. No. 567,504, July 25, 1966, now abandoned. This application June 22, 1970, Ser. No. 48,165
Int. Cl. F16I 9/14

U.S. Cl. 138-141

11 Claims



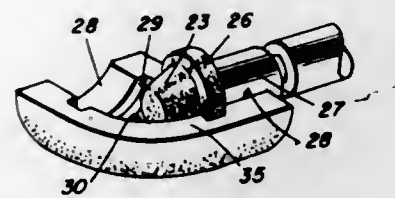
A stressed element having a relatively rigid, incompressible body combined with one or more internal or external tensioning strands, each comprising a multiplicity of synthetic organic fibers such as nylon, polyester, polypropylene or the like, having a high-recoverable stretch, the tensioning strands being maintained in intimate association with the rigid body and in highly elongated tensioned condition to compress the body and so stress the element.

3,631,898 INSULATING PIPE JOINT FITTING AND METHOD OF MAKING SAME

Alfred H. Harley, P.O. Box 6143, Greensboro, N.C.
Continuation of application Ser. No. 737,253, May 21, 1968, now abandoned, and a continuation of 406,831, Oct. 27, 1964, now abandoned. This application Jan. 13, 1970, Ser. No. 1,987
Int. Cl. F16I 59/02

U.S. Cl. 138-157

4 Claims



An insulating pipe joint fitting formed from a block of insulating material in which the block is cut to a rectangular configuration adequate to cover and insulate at least one-half of a pipe joint fitting, grinding the insulating covering to the contour of one-half of the exterior of the pipe joint fitting and then grinding the insulating covering to form a contoured cavity for cooperatively receiving one-half of the fitting to be covered, and forming a complementary insulating covering in the same manner to be received cooperatively by the first half insulating covering and a pipe joint therein. The two halves of the insulating covering may be adhered over the pipe joint fitting, and a contoured shield positioned over the insulating coverings.

3,631,899 HEAT-SHRINKABLE FILM AND TUBING

Merle L. Erickson, Saint Anthony, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

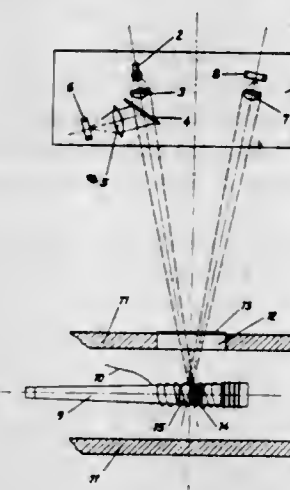
Continuation-in-part of application Ser. No. 513,428, Dec. 13, 1965, now abandoned. This application Nov. 20, 1969, Ser. No. 878,546
Int. Cl. B65B 53/00

U.S. Cl. 138-171

7 Claims

Heat-shrinkable films and heat-shrinkable tubing of linear polymeric esters that shrink at least 2½ times as much along one of the longitudinal and transverse axes of the films and tubing as they do along the other. The films and tubing shrink between 2 and 20 percent in the direction of least shrinkage and at least 20 percent in the direction of most shrinkage. A film of the invention is prepared by stretching it in a first direction at a temperature that is above the second order transition temperature for the polymer of the film, then thermally conditioning the film while it is in the stretched condition by heating it for several seconds at a temperature that is at least 5° C. above the first temperature, and then stretching the film in a second direction perpendicular to the first direction at a temperature at least 5° C. above the first temperature.

ses are created by a single-incident light beam. The two responses are received by two separate light detectors and a



correctional signal is produced only if the two detectors simultaneously produce output signals.

3,631,902 DEFLECTION SYSTEM FOR TRIAD-BEAM CATHODE-RAY TUBE

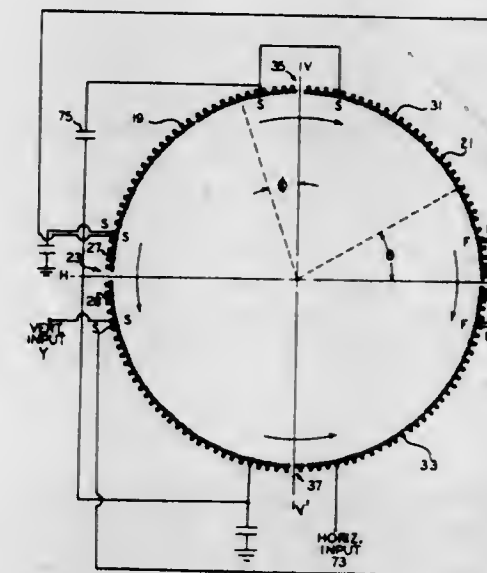
Charles Edward Torsch, Rochester, N.Y., assignor to Sylvania Electric Products Inc.

Filed July 15, 1969, Ser. No. 841,782

Int. Cl. B21I 3/04

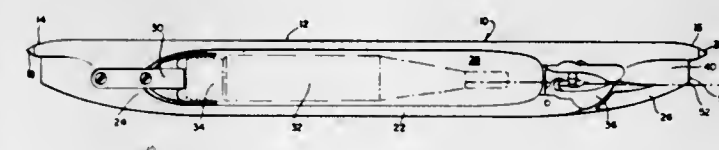
U.S. Cl. 140-92.1

14 Claims



U.S. Cl. 139-196

6 Claims



A loom shuttle is provided which has a flat rearward wall which extends the entire length of the shuttle, a forward wall which is substantially shorter than the rearward wall and end sections which connect the forward and rearward walls. The end sections are of a generally truncated pyramidal configuration with the surfaces thereof sloping toward the terminal ends of the rearward wall. The end sections are truncated immediately adjacent the terminal ends to provide a surface for picker contact. The configuration of the end sections assist the guiding and rethreading of the shuttle. The shuttles of the present invention are especially useful in high-speed multibox looms.

3,631,901 PHOTOELECTRIC WEFT-BOBBIN FEELER FOR LOOMS FOR MONITORING THE YARN STOCK ON WEFT BOBBINS

Erwin Langenbach, and Jurgen Erdmann, both of Waldkirch im Breisgau, Germany, assignors to Firma Erwin Sick, An der Allee, Germany

Filed Mar. 12, 1970, Ser. No. 33,114

Claims priority, application Germany, Mar. 14, 1969, P 19 12 913.6

Int. Cl. D03J 45/12

U.S. Cl. 139-273 A

11 Claims

The bobbin and/or shuttle are provided with light-responsive conditions such that two types of reflective light respon-

A cathode-ray tube deflection system includes a triad-type cathode-ray tube and a torrid-type deflection yoke having horizontal and vertical axes with first and second horizontal windings symmetrical to the horizontal axis in mirror image of one another about the vertical axis and first and second vertical winding symmetrical to the vertical axis in mirror image of one another about the horizontal axis and said first and second horizontal and vertical windings each including a flux-altering means for enhancing vertical convergence of horizontal trace lines. The deflection yoke is formed by a process wherein a core of magnetic material is wrapped with wire turns applied in toroidal fashion to form first and second horizontal windings and first and second vertical windings advanced in opposite circumferential direction to form a mirror-image relationship. Also, "ringing" is inhibited by circuitry wherein a specific terminal of each of the horizontal and the vertical windings associated with the start of electron beam scanning of the cathode-ray tube is connected to a potential reference level while the other extremities of the

horizontal and vertical windings are connected to a source of deflection signals whereby undesired distortions appearing on the trace lines of the viewing screen are minimized.

3,631,903

METERING TRAP CONSTRUCTION, APPARATUS AND METHOD FOR FILLING INDIVIDUAL CONTAINERS WITH FLUID MATERIALS

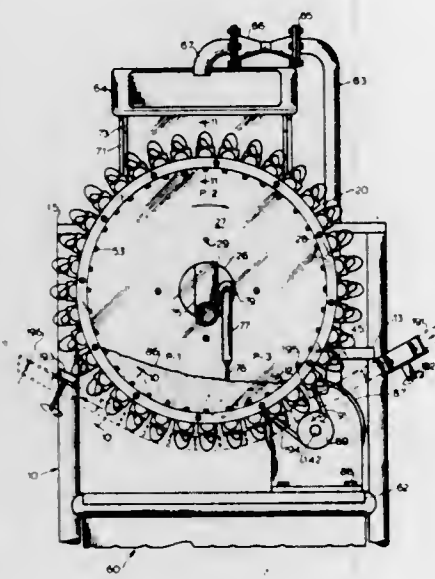
Clyde J. Huggins, Route 2, Box 224, Maynard Road, Cary, N.C.

Filed Feb. 5, 1970, Ser. No. 8,885

Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-1

17 Claims



A high-productivity packaging apparatus and method utilize a container and a plurality of circular arranged metering units or "traps" which communicate and rotate with the container. The individual traps have fixed internal guide surfaces but no moving parts. During rotation around the container axis each trap successively draws from the container in excess of a unit of material to be packaged, then traps a unit and discharges the excess and during continued rotation the material is directed along the guide surfaces towards a trap outlet to be discharged at a discharge station to which empty containers are fed successively in synchronism with successive traps being discharged.

3,631,904

MAGNETIC POWDER FILLER PORT

Frederick Percival Mason, Burgess Hill, and Frank Arthur Oakley Warren, Hove, both of England, assignors to Creed and Company, Limited, Brighton, Sussex, England

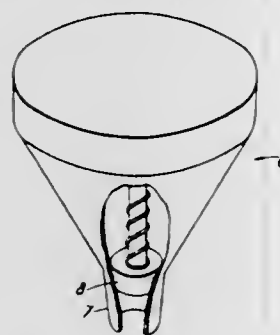
Filed Mar. 12, 1970, Ser. No. 18,976

Claims priority, application Great Britain, Apr. 16, 1969, 19,338/69

Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-351

10 Claims



In the throat of a filler port for a reservoir for magnetizable powder, there is provided a magnetic-valve-type arrangement

for preventing the escape of the powder cloud generated during loading of the powder from a nozzled filling container of cooperating design. The magnetic valve arrangement is activated to trap the powder whenever the filling port cover or the nozzle of the filling container is removed from the port opening.

3,631,905

ARRANGEMENT FOR FELLING AND STACKING TREES FOR TRANSPORT

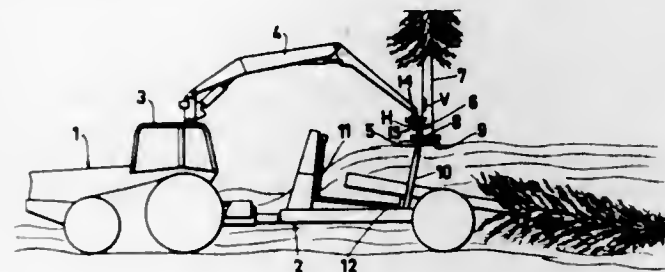
Bengt Haldo Karlén, Alfta, Sweden, assignor to Ostbergs Fabriks AB, Alfta, Sweden

Filed Mar. 24, 1970, Ser. No. 22,227

Int. Cl. A01g 23/02

U.S. Cl. 144-3 D

2 Claims



The invention refers to an arrangement for felling and stacking trees for transport, using a vehicle for driving a stacking support and having a horizontally swingable and vertically adjustable boom provided at its end with a felling unit. Hitherto at least two men have been necessary for this work, one for the felling and one for the stacking work. According to the invention, only one man, the driver of the vehicle, is required who from the driver's seat can select a tree to be felled and by means of a rotatable felling unit so direct the fall of the tree that its top approximately falls to the longitudinal extension of the support centerline, whereafter he can lift the root end of the tree for pulling the tree towards and onto the support.

3,631,906

CUTTING BLADE FOR CUTTING TREE TRUNKS

Erik Torsten Forslund, Alfta, Sweden, assignor to Ostbergs Fabriks AB

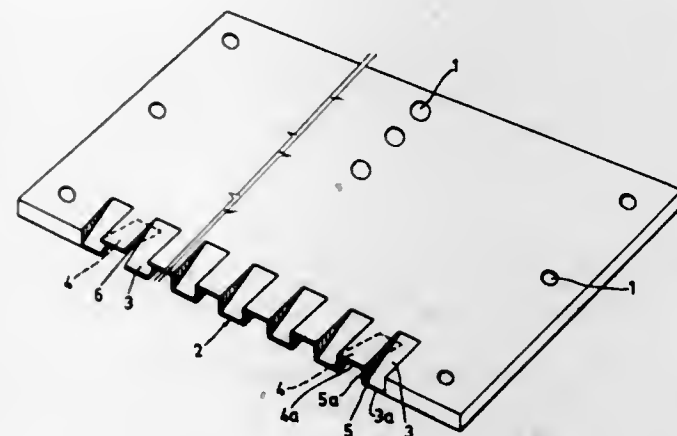
Filed Mar. 16, 1970, Ser. No. 19,689

Claims priority, application Sweden, Mar. 18, 1969, 3712/69

Int. Cl. A01g 23/02

U.S. Cl. 144-34 F

5 Claims



Cutting blade for cutting trees by forcing the blade against the tree, according to which the forward edge of the blade is provided with key grooves of alternatingly opposed inclination forming straight and perpendicularly shearing partial edges extending in the direction of the forward edge of the

blade and staggered relative to the central plane of the cutting blade.

3,631,907

CUTTER HEAD FOR USE IN MEAT GRINDERS

Friedrich Lanka, Holzstrasse 4, Linz, Austria

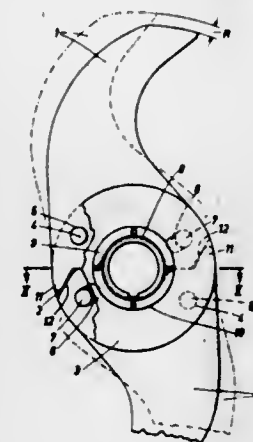
Filed July 2, 1968, Ser. No. 742,073

Claims priority, application Austria, July 12, 1967, A 6501/67

Int. Cl. B26d 1/28; A23p 1/00

U.S. Cl. 146-106

4 Claims



The cutter head comprises a plurality of self-contained units, which are individually removable. Each of said units comprises a retaining disc, a clamping disc and at least two cutter teeth clamped between said retaining and clamping discs and disposed in one plane. The clamping disc is adapted to release said teeth. Each of said teeth when thus released is movable relative to said discs for an adjustment of the circular orbit of the tooth. Each unit further comprises coupling means arranged to constrain said teeth of each unit to move equally in unison relative to said discs.

3,631,908

AUTOMATIC MEAT-CUTTING MACHINE

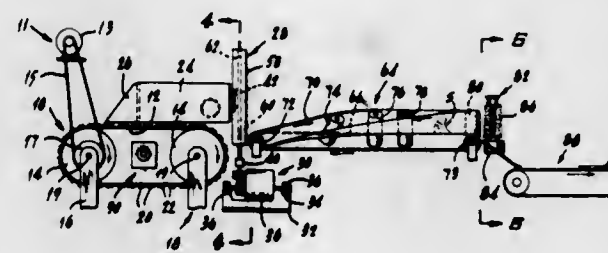
Morris Meltzer, 1350 Woodbourne Road, G-118, Levittown, Pa., and Donald D. Meyer, 2261 S. Hardwood Ave., Upper Darby, Pa.

Filed May 28, 1970, Ser. No. 41,472

Int. Cl. B26d 4/22

U.S. Cl. 146-133

15 Claims



An automatically operating machine receives pork loins, loins of beef, or other meat products, either boned or boneless, and cuts them into steaks, chops, or the like. Adjustments are provided in the machine such that the thickness of the slices is selectively regulated by varying the speed with which the product is fed to and through the cutting mechanism. The cut slices are conveyed to a cleaning brush assembly, being brought to a vertical position to be fed therethrough, and are thereafter discharged for packaging and final processing.

3,631,909

COMMINUTING APPARATUS

Friedrich Otto, Hameln, Germany, assignor to A. Stephan und Soehne, Hameln/Weser, Germany

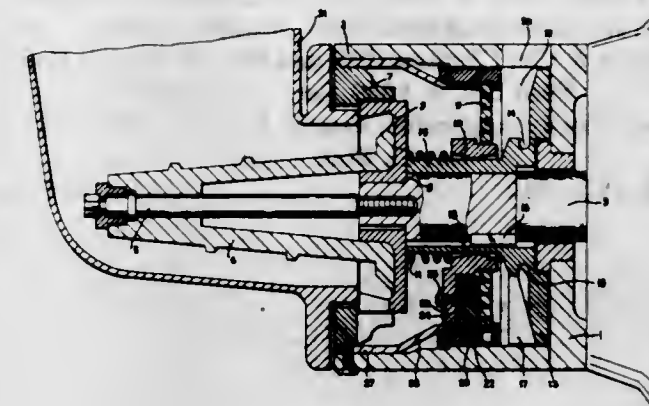
Filed Oct. 14, 1969, Ser. No. 866,232

Claims priority, application Germany, Oct. 19, 1968, P 18 04 075.0

Int. Cl. B02c 18/00

U.S. Cl. 146-182 R

18 Claims



A comminuting apparatus includes a housing having an inlet for material to be comminuted. A first comminuting assembly is arranged in the housing in the path of incoming material and includes a pair of concentric annular comminuting members having facing cutting edges between which the material passes to be comminuted. Downstream of the first assembly is a second comminuting assembly which receives material from the first assembly and which includes a stationary apertured plate member and a cutter member mounted adjacent one major surface of the plate member for rotation relative to the latter in sliding contact with this major surface. Drive means rotates one of the annular comminuting members and the cutter member.

3,631,910

SPRING WASHER

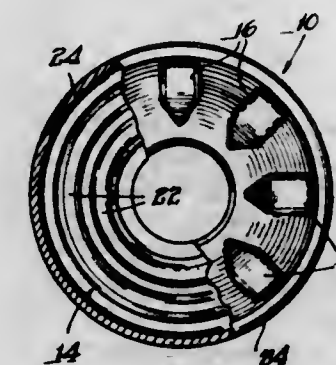
Henry Richard Crowther, Crystal Lake, and Thomas P. Hurst, Wayne, both of Ill., assignors to Maruyama Mfg. Co. Ltd., Tokyo, Japan

Filed Nov. 24, 1969, Ser. No. 879,146

Int. Cl. F16b 39/24

U.S. Cl. 151-38

8 Claims



The present invention relates generally to washer devices for operative association with the clamping side of rotary threaded fasteners such as screwheads and nuts, and more

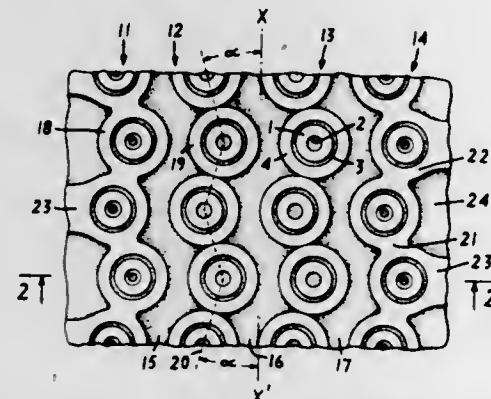
particularly to washers of the type which are adapted to yield axially when clamped in position against a work surface. The present application discloses a pair of spring-type annular, conical juxtapositioned washer bodies. Sections of the washer bodies intermediate the inner and outer margins thereof are deflected so as to provide increased lateral strength and abutting surfaces of limited area. The outer margin of one body is provided with flange means for interlocking with the other washer member so as to maintain said members in proper juxtaposition.

3,631,911 PNEUMATIC TIRE

Henri Verdier, Puy-de-Dome, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand (Puy-de-Dome), France
Filed Dec. 9, 1969, Ser. No. 883,567
Claims priority, application France, Dec. 13, 1968, 178332
Int. Cl. B60c 11/10

U.S. Cl. 152-216

12 Claims



A tire has a tread formed with a plurality of buttons in relief, each button comprising an inner unit and an associated outer unit surrounding the inner unit and separated therefrom by an associated separating cavity. Each inner unit exceeds its associated outer unit in height so as to have in relation to its associated outer unit a projecting portion. The volume of the projecting portion equals at most the volume of the associated separating cavity. The buttons are made by an injection-molding process.

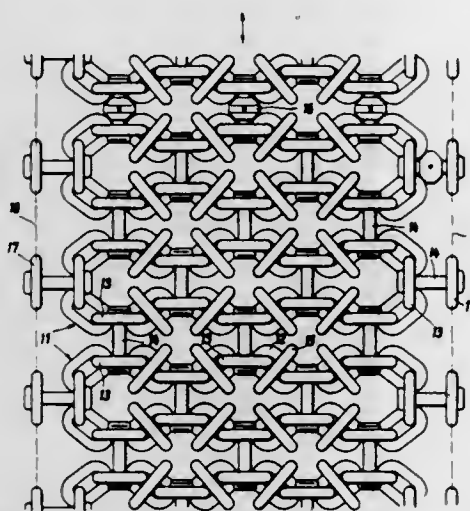
3,631,912

TIRE PROTECTION AND ANTISKID CHAIN

Werner Helmut Rieger, Haus Haselbach, Unterkochen, Württemberg, Germany
Filed Dec. 12, 1969, Ser. No. 884,546
Claims priority, application Germany, Dec. 17, 1968, P 18 16 532.7
Int. Cl. B60c 27/00

U.S. Cl. 152-239

15 Claims



A tire protection and antiskid chain with chain strand members arranged in rows and formed of oval round steel

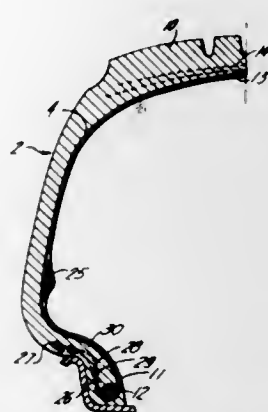
links, the successive links of which strand members having one and the same orientation are connected in each case alternately by connecting elements with links of the same orientation of the one chain strand piece and the other adjacent chain strand piece.

3,631,913 PNEUMATIC TIRE

Jacques Bolleau, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, France
Filed Oct. 17, 1969, Ser. No. 867,225
Claims priority, application France, Oct. 25, 1968, 171540
Int. Cl. B60c 3/00

U.S. Cl. 152-353

15 Claims



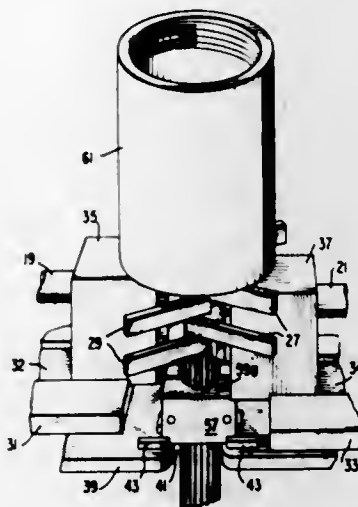
A pneumatic tire having substantially the same width near the tread as near the beads is provided with sidewalls each comprising two distinct portions. A first portion of each sidewall, occupying most of the radial sidewall height, extends radially inwardly from the tread and slopes axially outwardly. This portion has a meridian profile that is substantially straight. A second portion of each sidewall extends from the radially inner edge of the first portion to the bead and has a meridian profile that is strongly curved.

3,631,914

METHOD FOR APPLYING FITTINGS TO STRAND ENDS
Stephen R. Baker, Oley, and Harry D. Kremer, Bethlehem, both of Pa., assignors to Bethlehem Steel Corporation
Original application Nov. 13, 1967, Ser. No. 682,465, now Patent No. 3,556,168. Divided and this application Sept. 23, 1970, Ser. No. 74,572
Int. Cl. B22d 19/00

U.S. Cl. 164-112

5 Claims



A hot-metal-type end fitting is precisely positioned upon the end of a wire strand without detrimental cocking of the fitting with respect to the longitudinal axis of the strand by

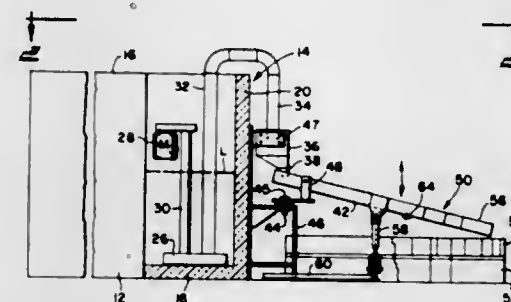
clamping the strand end in a clamp having planar upper and lower surfaces disposed at right angles to the central clamping orifice of said clamp, positioning the lower surface of said clamp securely against a planar horizontal supporting surface, positioning an end fitting having a flat rear surface against the upper surface of said clamp, and pouring molten metal into the bowl of said positioned fitting.

3,631,915 METAL-POURING APPARATUS FOR A SMELTING FURNACE

Arthur L. Perry, 4387 East 175th St., Cleveland, Ohio
Filed Dec. 29, 1969, Ser. No. 888,256
Int. Cl. B22d 35/04

U.S. Cl. 164-266

6 Claims



Metal-pouring apparatus for a smelting furnace in which a liquid metal pump is placed in a bath of the molten metal, arranged to pump the molten metal into a funnel on the front of the smelter. An elongated channel is pivotally supported at one end beneath the funnel mouth for movement in a horizontal arc about the pivot support. A semicircular platform arrangement supports a plurality of molds in several semicircular rows around the front of the furnace centered on the channel pivot point. The channel is extendible or retractable in length to pour first one row of the molds and then another with pivotable movement of the channel.

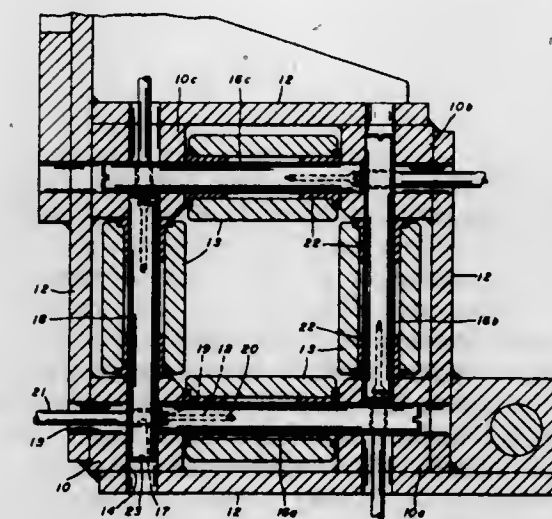
The pouring apparatus is portable so that it can be moved from one smelting furnace to another for pouring several furnaces in succession.

3,631,916 ARRANGEMENT FOR MOUNTING ROLLS IN A GUIDE ROLL RACK

George F. Schwartz, Hampton Township, Allegheny County, Pa., assignor to United States Steel Corporation
Filed Sept. 23, 1970, Ser. No. 74,805
Int. Cl. B65g 13/11; B22d 11/12

U.S. Cl. 164-282

3 Claims



An arrangement for mounting the rolls of a guide roll rack of a continuous casting machine. The rack includes a rigid

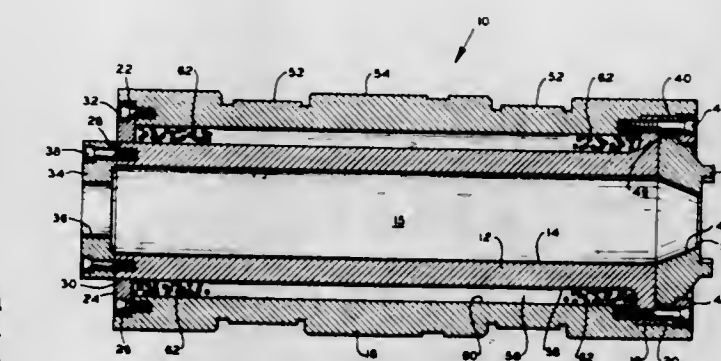
cage in which sets of vertically spaced idler rolls are journaled to define a pass for confining a casting as it descends from a mold. The mounting includes stationary shafts which extend across the four sides of the cage between fixed corner posts and are received in intersecting bores in the posts. One end of each shaft abuts the side of another shaft, which has a diametric bore to receive a keying means for the abutting shaft.

3,631,917 CENTRIFUGAL CASTING MOLD WITH FREE FLOWING PARTICULATE HEAT TRANSFER MEANS

Ralph K. Lorton, Hagerstown, Ind., assignor to Dana Corporation, Toledo, Ohio
Filed Sept. 15, 1969, Ser. No. 858,028
Int. Cl. B22d 13/02

U.S. Cl. 164-286

12 Claims



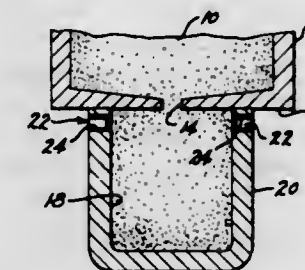
A centrifugal casting mold with free flowing particulate heat-transfer means operable to act as an insulation barrier at high-rotational speeds of the mold and as a high-heat conductor at the static condition or low-rotational speeds of the mold.

3,631,918 VENT FOR CORE BOXES AND THE LIKE

Charles W. Barrett, 2401 S. Wayne Road, Westland, Mich.
Continuation of application Ser. No. 744,143, July 11, 1968, now abandoned. This application June 19, 1970, Ser. No. 48,935
Int. Cl. B22c 23/00

U.S. Cl. 164-410

22 Claims



A vent comprising elongated flow passageways through a thin sheet having thin fingers forming at least one of the two opposite side edges of the flow passageway with the top surface of the fingers being generally parallel with the top surface of the sheet. The width of the flow passageways is less than the particle size of the material to be screened from the passing gas, and the fingers are cantilevered, preferably from adjacent one end for maximum flexibility of the fingers. The flexing of the fingers provides a self-cleaning action which may be produced by the passage of gases through the passageways or may be produced by a change in temperature. The sheet material preferably has a thickness that is approximately no greater than the particle size of the material being screened, and in the preferred embodiment, the fingers

are made integral with the sheet. This is accomplished by forming an irregular opening through the sheet material, which opening has a width that is less than the particle size of the material to be retained. This opening in some instances will be tapered to provide greater width adjacent the bottom side of the sheet than adjacent the top side of the sheet, and the vents are preferably made by etching out the irregular opening with an acid.

3,631,919

HEAT TRANSFER METHOD AND APPARATUS

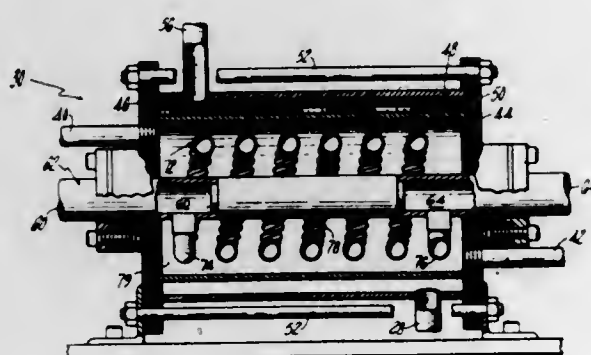
Ralph D. Cooksley, Westbrook, Conn., assignor to Thermaline Corporation, Waterford, Conn.

Filed Apr. 4, 1969, Ser. No. 813,570

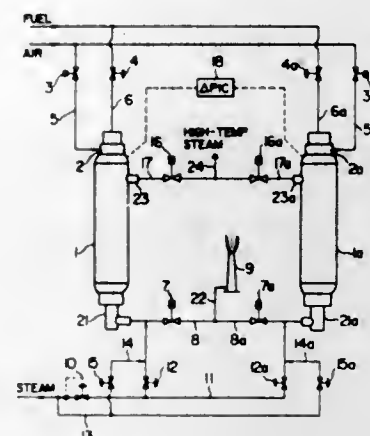
Int. Cl. F28d 1/100

U.S. Cl. 165-1

9 Claims



flowrate to each of the heat-exchanger units, a supply device for charging the fluid into each unit separately from the first



fluid supply system, and a detecting device for detecting the pressures within each of the units.

3,631,921

SOLID-STATE HEATING-COOLING ZONE CONTROL SYSTEM

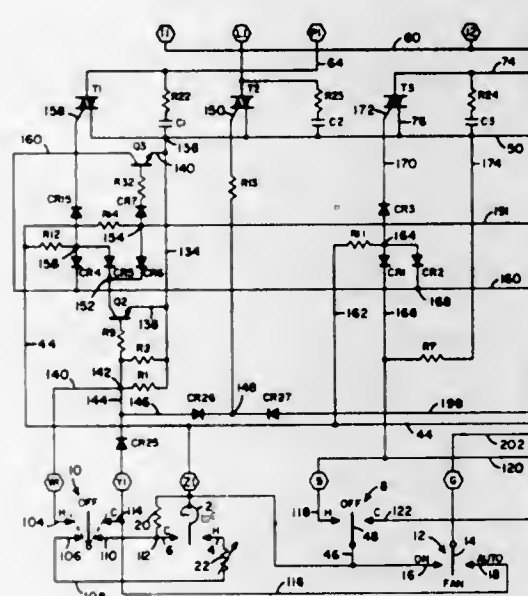
Daryl R. Pedersen, Wayzata, and Charles E. White, St. Paul, both of Minn., assignors to Novatron, Inc., St. Paul, Minn.

Filed Jan. 19, 1970, Ser. No. 3,639

Int. Cl. F24f 3/00

U.S. Cl. 165-22

5 Claims



Desalination apparatus for boiling salt water and condensing the resulting steam having a primary heat transfer unit with a twisted and spirally formed heat transfer tubular conduit for the salt water which is rotated within a steam chamber for heating the salt water while maintaining the salt water in the rotating tubular conduit substantially in its liquid state by the pressure increase resulting from its rotation. Steam emanating from the salt water heated by the primary heat transfer unit is conducted through a condenser having elongated inner and outer coaxial twisted tubes and through which the inlet salt water is conducted, thereby preheating the cold water while condensing the steam. The hot salt water residue from the primary heat transfer unit is conducted through a secondary heat transfer unit (like the condenser in construction) for preheating the inlet salt water further before it is conducted to the primary heat transfer unit.

3,631,920

CHANGE-OVER-TYPE REGENERATIVE HEAT-EXCHANGE APPARATUS

Hideo Nishikawa; Akihiro Kawaguchi, both of Akashi; Koichi Washimi, and Masaki Kanbayashi, both of Iwaki, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha and Mitsubishi Jyukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 25, 1970, Ser. No. 14,088

Int. Cl. F28d 17/00

U.S. Cl. 165-4

1 Claim

A regenerative heat-exchange apparatus of changeover-type comprising two or more regenerative heat-exchanger units and operated to cause a process fluid to undergo heat exchange continuously through changeover operation and to deliver the fluid in a desired state is provided with a first fluid supply system for supplying the process fluid at a constant

20 A multizone, heating-cooling control circuit implemented with solid-state components rather than conventional relays which heretofore have been commonly used. The control circuit is designed for use in a forced air system wherein each zone is provided with dampers and motors for controlling the positioning of the dampers in accordance with the heating or cooling demand detected by a thermostat in each of the zones. A plurality of power semiconductor devices (gate-controlled triacs) are employed to connect the windings of the zone control motors, the furnace fan, the furnace gas valve and the cooling compressor across an alternating current supply. Diode-transistor logic circuits are employed to generate the gating or control signal for the triacs in accordance with the settings of the system control switch and the temperature in one or more zones.

3,631,922

HEAT EXCHANGER FIN

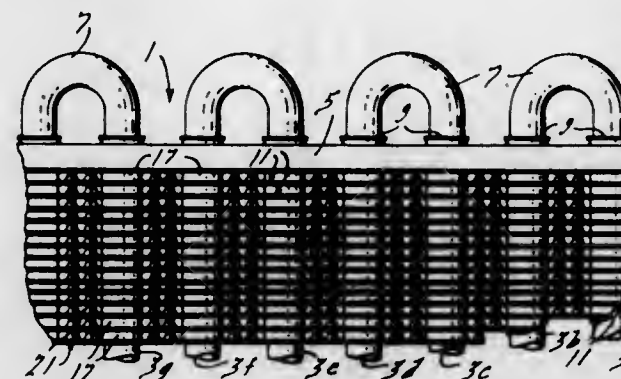
Louis F. Ponziani, Kettering, Ohio, assignor to Chrysler Corporation, Highland Park, Mich.

Filed May 4, 1970, Ser. No. 34,915

Int. Cl. F28f 1/10

U.S. Cl. 165-151

5 Claims



Fin for a heat exchanger of the type having fluid-carrying tubes extending therethrough. The fins are thin strips of metal and have air diverting and diffusing sections therein formed by a plurality of triangular shaped tangs struck away from the fin.

3,631,923

PLATE-TYPE CONDENSER HAVING CONDENSED-LIQUID-COLLECTING MEANS

Hazime Izeki, Suita-shi, Osaka, Japan, assignor to Hisaka Works, Ltd., Osaka, Japan

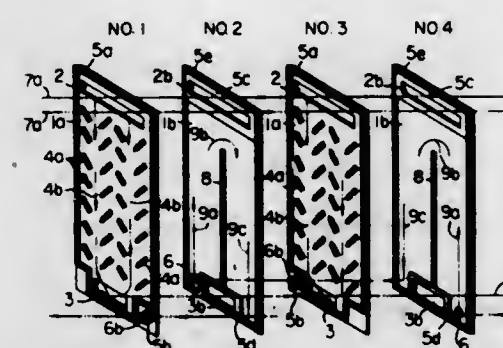
Filed Feb. 18, 1969, Ser. No. 800,142

Claims priority, application Japan, Feb. 6, 1968, 43/7649

Int. Cl. F28f 3/00

U.S. Cl. 165-167

11 Claims



A plate-type condenser comprises a row of spaced-apart heat transfer plates defining an alternating series of gaseous passages and cooling liquid passages. Within each gaseous passage is provided a plurality of liquid-collecting means for directing the condensed liquid vertically downwardly along discrete flow passages thereby minimizing contact between the heat transfer plates and the condensed liquid. The liquid-collecting means comprises either an array of inclined projections or recesses formed within the heat transfer plates.

3,631,924

RETRIEVABLE PERMANENT WELL PACKER

Howard L. McGill, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Mar. 26, 1970, Ser. No. 22,860

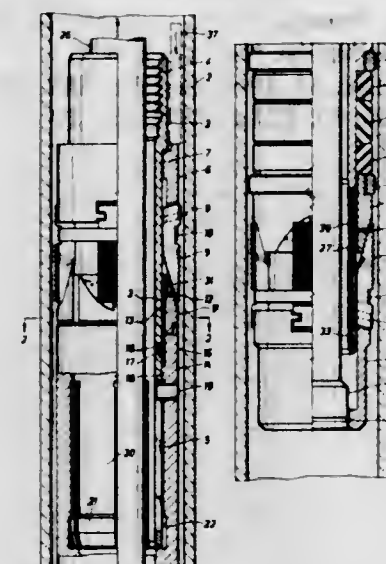
Int. Cl. E21b 23/00, 33/128

U.S. Cl. 166-134

11 Claims

A well packer is provided which may be permanently anchored in a well casing, but which may be retrieved without damage to either the casing or the packer. The packer may have separate upper and lower mandrel sections,

and the upper cone is preferably collapsible but supported in an expanded condition by a support ring on the upper mandrel section when the packer is anchored. To retrieve the packer, the upper mandrel section is lifted from the lower mandrel section to draw the support ring from under the



upper cone. When the upper cone collapses about the upper mandrel section, this disengages the upper slips from the casing. Further upward travel of the upper mandrel section draws the lower mandrel section and lower cone from under the lower slips and disengages them from the casing.

3,631,925

RETRIEVABLE PERMANENT WELL PACKER

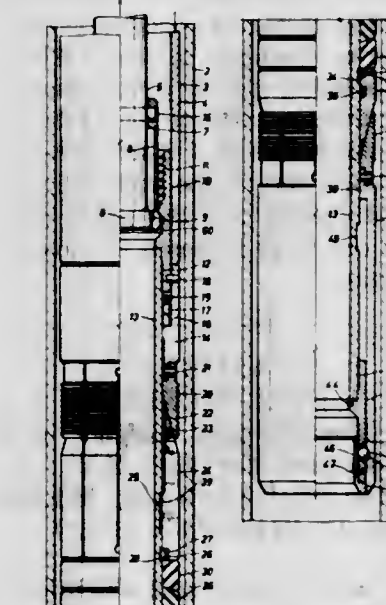
Benjamin P. Nutter, Bellville, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Mar. 26, 1970, Ser. No. 22,987

Int. Cl. E21b 23/00, 33/129

U.S. Cl. 166-134

10 Claims



A well packer, which includes upper and lower slips and cones for permanent anchorage in a casing or the like, is provided with means for releasing the slips and retrieval of the packer without damage to either the casing or the packer. The upper cone is collapsible and is wedged between the upper slip and supported by a laterally shiftable support ring slidably positioned on a mandrel having an annular recess adjacent the ring. The upper slip is disengaged by shifting the mandrel until the support ring drops into the recess, allowing

collapse of the cone and release of the slip. Thereafter, the mandrel is lifted to carry the upper slip away from the upper cone.

3,631,926 WELL PACKER

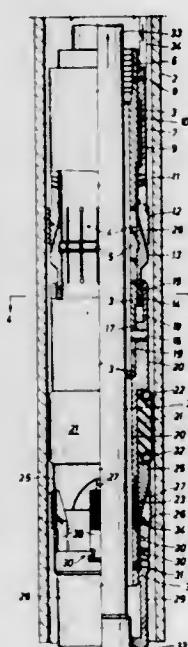
David E. Young, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,540

Int. Cl. E21b 23/06, 33/129

U.S. Cl. 166-134

13 Claims



An improved well packer having upper and lower slips and expanders for permanent anchoring, is further provided with separate upper and lower mandrel sections. After the packer is permanently anchored in a well casing or tubing, the packer may be retrieved by pulling the upper mandrel section to disconnect a segmented nut assembly which couples the upper expander to the lower mandrel section, and which also keeps the upper expander wedged between the upper slips and the upper mandrel section. When the nut is released, the compression loading on the packing is relieved to enable its relaxation, and the setting pressure on the upper and lower slips is also achieved. Further upward travel of the upper mandrel section carries the upper slip out of engagement with the well casing, and thereafter draws the lower cone upward and out from between the lower slip and the lower mandrel section.

3,631,927 WELL PACKER

David E. Young, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,562

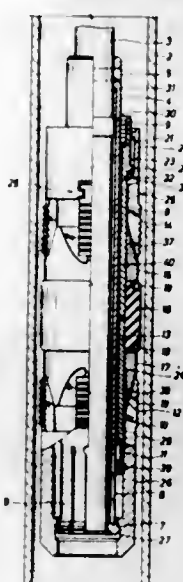
Int. Cl. E21b 23/06, 33/129

U.S. Cl. 166-134

12 Claims

An improved packer is provided which is adapted to be anchored in a well casing against longitudinal movement in either direction, but which is also retrievable without damage to either the packer or the casing. The packer is equipped with conventional slips and cones located on opposite sides of a conventional elastic packing body. Separate upper and lower mandrel sections are provided with their ends abutting each other adjacent the packing body. The packer is anchored by conventional setting techniques and equipment, and may be retrieved by drawing the upper mandrel away from the lower mandrel. The compressed packing body then relaxes inwardly into the gap separating the ends of the mandrels, thereby releasing backup pressure on the cones.

Thereafter, first the upper slip is drawn out of engagement with the casing, and then the lower cones and slip is carried



out of engagement with the casing by further upward travel of the upper mandrel.

3,631,928 APPARATUS FOR AND METHOD OF CUTTING OFF FLOW FROM WILD GAS AND OIL WELLS

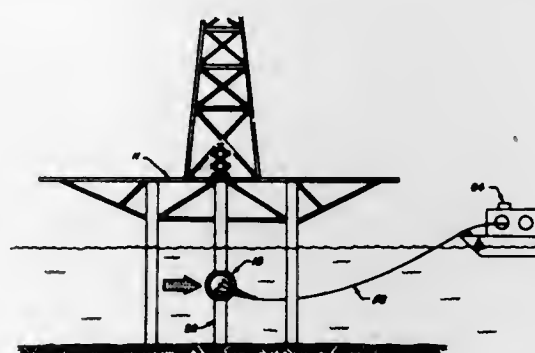
Billy W. Dalzell, 9th Floor Baronne Bldg., New Orleans, La.

Filed Apr. 20, 1970, Ser. No. 29,934

Int. Cl. E21b 35/00

U.S. Cl. 166-285

6 Claims



Two hollow hemispheres diametrically drilled to fit around a pipe casing, and exteriorly flanged for bolting together to isolate a section of said casing intermediate its ends, said hemispheres being drilled through in a plurality of places to receive drills for penetrating steel and cement. Respective nipples are exteriorly secured to the hemispheres around each drill hole. A screw cap may be used to close each nipple when not in use. In operation a valve may be attached to the nipple and a drill inserted therein for drilling through the concentric metal and cement casings of the casing pipe and the production tubing strings in the center thereof. If a hollow drill has been used it can remain in place, otherwise it is withdrawn. A plastic snake of a flexibility and size to pack around the tubing strings is forced into the drilled hole to isolate the drilled break in the tubing strings from the rest of the casing and the strings above the break. Cement and mud is pumped through connecting hoses and the installed valve into the drilled hole to stop up the well. If well pressure is great, a plurality of drills up to the number of drill holes in the hemispheres can be used to effect a plurality of penetrations into the pipe casings for pumping a larger volume per minute of stopping material into the casing and the lower part of the tubing strings. A second species of the invention comprises a cylindrical member divided diametrically into halves for bolting together around a pipe casing. Drill holes

are defined through the cylinder walls, and nipples are secured therearound similar to the ones described for the hemispheres. Where six or less drill holes are required this species is the preferred one.

3,631,929 HARROW TOOTH ATTACHMENT

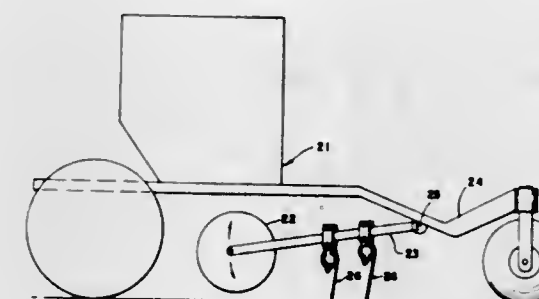
Robert B. Gates, Lorraine, N. Dak.

Filed June 17, 1970, Ser. No. 47,025

Int. Cl. A01b 23/02, 35/24

U.S. Cl. 172-643

1 Claim



The invention comprises a harrow tooth attachment for attachment to the front of a grain drill. The attachment has a harrow tooth with the upper end wound about a pipe and fixed thereto. The pipe has a flange projecting upward from its upper end with a pair of bores for receiving a pair of bolts from a second separate flange and with the flanges engaging the opposite sides of a frame member on the front of the grain drill.

3,631,930 MOUNTING ARRANGEMENT FOR BULLDOZER BLADES

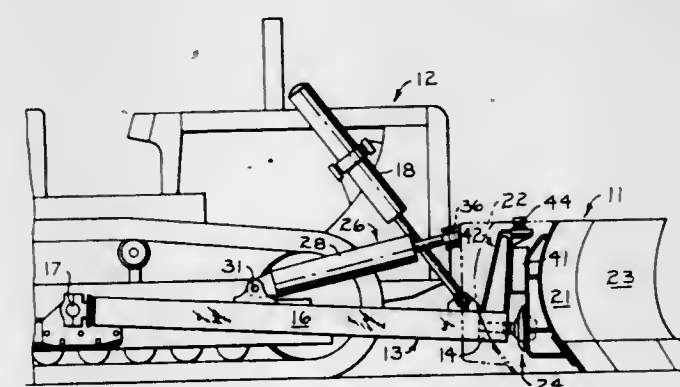
Robert A. Peterson, San Leandro, Calif., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed July 7, 1969, Ser. No. 839,151

Int. Cl. E02i 3/26

U.S. Cl. 172-804

17 Claims



A mounting arrangement for supporting a bulldozer blade on a vehicle having a C-frame wherein the blade is supported by a centrally located universal ball joint on the C-frame and a pair of longitudinally arranged hydraulic jacks. In addition to providing a simplified three-point mounting for the blade, blade angle and pitch may both be controlled by the single pair of jacks. Preferably, a generally horizontally tilt cylinder is pivotally connected between the back of the blade and a tower structure on the C-frame to stabilize the mounting structure and provide means to tilt the blade.

3,631,931 BULLDOZER

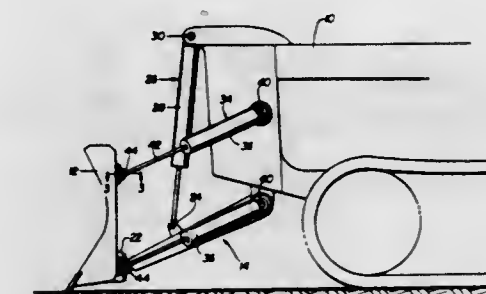
Claude M. Friebel, Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Dec. 12, 1969, Ser. No. 884,509

Int. Cl. A01b 3/76

U.S. Cl. 172-807

2 Claims



A bulldozer having pivotally mounted on the front end an A-shaped push frame which swivelly supports a dozer blade. The angle, pitch and tilt of the blade is adjusted by upper and lower parallel jacks on each side of the bulldozer. The blade is raised and lowered by another jack that interconnects the middle of the push frame with the front of the tractor.

3,631,932 OFFSHORE DRILLING APPARATUS AND METHOD

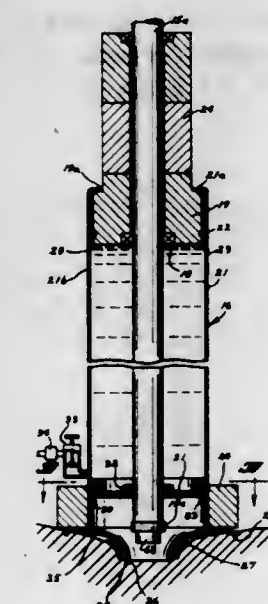
Leonard A. Lindelof, Minneapolis, Minn., assignor to E. J. Longyear Company, Minneapolis, Minn.

Filed Sept. 3, 1968, Ser. No. 756,897

Int. Cl. E21b 7/12

U.S. Cl. 175-6

26 Claims



Method and apparatus for taking core from a submerged earth formation that including drilling a casing into an earth formation a number of feet. A flotation tank is provided on the upper end of the casing while a cushion drum assembly is mounted on the lower end of the casing to control the rate of descent of the rotating casing into the formation; and such an assembly or weight on the lower end of the casing is provided to maintain the major portion of the casing in tension. After the casing is extended into the earth formation, a drill unit is supportedly mounted on the casing, a drill stem extended down through the casing and the drill stem drilled into the formation for continuing the core-taking operation.

3,631,933

FLUID FLOW SYSTEM FOR WELLS

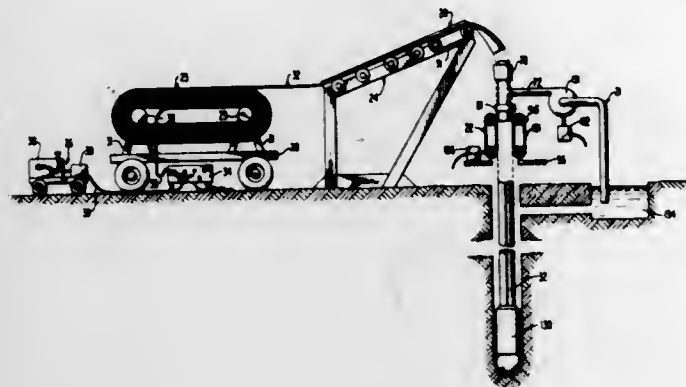
John Dennis Bryant, Route 3, Hawkinsville Road, Macon, Ga.

Filed July 22, 1968, Ser. No. 746,471

Int. Cl. E21b 7/00

U.S. Cl. 175-57

13 Claims



A fluid flow system for wells, including a conduit openable along its length and having a digging apparatus connected to one end of the conduit. Means are provided for progressively feeding the conduit into a well and for progressively closing the length of the conduit as it is moved into the well. The conduit is closed about a motive fluid supply duct which extends from the open portion of the conduit into the closed portion of the conduit at the ground level of the well, to supply motive fluid to the digging apparatus.

3,631,934

APPARATUS AND METHOD FOR OBTAINING CORE SAMPLES FROM SOIL AND ROCK MASSES

Mamei Coelho Mendes da Rocha, Lisbon, Portugal, assignor to Laboratorio Nacional de Engenharia Civil, Lisbon, Portugal

Filed May 1, 1970, Ser. No. 33,559

Claims priority, application Portugal, July 24, 1969, 52 164

Int. Cl. E21b 49/02

U.S. Cl. 175-58

10 Claims



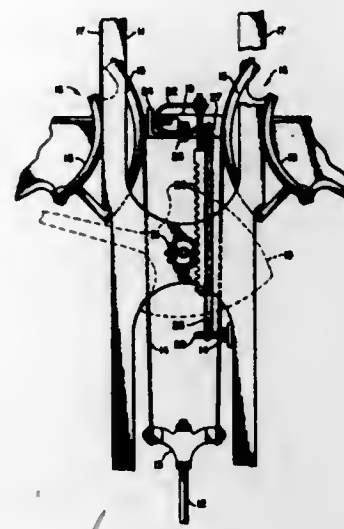
A core sample is removed from a soil or rock mass by boring a hole in the mass to a depth at which sampling is to begin and thereafter cutting a second hole in extension of the first hole and of a smaller diameter. The second hole is of a length equal to the desired sample and the second hole is filled with a hardenable binder such as cement whereupon a rigid reinforcing member is introduced into the still fluid binder for the depth of the second hole. After the binder has hardened a core of a diameter equal to the first hole is cut from the mass, the core being inclusive of the binder and reinforcing member with an intact surrounding sample of the mass.

3,631,935
CONSTANT MESHING FORCE RACK AND PINION FOR WEIGHERAniese Edward Seed, Toledo, Ohio, assignor to The Reliance Electric and Engineering Company, Toledo, Ohio
Original application Jan. 13, 1969, Ser. No. 790,605, now Patent No. 3,580,095, dated May 25, 1971. Divided and this application Sept. 8, 1970, Ser. No. 70,208

Int. Cl. F16h 55/18, 1/04; G01g 1/02

U.S. Cl. 177-174

1 Claim



In a condition responsive device, such as a load-responsive weighing scale, a rotatably mounted pinion is engaged with a pivotably mounted balanced rack which is movable in response to change in the condition. A spring is provided for urging the rack into engagement with the pinion and for maintaining the meshing force between the rack and the pinion substantially constant during all positions of the rack.

3,631,936

FLOATING WHEEL AND POWER ASSEMBLY MOTORCYCLES

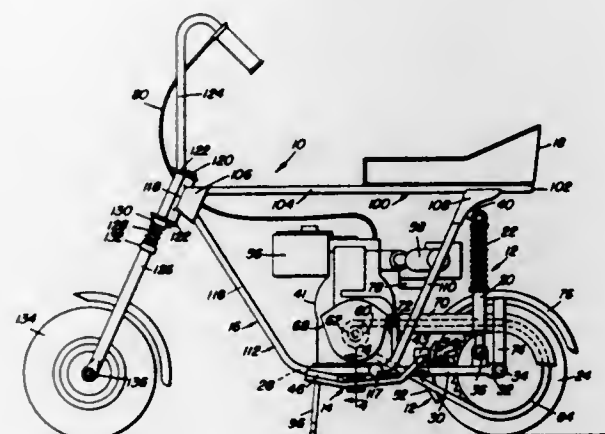
Frederick G. Schweser, P.O. Box J, West Military Road, Fremont, Nebr.

Filed Jan. 5, 1970, Ser. No. 768

Int. Cl. B62k 11/10

U.S. Cl. 180-32

10 Claims



This device has a floating wheel and power subassembly forming a part of motorcycle, mini-bike or scooter. The cycle frame consisting of a rear subassembly floatably mounted on a front subassembly. The rear subassembly includes a rear subframe, consisting of a U-member between the legs of which the rear power wheel is rotatably mounted with a motor mounted on the forward bight end of the U-member, a

brakeshoe eccentrically pivoted on the U-legs between the wheel and the motor, and a jack stand pivoted beneath the motor. A front subassembly has its rear portion resiliently supported on the rear ends of the rear subframe legs, and the front ends of the legs, under the motor, are pivotally secured to an intermediate portion of the front subassembly.

A fuel tank is supported on the motor. The front subassembly consists of a horizontal U-member with forwardly extending converging legs supported on two vertical U-members with upwardly diverging legs, the rear legs supporting the operator's seat, the front legs secured with the front legs of the horizontal U and pivotally connected with a pair of front wheel fork members and handlebars.

3,631,937

SUPPLEMENTARY STEERING SYSTEM FOR VEHICLES

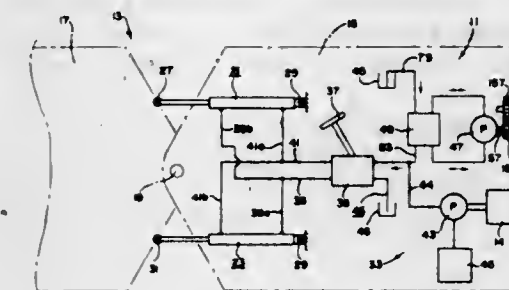
Arthur B. Joyce, Corinth, Miss., assignor to Tyrene Hydraulics, Inc., Corinth, Miss.

Filed Mar. 10, 1970, Ser. No. 18,000

Int. Cl. B62d 5/06

U.S. Cl. 180-79.2 B

10 Claims



A supplementary steering system for use with the primary hydraulic steering system of a vehicle having a steering valve. The supplementary steering system includes a supplementary pump driven by the driven shaft of the vehicle and a supplementary valve that discharges the output of the supplementary pump in the right direction to the steering valve regardless of the direction of rotation of the supplementary pump so that supplementary hydraulic fluid is available for use in steering so long as the vehicle is moving and even when the engine of the vehicle is not in operation.

3,631,938

FLUID CUSHION CELLS FOR FLUID CUSHION VEHICLES

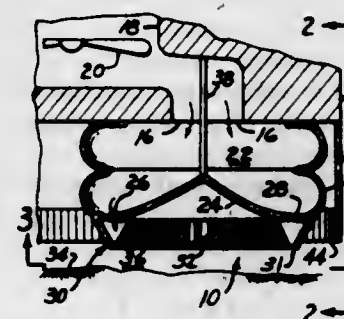
Wilfred J. Eggington, Claremont, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

Filed May 1, 1968, Ser. No. 725,670

Int. Cl. B60v 1/04

U.S. Cl. 180-121

4 Claims



This disclosure relates to cushion cells for fluid cushion vehicles.

A cushion cell according to the present disclosure comprises an expandable chamber capable of expanding and contracting. Orifice means is provided through the bottom of the expandable chamber to form a fluid cushion below the expandable chamber to lift the vehicle. An inlet opening is provided into the expandable chamber to supply that chamber with fluid under pressure.

According to an optional and desirable feature of the present disclosure, a skirt may depend from the expandable chamber to enclose the fluid cushion cell beneath the chamber. According to another optional and desirable feature of the present disclosure, a plurality of cushion cells may be disposed about the periphery of an air cushion vehicle to form an additional cushion cell within the bounds of the peripheral cushion cells.

3,631,939

MOBILE AERIAL TOWER

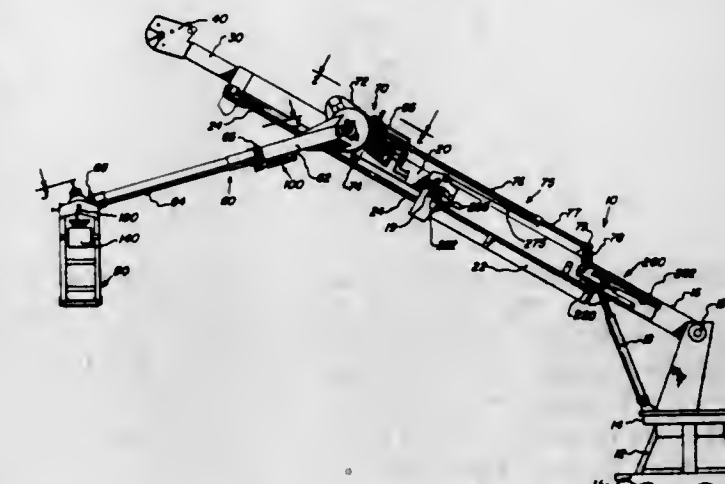
Orlo J. Johnson, Lakeville, and Albert E. Renke, Bloomington, both of Minn., assignors to Tel-E-Lect, Inc., Minneapolis, Minn.

Filed May 8, 1970, Ser. No. 35,827

Int. Cl. B66d 11/04

U.S. Cl. 182-2

24 Claims



A mobile aerial tower incorporating an articulated boom having extensible boom elements mounted therein at least one of which is made of a dielectric material and with a rotatable and tiltable elbow carrying a personnel supporting platform at the extent of the same which is adjustably positioned on one of the boom elements and rotatably and tiltably mounted for positioning of the platform relative to the extensible boom elements.

3,631,940

LOAD CARRIAGE WITH OPERATOR'S PLATFORM

Kenneth A. Richins, Salt Lake City, Utah, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Mar. 16, 1970, Ser. No. 19,851

Int. Cl. E04g 1/18

U.S. Cl. 182-148

6 Claims



A load-lifting vehicle has a vertically moving load carriage on which is mounted an operator's platform. When the

operator's platform is fully lowered, the load carriage may be in an elevated position from which it may move upwardly to carry the operator's platform therewith, or may move downwardly freely of the operator's platform to a fully lowered position.

3,631,941

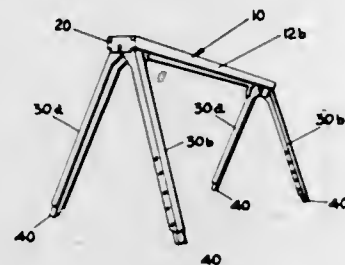
COLLAPSIBLE SAWHORSE

James R. Greenman, and Thomas E. Lane, Jr., both of Traverse City, Mich., assignors to Porta-Horse, Inc., Detroit, Mich.

Filed Apr. 1, 1970, Ser. No. 24,652
Int. Cl. E04g 1/32; F16m 11/00

U.S. Cl. 182-155

16 Claims



This sawhorse has a channel-shaped beam and extendible, collapsible legs. The legs can be collapsed for storage generally within the channel-shaped beam. Each pair of legs is rotatably mounted on a common axle extending from the base of a U-shaped bracket. The arms of each U-shaped bracket are rotatably secured to the channel sidewalls of the beam near its end. Thus, each pair of legs can be rotated downwardly from the beam until the edge of the bracket abuts the underside of the top of the beam. Then, the legs can be rotated laterally outwardly from the beam until the upper end of each leg abuts the underside of the top of the beam. Longitudinal inward rotation of the legs is prevented when they are folded up and out by detent flanges depending downwardly from the sides of the beam.

3,631,942

ELEVATOR CAB STRUCTURE

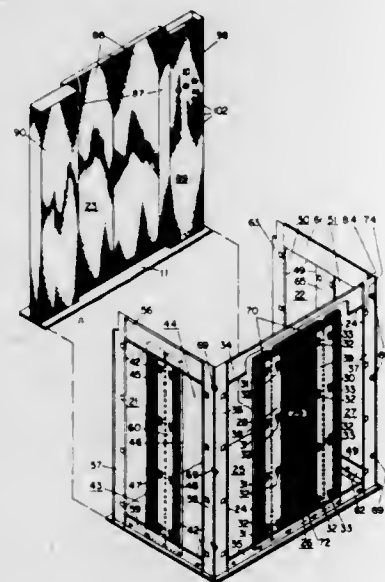
Morrison John Broun, Flushing, N.Y., assignor to Otis Elevator Company, New York, N.Y.

Filed July 14, 1970, Ser. No. 54,781

Int. Cl. B66b 9/00

U.S. Cl. 187-1

12 Claims



A cab structure for an elevator car having a supporting floor portion including, a front wall, a rear wall and a pair of

sidewalls, wherein the rear wall and each of the sidewalls includes a rigid frame structure, a plurality of removable decorative wall panels, and a plurality of spring members, which clamp the panels to the rigid frame structure. Each rigid frame structure has a substantially flat inner surface, and the panels connected thereto have substantially flat coplanar, outer surfaces, which bear against the frame inner surface. Each spring member has a fixed portion, which is fixedly connected to a panel at the outer surface thereof, and has a resilient portion, which is received in an aperture portion in the rigid frame structure adjacent thereto. The resilient portion overlaps and bears against the frame at the outer surface of the edge of the aperture portion. The front wall has an overhead lintel member and an operating return panel. The overhead lintel member has opposite ends rigidly connected to the sidewall rigid frame structures and is arranged to support a sliding door. The operating return panel, which is adjacent one side of the door opening, has an interior swingable door plate, which supports control elements and encloses a wiring conduit.

3,631,943

FLUID-COOLED TORQUE-TRANSMITTING DEVICE

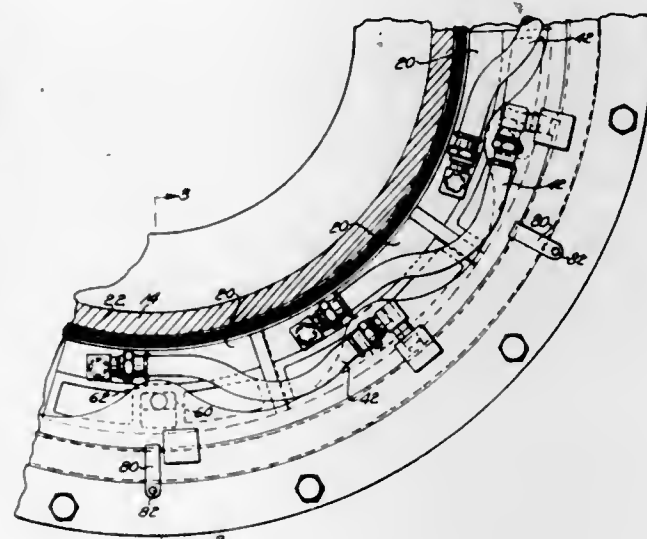
Elwood L. Roob, Parma, and Richard R. Schier, Bay Village, both of Ohio, assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Mar. 23, 1970, Ser. No. 21,662

Int. Cl. F16d 65/82

U.S. Cl. 188-264 D

6 Claims



A fluid-cooled torque-transmitting device transmits torque between relatively rotatable assemblies. One relatively rotatable assembly includes an inflatable member and a plurality of segments. The segments are movable radially upon inflation of the inflatable member to frictionally engage a portion of the other relatively rotatable assembly. The segments define a portion of a cooling chamber. Cooling fluid passes through the cooling chamber to receive the heat generated by the transmission of torque between the relatively rotatable assemblies and carry the heat therefrom.

3,631,944

PLURAL DRIVE WITH DIFFERENTIAL BRAKES

Jerzy Leon Courtenay, Wolverhampton, and Francis John Neal, Brewood, both of England, assignors to H. M. Hobson Limited, London, England

Filed July 16, 1970, Ser. No. 55,432

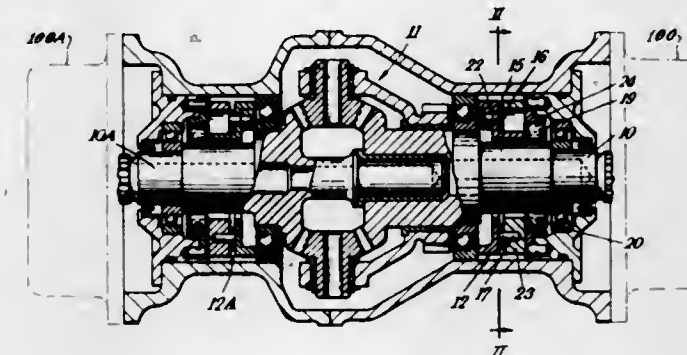
Int. Cl. F16d 63/00

U.S. Cl. 192-3 R

2 Claims

The combination with a hydraulically rotated shaft of a brake comprising unidirectional braking mechanisms which are selectively operable, when applied, one to brake the shaft

when it is rotating clockwise and the other to brake the shaft when it is rotating anticlockwise, a piston coupled to the braking mechanisms and subject to the hydraulic pressure which is effective to drive the shaft, the piston maintaining



the braking mechanisms in inoperative positions when subject to hydraulic pressure, and a spring biasing the servo piston and operative to apply the braking mechanisms upon removal of the hydraulic pressure.

3,631,945

SPEED-CHANGING DEVICE FOR A ROTARY MEMBER

Giorgio Ollearo, Ivrea, Italy, assignor to Ing. C. Olivetti & Co. S.p.A., Ivrea (Turin), Italy

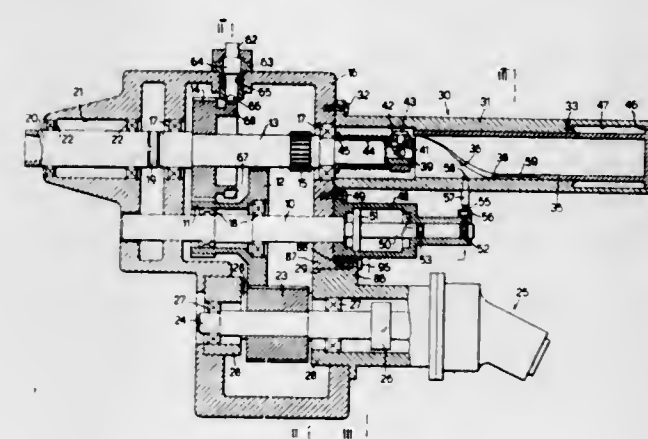
Filed June 2, 1970, Ser. No. 42,812

Claims priority, application Italy, June 9, 1969, 52154 A/69

Int. Cl. F16d 67/00; F16h 5/06, 3/22

U.S. Cl. 192-3.51

11 Claims



A speed-changing device for a machine tool spindle comprises two driven gears of different diameters secured to the spindle, two driving gears for meshing with respective ones of the driven gears and angularly fixed relative to each other, the spindle being orientable in a predetermined angular position. The driving gears are axially slidable with respect to the driven gears for selecting which of the two pairs of driven and driving gears is in mesh. The gear ratios are such and the fixed angular relationships between the driven gears and between the driving gears are such that one gear of each said pair has a tooth aligned exactly with a space of the other gear of the pair. The two driving gears have an overall axial length greater than the axial clearance between the other two gears whereby, when changing speed, one pair of gears commences to mesh before the other pair has ceased to mesh.

3,631,946

TRANSMISSION AND CLUTCH WITH MANUAL PULSE SWITCH

Albert Grosseau, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France

Filed Apr. 20, 1970, Ser. No. 29,880

Claims priority, application France, Apr. 28, 1969, 6913438

Int. Cl. F16d 67/00; B60k 21/00

U.S. Cl. 192-3.58

6 Claims



This pulse control system applicable notably to change-speed transmission mechanism of motor vehicles comprises in a case a selector lever formed with an axial bore in which a rod extension of the gearshift control lever proper is adapted to slide, a spring constantly urging the selector lever to its inoperative position, contact means adapted to close circuits for delivering control pulses to the coils of relays coacting with members actuating in turn the change-speed servomechanisms, and said contacts being disposed in a transverse plane and actuatable by the free end of said selector lever driven during the radial movements of said control lever, and so-called neutral contact actuatable by an axial movement of the rod extension of said control lever for opening the relay-energizing circuit.

3,631,947

TORQUE-TRANSMITTING CONNECTION AND METHOD OF MAKING THE SAME

James Morrison Laing, Letchworth, England, assignor to Borg-Warner Limited, Letchworth, England

Filed June 12, 1970, Ser. No. 45,747

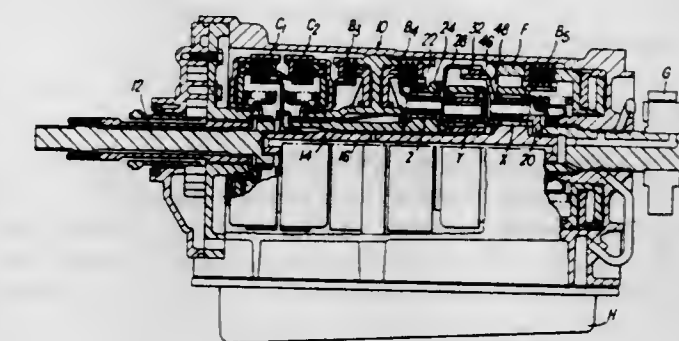
Claims priority, application Great Britain, July 10, 1969,

34,900/69

Int. Cl. F16d 41/24; F16h 55/12, 57/10

U.S. Cl. 192-4 A

10 Claims



A torque-transmitting connection and method of manufacture thereof, e.g. for an automatic transmission, in which first and second annular sheet metal cup-shaped members are formed by a combined sheet metal drawing and shearing

operation, so that axially extending portions of each member have axial toothlike indentations formed therein. The indentations of the two members interengage to provide a torque-transmitting connection. One of the cup-shaped members may be provided with circumferentially spaced apertures in the axially extending portion, to receive a parking pawl to lock the transmission.

3,631,948

HYDRAULIC INCHING CONTROL RESPONSIVE TO VEHICLE TILT

Kazuo Ishikawa, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Japan

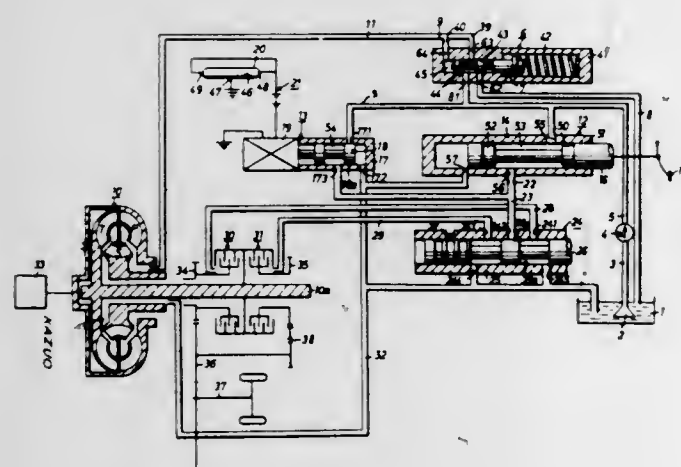
Filed June 19, 1970, Ser. No. 47,677

Claims priority, application Japan, June 20, 1969, 44/48298

Int. Cl. F16d 67/04; B60k 29/00

U.S. Cl. 192-4 C

7 Claims



A transmission control system for a vehicle having a transmission with fluid-actuated clutch means connected to a torque converter and a hydraulic brake means for arresting movement of the vehicle comprising, a source of pressurized fluid, a first fluid passageway means communicating said pressurized fluid to the clutch means, inching valve means disposed within said first passageway and responsive to operation of the brake means, manual means selectively to regulate the passage of pressurized fluid to the clutch means, a second passageway means interposed between said source of pressurized fluid and said manual means, and means interconnecting said inching valve means with the brake means. The transmission control system further includes normally closed valve means disposed within said second passageway means for interrupting pressurized fluid to flow into said manual means, and sensing means for controlling opening operation of said normally closed valve means responsive to inclination of the vehicle.

3,631,949

GEARBOX OF TRANSPORT VEHICLES WITH HYDRODYNAMIC RETARDER BRAKE

Nikolai Dmitriyevich Mazalov, Belvar Matrossa zheleznyaka, 31, korpus 3, kv. 57; Nikolai Konstantinovich Dyachkov, Kadashevskaya naberezhnaya, 6/1, kv. 105, and Dmitry Trdatovich Gapoian, ulitsa Onezskaya 31, kv. 110, all of Moscow, U.S.S.R.

Filed Oct. 27, 1969, Ser. No. 869,763

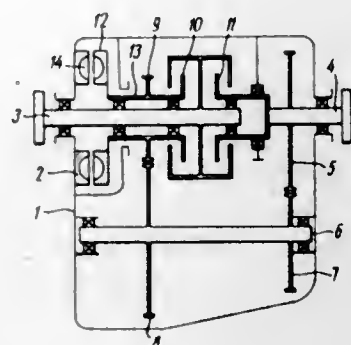
Int. Cl. F16h 57/10

U.S. Cl. 192-4 B

2 Claims

A gearbox for transport vehicles comprises a hydrodynamic retarder brake with a rotor which is mounted on the input

shaft with provision for free rotation. The rotor is connected with the output shaft by a system of gears, one of which is in-



stalled on the input shaft and is connected with the rotor so that it can rotate jointly with the rotor relative to the input shaft.

3,631,950

AUTOMATIC VEHICLE TRANSMISSION WITH LOCKUP EMERGENCY BRAKE

Seiji Tanaka, 358-43, Nukushima, Aki-cho, Aki-gun, Hiroshima, Japan

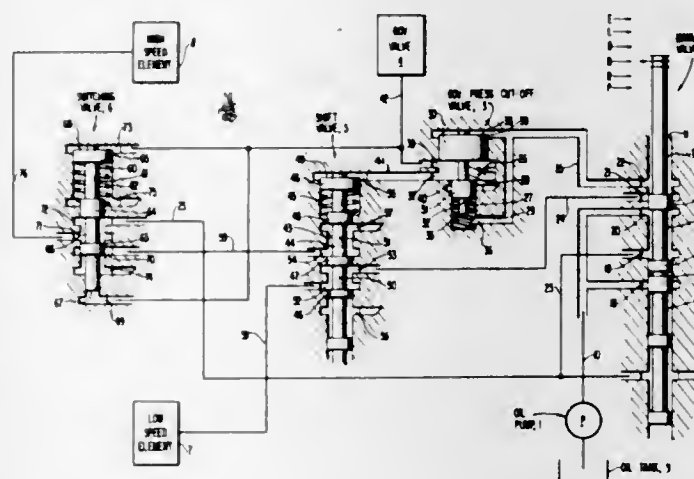
Filed Oct. 31, 1969, Ser. No. 872,883

Claims priority, application Japan, Oct. 31, 1968, 43/79793

Int. Cl. F16d 25/10

U.S. Cl. 192-4 A

4 Claims



An automatic transmission for an automobile with an emergency brake having elements for establishing low- and high-speed gear trains is provided with a manual selector valve for selectively supplying oil pressure from an oil pump through a manual valve to the elements, said manual valve having a specific position for an emergency brake. A switching valve controlled by a governor valve is provided in the oil passage for connection between said manual valve and high-speed element, wherein when the manual valve is placed in the emergency brake position, the low-speed element is engaged to operate the engine brake, and when the vehicle speed is reduced below a predetermined speed, the switching valve is transferred by the governor valve to engage the high-speed element to lock the output shaft. This safely stops the automobile by braking the automatic transmission when the brake system is defective in the vehicle.

3,631,951

DRIVE RELEASED COIL BRAKE WITH A PUMP BRAKE

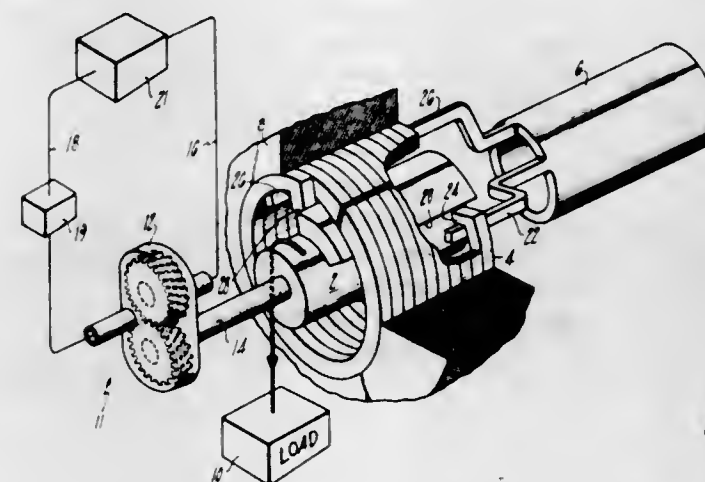
Raymond N. Quenneville, Suffield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 2, 1970, Ser. No. 58

Int. Cl. F16d 67/00

U.S. Cl. 192-8 C

2 Claims



A bidirectional locking device for an output shaft which has a load impressed thereon is provided by a single spring means placed between the output shaft and a fixed member for normally locking the output shaft and preventing its rotation in either direction; drive means are operatively connected to the single spring means for unlocking the spring means and for driving the output shaft. A pump brake is driven by the output shaft and retards the shaft by internal fluid resistance when the load is driving the shaft.

3,631,953

FRICTION PLATE CLUTCH HAVING MEANS TO DAMPEN PLATE FLUTTER

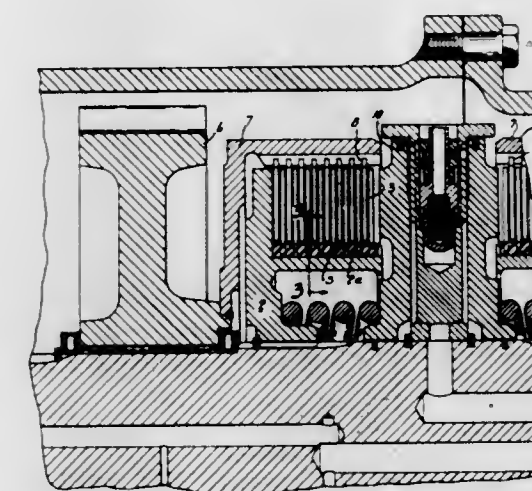
Joseph B. Snay, and Basil White, both of Rockford, Ill., assignors to Twin Disc, Incorporated, Racine, Wis.

Filed Oct. 23, 1970, Ser. No. 83,542

Int. Cl. F16d 13/68, 13/52, 3/14

U.S. Cl. 192-70.17

3 Claims



A friction plate-type clutch having interleaved clutch plates that can be axially clamped up to cause clutch engagement, or alternatively can be released by causing their axial separation. Resilient means are provided between the radially inner set of clutch plates, which means act to cause the radially inner set of plates into a mode of flutter, which flutter can then be damped by split-type outer clutch plates.

3,631,952

INTEGRAL SHIFTING KEY FOR A SYNCHRONIZING TRANSMISSION

Hiroshi Sagimoto, and Mikio Kaneko, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Aichi Prefecture, Japan

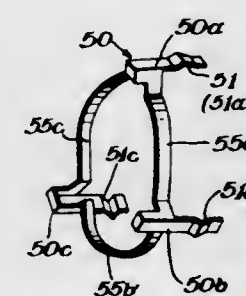
Filed Apr. 13, 1970, Ser. No. 27,498

Claims priority, application Japan, June 21, 1969, 44/49226

Int. Cl. F16d 23/06

U.S. Cl. 192-53 F

5 Claims



Change gear synchronizer according to present invention is characterized by axially shifting keys integrally connected together and located between outside of clutch hub and inside surface of clutch hub sleeve. Sleeve is connected to rotate with clutch hub but is arranged to shift axially relative thereto. Integral nature of shifting key assembly prevents individual keys from popping out from between clutch hub and clutch hub sleeve. Integral assembly of shifting keys urges synchronizer ring into frictional contact with rotating gear to thereby provide smooth synchronizing action between rotating gear and clutch hub.

3,631,954

SELF-ALIGNING CLUTCH RELEASE BEARING

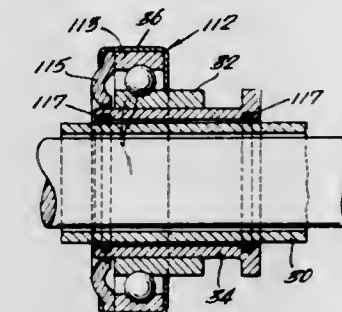
Albert E. Cooley, Maulden, England, assignor to SKF Industries, Inc., King of Prussia, Pa.

Filed Oct. 31, 1969, Ser. No. 872,811

Int. Cl. F16d 23/14

U.S. Cl. 192-98

5 Claims



For a clutch mechanism having a housing, a plurality of pivotally mounted operating members adapted for actuating the clutch between engaged and disengaged positions, said housing including a tubular member, a sleeve of larger internal diameter than the external dimensions of said tubular member slidably mounted on said tubular member, a release bearing assembly mounted on said sleeve engageable with said operating members, means defining a circumferentially extending groove disposed approximately centrally of the axial ends of said tubular member, the inner walls of said tubular member converging outwardly from said groove, and resilient means interposed between said tubular member and sleeve.

3,631,955

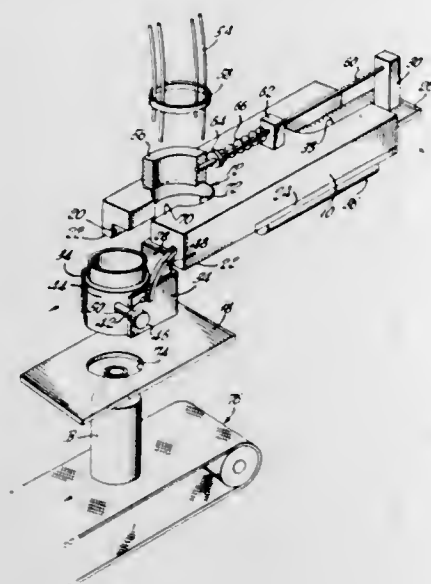
DEVICE FOR ORIENTING REDUCED NECK BOTTLES
 Frank Chaplinski, Somerset, N.J., assignor to The Nestle-Lemur Company

Filed Jan. 2, 1970, Ser. No. 337

Int. Cl. B23q 7/12; B65g 11/20

U.S. Cl. 193-43 D

10 Claims



A device for sensing whether reduced neck bottles are in an inverted or in an upright position and for automatically inverting inverted bottles so that they will be situated in an upright position. While the bottles are individually fed along a given path to a given end position, an inverting structure is available for inverting the bottles. However, the inverting structure can only be set into operation by a structure which detects when a bottle is initially in an inverted position. The detecting structure allows upright bottles to pass without setting the inverting structure into operation, so that in this way only the inverted bottles will be acted upon to be placed in their upright positions.

3,631,956

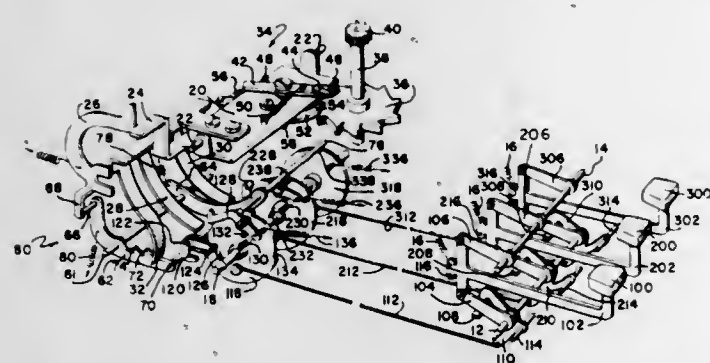
MULTIPLE LANGUAGE TYPEWRITER WITH LOGOGRAM CAPABILITY

Hyon Kyu Choi, 253-192, Shin Gill Dong, Seoul, South Korea
 Filed Feb. 27, 1969, Ser. No. 802,883

Int. Cl. B41j

U.S. Cl. 197-1 A

26 Claims



A dual use typewriter suitable for use in the writing of Roman characters as required by Western European languages as well as logograms characteristic of Far Oriental languages. When the typewriter is arranged for use with Roman letters the carriage is advanced a uniform distance with the striking of each key. A double case shift provides for upper and lower case Roman characters while the Oriental

character elements are provided by the third type bar position.

In order to form logograms, the characters are arranged in groups of keys. Some groups are arranged to write on the line and others below. Some groups advance the carriage by the usual amount while other advance the carriage by a lesser amount or not at all. The carriage advance is accomplished for the Oriental characters by a selective linkage whereby all the members of a particular group act upon the escapement system to accomplish the carriage advance for the indicated key. A backspace key may be required to bring about proper positioning of some characters. In this manner logograms or letter groups are formed in uniform manner but neatly arranged without irregular gaps or crowding.

3,631,957

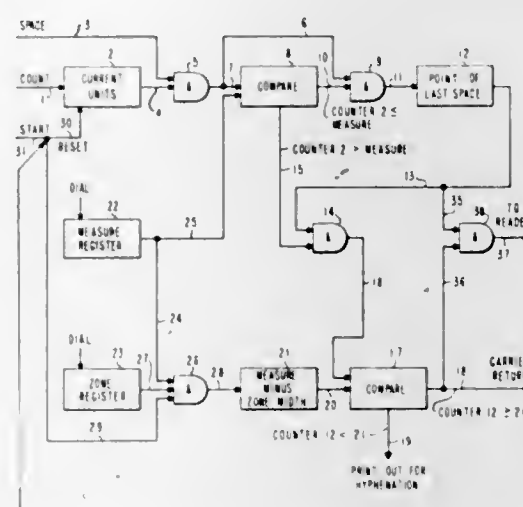
VARIABLE RIGHT-HAND MARGIN-CONTROL SYSTEM
 David W. Terry, Georgetown, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 3, 1969, Ser. No. 838,968

Int. Cl. B41j 5/30

U.S. Cl. 197-19

4 Claims



A system which accepts an input tape and provides an output copy having a right-hand edge which is controlled by means of a variable control zone. The control zone may be made relatively wide, such that the occurrence of a word space with automatic carrier return in the zone is virtually assured which results in minimum operator intervention but with a resultant ragged right-hand edge; or may be made quite narrow if a relatively uniform right-hand edge is desired but with much greater operator intervention since the likelihood of a space occurring within the zone is greatly reduced. The system is operable such that in the event that more than one space occurs in the zone, the space nearest to the right-hand side of the zone which corresponds to the end of the measure is chosen. Reading of words and spaces between words on the input tape always continues until the first space following the word which overruns the measure is read, and the system then drops back, prints to the previous space, and causes a carrier return of the printer if this previous space occurred in the control zone. Upon overrun and dropback, if no space occurred in the control zone, the line is printed out and stopped for a hyphenation decision at this previous space.

3,631,958

CARBON RIBBON ASSEMBLY

William L. Miller, Bolton, Conn., assignor to Litton Business Systems, Inc., New York, N.Y.

Filed Dec. 17, 1969, Ser. No. 885,910

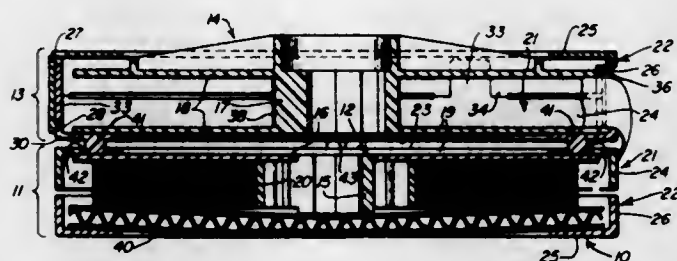
Int. Cl. B41j 33/14

U.S. Cl. 197-151

7 Claims

A carbon ribbon assembly comprising a supply reel on which a carbon ribbon is wound and a takeup reel to which a

lead end portion of the carbon ribbon is wound. Each reel is placed and locked within a two part housing having in its periphery a ribbon passage so that carbon ribbon can pass from the supply reel to the takeup reel. The housings have



pin and hole associations by which they are adapted to be secured axially superimposed on each other against relative rotation for shipping and storage purposes but are easily separable for their association by the pins of their pin and hole associations in operative positions on the typewriter.

3,631,959

APPARATUS FOR TRANSPORTING CASTINGS FROM CONTINUOUS CASTING MACHINES

Karl Gipperich, Düsseldorf-Gerresheim, Germany, assignor to Schloemann Aktiengesellschaft, Düsseldorf, Germany

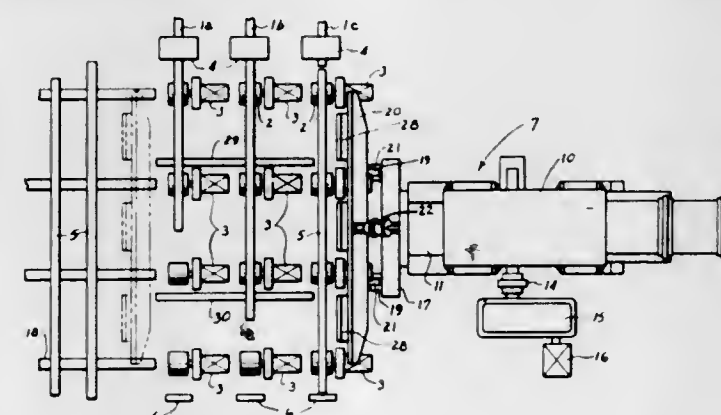
Filed Oct. 27, 1969, Ser. No. 869,758

Claims priority, application Germany, Oct. 25, 1968, P 18 05 239.6

Int. Cl. B65g 47/00

U.S. Cl. 198-20

3 Claims



A device for transferring billets, which are cut from cast strands produced by a multistrand continuous casting machine, from a roller table to a cooling bed adjacent to the table comprises a beam movable transversely over the table. A bar is pivotally mounted across an end of the beam and in one position is adapted for pushing one or more billets across the table onto the cooling bed by movement of the beam. The bar has horizontal flanges for extending under a billet on the table and means is provided to pivot the bar up for picking a billet up from the table and for carrying the billet over other billets on the table to the cooling bed by movement of the beam.

3,631,960

APPARATUS FOR CONVEYING HELICAL WIRE SPRINGS

Walter Spuhl, St. Gall, Switzerland, assignor to Spuhl A.G., St. Gall, Switzerland

Filed Sept. 24, 1970, Ser. No. 75,191

Claims priority, application Germany, Mar. 19, 1970, P 20 13 171.9

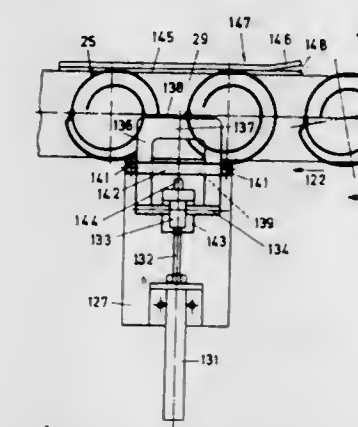
Int. Cl. B65g 47/24

U.S. Cl. 198-33 AB

11 Claims

An apparatus for feeding helical wire springs to a machine for the manufacture of spring suspensions is provided with at

least one alignment device on one of two stepwise driven belts, the alignment device comprising a slider which during each advance of the belts is operated to engage a joint of an



end coil of a spring and produce a slight rotation of the spring to cause the joint to assume a precisely predetermined position at the centerline of the belt.

3,631,961

REGULATING THE FLOW OF MATERIAL SUCH AS TOBACCO CUT RAG

Mauritz L. Strydom, 75-Buitekringweg, Dalsig, Stellenbosch, Republic of South Africa

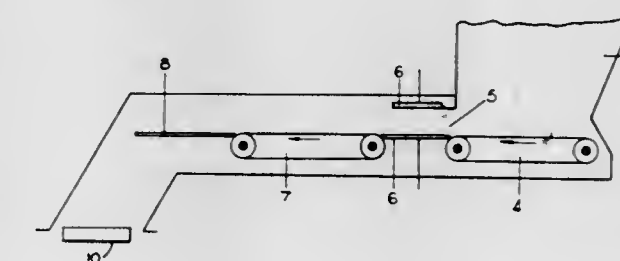
Filed May 12, 1969, Ser. No. 823,572

Claims Priority, application Republic of South Africa, May 22, 1968, 68/3288

Int. Cl. B65g 43/08

U.S. Cl. 198-37

1 Claim



In a system for feeding cut rag tobacco the cut rag is fed by a variable-speed conveyor past a mass rate detector such as a dielectric detector or a nucleonic detector, on to a constant speed conveyor. The detector controls the speed of the variable conveyor in a manner calculated to keep the average mass rate constant. The constant speed conveyor delivers over a lip which is angled to the direction of movement by an angle θ , defined by

$$\tan \theta = \frac{W}{D}$$

Where W is the width of the stream of cut rag and D is the length of the stream over which the average mass rate equals the desired constant mass rate.

3,631,962

MAGNETIC POWDER CONVEYANCE ARRANGEMENT

Frederick Percival Mason, Burgess Hill, and Frank Arthur Oakley Warren, Hove, both of England, assignors to Creed & Company Limited, Brighton, Sussex, England

Filed Apr. 13, 1970, Ser. No. 27,609

Claims priority, application Great Britain, Apr. 17, 1969, 19,604/69

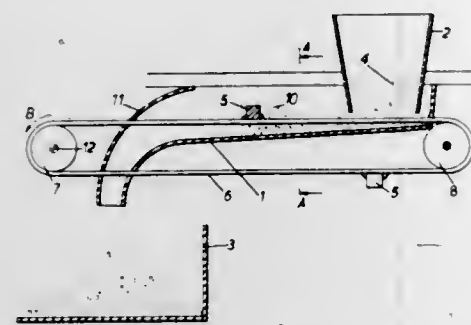
Int. Cl. B65g 17/46

U.S. Cl. 198-41

4 Claims

Magnetic powder is conveyed along a curved guide channel from a reservoir to a container by magnets moving in

close proximity with an outer side surface of the channel. The magnets are mounted on an endless driven belt. As the channel approaches the container it veers away from the belt



and magnets, which causes a weakening of the holding field sufficiently to permit the powder particles to fall into the container.

3,631,963

ROLLER-WAY CONVEYORS

Alfred George Smith, and Colin Alfred Provis, both of Wembley, Middlesex, England, assignors to Dexion Limited, Wembley, Middlesex, England

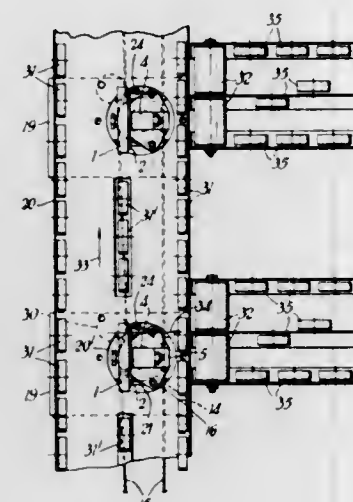
Filed May 12, 1969, Ser. No. 823,547

Claims priority, application Great Britain, May 14, 1968, 22,830/68

Int. Cl. B65g 37/00

U.S. Cl. 198—81

6 Claims



The invention relates to roller-way conveyors and provides a simple means for diverting articles therefrom. A driven roller or wheel engageable by an article or container travelling along the conveyor can be turned about an upstanding axis between a position in which it permits of through conveyance and a position in which it produces lateral diversion.

3,631,964

CONVEYOR SYSTEM PROPULSION ROLLERS WITH RELEASABLE DRIVE MEANS

Ronald C. Hinman, Mission Viejo; Richard D. Miller, West Covina, and Conrad Pistel, Fullerton, all of Calif., assignors to Western Gear Corporation, Lynwood, Calif.

Filed July 17, 1970, Ser. No. 55,787

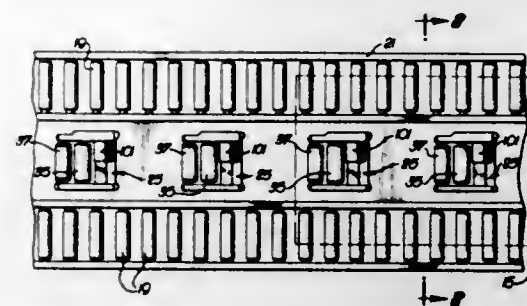
Int. Cl. B65g 13/02

U.S. Cl. 198—127

5 Claims

A conveyor system in which loads to be transported are supported on rollers is provided with a series of additional rollers releasably clutched to their supporting shafts and

spring urged into contact with the loads to be transported. Each roller shaft is power rotatable in either direction



through a compound speed-reducing gear train to effect propulsion of such loads.

3,631,965

CONVEYOR FOR ASSEMBLING APERTURED WORKPIECES ADAPTED TO BE RECEIVED ONE WITHIN ANOTHER

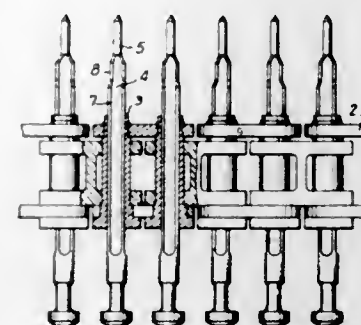
Lev Nikolaevich Koshkin, M. Pionersky pereulok 3, kv. 65, Moscow; Alexei Sergeevich Zashigin, prospekt 50 letia Artyabrya 10/6 kv. 10; Vitaly Matveevich Tanygin, prospekt 50 letia Oktyabrya 10/6 kv. 8, both of Klimovsk Moskovskoi Oblasti; Valentin Petrovich Chagin, ulitsa podolskikh Kursantov, 6, kv. 12, and Vasily Iosipovich Khomenko, herolizelskoy prospekt 52/39 kv. 61, both of Podolsk Moskovskoi Oblasti, all of U.S.S.R.

Filed Sept. 9, 1969, Ser. No. 856,440

Int. Cl. B65g 17/42; B211 9/06

U.S. Cl. 198—131

5 Claims



A conveyor for assembling apertured workpieces adapted to be received one within another, comprising a conveyor chain with external and internal links, pivotally connected with one another, each connection including a bushing sleeve having an axial duct therethrough, a cylindrical assembling mandrel extending through the axial duct of each bushing sleeve, the mandrels being displaceable in relation to the links of the conveyor chain, each mandrel having a tail portion at the upper end thereof, the tail portions of the mandrels being adapted to extend through the apertures in the workpieces being assembled, each mandrel having at least two radially projecting splines extending longitudinally thereof, the internal shape of the axial duct within each bushing sleeve being complementary to the shape of that portion of the mandrel, which is adapted to extend through this axial duct.

3,631,966

CONTINUOUS ELEVATOR

Takashi Katayama, No. 1285-13 Onoda, Onoda-shi, Yamaguchi-ken, Japan

Filed Feb. 17, 1970, Ser. No. 11,962

Int. Cl. B65g 17/04

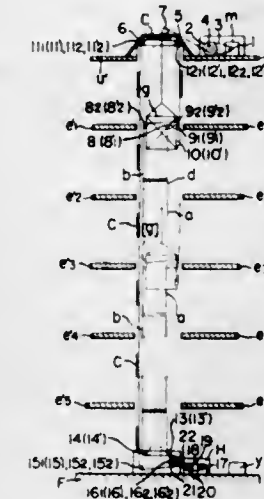
U.S. Cl. 198—153

3 Claims

A continuous elevator comprising a number of flexible

merchandise-carrying gratings carried by pairs of endless

suit different installations, includes a scraper which will extend across the belt, opposite ends of the scraper being connected to respective carriers, respective fixing brackets which can be secured in alignment to the frame structure on opposite sides of the belt, the connection between the fixing brackets and the carriers permitting relative movement about the axis of alignment of the fixing brackets, positioning



chains so as to permit transfer vertically between different floors of a warehouse or depository.

3,631,967

ACCUMULATOR CONVEYOR SYSTEM

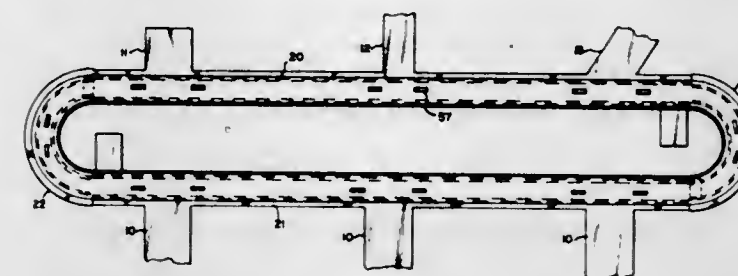
Vernon G. Converse, III, Franklin; George R. Allington, Westland, and Peter J. Mosher, Livonia all of Mich., assignors to Scans Associates, Inc., Livonia, Mich.

Continuation of application Ser. No. 707,033, Feb. 21, 1968, now abandoned. This application July 15, 1970, Ser. No. 64,006

Int. Cl. B65g 15/00

U.S. Cl. 198—181

14 Claims



This application discloses an improved conveyor adapted for use particularly but not exclusively in automated installations, which conveyor can handle load pieces of different nature without the necessity of securing the load pieces to the conveyor structure, or of being arranged on the conveyor at uniform distances or intervals; and which conveyor is capable of heavy loads and yet apply its power to the load pieces gently and gradually whenever desirable or necessary, permits accumulation of a considerable number of items without causing breakage, undesirable pileups, or jams; and in which conveyor the movement of the load pieces carried by the conveyor can be stopped selectively and such load pieces be held stationary for any desired length of time without necessity of stopping the conveyor, and in which conveyor the movement of the stopped load pieces is resumed automatically when the force that stopped the load pieces is removed.

3,631,968

CONVEYOR BELT CLEANING APPARATUS

Charles W. Ward, Wortley Avenue, Swinton, Mexborough, Yorkshire, England

Filed Mar. 20, 1970, Ser. No. 21,271

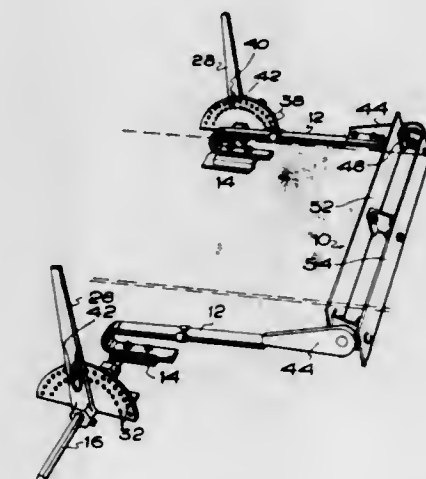
Claims priority, application Great Britain, Mar. 19, 1969, 14,485/69

Int. Cl. B65g 45/00

U.S. Cl. 198—230

4 Claims

Conveyor belt cleaning apparatus which can be fitted to the frame structure of a conveyor and which is adjustable to



3,631,969

ENCLOSURE FOR AN OGIVAL SHELL

Jean Lacoste, 169, An de Grande Bretagn, Toulouse, and Philippe Protard, 95, rue Galleene, Rueil-Malmaison, both of

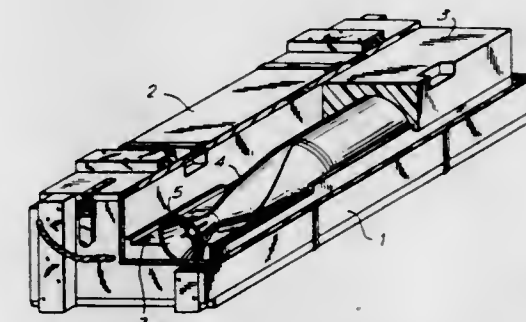
Filed Dec. 10, 1969, Ser. No. 883,944

Claims priority, application France, Dec. 10, 1968, 177376

Int. Cl. F42b 37/00

U.S. Cl. 206—3

10 Claims

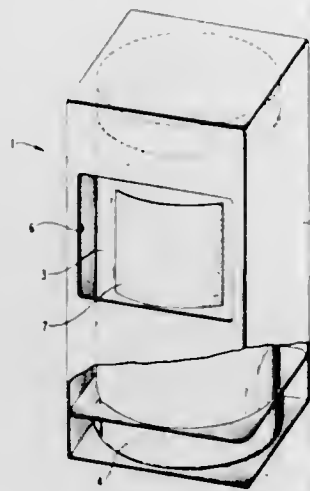


An ogival shell is covered by an impermeable flexible sheet and sealed therein and the tip of the thus-covered shell is fitted with a protective ferrule and placed in a molded cavity of two half casings which corresponds to the shape of the shell and the ferrule. The casings are then placed in an outer, strong covering such as a box. The ferrule has an outer body in which extends a conical inner body in which the tip is removably inserted, and the outer body is flared at the end opposite that in which the tip is inserted.

3,631,970

PACKAGE WITH ROTATION-PREVENTING INSERT
William F. Trauschke, Springfield, Mass., assignor to U.S. Plywood-Champion Papers Inc., Hamilton, Ohio
Filed Feb. 16, 1970, Ser. No. 11,660
Int. Cl. B05d 25/00
U.S. Cl. 206—45.31

13 Claims

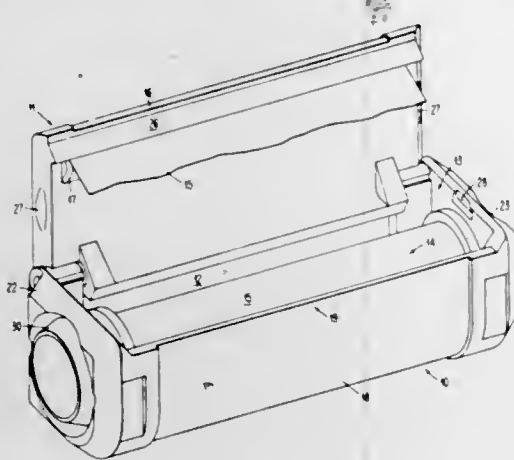


An insert is used to prevent a bottle of circular cross section from rotating within a noncircular outer container and thereby causing a label on the bottle moving out of register with a window in the side of the outer container. The insert is in the shape of a flanged cup. The cup portion fits snugly on one end of the bottle and the flange is sized to engage the inner walls of the outer container. The insert is made of deformed sheet material.

3,631,971

SNAP-OPEN MAGNETIC TAPE CARTRIDGE
Helfried O. Rinkleib, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 4, 1970, Ser. No. 33,996
Int. Cl. B65d 43/10, 85/67
U.S. Cl. 206—52 R

8 Claims

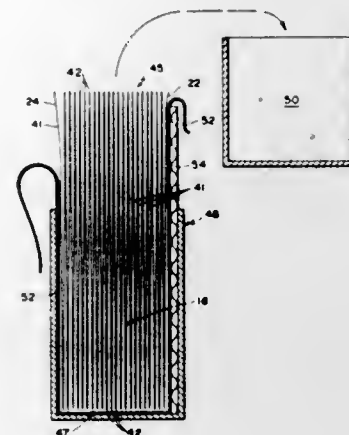


An automatically openable tape cartridge having an integrally formed snap latch. One end of the tape within the cartridge is secured to the free end of a closable lid. Upon displacing a longitudinal wall of the cartridge adjacent the free end, camming action causes the lid to snap open pulling the tape out. Mating cam surfaces on the displaced longitudinal wall and the free end of the lid forces the lid open. On the end walls of the cartridge are two inwardly opening grooves or latch-receiving means. These receive latching scallops on the ends of the lid. The scallops ride over the cartridge end walls. The cartridge contains a spool having axially movable flanges for facilitating automatic handling of the cartridge and the contained magnetic tape.

3,631,972

COMPUTER PRINTOUT PAPER PACKAGE
Raymond V. Gendron, Hudson, and Albert F. Baldi, Nashua, both of N.H., assignors to Nashua Corporation, Nashua, N.H.
Filed Oct. 15, 1969, Ser. No. 866,511
Int. Cl. B411 1/32; B65h 75/00
U.S. Cl. 206—57 R

1 Claim

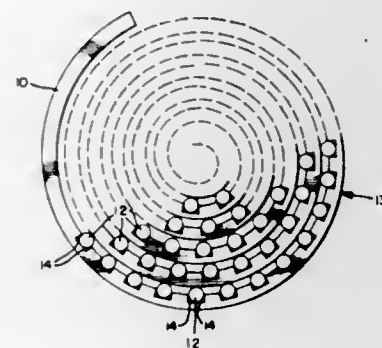


A technique of packaging a web of computer printout paper to facilitate loading the paper in a carrier or support tray and connecting the trailing edge of the web to the leading edge of a succeeding web carried in another tray. The package includes a box which contains the paper web, folded in a zigzag configuration. The box has a cover which, when removed, exposes an end of the pack, the web being folded so that at least the free, trailing end of the web will be exposed when the cover is removed. The exposed trailing end then may be pulled to withdraw a length of the web and the entire package, including the box, may be laid down on the tray. The box then is pulled free to transfer the folded web to the tray and the withdrawn trailing length of the web then may be attached to the leading end of the succeeding web.

3,631,973

CONVOLUTE GROUND PACKAGE OF CYLINDRICAL OBJECTS
James A. Rode, St. Louis, Mo., assignor to United Nuclear Corporation, Elmsford, N.Y.
Filed Oct. 4, 1968, Ser. No. 765,114
Int. Cl. B65d 85/20, 85/30, 85/66
U.S. Cl. 206—65

5 Claims

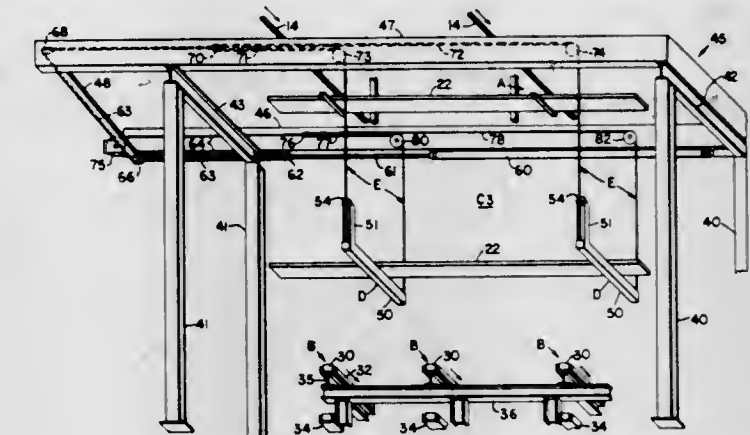


A package capable of holding up to 35 pounds and more of uranium pellets is constructed with a polyurethane strip having a thickness greater than the radius of the pellet and a large length-to-width ratio. The strip has on one of its surfaces a plurality of parallel grooves positioned transversely to the longitudinal axis of the strip. Each of the grooves has a depth at least about the radius of the pellet and a width at the surface of the strip about the diameter of the pellet. The strip with the pellets is wound into a convolute package holding

3,631,976

BIN FOR LUMBER SORTER
Sheldon L. Coffelt, Susanville; Paul R. Allen, Imyokern, and John B. Crook, Orinda, all of Calif., assignors to Sierra Pacific Industries, Susanville, Calif.
Filed Feb. 5, 1970, Ser. No. 8,790
Int. Cl. B07c 3/02
U.S. Cl. 209—74

9 Claims

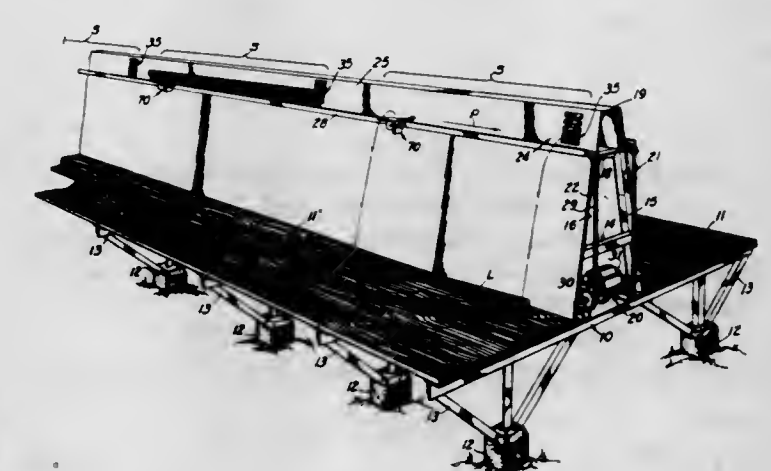


An expansible bin for receiving graded and sized lumber is provided between an overlying sorting conveyor and an underlying takeout conveyor. The bin includes at least two underlying and spanning bunks supported at either end by depending cables gathered and released from point immediately below the sorting conveyor. When the bunks are initially filled with lumber, they are drawn immediate the release point of the sorting conveyor to prevent board splitting due to droppage. As lumber accumulates in the bins, the bunks are sequentially lowered to provide together with the cable a bin of constantly expanding volume. When full, the bunks are lowered parallel to and below the takeout conveyor to provide for gradual placement of the sized and graded lumber in the bin on the takeout conveyor, and the cables released from one end of the bunks to permit the lumber to be converged away.

3,631,977

LUMBER SORTER
Everett G. Taul, Birmingham, Ala., assignor to Bush Manufacturing Company, Trussville, Ala.
Filed Sept. 19, 1969, Ser. No. 859,360
Int. Cl. B07c 5/04
U.S. Cl. 209—80

5 Claims



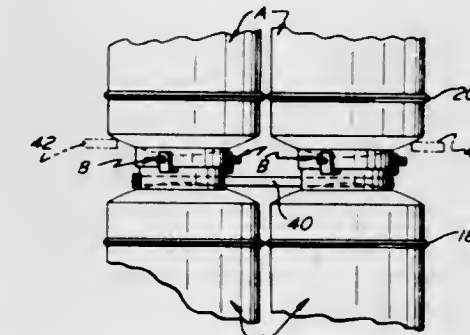
A lumber-sorting system including a conveying mechanism, a lumber ejector means, and sensing means associated with the ejector means to cause the ejector means to selectively discharge lumber carried by the conveying mechanism therefrom. The sensing means and ejector means

the pellets therein firmly between the adjacent layers of the convolution and by the sidewalls of the grooves pinched against the pellets.

3,631,974

STACKABLE COMPRESSED GAS CYLINDERS
Robert B. Schaefer, Malvern, Pa., and Robert Jernberg, Worcester, Mass., assignors to Pennwalt Corporation, Philadelphia, Pa.
Filed Oct. 27, 1969, Ser. No. 869,759
Int. Cl. B65d 71/02, 21/02
U.S. Cl. 206—65 B

5 Claims

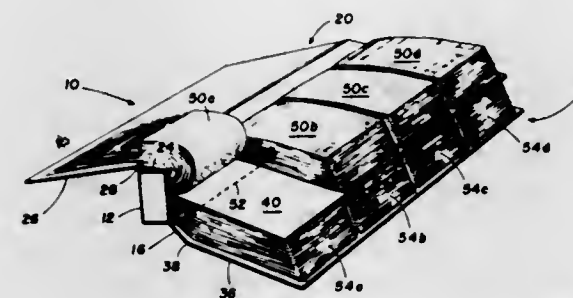


A disposable compressed gas container having a cylindrical body with an annular collar projecting above the top and an annular skirt depending from the bottom. The collar and skirt are so dimensioned that the collar of one container nests in complementary disposition with respect to the skirt of a second container longitudinally stacked therewith. Latching means are provided to interlock the nested collar and skirt together, and plurality of axially stacked pair of coupled containers are adapted to be strapped about the girth of the waists defined by the nested collars and skirts.

3,631,975

FABRIC DISPLAY KIT
Martin N. Leibowitz, 2220 N. Britian, Irving, Dallas Co., Tex.
Filed Oct. 29, 1969, Ser. No. 872,251
Int. Cl. B65d 73/00
U.S. Cl. 206—82

4 Claims



A rigid spine member hingedly supports front and back covers. Each of the covers includes two generally rigid portions which are separated by a hinge spaced apart from and parallel to the sides of the spine member. A central divider member is connected to the middle of the spine member and extends between the covers. Stacks of fabric are arranged between each of the covers and the divider member in side-by-side relationship. Each stack of fabric includes variations of the same primary color, with the primary colors of adjacent stacks being different.

are adjustable so that the lumber may be sorted according to length, width, thickness, or any combination thereof and the sensing means is electromagnetically connected to the ejector means for activating same.

3,631,978

SELECTOR FOR EDGE NOTCH CODED SHEET-TYPE ITEMS

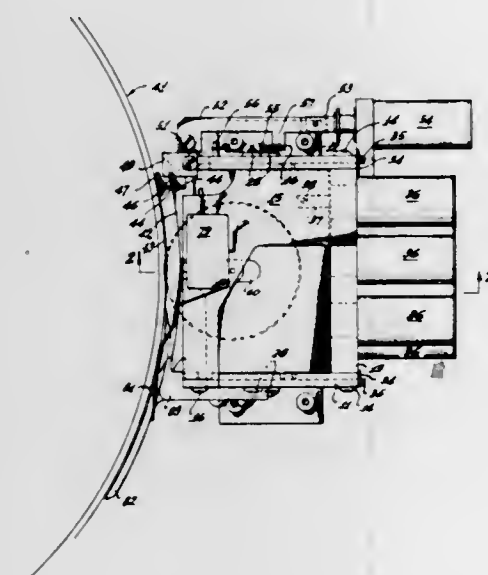
James P. Hagan, Tustin, Calif., assignor to Image Systems, Inc., Culver City, Calif.

Filed Dec. 5, 1969, Ser. No. 882,503

Int. Cl. B07c 3/18

U.S. Cl. 209—80.5

17 Claims



A selector for edge notch coded sheet-type items comprising a plurality of parallel, spaced pairs of plates movable oppositely into projected and retracted positions and, in projected position, cooperating to address a desired sheet-type item in a store presenting edge notches to the address plates. Magnet means, which may be rotatably mounted, cooperates with magnetic means on the coded edge of the items tending to draw the items forwardly from the store, with all but the addressed item prevented from moving forwardly by the engagement of its edge with the edge of a projected address plate. Solenoid operators and spring means cooperate in the opposite movements of the paired address plates of the selector, and the address plates have opposed racks engaged by pinions rotating on stationary axes for insuring simultaneous movement of the address plates in opposite directions. Locking means temporarily holds the address plates in their address positions.

3,631,979

APPARATUS FOR CLASSIFYING PHOTOGRAPHIC PRINTS OR THE LIKE

Gerhard Frankiewicz, Sauerlach, and Franz Wiesbeck, Schleisheim, both of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 12, 1970, Ser. No. 18,904

Claims priority, application Germany, Mar. 13, 1969, P 19 12 759.4

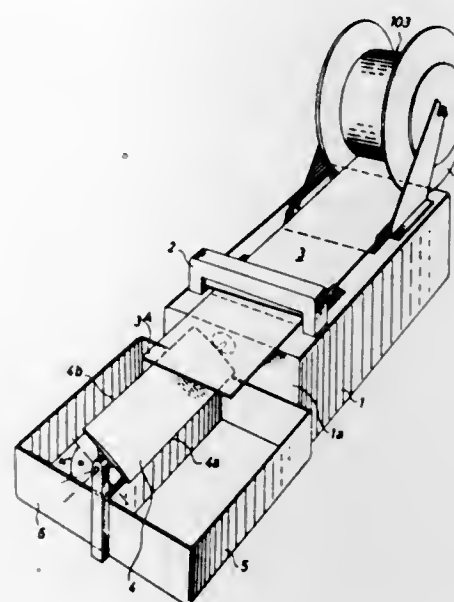
Int. Cl. B07c 5/00

U.S. Cl. 209—74

7 Claims

An automatic classifying apparatus for segregating unsatisfactory prints from satisfactory prints subsequent to severing of a strip which consists of randomly distributed satisfactory and unsatisfactory prints. Each unsatisfactory print is identified by a graphite line or another suitable mark which is detected by a scanning unit and serves to initiate the generation of a signal transmitted to a motor for a pivotable

platform which directs satisfactory prints into a first tray and defective prints into a second tray. The trays are located



downstream of the station where the strip is severed during intervals between stepwise advances by the length of a print.

3,631,980

OPEN MESH BELT CLEANER

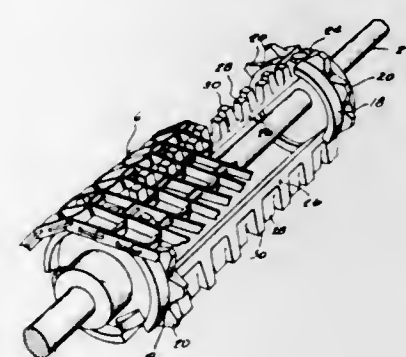
Frank B. Hamachek, III, Kewaunee, Wis., assignor to Frank Hamachek Machine Company, Kewaunee, Wis.

Filed Aug. 4, 1969, Ser. No. 847,131

Int. Cl. B07b 1/50

U.S. Cl. 209—384

4 Claims



A screen conveyor having links made of thin strips with interlocked convolutions is supported and driven by sprockets having teeth engaging the openings between strips near the margins of the belts. These sprockets have notches in which are seated bars having teeth entering the bights of the convoluted strips to displace foreign matter from rows of belt openings which are spaced longitudinally of the belt, the number of bars being so related to the total number of belt openings that the belt-cleaning teeth will penetrate the openings of different rows in successive passes of the belt until all such openings have been cleaned in successive series of such passes.

3,631,981

BLOTTED PULP SCREEN

Douglas L. G. Young, Pierrefonds, Quebec, Canada, assignor to Canadian Ingersoll-Rand Company Limited, Montreal, Quebec, Canada

Filed Feb. 6, 1969, Ser. No. 797,143

Int. Cl. B07b 1/00, 1/46

U.S. Cl. 209—399

13 Claims

A screen comprising an annular body having screening and accepts side faces. The body includes a plurality of generally

longitudinally extending screening slots projecting from its screening face through only a portion of the body thickness and a plurality of sets of accepts slots projecting from its ac-



cepts face through only a portion of the body thickness. The sets of accepts slots are each arranged along the length of one of the screening slots and each communicate with said one of the screening slots.

3,631,982

PROCESS AND APPARATUS FOR THE CONTROL OF PRESSURES FOR THE FORMATION OF A SHEET OR LAYER BY CONTINUOUS FILTRATION OF PARTICLES IN SUSPENSION

Pierre Lejeune, Grenoble, France, assignor to NEYRPI BMB, Grenoble, France

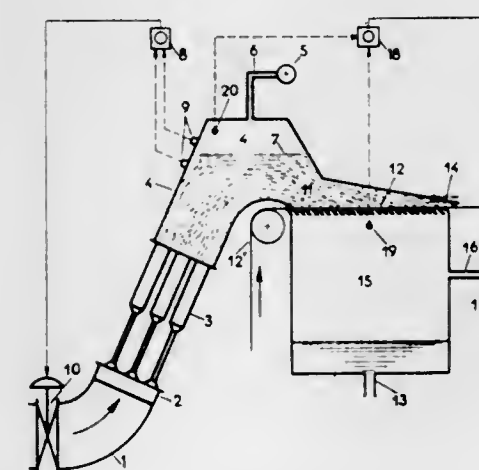
Filed Jan. 12, 1970, Ser. No. 2,193

Claims priority, application France, Jan. 16, 1969, 6900700

Int. Cl. B01d 33/04

U.S. Cl. 210—77

5 Claims



A sheet is formed by filtration of a suspension of particles on a moving filter. Loss of suspension where the sheet and filter leave the device is minimized by coordinate control of the absolute pressures above and below the filter to provide a desired pressure differential acting on the filter.

3,631,983

METHOD FOR BACKWASHING FILTERS

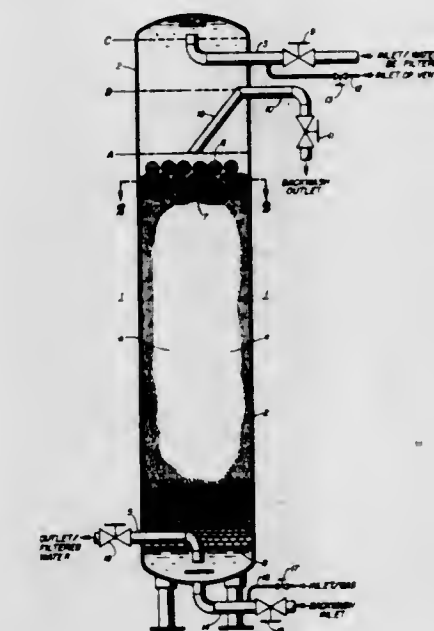
Isaac Paul Mall, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 31,935, Apr. 27, 1970, which is a division of application Ser. No. 737,721, June 17, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 857,266, Aug. 8, 1969, now Patent No. 3,552,573. This application May 25, 1970, Ser. No. 40,249

Int. Cl. B01d 29/08

U.S. Cl. 210—80

4 Claims



A vertical vessel has a filter bed disposed in its lower portion for normal filtering of solid particulates from contaminated liquid passed down through the bed. Vertical passages are formed to extend below the upper surface of the filter bed with a layer of smooth-surfaced bodies arranged to reduce the cross-sectional area of the vessel to impart desired velocity to the particulates in the liquid. Conduits are provided to flow liquid and gas up through the bed to backwash particulates from the bed into a collection above the bed which is removed by a siphon in a batch operation.

3,631,984

METHOD AND DEVICE FOR SEPARATION OF LIQUIDS

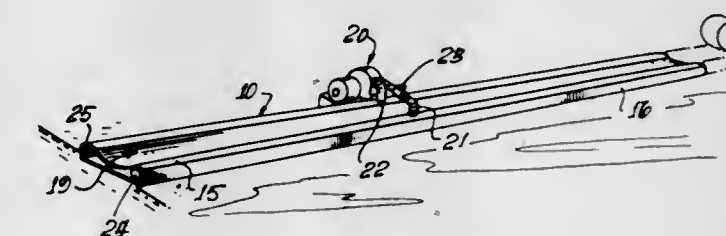
Eric Rath, 2415 Calle Del Cero, La Jolla, Calif.

Filed Aug. 8, 1969, Ser. No. 849,304

Int. Cl. E02b 15/04

U.S. Cl. 210—83

5 Claims



This is a method and device for separation of liquids particularly in those situations where a contaminating liquid is entering another liquid and it is desired to contain the contaminating liquid in a limited area and separate it from the bulk of the other liquid. This is accomplished by the use of an airflow through a conduit which conduit hovers on the liquid by means of the airflow and creates a troughlike seal about the contaminating liquid and contains the same or cooperates with the conduit to remove the same by a troughlike skimming effect.

3,631,985

DEVICE FOR CLEANING MAGNETIC FILTERS

Joachim Taeger, Rheinhausen, Germany, assignor to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

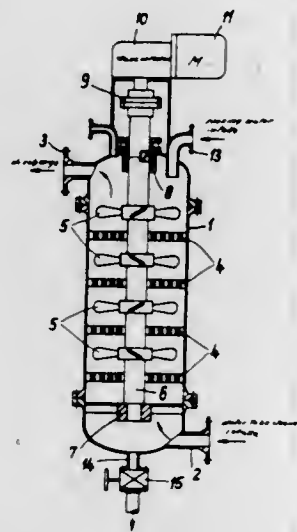
Filed Apr. 14, 1970, Ser. No. 28,301

Claims priority, application Germany, May 3, 1969, P 19 22 635.8

Int. Cl. B03c 1/30

U.S. Cl. 210-222

4 Claims



A magnetic filtering device in which propeller means are interposed between serially arranged magnetic grates and are adapted to be rotated to impart a high-velocity flow upon liquid surrounding the magnetic grates.

3,631,986
DIALYZER

Andre Sausse, Sceaux, France, assignor to Rhone-Poulenc S.A., Paris, France

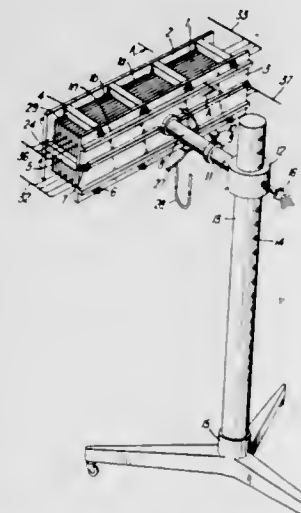
Filed Dec. 16, 1969, Ser. No. 885,486

Claims priority, application France, Dec. 16, 1968, 178506

Int. Cl. B01d 31/00, 13/00

U.S. Cl. 210-321

1 Claim



A dialyzer e.g., to act as an artificial kidney in which plates are stacked in pairs between supports, and have interposed pairs of semipermeable membranes. First exchange zones are formed between the membranes and their adjacent plates which are provided with parallel ribs and grooves, and second exchange zones are formed between the membranes of a pair. In order to exert a constant pressure, a flexible-walled bag is located between the outermost plates and a support, over the projected area of the exchange zones.

3,631,987

SWIMMING POOL WATER CLARIFIER

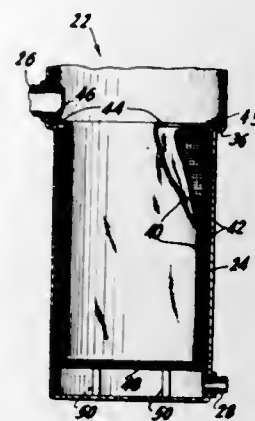
Peter A. Cattano, Sr., 44 Miller Ave., Freeport, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,143

Int. Cl. B01d 35/00

U.S. Cl. 210-452

8 Claims



For use for clarifying the water in a swimming pool; an improved filter characterized by the absence of any replaceable particulate type filter media includes a fibrous porous filter member and a rigid, fibrous, porous support member.

3,631,988

SELF-PROPELLED CRANE

Jean Noly, Villa "Tasco," 1 quartier Briand, La Clayette, (Saone-et-Loire), France

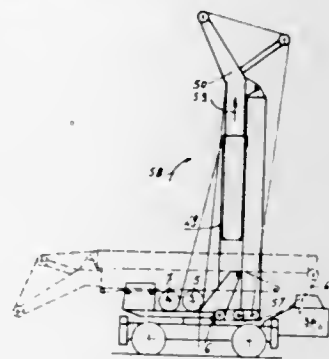
Filed May 14, 1969, Ser. No. 824,538

Claims priority, application France, May 14, 1968, 50,015

Int. Cl. B66c 23/62

U.S. Cl. 212-46

8 Claims



A self-propelled crane is provided with a mast pivoted on a rotatable platform for movement between a horizontal and a vertical position. A telescopic jib is pivoted on the mast and the same cable and winch used to raise and lower a load from the tip of the jib is used to extend the jib when the telescopic jib sections are unlatched from each other. The same cable and winch may be used to raise the mast to the vertical position by securing the end of the cable to a stationary point below the pivot point of the mast. The mast may also be telescopic and a second cable and winch may be used to control both the angle of the jib relative to the mast and the extension of the telescopic mast when the parts thereof are unlatched from each other.

3,631,989

AUTOMATIC BALE HOIST

Joseph I. McCormick, P.O. Box 278, England, Ark.

Filed Apr. 21, 1970, Ser. No. 30,402

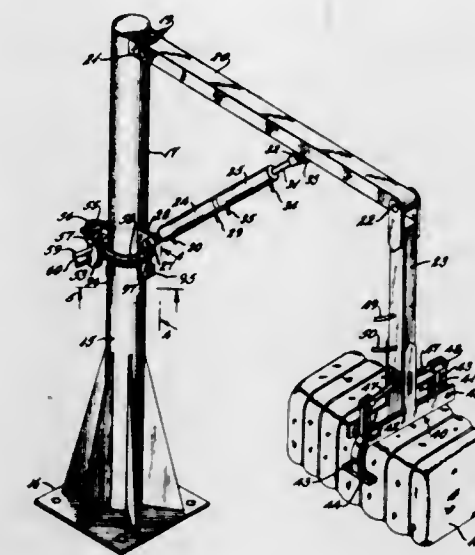
Int. Cl. B66c 1/44

U.S. Cl. 214-1 BD

3 Claims

Apparatus for automatically engaging, clamping and raising an article from a first position, swinging the article to a predetermined position, lowering and unclamping the article

in a second position and then returning the apparatus to its original position. The apparatus includes means for perform-



ing the several functions sequentially and for stopping the operation of the apparatus after the functions have been completed.

3,631,990

METHOD AND APPARATUS FOR ORIENTING A ROD OR TUBE HAVING A BEVELED END

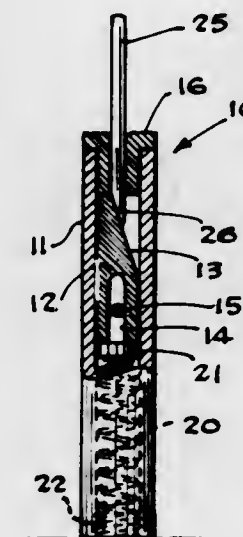
Wilbert W. Redmer, 530 Golden Harbor Drive, Boca Raton, Fla.

Filed June 24, 1970, Ser. No. 49,482

Int. Cl. B65g 47/24

U.S. Cl. 214-1 Q

5 Claims



Disclosed is a method and apparatus for orienting a rod or tube having a beveled end. An example is the needle in an intravenous needle assembly which includes a grip for manipulation of the assembly during venipuncture. Basically, the apparatus comprises a tubular orienting cartridge including a beveled insert within the cartridge. A needle is inserted into the cartridge from a hopper and feeding device. After the needle is inserted in a horizontal position the tubular cartridge is rotated into an upright position and gently vibrated in order to align the beveled needle point on the corresponding beveled surface of the insert within the cartridge to thereby orient it. The orienting cartridge containing the properly oriented needle is thereupon rotated back to a horizontal position to deposit the needle within a mold with the beveled point thereof in proper alignment. The plastic hub, grip or wings are then molded in place about the needle. The beveled needle point of the resultant device is accordingly in proper alignment with the grip or wings for subsequent venipuncture.

3,631,991

UNDERSLUNG WINCH AND SHEAVE STRUCTURE FOR TELESCOPIC BOOM ASSEMBLY

Raymond J. Wacht, Overland Park; Richard J. Stallbaumer, Lenexa, and Jack E. Stilwell, Overland Park, all of Kans., assignors to A.B. Chance Company, Centralia, Mo.

Filed Dec. 22, 1969, Ser. No. 887,227

Int. Cl. A01g 23/02

U.S. Cl. 214-3

8 Claims



Winch and loadline support structure for a utility vehicle provided with a turret thereon mounting a telescopic, extensible boom assembly having a base boom element, and end boom element of insulating material and at least one intermediate boom element. The winch is carried by an intermediate boom element at the outer end thereof in underslung relationship thereto and the support for the winch loadline is mounted on the outer extremity of the end boom element in generally underslung relationship thereto whereby the end boom element may be used in its extended position while the winch remains spaced therefrom toward the turret of the vehicle. As a result, the intermediate winch carrying boom element may be moved in and out without changing the length of the loadline while it is in use. Boom tip members carrying the load line support have outer curved end margins which describe the involute of a circle to facilitate use of the boom tip in handling poles held thereagainst.

3,631,992

APPARATUS FOR UNLOADING A BALE WAGON ONE BALE AT A TIME

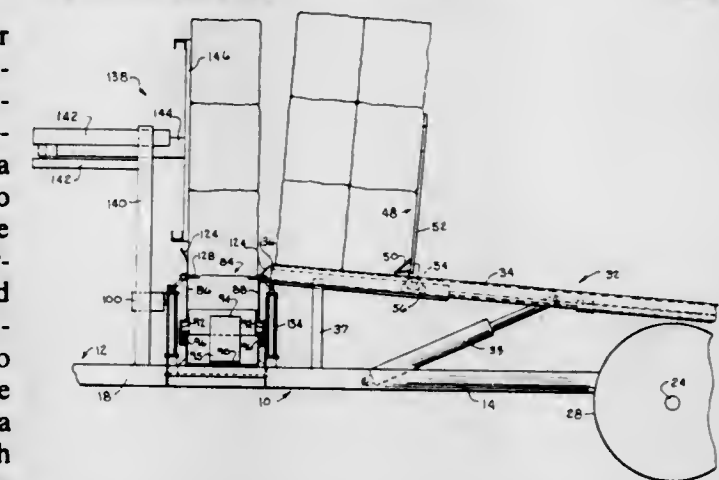
Lawrence C. Dickinson, Reno, Nev., assignor to Sperry Rand Corporation, New Holland, Pa.

Filed Aug. 25, 1969, Ser. No. 852,856

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 A

18 Claims



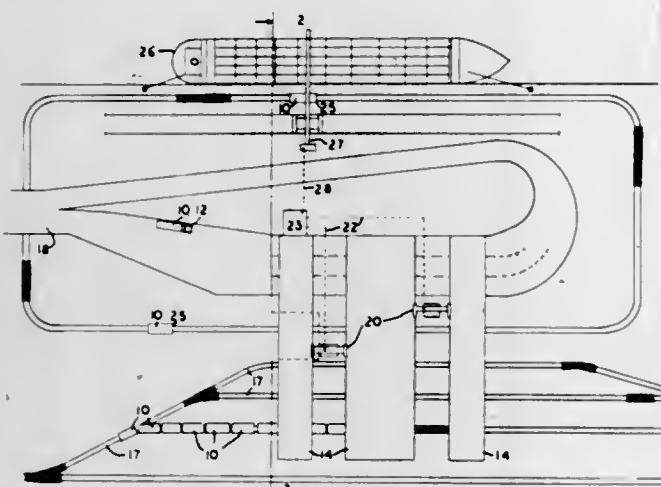
This invention pertains to a bale handling wagon which can unload a stack of bales mounted thereon from the wagon one bale at a time.

3,631,993 CONTAINERIZED CARGO STORAGE AND HANDLING SYSTEM

Robert R. Young, Danville, Calif., assignor to Kaiser Industries Corporation, Oakland, Calif.
Original application July 25, 1966, Ser. No. 567,674, now abandoned. Divided and this application Mar. 3, 1969, Ser. No. 803,837
Int. Cl. B65g 1/06

U.S. Cl. 214—16.4 A

1 Claim



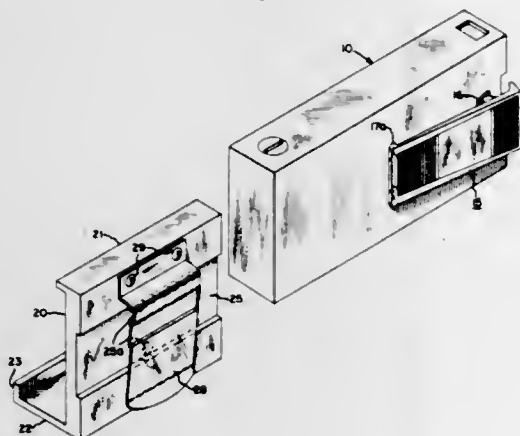
A system for loading containers onto and unloading containers from a cargo carrier docked at a shipping terminal, including a storage facility at the dock in which containers to be loaded onto or that have been unloaded from a carrier are temporarily placed, a crane projecting over the carrier and the dock and being spaced from the storage facility, a closed path on the dock extending adjacent to the crane and to the storage facility, and conveyors movable on the path adapted to support containers and to transfer the same between the crane and the storage facility, said system providing for recording the identity of the containers in the storage facility and the carrier in order to facilitate retrieval and movement of the containers.

3,631,994 CARRYING DEVICE FOR A RADIO RECEIVER OR THE LIKE

Stanley C. Mackzum, Jr., Lynchburg, Va., assignor to General Electric Company
Filed Aug. 26, 1970, Ser. No. 67,055
Int. Cl. A45f 5/02

U.S. Cl. 224—26 R

2 Claims



A carrying device for a personal radio receiver is shaped so that the radio receiver can be clipped to the carrying device. The carrying device is provided with a belt clip so that the

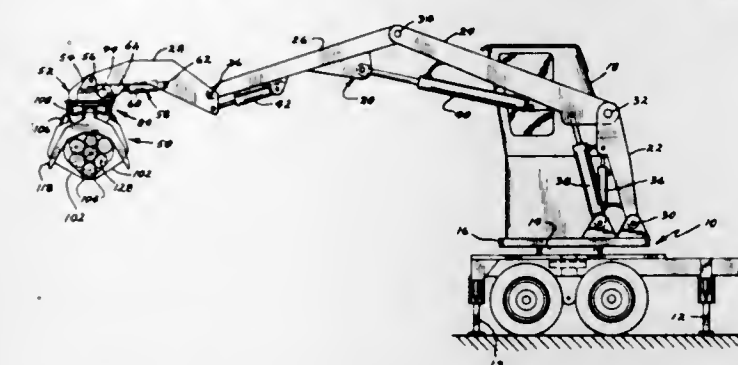
carrying device with the radio receiver can be clipped on a person's belt in a more convenient and comfortable position.

3,631,995 ROTATABLE GRAPPLE WITH INDIVIDUALLY ACTUATED OUTRIGGERS

James F. Jones, Roscoe, Ill., and John P. Lundberg, Washburn, Wis., assignors to Beloit Corporation, Beloit, Wis.
Filed Mar. 16, 1970, Ser. No. 19,900
Int. Cl. B66c 1/32

U.S. Cl. 214—147 AS

5 Claims

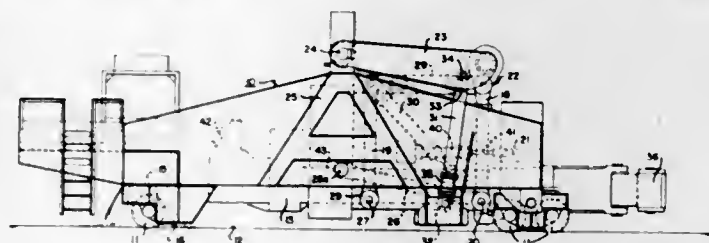


Carried at the free end of a boom member is a combined pole grapping and stabilizing unit. The grapple is rotatable into various angular positions and the individually actuated outrigger arms providing the stabilizing action extend at 90° with respect to the plane of the grapple jaws so that the outrigger arms are continually in alignment with the axis of the grapple opening.

3,631,996
MANIPULATOR
Kenneth E. Bonesteel, and Edward J. Kinkopf, both of Alliance, Ohio, assignors to The Alliance Machine Company
Filed June 11, 1970, Ser. No. 45,309
Int. Cl. B21j 13/10

U.S. Cl. 214—147 G

7 Claims



A manipulator is provided having a wheeled carriage, a peel mounted on the carriage for longitudinal movement relative thereto, jaws associated with the peel for gripping a workpiece, means for positively effecting a high horizontal acceleration of the peel relative to the carriage on release of the workpiece from the press tool of a forging press, and means for effecting continuous movement of the peel in such a manner that the combined motion of the peel and carriage causes a preselected fresh portion of the workpiece to be presented to the press.

3,631,997 METHOD OF LOADING THE HOLD OF A VESSEL WITH DREDGING SPOIL

Jan De Koning, Amsterdam, Netherlands, assignor to N. V. Ingenieursbureau voor Systemen en Octroolen "Spanstaal", Rotterdam, Netherlands
Filed Nov. 12, 1969, Ser. No. 875,650
Claims priority, application Netherlands, Nov. 15, 1968, 6816373

Int. Cl. B63b 27/24

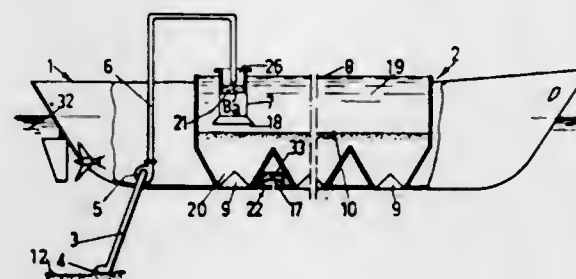
U.S. Cl. 214—152

3 Claims

In the conventional method of loading a hold of a vessel with dredging spoil, in which a suspension of water and

dredging spoil is admitted into the hold after the hold overflows until the required amount of dredging spoil is situated in the hold.

Much dredging spoil flows into the outboard water. A more efficient filling operation is obtained when the suspen-



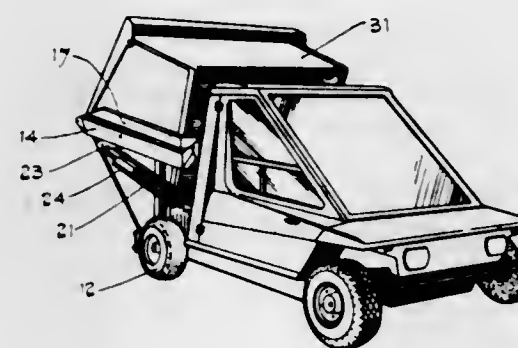
sion is deposited in a tube which is so kept in the hold that it is surrounded by the hold on all sides, and which is kept at such a depth in the hold that the bottom of the tube always remains above the level of the settled part of the spoil, while the tube penetrates into the liquid.

3,631,998
CONTAINER-CARRYING TRUCKS
Ian Gordon George Fowell, London, England, assignor to Cooper Bros. (Bordesley) Limited, Birmingham, England
Filed Aug. 28, 1970, Ser. No. 67,962
Claims priority, application Switzerland, Aug. 29, 1969, 13113/69

Int. Cl. B65f 3/04

U.S. Cl. 214—313

6 Claims



A container-carrying truck includes a primary cradle and a secondary cradle. The secondary cradle is pivoted at one end to the truck and pivoted at its other end to the primary cradle. A ram is pivoted to the truck and to the primary cradle and link means are pivoted to the secondary cradle and arranged to support the primary cradle at a position spaced from the pivotal connection between the two cradles. On extension of the ram, the primary cradle is moved first upwardly in a generally horizontal condition and is then tilted.

3,631,999
TRANSPORTING DEVICE FOR CONTAINERS
Reinhard Walerowski, Dusseldorf, Germany, assignor to Heinrich de Fries Gesellschaft mit beschränkter Haftung, Dusseldorf, Germany
Filed Nov. 19, 1969, Ser. No. 877,979
Claims priority, application Germany, Feb. 1, 1969, P 19 04 938.8

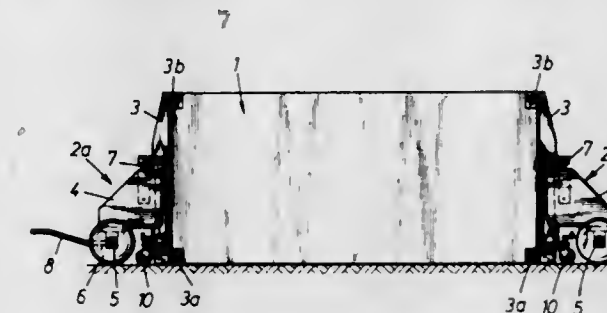
Int. Cl. B60p 3/40

U.S. Cl. 214—390

10 Claims

A transporting device, especially for large containers, which comprises two carriage units each having a supporting frame which is connectable to the ends of a container to be transported by said units and which through the intervention

of cantilevers is connected to wheel-equipped shaft means, said shaft means and said supporting frame means being ad-

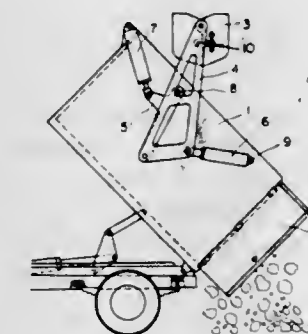


justable relative to each other in vertical direction by lifting means.

3,632,000
VEHICLE FOR COLLECTING REFUSE AND THE LIKE
Hiroshi Hotta, Zushi, Japan, assignor to Tokyo Sharyo Seizo Kabushiki Kaisha, Yokohama, Japan
Filed July 17, 1970, Ser. No. 55,682
Claims priority, application Japan, July 14, 1970, 45/61016
Int. Cl. B60p 1/04

U.S. Cl. 214—501

2 Claims



A refuse-collecting vehicle having a rear end loader bucket and a refuse container mounted on a truck chassis is disclosed wherein the bucket pivotally attached to a boom assembly is lifted and moved on the container along a locus substantially parallel to the length of the container for dumping the contents of the bucket in a uniform manner. A novel opening-and-closing mechanism for the bucket is also disclosed.

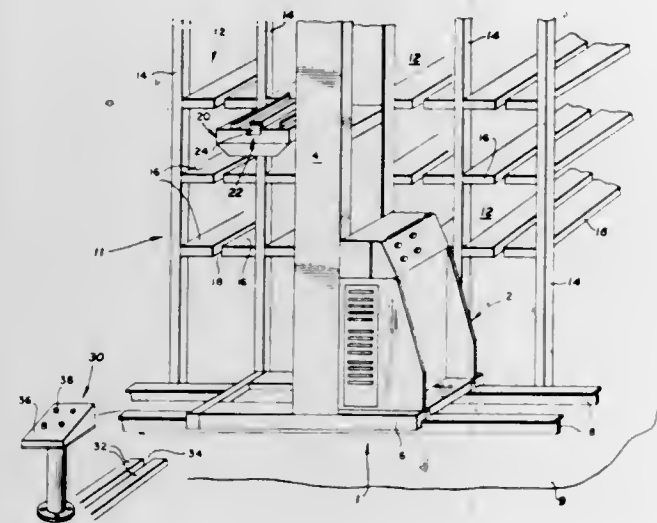
3,632,001
WAREHOUSING APPARATUS
Kenneth A. Richens, Salt Lake City; Scott C. Grover, Bountiful; James K. Allred, Salt Lake City, all of Utah, and James H. Shook, Lakewood, Colo., assignors to Eaton Yale & Towne, Inc., Cleveland, Ohio
Filed May 5, 1969, Ser. No. 832,036
Int. Cl. B65g 47/10

U.S. Cl. 214—730

8 Claims

Warehousing system apparatus has a storage rack with several vertically and horizontally related storage elements. A mast is moved horizontally on rails parallel to the face of a storage rack, and a platform moves vertically along the mast in response to signals from a three-brush signal wire pickup on a control wire strung along the rack. Vertical and horizontal hydraulic drives and controls are independent so that the platform may fly or move diagonally in the shortest line between locations in the storage rack. Electric motors constantly operate hydraulic pumps; pump output is controlled

by stepping motors having telemetering switches to indicate pumping direction. A positive neutral band is provided in the hydraulic system for better drive control. A carrier which is



driven from the platform into the rack has a cam means to change the position of load-driving lugs each time the carrier is driven to a maximum displacement from the platform.

3,632,002

POSITIVE OPENING AND CLOSING DOOR AND OPERATING MEMBER FOR MINE SKIPS AND THE LIKE

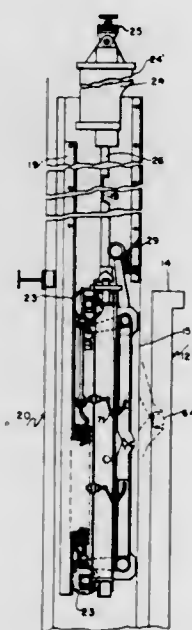
Algernon Kerkham, and Charles Eunson, both of Winnipeg, Manitoba, Canada, assignors to Dominion Bridge Company Limited, Lachine, Quebec, Canada

Filed Nov. 25, 1968, Ser. No. 778,496

Int. Cl. B65g 47/00

U.S. Cl. 214-740

8 Claims

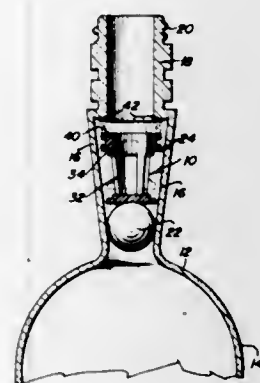


This invention consists of a vertically sliding door in a skip which is engaged by a vertically moving carriage when it is in the discharge position. This carriage moves upwardly together with the door and after a predetermined time, the carriage then moves down with the door and it disengages from the door when the door reaches the closed position.

3,632,003
NONREFILLABLE BOTTLE
William De Simone, 851 Broadway, Everett, Mass.
Filed Dec. 24, 1969, Ser. No. 887,981
Int. Cl. B65d 49/02

U.S. Cl. 215-21

7 Claims



A one-way ball valve assembly is disposed in a tapered neck section of a bottle. The valve is adapted to seal the neck section when the bottle is positioned upright. When inverted, the tapered neck section allows the ball valve to become free from engagement with the neck section thereby allowing passage of material therethrough. A spacer member is positioned between the ball valve and a projecting edge of the neck section to prevent the valve from occluding the outlet of the neck section when the container is inverted. The spacer member incorporates a groove which interlocks with the projecting edge thereby preventing removal of the spacer member and the ball valve from the bottle.

3,632,004

FUSED CONTAINER CLOSURE AND MEANS FACILITATING REMOVAL OF THE SAME

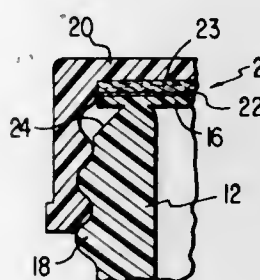
Donald W. Grimes, Catawissa, and Wayne P. Michael, both of Berwick, Pa., assignors to Shell Oil Company, New York, N.Y.

Filed Sept. 17, 1969, Ser. No. 858,638

Int. Cl. B65d 23/00, 53/00

U.S. Cl. 215-40

17 Claims



The disclosure is directed to a container having a pouring neck and a closure member covering and fused to the peripheral lip surrounding the pouring opening to provide a tamperproof sealed container. The portion of the container neck and peripheral lip are reduced to the juncture thereof to facilitate grasping of the closure member to remove the same.

3,632,005

DOUBLE-SEAL PLASTIC CAP WITH FLEXIBLE RIM-ENGAGING FLANGE

Milton Kessler, 6690 Harrington, Youngstown, Ohio
Filed Dec. 12, 1969, Ser. No. 884,673

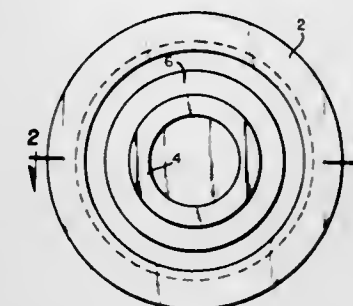
Int. Cl. B65d 41/22

U.S. Cl. 215-41

3 Claims

A one-piece plastic cap, primarily for glass bottles, having two separate annular sealing areas, one formed by a hollow

cylindrical stopperlike portion extending down from the top of the cap into the neck of a bottle or other container, and the other sealing portion formed by a flexible rim-engaging



flange extending out in skirtlike fashion from the cylindrical portion near its top and deformable upwardly by the pouring rim of a bottle or the like into conformity with the rim contour at all points around the engaged portion of the rim.

3,632,006

BOTTLE STOPPER ASSEMBLY

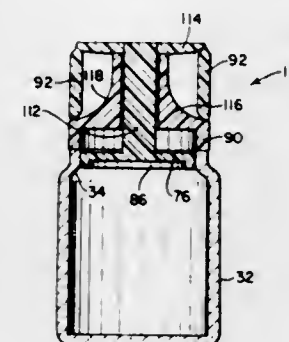
Warren E. Gilson, 4801 Sheboygan Ave., Madison, Wis.

Filed Oct. 8, 1969, Ser. No. 864,826

Int. Cl. B65d 43/02

U.S. Cl. 215-55

3 Claims



A bottle stopper assembly includes a stopper portion having a closure member and a stem, the closure member being removably engageable in sealing relation in an opening in a bottle. An ejector mechanism is mounted on the stopper and encircles the stem. In response to an externally applied squeezing or pinching force the ejector simultaneously applies a separating force to the bottle and the stopper to remove the closure member from the bottle opening.

3,632,007

DOOR LATCH

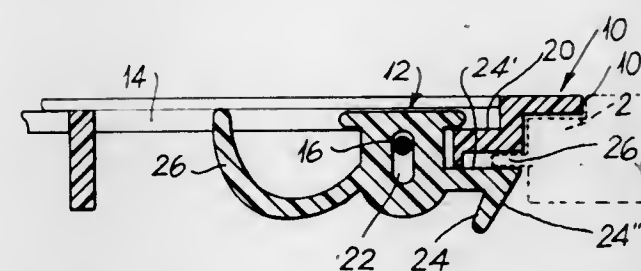
Itzhak Kantor, Hof Hacarmel, Israel, assignor to Plasson Maagan Michael Industries Ltd., Hof Hacarmel, Israel

Filed Dec. 4, 1969, Ser. No. 882,128

Int. Cl. B65d 43/16

U.S. Cl. 217-57

6 Claims



A door and latch particularly for poultry crates, the door being formed with a rectangular-shaped opening in which the

latch is movable and is spring urged to its closed position. The latch includes a latching element depending from the inner face of the door and formed with an intumed lip which serves as a camming surface automatically latching the door when closed. The latch further includes a finger piece extending upwardly from the outer face of the door for manually unlatching it against the action of the spring. The latter is constituted by a resilient rod passing through the latch, the opposite ends of the rod being receivable in seats formed in the door on opposite sides of the rectangular opening.

ERRATUM

For Class 218-318 see:
Patent No. 3,631,858

3,632,008

INDIUM ALLOY SEAL AND CATHODE-RAY TUBE ENVELOPE EMPLOYING SUCH SEAL

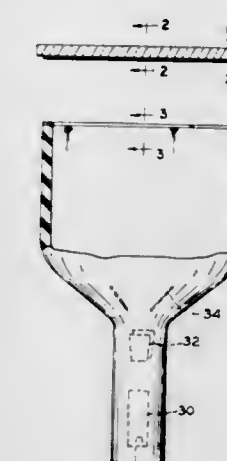
Roger S. Lind, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Oct. 15, 1969, Ser. No. 866,688

Int. Cl. H01k 1/42

U.S. Cl. 220-2.3 A

8 Claims



A hermetic seal between a crystalline ceramic member and a member of inorganic, nonmetallic material, such as glass, ceramic or semiconductor material, is described which is formed by an alloy of indium and an active metal, such as titanium, zirconium, tantalum and hafnium. In one embodiment, an envelope for a cathode-ray tube is formed by sealing a glass faceplate to a ceramic funnel portion by the indium alloy seal. As a result of the short time required for such sealing, the cathode ray tube envelope may be first evacuated and then sealed during the same heating cycle so that such evacuation can be performed through the large end of the envelope at such faceplate.

3,632,009

SEAL FOR JOINING HOLLOW CYLINDRICAL BODIES TO DISH CAPS AND METHOD OF PROVIDING SAME

Giulio Borromeo, Milan, Italy, assignor to Rheem Manufacturing Company, New York, N.Y.

Filed Apr. 7, 1969, Ser. No. 813,875

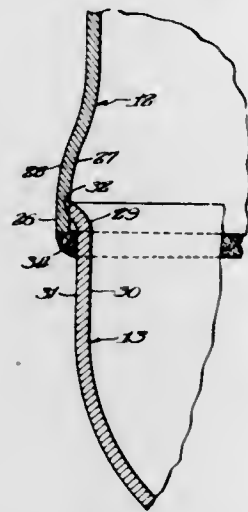
Claims priority, application Italy, Apr. 30, 1968, 15965A/68
Int. Cl. B65d 7/38

U.S. Cl. 220-5 A

1 Claim

A cylindrical water tank body is joined with a dish cap which forms the water tank bottom by flaring both the edge

of the body and the edge of the cap outwardly so that the lower edge surface of the cap fits against the inner flared sur-



face of the body to hold the cap in a fixed position. The cap is then welded to the body.

3,632,010

SELF-CONSTRAINING CONTAINER

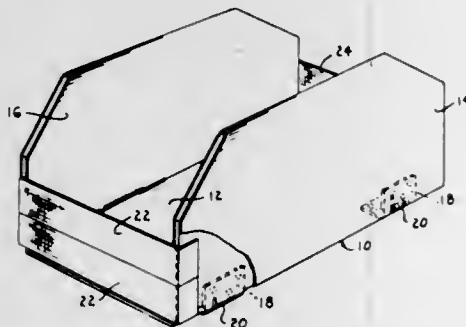
Marvin G. Marty, Sr., 6538 Potomac Ave., Porter, Ind.

Filed Nov. 6, 1969, Ser. No. 874,499

Int. Cl. B65d 7/24

U.S. Cl. 220-6

3 Claims



A self-constraining container for carrying unstable articles in a nontipable or unshiftable position comprising a base member, side members hingedly connected to the opposite sides of the base member, one of said side members being spring dominated to normally maintain said side member folded over the base member, and flexibly foldable end walls connected to the ends of said side members.

3,632,011

REFRIGERATOR CABINETS

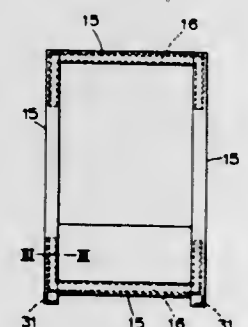
Joshua Wilson Kitson, Huntingdon, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 20, 1970, Ser. No. 4,197

Int. Cl. B65d 25/18

U.S. Cl. 220-9 F

4 Claims



A refrigerator cabinet having walls of a sandwich construction formed by an inner lining, an outer surface and an insu-

lating body of foamed polyurethane plastic formed in situ therebetween. Channel-shaped breaker strips surround the opening of the cabinet and seal an edge of the insulation. The breaker strips are provided with a pair of ribs along the legs of the channel, and spacer means are arranged between the inner lining and outer surface when placed within the breaker strip so as to keep them spaced apart and properly located during the fabrication of the sandwich construction.

3,632,012

REFRIGERATOR CABINETS

Joshua Wilson Kitson, Huntingdon, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 20, 1970, Ser. No. 4,199

Claims priority, application Great Britain, Jan. 21, 1969,

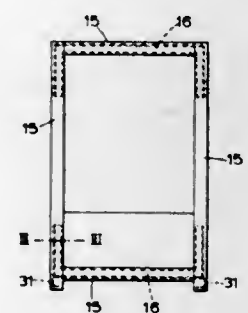
3,271/69; 3,273/69; 3,272/69; 3,270/69; Mar. 14, 1969,

13,438/69; July 23, 1969, 36/913/69; Sept. 4, 1969, 43,861/69

Int. Cl. B65d 25/18

U.S. Cl. 220-9 F

13 Claims



A refrigerator cabinet having walls of a sandwich construction formed by an inner lining, an outer surface and an insulating body of foamed polyurethane plastic formed in situ therebetween. Channel-shaped breaker strips surround the opening of the cabinet and seal an edge of the insulation. Spacer means are arranged between the inner lining and outer surface so as to keep them spaced apart and properly located during the fabrication of the sandwich construction.

3,632,013

FOLLOWER ASSEMBLY FOR FILE DRAWERS

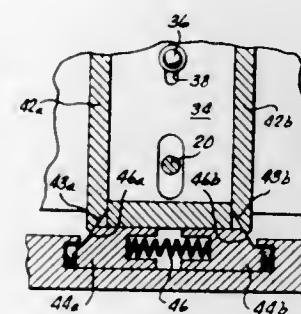
Murray Rothenberg, Pottstown, Pa.; Kurt H. Burgold, Croton-on-Hudson, N.Y., and Gordon L. May, Morrisville, Pa., assignors to Art Metal-Knoll Corporation, New York, N.Y.

Filed June 17, 1970, Ser. No. 47,021

Int. Cl. B42f 17/14; B65d 25/06

U.S. Cl. 220-22.3

9 Claims



A file drawer follower assembly which can be released for moving to different positions along the longitudinal dimension of the drawer by downward pressure of the follower plate. The follower assembly locks into its new position when the downward pressure upon the follower plate is released. There are no visible levers or buttons for operating the locking mechanism. The follower assembly includes a base member which slides longitudinally in a channel in the bottom panel of the drawer. A follower plate is carried by an L-

shaped bracket extending upwardly from the base member. The connection between the plate and the bracket is such that the plate can slide vertically along a preset distance. The plate is biased to its up position and carries two cam plates which engage transverse sliders mounted in the base member. The sliders are biased to engage the sidewalls of the channel and are disengaged from the channel sidewalls when the follower plate is pushed down.

3,632,014

PRESSURE PANS

Salvador Peluso Beale, Sao Paulo-SP, Brazil, assignor to Lares Produtos Domesticos S.A., Sao Paulo, Brazil

Filed Aug. 13, 1969, Ser. No. 849,690

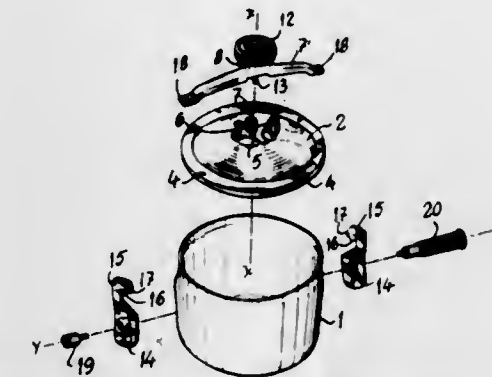
Claims priority, application Brazil, Jan. 1, 1969, 205,430;

Argentina, May 12, 1969, 221,437

Int. Cl. B65d 7/00, 7/22, 53/00

U.S. Cl. 220-44 R

1 Claim



A pressure-cooker having a cover provided with an outer diametrical arm which centrally forms a cylindrical projection having a threaded axial hole centered with respect to a lower neck engageable around a central upper projection of the cover. A pin threadedly engages the axial hole, the upper end of the pin holding a knob and the lower end terminating in a ball point laterally received in a slot of the cover projection. A pair of plates, having an inverted L-shaped hook upper section and a V-shaped projecting tooth followed by a round outer corner, are affixed to the outer surface of the cooker body diametrically opposed and partially projecting beyond the upper edge of the cooker body. Each end of the diametrical arm having its upper surface provided with a longitudinally recessed V-shaped central portion for engaging an associated projecting tooth.

3,632,015

SAUCER WITH CUP-RETAINING RECESS

Martin Barth, Wellerstadter Weg 29, 8523 Baiersdorf Middle Franconia, Germany

Filed June 2, 1970, Ser. No. 42,807

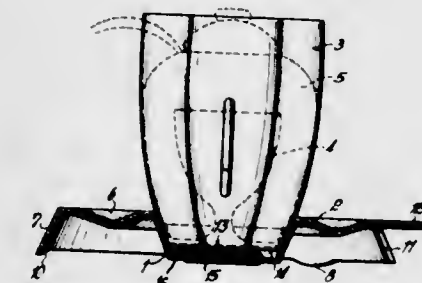
Claims priority, application Germany, June 6, 1969, G 69 22

704.9

Int. Cl. B65d 7/42

U.S. Cl. 220-69

7 Claims



A saucer for a cup, or the like, having a large, central, relatively deep recess with downwardly converging conical sidewalls shaped to fit the lower portion of a cup, or the like,

adapted to snugly set in the recess. The bottom wall of the recess has a raised portion to maintain the bottom of the cup spaced from the bottom wall of the recess, and in one form of the invention a suction cup or the like may be connected beneath this raised portion to hold the saucer stationary on a surface. A wide shallow through extends outwardly from the top of the sidewalls of the recess, and in surrounding relation to the recess and terminates in a downturned rim in the form of a conically diverging wall. The lower edge of the outer wall is provided with three short evenly spaced foot members. This outer wall is interrupted at a point along the circumference by a generally horizontally disposed handle portion arranged in substantially the same plane as the concentric trough.

3,632,016

COVER INTERLOCKING PREVENTIVE DEVICE

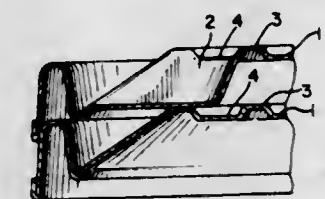
John S. Bozek, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed June 11, 1969, Ser. No. 832,242

Int. Cl. B65d 43/06, 51/24

U.S. Cl. 220-97 R

1 Claim



Irregularly spaced detents or protuberances are placed around near the edge of a container header in order to prevent headers from interlocking when they are nested. The forming of the protuberances is accomplished as part of other operations necessary in making the header.

3,632,017

MILK FILTER DISPENSER

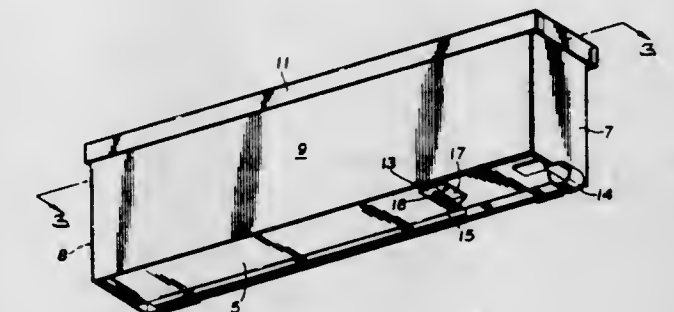
Robert J. Matthews, P.O. Box 9101, Canton, Ohio

Filed Dec. 30, 1969, Ser. No. 889,233

Int. Cl. B65h 1/00

U.S. Cl. 221-33

2 Claims



The apparatus is designed particularly for dispensing flat, folded milk filters from packages of the same. The filters are held horizontally in the bag in which they are received, which is opened and one end of the filters extends beyond the open end of the bag. The filters are removed manually, one at a time, through an opening at one end of the bottom of the dispenser.

3,632,018

**FEED RATE CONTROL IN A CEMENT KILN
INCORPORATING DUST RETURN**

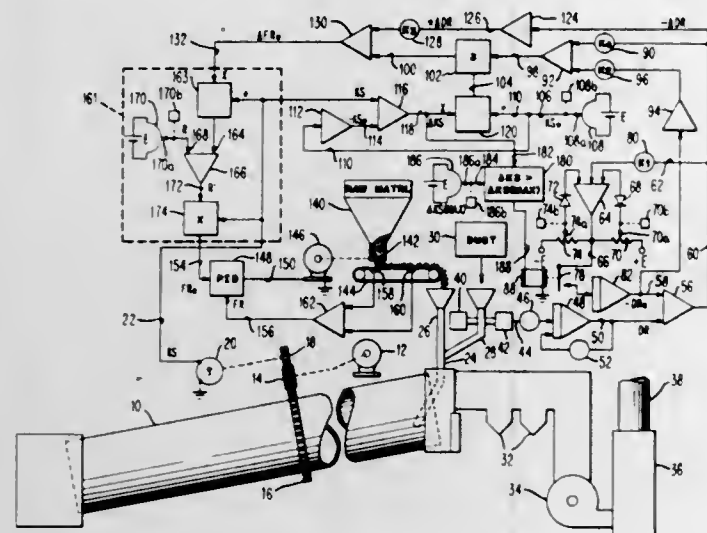
Charles W. Ross, Hatboro, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.

Filed May 17, 1968, Ser. No. 729,968

Int. Cl. F27b 7/32

U.S. Cl. 222-1

6 Claims



A control system for modifying the relationship between the raw material feed rate and the speed of rotation of a rotary cement kiln to which the raw material is fed in order to compensate for the quantity of recirculated dust and changes in the speed of rotation of the kiln.

3,632,019

LEVEL CONTROL SYSTEM FOR FLOWABLE SOLID MATERIALS

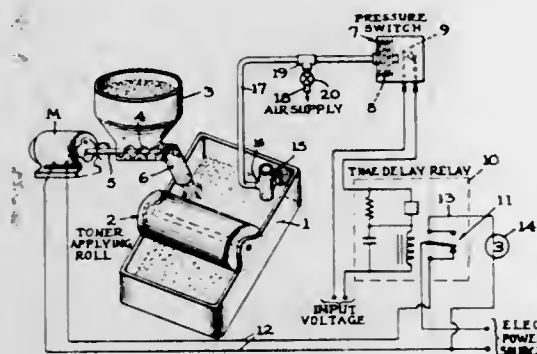
John F. Harn, 7952 Boxford Cir., Clay, N.Y.

Filed May 26, 1970, Ser. No. 40,525

Int. Cl. B65d 83/06

U.S. Cl. 222-56

10 Claims



The invention relates to a level sensing and control system for regulating the high and low levels of a body of flowable solid material in a container or receiving tray, bin, tank or other receptacle. The system is applicable to loose solids in powdered, granular or other comminuted flowable form, and is particularly applicable to control the level of toner material utilized in electrostatic copying machines as in the illustrative embodiment disclosed herein. The system includes an open-ended vertical sensor tube disposed within the material container or receiver and which is connected intermediate its ends to a source of air or other pressure fluid which serves to trigger the system to cause automatic interruption of the material feed supply when a predetermined head of material is trapped in the tube, and to cause automatic operation of the material feed supply to replenish the material in the tray or receiver when the material level drops to a predetermined low level and allows the pressure fluid to freely escape from

either or both ends of the sensor tube when the material reaches a predetermined low level. The positions of the opposite open ends of the sensor tube respectively define the high and low levels of the material deposited in the tray or receiver.

3,632,020

DISPENSER FOR AEROSOL BOMBS

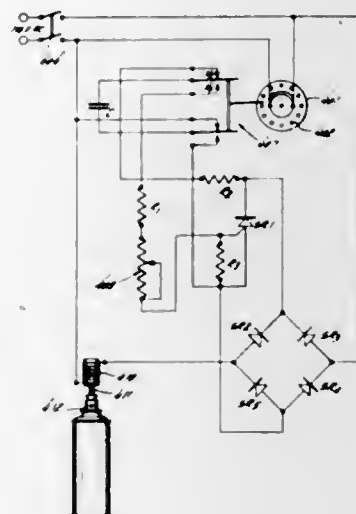
Dalbro R. Nixon, Jr., Chesapeake; David J. McIlhenny, Suffolk, and Marvin L. Harrell, Portsmouth, all of Va., assignors to Virginia Chemicals Inc., Portsmouth, Va.

Filed Dec. 17, 1970, Ser. No. 98,988

Int. Cl. B67d 5/08

U.S. Cl. 222-70

10 Claims



Aerosol bombs of the type having a depressing dispensing valve, particularly an electronic circuit including spray interval and length of spray timing components and a reciprocating solenoid plunger which depresses the aerosol bomb.

3,632,021

**APPARATUS FOR MAKING AND DISPENSING
AERATED FOOD PRODUCTS**

John MacManus, 143-16 Twenty-Second Road, Whitestone, N.Y.

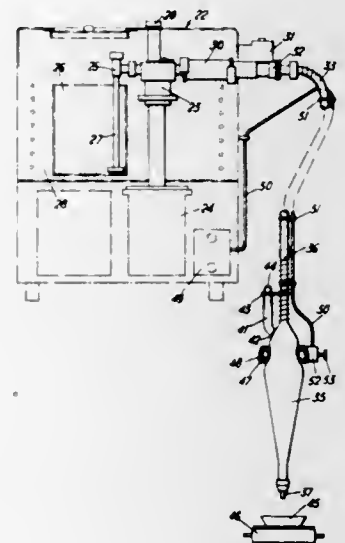
Filed Feb. 9, 1970, Ser. No. 9,819

Claims priority, application Great Britain, Feb. 13, 1969, 7,783/69

Int. Cl. B65d 35/28

U.S. Cl. 222-95

34 Claims



The apparatus includes a motor-driven pump having an inlet connected both to an air intake and to an unpressurized liquid product container, whereby the liquid product and air

are simultaneously drawn into the pump. The pump outlet is connected to a static homogenizer which emulsifies the liquid and air mixture. The aerated product is then fed to a flexible tube having a dispensing device at its outlet end. Various dispensing devices are a forcing bag, a decorating head, or a hollow spear. Pneumatically operated means is provided for automatically discharging the aerated product from a forcing bag.

3,632,022

MOLDING MACHINERY

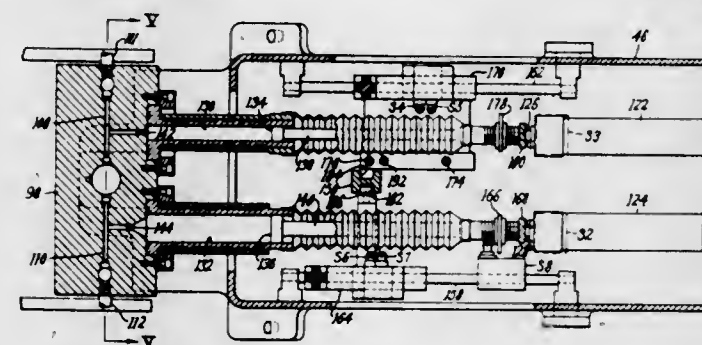
Robert C. Simmonds, Jr., Topsfield, and Andrew J. Gilbride, Swampscott, both of Mass., assignors to USM Corporation, Flemington, N.J.

Filed Oct. 6, 1969, Ser. No. 863,965

Int. Cl. B67d 5/52

U.S. Cl. 222-134

9 Claims



Machinery for molding articles including a device for metering, mixing and dispensing a measured quantity of multiple component mixture to a plurality of molds. The device comprises a plurality of chambers each having a volume variable in response to fluid entering the chamber. One of the chambers contains a mixing element and dispensing means for the mixture. The constituent materials are metered into the other chambers, from which they are sequentially sent into the mixing chamber in measured quantity to be mixed and dispensed therefrom.

3,632,023

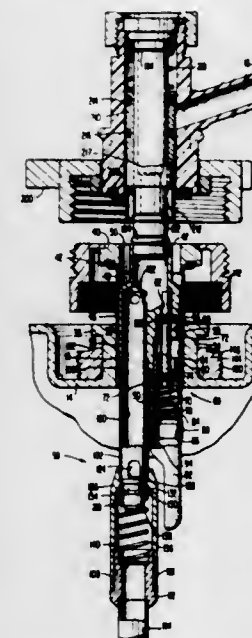
TAPPING DEVICE FOR BEER KEGS AND THE LIKE
Mack S. Johnston, Rolling Hills, Calif., assignor to Republic Corporation, Los Angeles, Calif.

Continuation-in-part of 814,883, Mar. 26, 1969, now Patent No. 3,563,424. This application Mar. 16, 1970, Ser. No. 19,626

Int. Cl. F04f 1/06

U.S. Cl. 222-400.7

18 Claims



Disclosed is a tapping device for beer kegs and the like including a keg adapter inserted into the keg opening from

without the keg for semipermanent securement within the keg opening and a coupler releasably secured to the adapter. The adapter includes segregated liquid and gas passages and liquid and gas valves in the respective passages. Valve-actuating members extend within a central chamber opening outwardly of the keg adapter. The coupler includes segregated liquid and gas passages and a depending probe for displacing the valve-actuating members and thereby opening the liquid and gas valves whereby gas under pressure is communicated into the keg and liquid is withdrawn therefrom. The coupler further includes an automatic gas shutoff valve.

3,632,024

**AEROSOL ACTUATOR ASSEMBLY HAVING AN
ACTUATOR BUTTON THAT IS ROTATABLE BETWEEN
DISPENSING AND NONDISPENSING POSITIONS**

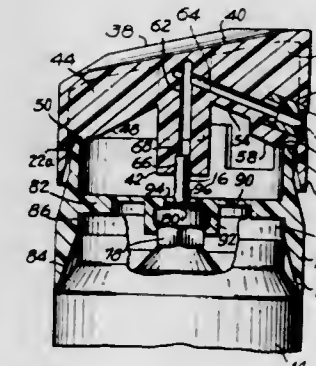
Norman Usen, West Haverstraw, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 4, 1970, Ser. No. 16,343

Int. Cl. B65d 83/00

U.S. Cl. 222-402.11

1 Claim



An aerosol actuator assembly is described. The actuator comprises a cap member and an actuator button concentrically mounted thereon. The button moves axially over the cap member to effect dispensing of aerosol formulation and when the button is rotated a stepped configuration on the cap member engages the inner structure of the button in a manner whereby the button is either in a nondispensing position or in a position wherein dispensing is enabled. The cap member is structured to firmly engage an aerosol container with the outer surfaces of the cap member and actuator button shaped to blend with the container to effect a streamlined contour comprising a continuous cylindrical shape.

3,632,025

DECANTER LID ASSEMBLY

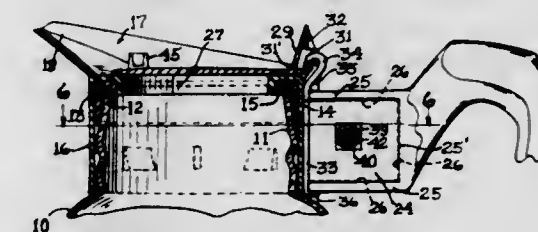
Harold Bloomfield, and August C. Purpura, both of Chicago, Ill., assignors to Bloomfield Industries, Inc., Chicago, Ill.

Filed Sept. 4, 1970, Ser. No. 69,690

Int. Cl. A47g 19/14

U.S. Cl. 222-472

5 Claims



A decanter lid assembly in which the lid is held in place by a hinge bar in turn held in place by the shank of a handle for the decanter, thus to provide a simplified arrangement for

facilitating labor-saving assembly of the lid with respect to the collar of the assembly, which clampingly embraces the neck of the decanter bowl.

3,632,026

STOPPER STRUCTURE AND COMBINATION OF BOTTOM POUR RECEPTACLE AND STOPPER

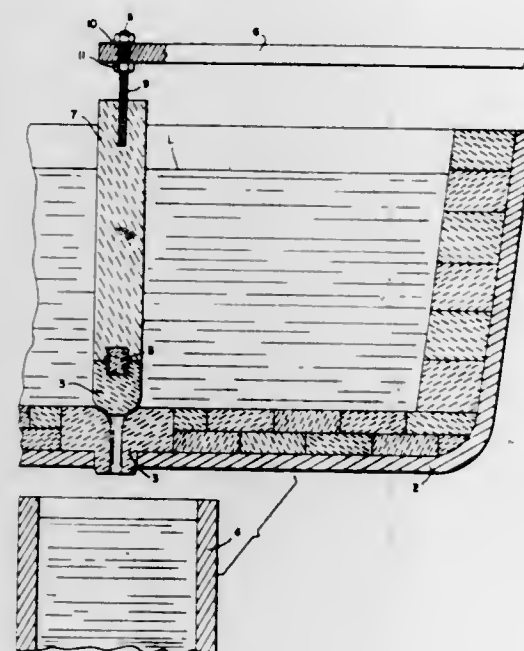
James M. Thornton, Newton Mearns, Scotland, assignor to Vesuvius Crucible Company, Swissvale, Pa.

Filed Jan. 27, 1969, Ser. No. 794,186

Int. Cl. B22d 37/00

U.S. Cl. 222-559

10 Claims



A stopper structure for controlling outflow of molten metal through the nozzle of a bottom pour receptacle, more particularly a tundish, comprising a refractory stopper head, rigging for raising and lowering the stopper head to open and close the nozzle and a connecting member separate from both the rigging and the stopper head comprising a vertically elongated refractory element connected with the rigging at its upper end and with the stopper head at its lower end through which the stopper head is carried by the rigging. The connection may be threaded or otherwise. It may comprise a separate plug entering both the vertically elongated refractory element and the stopper head or portion integral with one or the other. The vertically elongated refractory element extends upwardly from the stopper head to a level above the level of the surface of molten metal in the receptacle. The invention does away with the time honored steel stopper rod which is subject to softening and melting.

3,632,027

METAL FIBRIL COMPACTS AND METHODS AND MACHINES FOR MAKING SAME

Bertil J. Sundberg, Minneapolis, Minn.; Andreas Lukach, deceased, late of Deephaven, Minn., and David R. Johnson, executor, Minneapolis, Minn., assignors to Brunswick Corporation, Chicago, Ill.

Original application Aug. 24, 1964, Ser. No. 391,708, now Patent No. 3,505,038. Divided and this application Mar. 2, 1970, Ser. No. 15,357

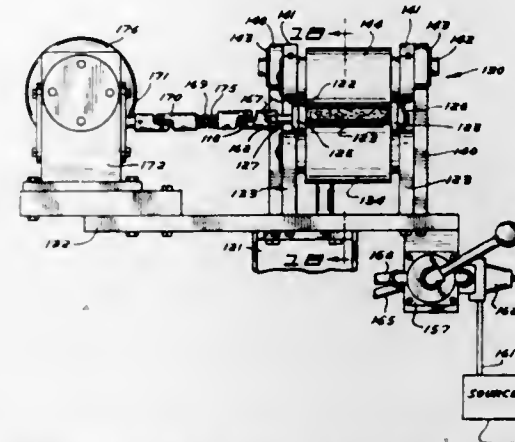
Int. Cl. B21c 47/00; B21d 7/04, 5/14

U.S. Cl. 72-148

2 Claims

Method and Product: Compacts composed of fibrils of tough, recalcitrant metals such as stainless steel; the density of the compacts being about 30 to 85 percent of the density of the metal of which the "fibrils" are composed. The fibrils range in transverse dimension from about 0.005 to 0.005 inch, have an area less than that of a Type inch circle, are of

uniform length, and are made by shearing off narrow width pieces from the end of a rolled strip of parent metal. Individual fibrils have the two flat-rolled faces of the parent strip and two sheared faces, the width of one of the sheared faces being wider than the other as a result of shearing, so that the cross section of the fibril ranges from roughly triangular to squashed four-sided configuration with the two rolled faces converging toward the narrower of the sheared faces. Compacts are made by separating the fibrils and air lifting them against a traveling screen through which loose extraneous burrs, chips and slivers are substantially removed, thereby leaving a mat of fibrils substantially free from



degraded particles which might otherwise contaminate the mat and migrate through it. The mat has excellent green strength and is compressed through several stages preferably with intermediate annealing until the densities are obtained. Compacts of varying densities throughout the thickness of the compact may be prepared. The compacts composed of the compressed mat (or layers of mat) may be supported on exterior surfaces by woven or reticulated metal support members. Extremely recalcitrant metals such as hard-to-work Type 347 Stainless Steel Alloy and similar difficulty machinable metals may be utilized for making the original fibrils. The finished compacts are useful for sophisticated filtering and the like applications and for transpiration cooled surfaces.

3,632,028

HANGER FOR ARTICLES OF CLOTHING OR THE LIKE

Kurt Fassel, Afferde, Germany, assignor to Sinram & Wendt, Hameln-Afferde, Germany

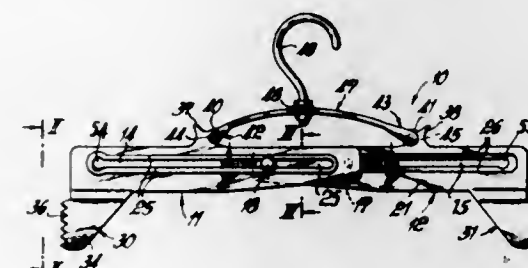
Filed Feb. 13, 1970, Ser. No. 11,231

Claims priority, application Germany, Feb. 25, 1969, P 19 09 354.0

Int. Cl. A47J 51/12

U.S. Cl. 223-95

16 Claims



A hanger for trousers, slacks, skirts or like articles of clothing wherein two plastic arms are movable in parallelism with each other between article-engaging and article-releasing positions. Each arm has an elongated slot which receives the stem of a guide pin provided on the other arm. An elastic band or a helical spring is connected to the pins and biases the arms to their article-engaging positions. A deformable

suspending member is separably connected to coupling elements provided at the upper sides of the arms and enables the user to suspend the hanger on a nail or the like. The suspending member may carry a hook to permit suspension of the hanger on a rod.

3,632,029

LITTER BAG

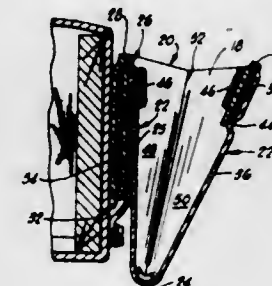
May B. Sonner, 412-20 East Sixth St., Winfield, Kans.

Filed Dec. 29, 1969, Ser. No. 888,426

Int. Cl. B60r 3/08; B65d 33/16; A45c 13/10

U.S. Cl. 224-29 D

3 Claims



This invention is a litter container structure including a bag assembly for receiving and holding litter, and having a pocket means to receive a support member. More particularly, this invention is a litter container having a closeable bag assembly mountable within a vehicle and easily removable therefrom.

3,632,030

PNEUMATIC FABRIC-GUIDING SYSTEM

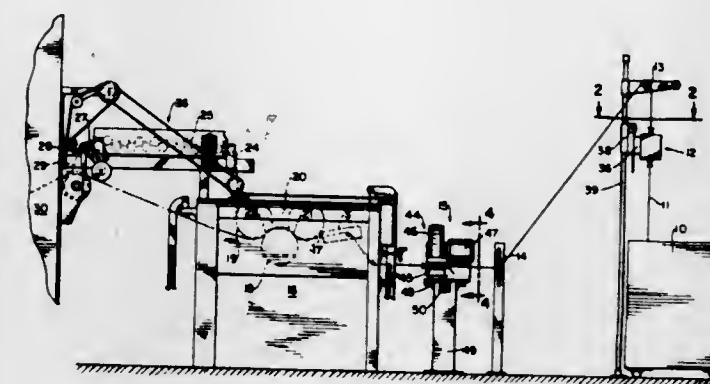
Eugene Cohn, Great Neck, and Frank Catallo, Elmont, both of N.Y., assignors to Samco Holding Corporation, Woodside, N.Y.

Original application Jan. 25, 1967, Ser. No. 611,609, now Patent No. 3,494,011. Divided and this application Jan. 14, 1970, Ser. No. 2,729

Int. Cl. B65h 23/24

U.S. Cl. 226-3

9 Claims



An air-operated fabric-guiding system is disclosed. The new system is disposed along and encompasses the edge portions of a laterally disposed fabric. Sensors and actuators are provided for causing an outward discharge of air along the surface of the fabric in response to movement of the fabric from a predetermined course. The air emission on one side of the fabric causes a shifting of the fabric in the direction of the air emission, thereby realigning the fabric on the predetermined course.

3,632,031

ACTUATOR MECHANISM

John R. Gurner, and Leslie A. Henman, both of Ilford, England, assignors to The Plessey Company Limited, Ilford, England

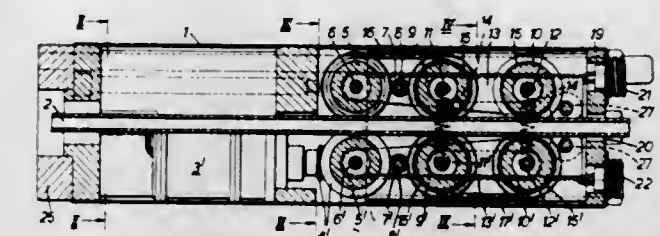
Filed Feb. 6, 1970, Ser. No. 9,384

Claims priority, application Great Britain, Feb. 7, 1969, 6,892/69

Int. Cl. B65h 17/20

U.S. Cl. 226-187

11 Claims



An actuator mechanism comprising a pair of opposed rollers between which an elongate member is fed, each of the rollers being provided with a friction band extending over at least part of its circumference contact between each roller and said member being made through the respective friction band, with at least one of said rollers being caused to be rotated to effect longitudinal movement of the elongate member.

3,632,032

APPARATUS USING THE ENERGY PRODUCED BY THE EXPLOSION OF A MACHINE GUN CARTRIDGE (SHELL)

Pierre Termet, 16 Impasse Belloc, 69 Lyon, 6ème, France

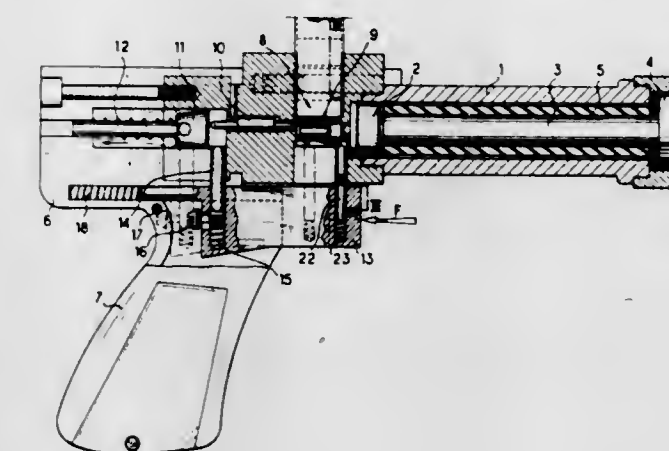
Filed Aug. 4, 1969, Ser. No. 847,151

Claims priority, application France, Aug. 5, 1968, 161953

Int. Cl. B25c 1/14

U.S. Cl. 227-10

5 Claims



A repeating apparatus, which may be in the form of an impacting tool or a nail-driving device, utilizes the force of explosion of a cartridge to move a sliding element, such as a piston, towards the front of the apparatus. The apparatus is provided with feeding devices, for feeding cartridges or nails, and the feeding devices are provided with rigid supporting elements to enclose a cartridge or nail on the barrel axis of the apparatus during firing of the apparatus.

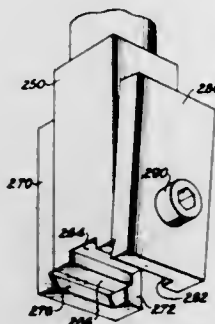
3,632,033

RAM MECHANISM FOR A SNAP FASTENER ATTACHING MACHINE

Erich A. Schmidt, Lexington, Ky., assignor to Tertron, Inc., Providence, R.I., a part interest
 Filed Apr. 30, 1970, Ser. No. 33,421
 Int. Cl. B25c 7/00

U.S. Cl. 227-149

9 Claims



A ram mechanism in a machine for attaching the components of a snap fastener to a material, wherein the snap fastener components are fed from strips in spaced relation to each other, are separately cut from the fed strips and are clamped together with the material therebetween by the ram mechanism; automatically operated gripping means on a ram plunger retains and releases a fastener component in accordance with particular movements of the ram plunger.

3,632,034

APPARATUS FOR ROLL PRESSURE BONDING

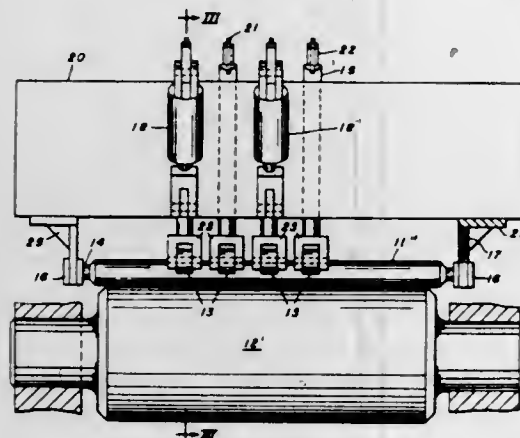
Larry M. Kozak, Tarentum, and Raymond L. Southern, Lower Burrell, both of Pa., assignors to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed May 13, 1969, Ser. No. 824,205

Int. Cl. B23k 1/00, 37/04

U.S. Cl. 228-4

12 Claims



The application describes a method and apparatus for roll pressure bonding a plurality of stripes to a substrate. Through unique roll arrangements and designs, stripes of controllable thickness are produced, as conditions which cause non-uniform roll pressures are eliminated. Furthermore, these unique roll arrangements and designs protect the substrate in the areas between the stripes from the surface damage such as roll scratching. Additionally, novel means are provided which both guide and heat the materials.

3,632,035

STRIP SHEARING AND WELDING APPARATUS

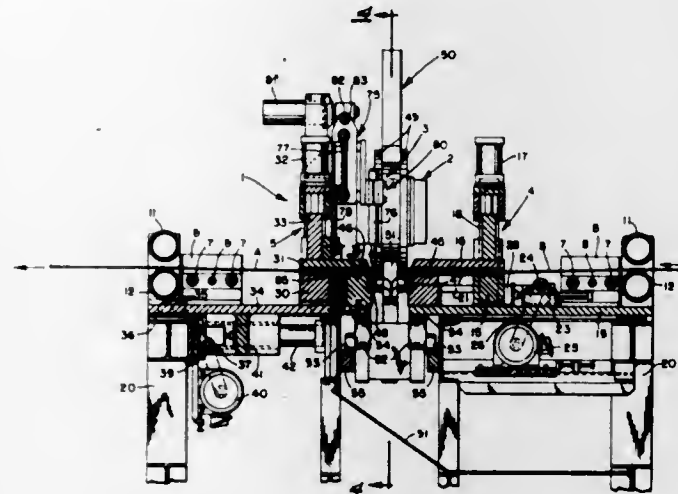
Donald J. Wheeler, Kent, Ohio, assignor to Guld Metal Joining Equipment Company, Bedford, Ohio

Filed Oct. 27, 1969, Ser. No. 869,623

Int. Cl. B23k 1/20, 37/04

U.S. Cl. 228-4

13 Claims



A strip shearing and welding apparatus in which the exit end strip clamp assembly remains stationary and the entry end clamp assembly is indexed after shearing to bring the leading end of the new strip clamped thereby into proper alignment with the trailing end of the old strip for welding. The welding assembly is mounted for vertical movement with the exit end clamp assembly to avoid damage to the weld assembly through premature opening of the clamp assembly and maintain the location of the weld assembly both vertically and horizontally with respect to the exit end clamp assembly for proper orientation of the weld assembly with respect to the strip end held thereby.

3,632,036

ELECTRICAL COMPONENT DESOLDERING AND EXTRACTING TOOL

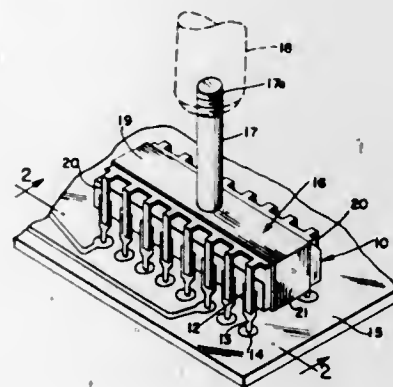
William M. Halstead, P. O. Box 881, Glen Burnie, Md.

Filed Sept. 30, 1969, Ser. No. 862,166

Int. Cl. B23k 3/02

U.S. Cl. 228-54

4 Claims



A shank which is adapted to be connected to and heated by a soldering iron carries a metallic plate provided integrally at its opposite side edges with rows of downwardly projecting fingers. When the tool is applied to an electrical component such as an integrated circuit module on a printed circuit board, the fingers contact metallic terminals at opposite side edges of the module and heat is transferred to the connector pins of the terminals for melting solder on the pins without applying heat directly to the pins themselves. The plate is also equipped with resilient flanges and detents to engage the

underside of the module and extract the same from the printed circuit board when the solder is melted.

3,632,037

CARTON ADAPTED FOR FIELD ASSEMBLY

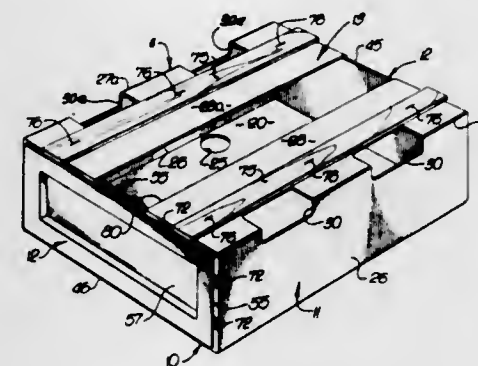
Halmar J. Webb, 4263 Forman Ave., North Hollywood, Calif., and Walter E. McKinley, 2125 Caddington, San Pedro, Calif.

Filed Dec. 29, 1969, Ser. No. 888,800

Int. Cl. B65d 11/20

U.S. Cl. 229-23

11 Claims



Carton which can be completed at situs of packing without tools or assisting materials formed from a flat prescored paperboard blank, with attached rigid panels to provide the ends of the carton, the end panels incorporating hook members engaged by the edges of cutouts in the blank located adjacent the marginal edge portions of the blank when these portions are folded in along score lines, whereby the hook members interlock with the edges of the cutouts to form first an open carton, and secondly a fastened-down lid.

3,632,038

SANITARY THROWAWAY REFUSE CONTAINER

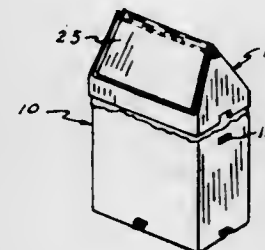
Carlos Souza, 530 Line Road, Hazlet, N.J.

Filed Dec. 30, 1969, Ser. No. 889,032

Int. Cl. B65d 5/10

U.S. Cl. 229-37

10 Claims



A throwaway refuse container that is foldable, to be provided originally in a small flat package, said flat package easily opened to be formed into a preformed shape having a hollow body and a top and bottom as well as a special top with a pivotal lid. The refuse container is provided with a plastic bag liner that is retained in said hollow body by hanging the upper edge of said bag over the top edge of said container and clamping it in this position with the pivotally opened top. When the refuse container is filled, the special top is removed and the bag may be tied and the regular flat top inserted making the container an enclosed sealed throwaway package.

3,632,039

LAUNDRY BAG

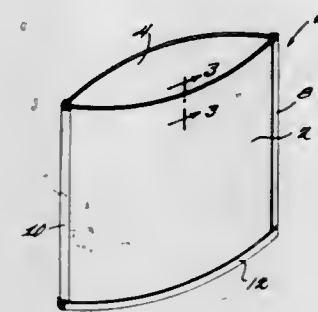
Robert Gayle, Wilton, Conn., assignor to National Patent Development Corporation, New York, N.Y.

Filed Aug. 25, 1970, Ser. No. 66,850

Int. Cl. B65d 33/00

U.S. Cl. 229-53

4 Claims



A disposable bag is made of a plurality of pieces of water-insoluble polymer joined by a water-soluble adhesive. When the bag is employed, for example as a laundry bag thrown into a washer, it comes apart in the water. Preferably the bag is heat shrinkable so that its volume is reduced when it is placed in the water. The bag can contain a germicide as a coating or dispersed throughout the polymer.

3,632,040

THERMOSTATIC CONTROL MEANS FOR VESSELS SUBJECTED TO A THERMAL ACTION

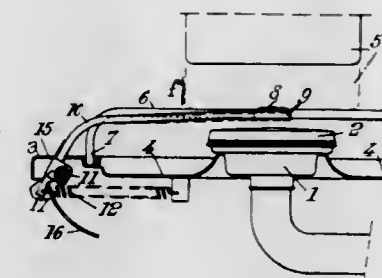
Jean-Bernard de Gouville, Joue-les-Tours, France, assignor to Etablissements Sourdillon, Matricage et Robinetterie de Precision, Veigne pres Montbazon, (Indre-et-Loire), France

Filed July 17, 1969, Ser. No. 842,587

Claims priority, application France, July 18, 1968, 159787; Aug. 13, 1968, 162943

U.S. Cl. 236-20

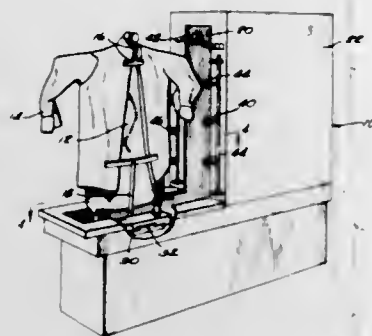
10 Claims



A thermostat sensing element is held, in a zone not subjected directly to the thermal action of the burner, in a starting position from which it is moved, by contact with the vessel to be heated as this vessel is placed in position on the burner, into a working position in which it is pushed firmly against the vessel by a spring. The sensing element can be moved upwardly, by pivoting about a horizontal axis, into a retracted position to facilitate cleaning of the burner; this upward retraction can be controlled manually from a handle. In a particular embodiment, the sensing element can be retracted laterally, either as well as or instead of the upward retraction, and this lateral retraction can be controlled manually from a knob.

3,632,041

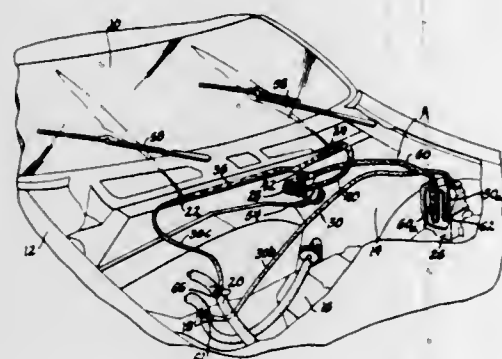
WATER SPRAY DEVICE FOR A GARMENT PRESS
David L. Radford; Michael G. Beeley, both of Salt Lake City, and William E. Sackett, Murray, all of Utah, assignors to McGraw-Edition Company, Elgin, Ill.
Filed Mar. 9, 1970, Ser. No. 17,544
Int. Cl. B04b 1/24; B44d 3/42
U.S. Cl. 239-128



Water spray device for a garment finisher or the like having a high-pressure steam system including a water separator tank and a high-pressure waterline connecting the separator tank with spray nozzles, this high-pressure line being in heat exchange relation with water in a vented sump with said sump water being admitted through an automatic float valve from the high-pressure line itself, operable thereby to cool fluid in the high-pressure line to well below the condensation temperature thereof to minimize flashing upon being sprayed from the nozzles. Moreover, a control is disclosed including cooperating cam and cam follower means that actuates solenoid valves for spraying automatically responsive to the position of the garment as it is moved past the nozzles from the dressing position to the finishing position.

3,632,042

HEATED WINDSHIELD WASHER SYSTEM
Joseph N. Goulish, Fenton, and Robert E. Owen, Grand Blanc, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Oct. 20, 1969, Ser. No. 867,515
Int. Cl. B05b 1/10, 1/24
U.S. Cl. 239-130

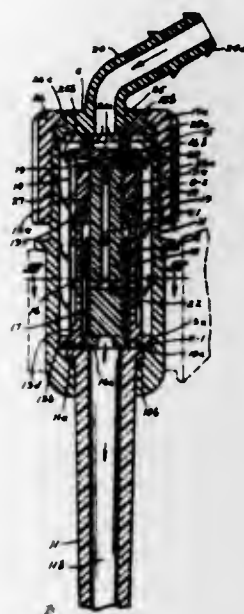


In a preferred form, this disclosure relates to a windshield washer system for washing the windshield of an automotive vehicle. The windshield washer system includes a nozzle means for directing washer fluid against the windshield, a reservoir for containing the washer fluid, a pump assembly having an inlet and an outlet, first and second conduit means for communicating the reservoir with the inlet of the pump assembly and the outlet of the pump with the nozzle means, and a heater means in the form of a conduit means through which heated engine coolant fluid is circulated. The latter conduit means is in heat exchange relationship with the reservoir, the first and second conduit means and the nozzle means whereby the washer fluid is heated while in the reser-

voir and throughout its path of movement from the reservoir to the nozzle means.

3,632,043

MULTINOZZLE SPRAYING ATTACHMENTS FOR GRAIN DRILLS AND OTHER SEEDING IMPLEMENTS
John D. Kirschmann, Bismarck, N. Dak., and Harold Blumhardt, Fredonia, N. Dak.
Filed Mar. 9, 1970, Ser. No. 17,490
Int. Cl. B05b 9/06
U.S. Cl. 239-146



The system and novel components of the invention are embodied in the plurality of nozzle heads which are connected for supply of spray liquid (including fertilizers, herbicides and insecticides) wherein two closely cooperating main and novel combinations and features are present. First, each of the nozzle heads is provided with an adequate filter medium through which supplied liquid from the tanks and manifolds of the attachment passes. Thereafter the filtered liquid is caused to pass downwardly towards the nozzle discharge tube and through a communicating port or valve passage of rigid structure and having a rounded exterior of substantial area through which the valving port or ports extend. A pressure-responsive check valve constructed from flexible, stretchable and elastic material such as natural or live rubber, latex or synthetic rubber is employed and in contoured relation, lies over and covers not only the said valving port or ports, but a relatively large rounded area surrounding the ports. The elastic valve element is at least lightly tensioned to contact against said surfaces and will be stretched or deformed when pressure through the valving ports exceeds a predetermined level, then admitting passage of the spray liquid around the edge or edges thereof to a communication passage which extends into the upper end of the depending nozzle discharge tube. The second feature is a novel, large area zoned filtering screen, closely cooperating with the previous feature.

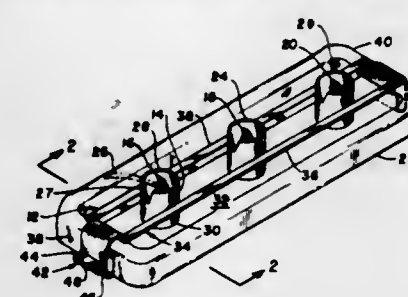
3,632,044

DRINKING FOUNTAINHEAD GUARD
Laurence S. Nelson, 4764 Belfast Avenue, Oakland, Calif.
Filed Nov. 30, 1970, Ser. No. 93,597
Int. Cl. B05b 15/04

U.S. Cl. 239-288.5
A guard to protect fountainhead fixtures mounted in a sink or receptor consisting of an encircling cylinder or arch-shaped segment placed to surround or overshadow the fix-

4 Claims

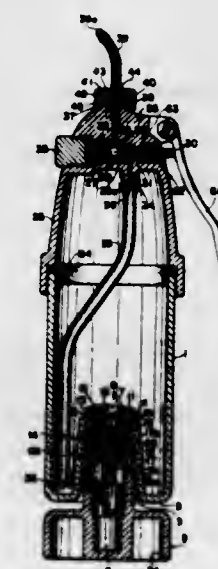
ture, such guard supported in place by a pair of brace members which in turn are secured at their opposite ends to the



end walls of the receptor, so that the fixture guard is structurally independent of the fixture itself.

3,632,045

PORTABLE FLUID CONTAINER
Katsuo Onna, 17-6, 4 chome, Sugano, Ichikawa-shi, Japan
Filed Sept. 2, 1969, Ser. No. 854,609
Claims priority, application Japan, May 15, 1969, 44/44379
Int. Cl. A62c 13/32
U.S. Cl. 239-307



A portable fluid container comprises a cylindrical housing with a gas induction means at the bottom thereof including a needle and a detachable cartridge holder which is capable of being threadably engaged on a valve socket of the gas induction means to cause the needle to pierce a cartridge carried by the holder and cause introduction into the housing of a pressure fluid contained within the cartridge. A cover is threadably mounted on the housing and carries a nozzle and a valve actuator by which the contents of the container can be dispensed.

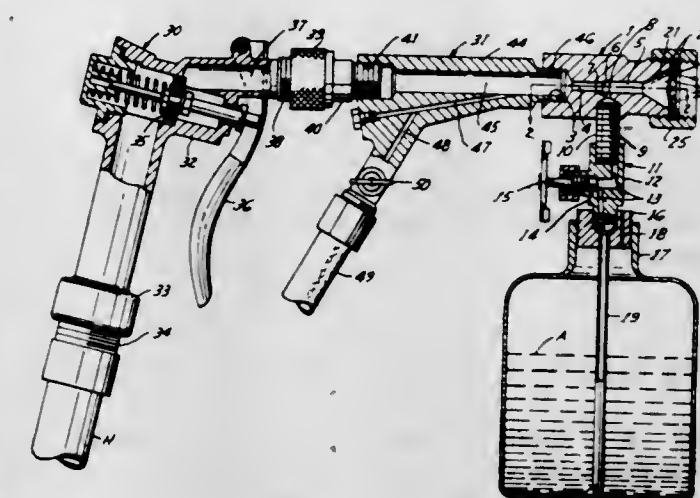
3,632,046

SPRAY NOZZLE
Robert W. Hengesbach, 7886 Munson Road, Mentor, Ohio
Filed Apr. 23, 1968, Ser. No. 723,377
Int. Cl. B05b 7/30

U.S. Cl. 239-318
This disclosure is directed to a spray nozzle device of the general type in which liquid or air, or a combination thereof, from a source under superatmospheric pressure, are supplied to the nozzle and discharged therefrom to an area of application under the direction and control of an operator. The nozzle of the device has an internal duct arrangement by which liquid agents, such as paint, liquid detergent, insecticide, and the like, which are to be applied to an area, are drawn from a

container by the Venturi effect produced by the liquid or air from the source during its passing through the nozzle. A manually operable valve is connected between the nozzle and container and is adjustable by progressive uninterrupted minute increments of change in the effective size of the valve opening for controlling the education of the liquid agent from the container.

The sizes and relative positions, and nature of the ducts are

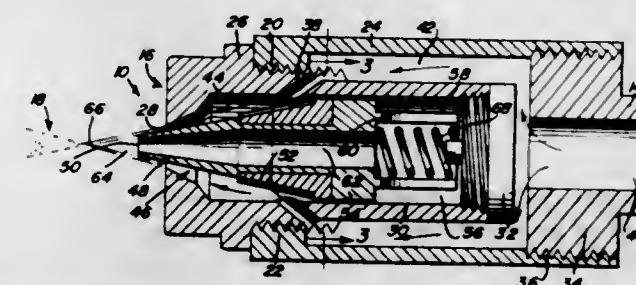


such as to greatly increase the efficiency of education of the agent, and the mixture and application of the liquid and agent, and to control more precisely the rate of education of the agent for a given selected supply of liquid, over a much wider range than heretofore obtained.

A flaring discharge passage in the nozzle and a perforated shield are arranged for causing the mixture of liquid and agent to discharge as divergent individual small jet streams and as a single concentrated stream, selectively.

3,632,047

FUEL INJECTION NOZZLE VALVE
John N. Ghongadain, 666 West 188th Street, New York, N.Y.
Filed June 12, 1970, Ser. No. 45,784
Int. Cl. B05b 1/30
U.S. Cl. 239-533



Fuel under pressure is conducted through restricted passages into the piston chamber of a nozzle body having a discharge orifice through which an axially movable valve projects. Pressurization of the piston chamber retracts the valve against a continuous closing bias to establish and control a discharge spray pattern. A signal pressure developed within the spray pattern is sensed at the projecting end of the valve to regulate its orifice opening position.

3,632,048

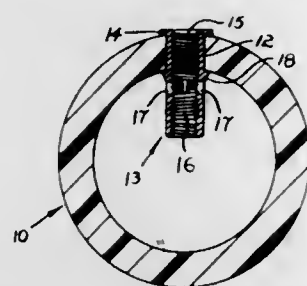
IRRIGATION HOSE
John Lloyd Light, Happy Valley, Australia, assignor to David James Hendry, Hawthorndene, Australia, a part interest
Filed Sept. 30, 1969, Ser. No. 862,379
Int. Cl. B05b 15/00

U.S. Cl. 239-547
An irrigation hose system for trickle irrigation of plants wherein the trickle metering device is constituted by an in-

6 Claims

sert driven insert driven into an aperture in the hose wall, and the insert contains an adjusting screw which, upon ad-

endgate lifts further upward the drag links become effectual and tend to tilt the lower portion of the gate upwardly and



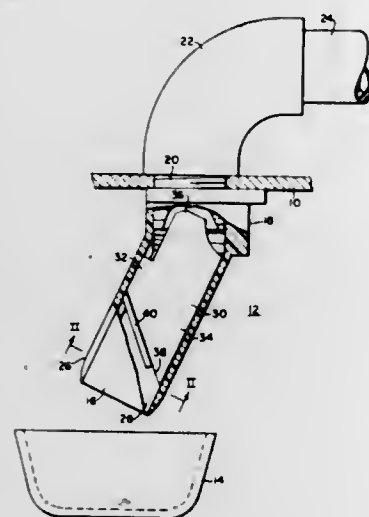
justment, varies the rate of discharge, thus enabling a constant irrigation rate for all plants even if the hose lies on undulating terrain.

3,632,049 WATER DELIVERY ARRANGEMENT FOR AUTOMATIC ICE MAKER

Thomas B. Winters, Marysville, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 16, 1969, Ser. No. 885,408
Int. Cl. B05b 1/02

U.S. Cl. 239-590

3 Claims



A water delivery arrangement for directing water into the pockets of an automatic ice maker including a water delivery tube having a lower outlet end and with straightening vane in said tube, and a transverse water directing baffle at the end of the vane to ensure that water spiral tendencies are broken up and the water is smoothly delivered to the ice pocket.

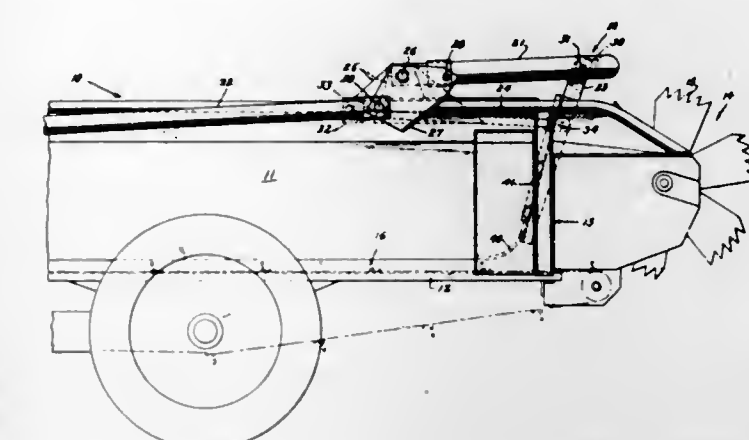
3,632,050 ENDGATE FOR A MANURE SPREADER

John L. Lee, Reamstown, Pa., assignor to Sperry Rand Corporation, New Holland, Pa.
Filed Mar. 30, 1970, Ser. No. 23,608
Int. Cl. A01c 19/00; E01c 19/20

U.S. Cl. 239-676

13 Claims

An endgate mechanism for a manure spreader. The endgate is pivotally suspended at its upper portion by a pivotable U-shaped yoke mounted transversely on the manure spreader and pivotally secured at its side by a pair of pivotably drag links. The yoke and drag links form a modified four-bar linkage and when particularly arranged enable the endgate to be lifted from a closed position to an intermediate open position in a relatively flat arc. As the



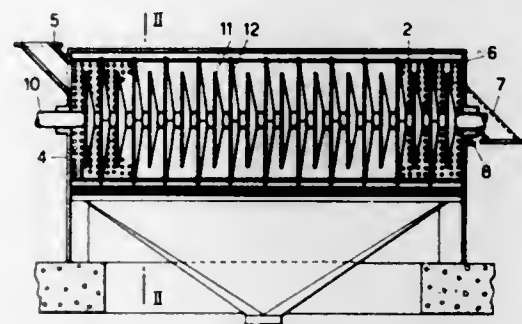
rearwardly such that the gate is in a general horizontal orientation at its fully raised position.

3,632,051 METHOD FOR TREATING MAIZE SEEDS

Antonio Rado, Lanzago Di Silea, Italy, and Bruno Tognazza, Niederuzwil, Switzerland, assignors to Gebrueder Buehler AG, Uzwil, Switzerland
Original application May 2, 1967, Ser. No. 635,592, now Patent No. 3,476,326, dated Nov. 4, 1969. Divided and this application July 28, 1969, Ser. No. 845,146
Claims priority, application Italy, May 6, 1966, 10,468/68
Int. Cl. B02c 3/04, 3/08, 3/00

U.S. Cl. 241-8

7 Claims



A method for degerming maize is disclosed, wherein prior to decortivating and degerming step the maize is moistened and, optionally, heated.

3,632,052 REVERSIBLE RIBBON FEED DEVICE

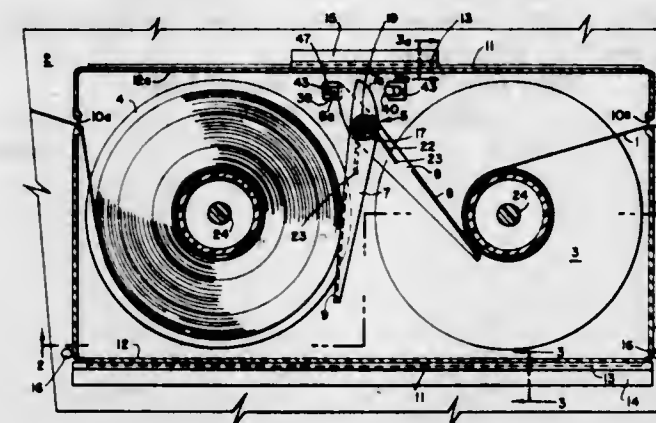
John D. Read, Ashland, Mass., assignor to Mohawk Data Sciences Corp., Herkimer, N.Y.
Filed Sept. 16, 1969, Ser. No. 858,378
Int. Cl. B65h 17/02

U.S. Cl. 242-67.4

8 Claims

A device for reversing the direction of feeding of an inked ribbon which is bidirectionally fed between a pair of reels by selectively causing one or the other of the reels to rotate and take up the ribbon thereon. A scissorlike member is located between the two reels with its arms biased against the peripheries of the rolls of ribbon on the reels. A pair of pressure-actuated switches, each of which is responsive to the position of one of the scissor arms, is provided to effect selective engagement of the reels with a motor by controlling electrically operated clutches. When a scissor arm becomes positioned to indicate that a predetermined low amount of ribbon is on one of the reels, one of the switches responds by drivingly engaging that reel with the motor while substan-

tially disengaging the other reel from the motor. In this manner, the direction of ribbon feed is reversed. Preferably,



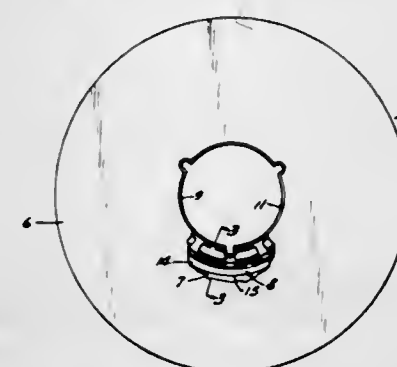
the device also comprises a detachable cartridge within which the scissorlike member and reels are mounted.

3,632,053 TAPE REEL

William H. Edwards, St. Paul, Minn., and Donald M. Lewis, Hudson, Wis., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed July 3, 1969, Ser. No. 838,954
Int. Cl. B65h 75/18

U.S. Cl. 242-71.8 A

5 Claims



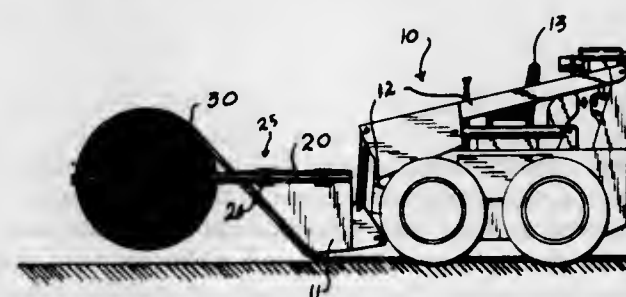
A reel comprising a hub and axially spaced parallel said flanges, said hub having an inner ring formed with a central opening to receive a spindle, a web supported about the periphery of the inner ring upon which the flanges may be mounted, and an outer compression ring positioned between the flanges and surrounding said web and supported therefrom by resilient means.

3,632,054 WIRE MESH DISPENSING APPARATUS AND METHOD

Arnold A. Heppelmann, Goodhue, Minn.; James L. Judd, 327 River St., Chatfield, Minn., and Paul J. Schwanke, 3515-20th Ave. N.W., Rochester, Minn.
Filed Oct. 15, 1969, Ser. No. 866,535
Int. Cl. B65h 17/46

U.S. Cl. 242-86.5 R

3 Claims

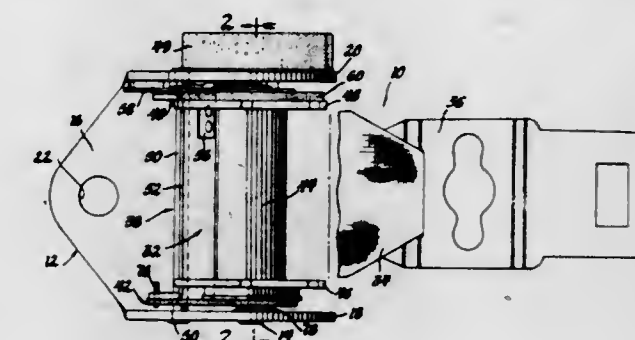


Dispenser apparatus mountable on the bucket of a front end loader for holding a roll of reinforcing wire mesh so that it will unroll in a direction opposite to the direction of movement beneath the loader as the loader is propelled thereover.

3,632,055 SEAT BELT RETRACTOR

Robert W. Stoffel, Ferndale, Mich., assignor to Jim Robbins Seat Belt Company, Mount Clemens, Mich.
Filed Jan. 13, 1970, Ser. No. 2,564
Int. Cl. A62b 35/02
U.S. Cl. 242-107.4

14 Claims



A seat belt retracting reel assembly including a U-shaped support bracket rotatably supporting a reel having ratchet members at either end thereof and with an elongated flexible seat belt element connected to the reel and wound thereabout. A locking pawl is supported between the sidewalls of the support bracket and is movable between locked and unlocked positions for respectively preventing and allowing rotation of the reel. There is also included an input member rotatable with one of the ratchet members and having a spiral cam track to coact with a holdout member for moving the holdout member radially so that the latter prevents the locking pawl from moving to the locked position during initial unwinding of the flexible seat belt. A platelike clutch member is mounted coaxially with the reel and is biased into frictional engagement with the other ratchet member so as to rotate therewith. A projection extends from the locking pawl and is disposed in a slot in the clutch member. The slot has a first leg which is disposed about the projection as the clutch member is rotated in response to initial unwinding of the seat belt to prevent the locking pawl from moving to the locked position. The slot has a second leg which is disposed about the projection after the seat belt has been fully extended and there is a slight winding rotation followed by unwinding to move the locking pawl to the locked position in engagement with the ratchet members.

3,632,056 INERTIA REEL

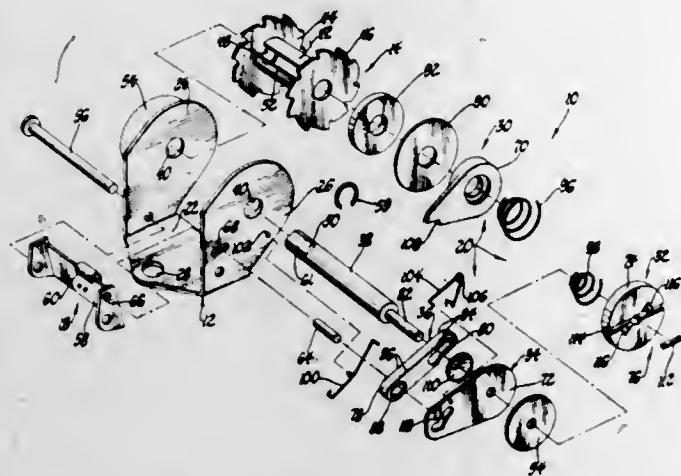
Ronald J. Hibbard, Royal Oak, and Robert W. Stoffel, Ferndale, both of Mich., assignors to Jim Robbins Seat Belt Company, Mt. Clemens, Mich.
Filed Mar. 4, 1970, Ser. No. 16,313
Int. Cl. A62b 35/00

U.S. Cl. 242-107.4

21 Claims

A seat belt retractor including a generally U-shaped bracket rotatably supporting a shaft. A reel is secured to the shaft and includes a pair of platelike ratchet members. A locking pawl is supported by the bracket for movement to and from a locked position engaging the ratchet members to prevent extension of the seat belt which is wound about the reel. A first clutch member is in frictional driven engagement with the reel and coacts with the locking pawl for preventing the locking pawl from moving to the locked position during continuous unwinding rotation of the reel from the fully wound position and until winding rotation of the reel subsequent to the continuous unwinding. A second clutch plate is disposed on the shaft and coacts with the locking pawl for moving the locking pawl to the locked position in response to movement of an inertia wheel disposed upon the shaft, the inertia wheel moving axially on the shaft in response to a predetermined rotational acceleration of the reel in the unwind direction. A deactivating bar is disposed on the op-

posite side of the second clutch plate from the inertia wheel for rendering the second clutch plate nonresponsive to the



inertia wheel while the first clutch plate is preventing the locking pawl from moving to the locked position.

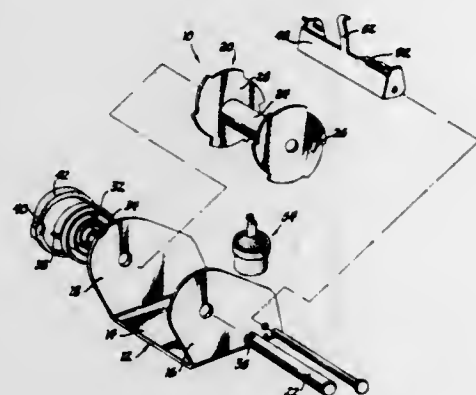
3,632,057

TIME DELAY RETRACTOR

William L. Pringle, Grosse Pointe, Mich., assignor to Allied Chemical Corporation, Mount Clemens, Mich.
Filed May 4, 1970, Ser. No. 34,377
Int. Cl. A62b 35/02; B65h 75/48

U.S. Cl. 242-107.4

13 Claims



A retracting reel assembly including a support means and a reel means which is rotatably supported by the support means and an elongated flexible seat belt connected to the reel means and adapted to be wound thereon and unwound therefrom. A locking bar is movable between a locked position engaging the reel means and an unlocked position for respectively preventing and allowing rotation of the reel means. There is also included time delay means for allowing the locking means to move to the locked position following the expiration of a predetermined period of time after the initial unwinding of the flexible element from the fully wound position. The time delay means includes a cup-shaped member and a flexible element which are connected together to define a closed chamber. A piston is movable in the chamber and is guided therein by a post and a flexible seal means coacts between the piston and the chamber. The seal means and the flexible wall of the chamber are an integral member and are disposed over an upwardly extending sleeve portion of the piston. The seal means is urged into sealing engagement with the chamber upon movement of the piston in the first direction and is freely movable out of its sealing engagement with the chamber upon movement of the piston in the second direction. The seal means has a passage therethrough to allow fluid flow or to meter fluid flow from one side of the piston to the other.

3,632,058
EMERGENCY LOCKING RETRACTOR WITH CAM-CONTROLLED LOCKING MEMBER

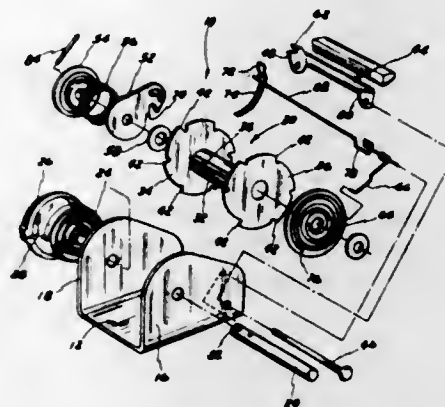
Robert W. Stoffel, Ferndale, Mich., assignor to Jim Robbins Seat Belt Co., Troy, Mich.

Filed Apr. 7, 1969, Ser. No. 813,918

Int. Cl. B65h 75/48

U.S. Cl. 242-107.4

9 Claims



A safety seat belt retractor having means for locking the reel against rotation in the direction in which the belt is extended in response to a predetermined extension rate. The locking means is rendered inoperable whenever the belt is fully retracted, but becomes operable in response to the belt being extended and then partially retracted. This necessary sequence of belt motions obviates prelocking whenever the user extends the belt from its fully retracted condition.

3,632,059

RETRACTOR SEAT BELT REEL HAVING ELECTRICAL SWITCH FOR AUTOMOTIVE SAFETY CIRCUIT

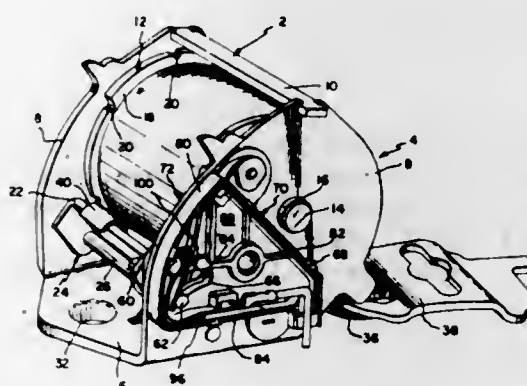
Winfield Warren Loose, Langhastown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 17, 1971, Ser. No. 167,061

Int. Cl. A62b 35/00

U.S. Cl. 242-107.4

8 Claims



Combination of retraction seat belt reel assembly and electrical switch mounted on the frame of the reel assembly. The reel assembly is of the type which has deferred action locking means for preventing withdrawal of additional seat belting from the reel after the withdrawal of a predetermined amount of belting. The deferred action locking means controls the condition of the switch in a manner such that the condition is changed after actuation of the locking means. The switch is used to control a safety circuit for the car.

3,632,060

TENSION LIMITER FOR SAFETY BELTS IN MOTOR VEHICLES

Arnold Baidler, Hamburg-Garstedt, Germany, assignor to Klippan G.m.b.H., Hamburg-Garstedt, Germany

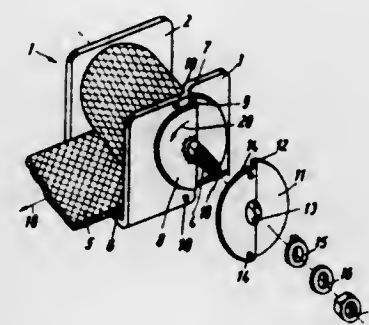
Filed Dec. 2, 1969, Ser. No. 881,519

Claims priority, application Germany, Dec. 5, 1968, P 18 12 864.8

Int. Cl. A62b 35/00; B65h 75/48

U.S. Cl. 242-107.4

12 Claims



A tension limiter for safety belts in motor vehicles comprises a substantially disc-shaped plastically deformable reaction member arranged continuously to be deformed by deforming means when a safety belt is withdrawn from its winding shaft, said deformable reaction member during rotation of the winding shaft being continuously deformed in one direction at at least a first spot and in the opposite direction at at least a second spot.

3,632,061

WIRE-UNWINDING DEVICE

Antonius Hendrikus Cornelis Roseboom, Venlo, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

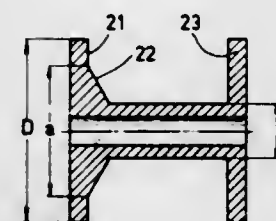
Filed May 21, 1969, Ser. No. 826,536

Claims priority, application Netherlands, May 23, 1968, 6907316

Int. Cl. B65h 49/00

U.S. Cl. 242-129

1 Claim



A device for longitudinally unwinding a metal or partially metal wire from a supply reel which is comprised of a central core portion and a pair of flanges at each end thereof, the wire being wound to form a wire parcel about the core between the flanges. The surface of at least one of the flanges which is adjacent the wire parcel has a portion thereof of gradually decreasing radial dimension in a direction opposite to the longitudinal direction of unwinding thereby forming a conical surface extending over approximately 60 to 70 percent of said surface of the flange. This conical surface facilitates the unwinding of the wire without breaking.

3,632,062

THREAD TENSIONING AND BALLOON CONTROL MEANS FOR THE UNWINDING OF YARN FROM SUPPLY PACKAGES ON WEAVING AND OTHER TEXTILE MACHINES

Ramon Sole, Brugg, Switzerland, assignor to George Fischer Ltd., Brugg, Brugg, Switzerland

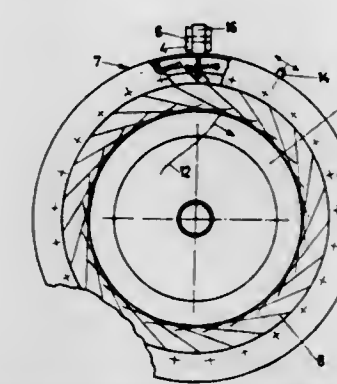
Filed Jan. 21, 1970, Ser. No. 4,998

Claims priority, application Switzerland, Jan. 28, 1969, 1247/69

Int. Cl. B65h 59/02

U.S. Cl. 242-147 R

4 Claims



The invention relates to a thread-tensioning and balloon control or breaking motion for unwinding yarn from cross-wound or other supply packages on textile machines, particularly on weaving machines. A circular, supporting, rimlike means is provided to be positioned coaxially to and adjacent the package unwinding end, and stands approximately normal to the package axis. It is provided internally with a plurality of pivoted, spring loaded tensioning members. These are spaced circumferentially of the supporting rimlike means and lie tangentially on the outer surface of the package to restrain and inhibit the ballooning tendencies of the yarn being drawn from the package.

3,632,063

LOW-TWIST TENSIONING OF BORON FILAMENT

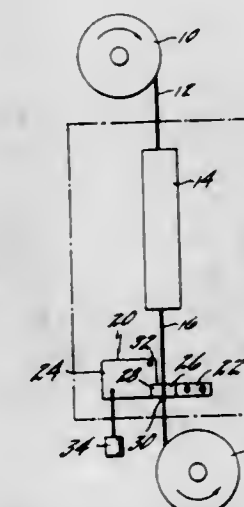
Donald K. Kuehl, Manchester, and Raymond C. Smart, Hazardville, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 24, 1969, Ser. No. 879,058

Int. Cl. B65h 59/22; C23c 11/00, 13/00

U.S. Cl. 242-149 R

6 Claims



A method for continuously winding high-strength, high-modulus filament onto a takeup spool comprising tensing the filament between a pair of opposed plate members having abrasion resistant planar contact surfaces aligned parallel to both the axis of filament travel and each other whereby the

twist introduced to the filament is less than one turn per 10 feet of length.

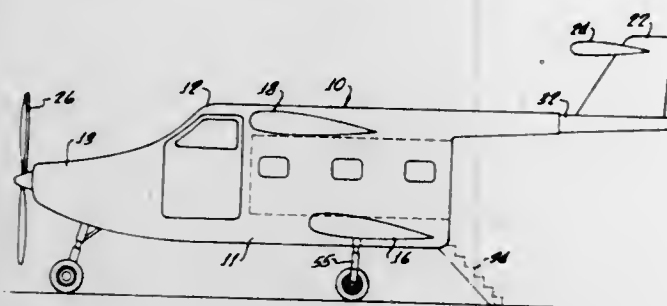
3,632,064

MULTIPURPOSE AIRCRAFT

Claudio F. Oliver, 1314 E. Sycamore Ave., Orange, Calif.
Filed Apr. 23, 1970, Ser. No. 31,304
Int. Cl. B64c 1/10

U.S. Cl. 244-13

1 Claim



A lightweight plastic aircraft for use in carrying cargo or passengers for relatively short distances. The plane includes an upper wing and a lower wing both directly attached to and extending across the fuselage. A pair of longerons are attached at their forward ends to the main spar of the upper wing and extend rearwardly along the upper corners of the fuselage and further beyond the fuselage to support a tail section. The rear of the fuselage opens to permit installation and removal of modules for carrying cargo or passengers. In addition to retractable wheeled landing gear attached to the lower wing and the forward part of the fuselage, the plane is provided with retractable collapsible pontoons which permit landing on water. A sealant spray system is included to mend leaks in the pontoons. Also, the fuselage door can be sealed so that the fuselage becomes a buoyant float in the event of emergency water landing.

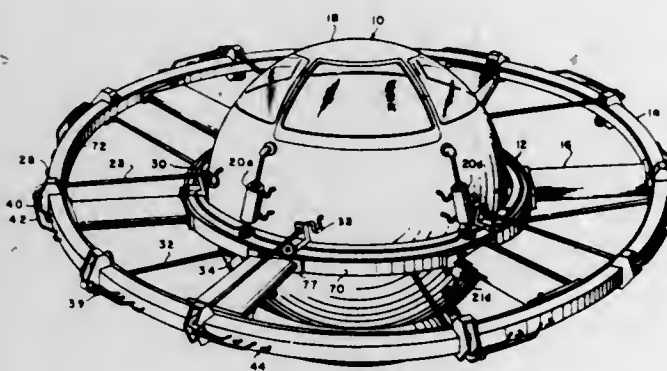
3,632,065

ROTARY WING AIRCRAFT

William N. Rosta, Fort Worth, Tex., assignor to The VLM Corporation, Fort Worth, Tex.
Continuation-in-part of application Ser. No. 646,598, June 16, 1967, now Patent No. 3,507,461, Continuation-in-part of application Ser. No. 564,801, July 13, 1966, now abandoned.
This application Nov. 19, 1969, Ser. No. 877,953
Int. Cl. B64c 29/00

U.S. Cl. 244-17.11

27 Claims



This application discloses an improved rotary wing aircraft capable of vertical lift. The aircraft employs airfoils or rotor blades which rotate in tracks surrounding the fuselage with the airfoils being driven by low-pressure air directed through nozzles onto turbine blades in the outer track. Directional control is provided by tilting the plane of rotation of the rotor blades or by cyclic pitch control of the rotors.

3,632,066
AUTOMATIC PARACHUTE HARNESS RELEASE ASSEMBLY

George M. Brown, St. Petersburg, and Phyllis L. Newman, Miami, both of Fla., assignors to Sauna International Inc., Miami, Fla.

Filed June 16, 1970, Ser. No. 46,745
Int. Cl. B64d 17/30

U.S. Cl. 244-151

30 Claims



An automatic releasing mechanism for parachute harnesses which employs water-actuatable cells to provide thermal energy to burn through harness control straps and to operate a pneumatic release mechanism to automatically open the harness buckles to free a wearer therefrom upon a water landing. A manual release is also provided to activate the pneumatic release mechanism to open the harness buckles after a landing on firm terrain.

3,632,067

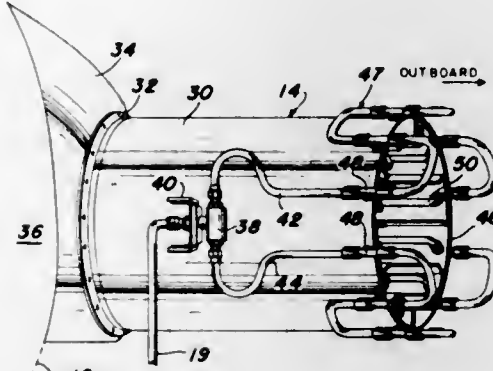
SMOKE GENERATOR

Henry O. Nelson, San Diego; Howard F. King, La Mesa, and Louis D. Dale, Bonita, all of Calif., assignors to The United States of America as represented by the Secretary of the Army

Filed Oct. 15, 1969, Ser. No. 866,537
Int. Cl. B64d 1/00

U.S. Cl. 244-136

9 Claims



A smoke generator for engines exhausting hot gases including an exhaust duct having a plurality of smoke-producing fluid-injection means mounted internally and circumferentially the duct and a plurality of baffle means extending longitudinally the duct between said injection means to channel the smoke and minimize turbulence within the duct.

3,632,068

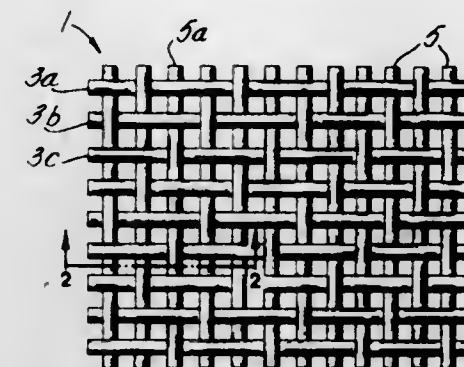
WOVEN WIRE FABRIC

Donald M. Weir, Montreal West; Charles H. Johnson, Senneville, and John G. Buchanan, Pointe Claire, Quebec, all of Canada, assignors to JWI, Ltd., Montreal, Quebec, Canada
Filed Nov. 21, 1969, Ser. No. 878,629

Claims priority, application Canada, Dec. 9, 1968, 58308/68
Int. Cl. B21f 27/18

U.S. Cl. 245-8

6 Claims



A woven, phosphor bronze, wire fabric having weft strands of cylindrical cross section and warp strands of rectangular and slightly oval cross section, the warp and weft strands being made of 7 to 10 percent phosphor bronze material, with both the warp and weft strands having a hard temper in order to provide a wire fabric having improved flexural fatigue properties.

3,632,069

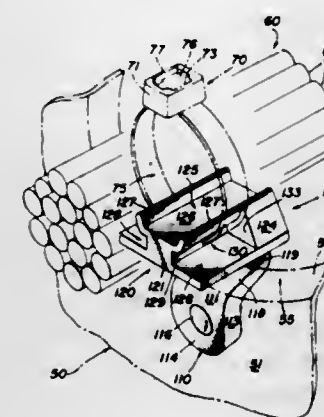
BRACKET FOR MOUNTING CABLE BUNDLES IN LIGHTENING HOLES

Artie J. Thayer, Tinley Park, and Douglas H. Cameron, New Lenox, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Feb. 11, 1970, Ser. No. 10,530
Int. Cl. F16l 5/00

U.S. Cl. 248-56

7 Claims



A bracket for mounting wire bundles or the like to be held by binder ties and for retaining the binder ties adjacent flanged lightening holes in bulkheads and including a single mounting leg having an attachment portion for attachment to either side of the bulkhead adjacent to the hole by a single fastener, an inclined portion which lies generally along and below the flange, and a platform connected to the inclined portion and disposed in use in the hole axially over a flange thereof and having a surrounded passage therethrough for retaining and orienting the binder tie adjacent the general plane of the hole; three embodiments of the platform are disclosed.

3,632,070

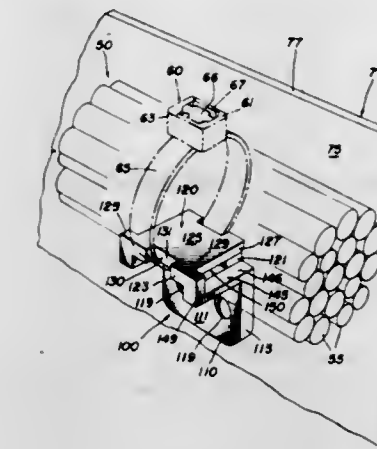
RIGHT-ANGLE MOUNTING BRACKET

Artie J. Thayer, Tinley Park, Ill., assignor to Panduit Corporation, Tinley Park, Ill.

Filed Feb. 9, 1970, Ser. No. 9,533
Int. Cl. F16l 3/04

U.S. Cl. 248-68

16 Claims



A bracket for mounting wire bundles held together by binder ties comprises an integrally constructed attachment plate and generally rectangular platform disposed substantially normal to each other, the platform having an upper surface for supporting a bundle in one of two different orientations and having an enclosed opening at the juncture of the platform and attachment plate for receiving and trapping a binder tie therein and a notch on the edge of the platform opposite the opening for orienting the binder tie in a first direction to hold a bundle in one orientation on the bracket, a pair of bars respectively disposed beneath the opposite side edges of the platform and connected thereto for respectively defining therewith a pair of passages which cooperate to receive and trap a binder tie therethrough and to orient the binder tie in a second direction to hold a bundle in the other orientation on the bracket.

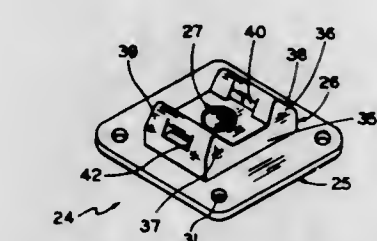
3,632,071

Douglas H. Cameron, New Lenox; Roy A. Moody, Flossmoor, and Artie J. Thayer, Tinley Park, all of Ill., assignors to Panduit Corporation

Filed Nov. 24, 1969, Ser. No. 879,495
Int. Cl. F16l 3/14

U.S. Cl. 248-74 PB

11 Claims



A saddle for receiving and retaining a strap is disclosed herein, providing a structure whereby a saddle is pivotally or otherwise secured to a base. The base is provided with inspection apertures in the peripheral area thereof and the saddle is provided with a strap passage for receiving a strap in a direction generally toward the base. The saddle is a single piece or assembled from two or more pieces to provide the strap passage therein. The saddle is structured with projections and/or inclined surfaces adjacent the passage openings, whereby the passage openings open in a direction generally away from the mount base to facilitate reception of a strap.

3,632,072

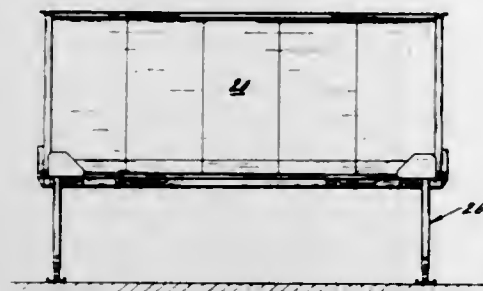
CONTAINER SUPPORT MEANS

Horace D. Blackburn, 333 6th Avenue West, Bradenton, Fla. 33505

Filed Sept. 4, 1969, Ser. No. 855,199
Int. Cl. B60p 1/00

U.S. Cl. 248—150

7 Claims



Support means for containers adapted for location transfer and selected detached surface placement, wherein adjustable length of legs provide for surface support in an extended condition, and when in a retracted condition being substantially housed within the confines of the containers to facilitate their transfer, with appropriate lock means for the different leg conditions, and container and leg construction providing strength, ease of operation, and protective confinement of the legs within the horizontal periphery of the container.

3,632,073
TRIPOD

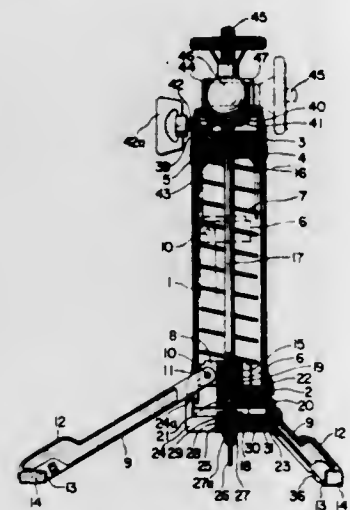
Koma Nakatani, No. 10-9 4-Chome Saginomiya, Tokyo, Japan

Filed Aug. 15, 1969, Ser. No. 850,395
Claims priority, application Japan, Jan. 14, 1969, 44/3669;
Aug. 24, 1968, 43/72675

Int. Cl. F16m 11/32

U.S. Cl. 248—169

3 Claims



A tripod comprising a cylindrical housing including a camera-mounting portion, a movable support disc in said cylindrical housing and urged downwardly toward the bottom opening of the cylindrical housing, at least three legs connected at their upper ends to the marginal portion of said support disc, engaging openings formed axially of the cylindrical housing in the lower end thereof in positions corresponding to the positions in which the bases of said legs are disposed for permitting the legs to extend therethrough when they are pulled out of or withdrawn into the cylindrical housing, a bottom cover rotatably mounted on the bottom opening of the cylindrical housing, engaging openings formed in said bottom cover and adapted to be indexed with said engaging openings in said cylindrical housing, and means for maintaining the legs in a locked position in the cylindrical housing.

3,632,074

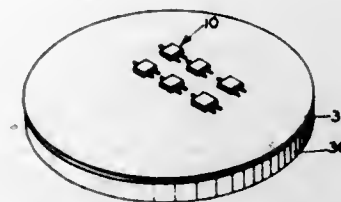
RELEASABLE MOUNTING AND METHOD OF PLACING AN ORIENTED ARRAY OF DEVICES ON THE MOUNTING

William R. Wanczy, Wescosville, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Continuation-in-part of application Ser. No. 673,900, Oct. 9, 1967. This application Apr. 10, 1968, Ser. No. 729,859
Int. Cl. H05k 13/00

U.S. Cl. 248—346

8 Claims



An oriented array of small, fragile electrical devices such as beamlead transistors or integrated circuits, partially embedded in wax, are removed from the wax and transferred to a releasable mounting without disrupting the orientation of the devices. The releasable mounting comprises a plate with a layer of silicone rubber or resin which exerts a suction or vacuum holding force on the array of oriented devices.

3,632,075

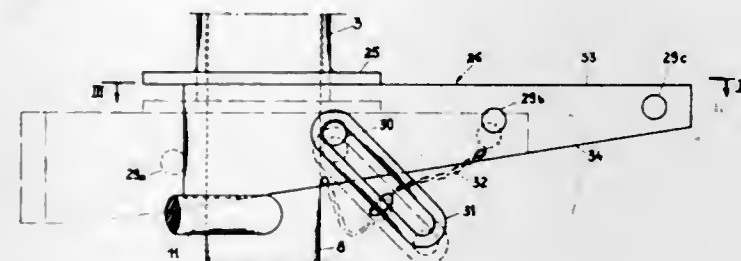
DISMANTLING KEYBOLT FOR A PROPPING-UP AND SUPPORTING FRAMEWORK

Enrique Munoz, Gagny, France, assignor to Entreprises Devans Naudo & Cie, Paris, France

Filed Feb. 18, 1970, Ser. No. 12,397
Claims priority, application France, Apr. 2, 1969, 6910104
Int. Cl. B611 11/02

U.S. Cl. 248—354 P

7 Claims



A keybolt for lowering a mold form supporting frame comprises a U-shaped bracket including a semicylindrical bight portion connecting two rigid parallel arms, each comprising a horizontal rectilinear edge constituting a stirrup for supporting an upper telescopic member and a lower edge upwardly inclined from the bight toward the horizontal edge and constituting a ramp for bearing on a pin removably supported by the frame, means spanning said arms to limit transversal movement of the bracket to selectively lower the frame by limited increments.

3,632,076

SELF-LEVELING SEAT STRUCTURE

Thomas J. Rogers, Jr., P.O. Box 36727, Houston, Tex.

Filed Feb. 9, 1970, Ser. No. 9,630

Int. Cl. F16m 13/00

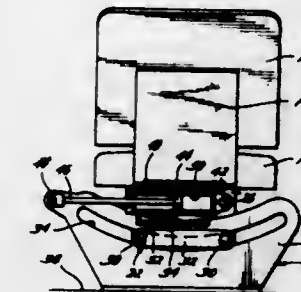
U.S. Cl. 248—371

2 Claims

An improved self-leveling seat assembly for tractors and the like having a seat member, a support member, means such as rollers and arcuate track guides securing the seat to the support and providing limited movement of the seat relative to the support along an arc of a circle in response to angularity of the support member relative to angularity of the

support member relative to the horizontal, and a piston and cylinder combination secured to the seat member and to the

is turned upside down and pressed down by the weight of concrete. Other pans without flanges employ a locked-in



support member for purposes of dampening movement of the seat relative to the support.

3,632,077

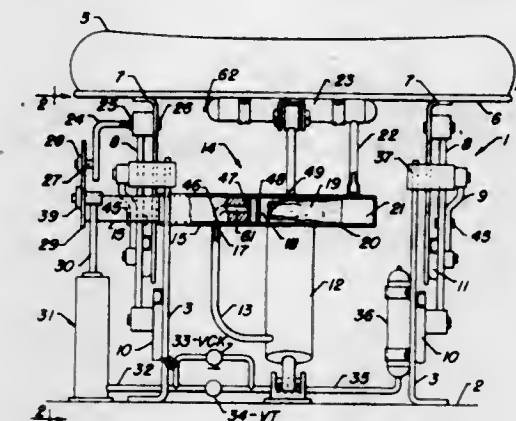
VARIABLE DAMPING MEANS

Garth O. Hall, and Harvey N. Tengler, both of New Berlin, Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed May 18, 1970, Ser. No. 38,275
Int. Cl. B60n 1/02

U.S. Cl. 248—400

15 Claims



A variable damping means for cushioning a vehicle occupant from shocks and vibrations transmitted through the vehicle chassis. The occupant support is allowed to oscillate with low damping to provide maximum isolation for the occupant from light vibrations. In addition, the occupant is cushioned with respect to severe shocks by increased damping. The damping characteristics are changed automatically as the character of the shocks and vibrations changes.

3,632,078

CONCRETE FORM

Stephen S. Dashew, Los Angeles, Calif., assignor to West Coast Industries, Inc., Los Angeles, Calif.

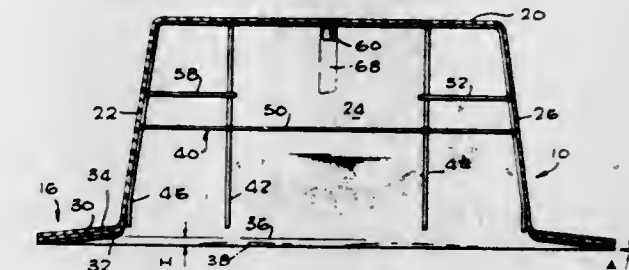
Continuation-in-part of application Ser. No. 751,307, Aug. 8, 1968. This application Apr. 10, 1969, Ser. No. 814,978

Int. Cl. B29r 11/12; B28b 7/30, 7/34

U.S. Cl. 249—183

8 Claims

A pan-shaped structural concrete form wherein the top and each side of the pan is internally braced by a framework of metal tubes, some of which serve as hand holds for removal of the pan. In pans with flanges, the flanges are of flexible construction and are molded with a definite angle from the horizontal, so they become horizontal when the pan



rubber strip at the bottom to form a seal with the construction deck on which the pans are laid.

3,632,079

GUIDE ASSEMBLY FOR SLIDING SHUTTERING FOR BUILDING CONCRETE STRUCTURES

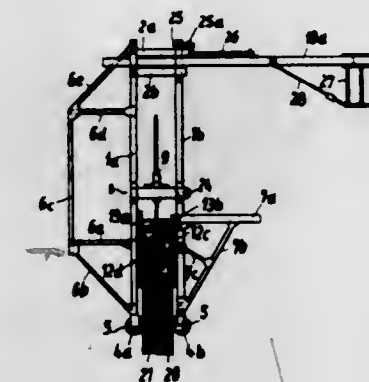
Gunter Rohlf, Düsseldorf, Germany, assignor to Gleitschneidbau Gesellschaft mit Beschränkter Haftung, Düsseldorf, Germany

Continuation-in-part of application Ser. No. 473,773, July 25, 1965, now abandoned, Original application Aug. 7, 1968, Ser. No. 750,897, now Patent No. 3,521,336. Divided and this application Feb. 2, 1970, Ser. No. 12,496

Claims priority, application Germany, Apr. 10, 1965, 43316
Int. Cl. E04g 9/00

U.S. Cl. 249—189

2 Claims



A sliding shuttering arrangement for building concrete structures having slightly sloping and ring-shaped walls in which a shuttering plate is defined by a skin of sheet panels of high-grade steel so arranged as to overlap each other at their side edges, with said panels being prebent against the wall curvature and the sheet panels constituting the skin, in the installed condition, being prestressed.

3,632,080

PRESSURE-BALANCED FLAPPER VALVE

Louis T. King, 2401 East Pierson, Phoenix, Ariz.

Filed May 12, 1969, Ser. No. 823,552

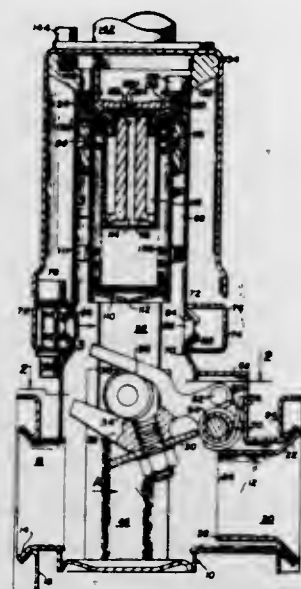
Int. Cl. F16k 31/40

U.S. Cl. 251—30

7 Claims

A pressure-balanced flapper valve adapted for use in controlling and/or shutting off flow of various fluids, and comprising novel actuator means including a hollow cylindrical

piston adapted telescopically to surround the solenoid control valve so as to provide a very compact valve actuator and



control valve means particularly adapted for use in connection with a pressure-balanced flapper valve.

3,632,081

SOLENOID VALVE INCLUDING GUIDE FOR ARMATURE AND VALVE MEMBER

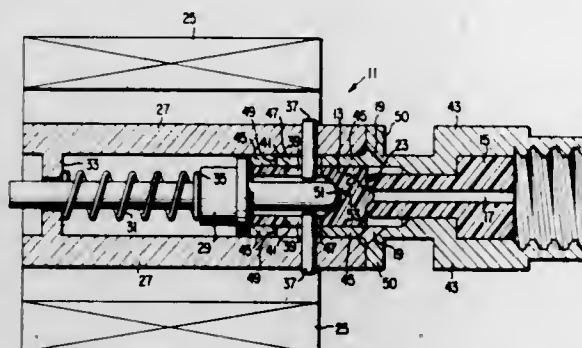
Jack Evans, Baltimore, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Apr. 10, 1970, Ser. No. 27,340

Int. Cl. F16k 31/06

U.S. Cl. 251-129

7 Claims



The poppet of a valve is guided independently of an activating armature. The poppet is linked to the armature through a nonmagnetic spring biasing mechanism. The spring biasing mechanism has a plunger which is inserted into a cone-shaped cavity in the poppet. A guiding member guides both the armature and the poppet independently of one another. The spring biasing mechanism causes the poppet to make contact with a valve seat before the armature completes its stroke to reduce the impact force. In addition, the valve seat and the poppet have unique contour shapes which are designed to reduce stresses.

3,632,082

VALVE ASSEMBLY

Wayne B. Noland, Avon Lake, Iowa, assignor to Woodford Manufacturing Company, Des Moines, Iowa

Original application May 16, 1967, Ser. No. 638,891, now Patent No. 3,504,694. Divided and this application Mar. 18, 1969, Ser. No. 808,142

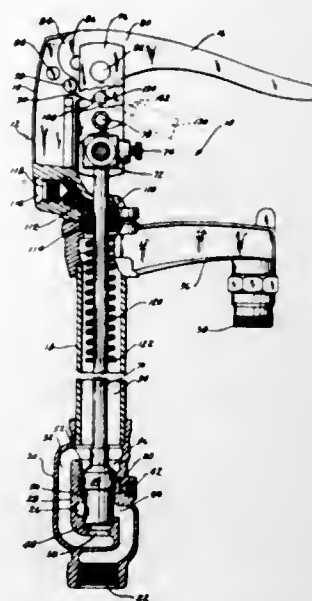
Int. Cl. F16k 41/02

U.S. Cl. 251-214

2 Claims

A hydrant having an upstanding pipe with a valve body in its lower end comprising a pair of chambers into which a

valve member extends, the inlet water pressure being in communication with the upstanding pipe through one chamber and the upstanding pipe being in communication with a drain port through the second chamber, a handle connected to the upper end of a rod in the pipe and a valve member con-



nected to the lower end of the rod, a valve member being movable to either drain water from the upstanding pipe or retain water in the upstanding pipe, and packing material compressed into a chamber around the valve member actuating rod and engaging a washer on the rod which forms the bottom of the packing chamber.

3,632,083

VALVE FOR PRESSURIZED FLUID SYSTEM

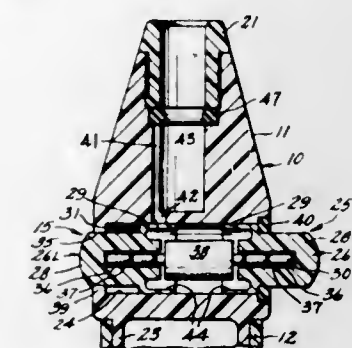
Fredrick T. Meeks, Asheboro, N.C., assignor to General Electric Company

Filed Feb. 11, 1970, Ser. No. 10,373

Int. Cl. F16k 3/24

U.S. Cl. 251-282

6 Claims



An on-off valve for a pressurized fluid system including a pushbutton assembly slideably retained and freely shiftable within a bore interconnecting an inlet and outlet passageway. The assembly comprises two spaced opposing push buttons, each having a button portion and a circumferential flexible flange depending from the button. Each button having equal inner surface areas so that force exerted by the constant fluid pressure is in equilibrium and the assembly remains in its manually set position without spring biasing means.

3,632,084

FABRICATED VALVE BODY CONSTRUCTION

Roger Louis Ripert, Concord, Calif., assignor to Grove Valve and Regulator Company

Filed June 29, 1970, Ser. No. 50,738

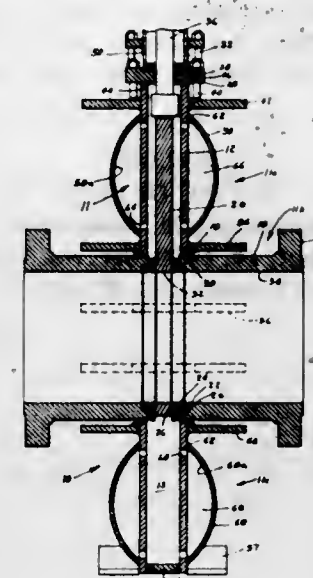
Int. Cl. F16k 3/00

U.S. Cl. 251-329

7 Claims

A valve body fabricated from rolled shapes with end walls being reinforced by circular, dished members having spheri-

cal surfaces. The reinforcing circular members are welded around their circumferences to the end walls, and holes are



formed through the end walls within the area circumscribed by the weld, to expose the spherical concave surfaces to internal fluid pressures.

3,632,085

LIFT-ALL JACK

George J. Traywick, Winter Garden, Fla.

Filed Dec. 19, 1969, Ser. No. 886,547

Int. Cl. B60p 1/48; B66f 3/24

U.S. Cl. 254-10 B

14 Claims



A lift-all jack having a generally horizontally disposed frame member with an anchor fixedly attached to one end of the frame and normally extending therefrom, an air cylinder fixedly disposed along the frame member having a stationary member horizontally attached to the frame and a reciprocating ram designed to be displaced away from the anchor member. A pair of generally parallel lifting bars pivotally connected at one end thereof to the reciprocating member and pivotally connected at the other end to a lifting cradle, a torque-holding arm pivotally connected to the lifting cradle at one end thereof and pivotally connected to the upper portion of the anchor at the other end thereof, whereby actuation of the power cylinder horizontally away from the anchor will induce a vertical movement of the lifting cradle and a load disposed thereupon.

A method of lifting one end of a vehicle which will minimize lateral displacement during the operation including the steps of: pivotally holding a lifting cradle about a point remote from said cradle and at a height equal to or greater than the height desired of the lifting cradle.

3,632,086

LANDING GEAR FOR SEMITRAILERS OR THE LIKE

Erich Mai, Freudenberg am Main-Kirschfurt, Germany, assignor to Josef Haumann Freudenberg Winden- und Hebezeugfabrik, Freudenberg am Main-Kirschfurt, Germany

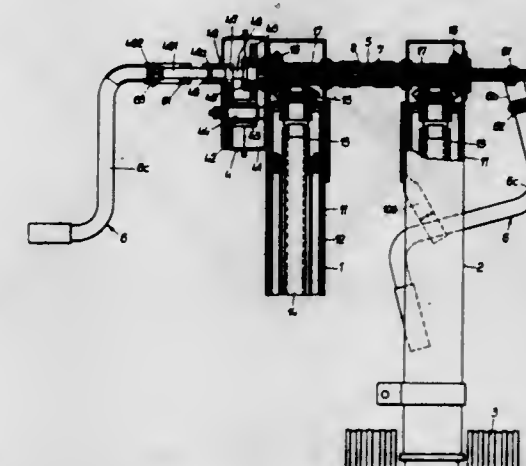
Filed May 20, 1970, Ser. No. 38,939

Claims priority, application Germany, May 22, 1969, P 19 26 161.1

Int. Cl. B60s 9/02

U.S. Cl. 254-86 R

10 Claims



A landing gear for semitrailers or the like wherein the mechanisms which move the landing wheels up and down receive motion from a hollow output shaft which can be driven at two speeds in response to rotation of an input shaft. The latter is axially movably received in and extends beyond the ends of the output shaft, and each of its ends can be engaged and rotated by a crank handle or the like so that the landing gear can be manipulated from either side of the vehicle. In one of its axial positions, the input shaft is directly coupled to and rotates the output shaft. In another axial position, the input shaft rotates the output shaft by way of a step-down transmission.

3,632,087

METHOD AND APPARATUS FOR LEVELING VEHICLES

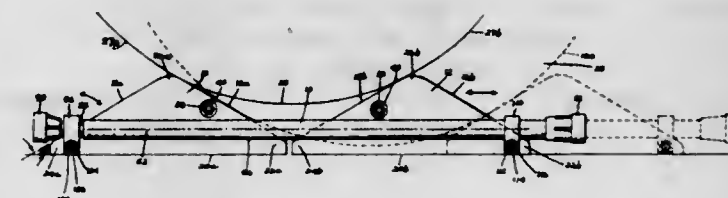
Henry N. Phillips, 1418 State Rd. #18 E, Marion, Ind.

Filed Oct. 28, 1970, Ser. No. 84,802

Int. Cl. E02c 3/00

U.S. Cl. 254-88

11 Claims



A method for leveling a vehicle on an irregular surface including the steps of positioning a first body having a sloped surface adjacent and with its sloped surface in engagement with a tread portion of one wheel of a vehicle, positioning a second body having an oppositely disposed sloped surface adjacent the oppositely facing tread portion of said wheel with its sloped surface in engagement therewith, moving the vehicle in a direction toward one of the bodies causing the wheel to move upwardly on the sloped surface of that body while, simultaneously, moving the second body toward the first body to maintain its sloped surface in engagement with the oppositely facing tread portion of the wheel, and stopping the movement of the vehicle when the vehicle attains a level attitude.

3,632,088

MEANS FOR RAISING BUILDING OF MODULAR CONSTRUCTION

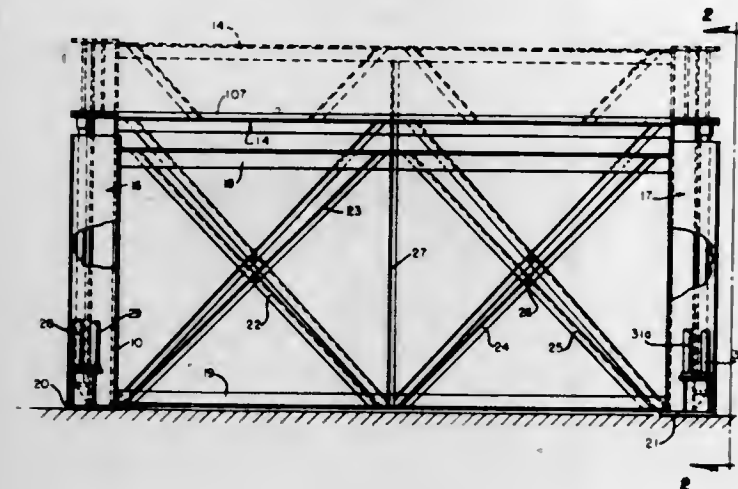
Stanley J. Filipek, and Frank Campa, both of Avon, N.Y., assignors to Stirling Homes Corporation, Avon, N.Y.

Filed Apr. 27, 1970, Ser. No. 32,060

Int. Cl. B66f 7/12, 1/00

U.S. Cl. 254-89 H

24 Claims



Apparatus for raising a building formed of a plurality of modular units. Each module raising unit comprises a rigid, stationary framework supporting a plurality of movable trusses which are raised and lowered relative to the stationary framework by means of a plurality of jacks. The jacks act on the upper portions of the movable trusses, and a principal function of the stationary framework is to provide support for the movable trusses to guard against side forces resulting from wind thrust imposed upon the building during its erection. Preferably, a plurality of hydraulic jacks is employed, but an auxiliary system of mechanical, screw-type jacks is also provided together with an associated followup system to provide support in the event of any failure in the hydraulic system. A supporting structure which includes a plurality of rails is also provided and may be mechanically coupled to each module raising apparatus. Each module may then be equipped with a plurality of flanged wheels which are adapted to ride on the aforementioned rails so that each module may be placed on the supporting structure with the wheels thereof resting upon the rails and with the module then being rolled into place upon the jacking apparatus.

3,632,089

SAFETY BARRIER POST

Malcolm K. Smith, 97 Hilldale Avenue, Ormond Beach, Fla.

Filed Jan. 2, 1970, Ser. No. 296

Int. Cl. E04h 17/02

U.S. Cl. 256-47

2 Claims



A safety barrier post apparatus adapted for the rapid installation of a safety barrier when used in connection with ca-

bles and which may also have kick rails attached thereto. A post-supporting clamp is adapted for easy attachment to a concrete slab and for the quick attachment of a vertical post and toe rail. The post has cable holders allowing cables to be held to each post in a secure manner when the cables are taut but easily installed or removed from the bracket without threading an end of the cable through each bracket. Special supports are provided for corner and gate posts and the present apparatus may be used as in a stair rail safety barrier.

3,632,090

MIXING DEVICE

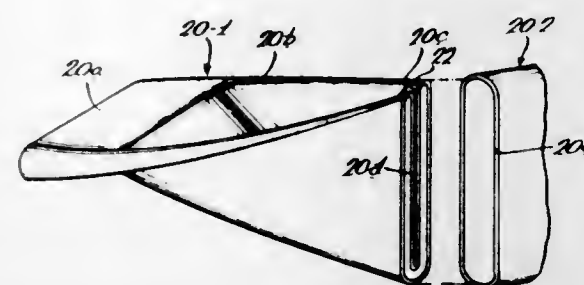
George H. White, Mundelein, Ill., assignor to Moday, Inc.

Filed Sept. 14, 1970, Ser. No. 71,867

Int. Cl. B01f 5/00; F15d 1/14

U.S. Cl. 259-4

8 Claims



A mixer without moving parts for intimately combining different materials such as resins, foods, paints, cosmetics, bulk chemicals, pharmaceuticals, dry powders, and the like, including an elongate tubular structure having an inlet adapted to receive a stream of two or more relatively unmixed materials, an outlet, and a plurality of sections between the inlet and outlet shaped to thin and widen the stream flowing longitudinally from inlet to outlet and fold the thinned stream laterally over upon itself, then repeat the thinning and folding process as many times as desired or necessary to produce intimate mixing.

3,632,091

PROCESSING THERMOPLASTICS MATERIAL

Hugh Ford, London, England, assignor to Davy Plastics Machinery Limited, Poole, Dorset, England

Filed July 23, 1969, Ser. No. 844,051

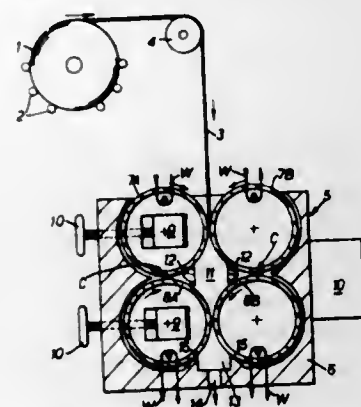
Claims priority, application Great Britain, July 23, 1968,

35005

Int. Cl. B29h 1/00

U.S. Cl. 259-187

9 Claims



This invention relates to the preparation of plasticized thermoplastics material. The material, in particulate or strip form, is passed through the gap between the rolls of a rolling mill. A controlled amount of shearing work is performed on the material to effect uniform heating of the material. Coloring or filling matter may be passed between the rolls with the thermoplastics material to be homogeneously distributed, and reinforcing fibers may be placed between two layers of strip material passed between the rolls at the same time to become firmly embedded in the resultant single-layer strip.

3,632,092

STABILIZATION PROCEDURE AND APPARATUS FOR POLYMERIC FIBROUS MATERIALS

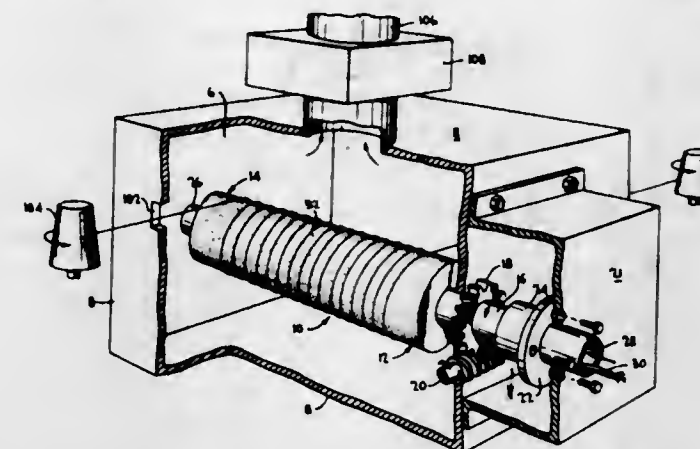
Degebert E. Stuetz, Westfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Oct. 10, 1969, Ser. No. 865,334

Int. Cl. F27b 9/28; F26b 13/08

U.S. Cl. 263-3

11 Claims



An improved continuous process and apparatus are provided for the uniform stabilization of a strand of polymeric fibrous material which is capable of undergoing thermal stabilization. The strand is continuously wound in a plurality of turns and continuously unwound from at least one rotating roll having a porous surface while a gas at an elevated temperature is expelled outwardly through the surface of the porous roll and penetrates the fibrous configuration of the strand wound upon the roll. In a preferred apparatus in accordance with the present invention the porous roll situated within a heat treatment chamber is internally provided with a plurality of individually adjustable heating elements along its length. The resulting stabilized material retains its original fibrous configuration essentially intact, exhibits enhanced thermal stability, and is capable of undergoing carbonization. In a particularly preferred embodiment of the invention the precursor is an acrylonitrile homopolymer and air having a temperature of at least about 260° C. is expelled through the surface of the rotating porous roll.

3,632,093

FURNACE HEATING APPARATUS

Friedrich W. Elhaus, 56 Wuppertal-Elberfeld, Jägerhofstrasse 117a, Germany

Filed Nov. 5, 1969, Ser. No. 874,114

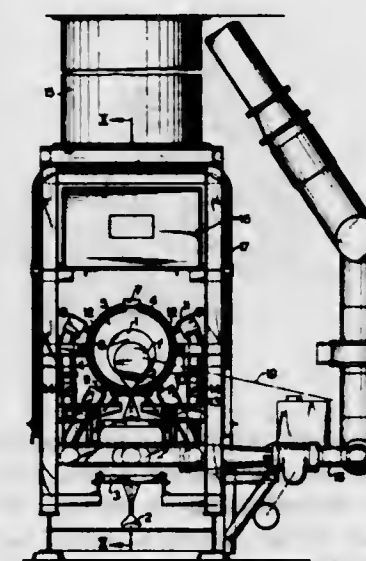
Claims priority, application Germany, Nov. 7, 1968, P 18 07

504.2

Int. Cl. F27b 9/24

U.S. Cl. 263-8 R

5 Claims



A furnace for heating material such as metal blocks, rods, ingots and the like, consisting of a furnace tunnel through

which the material to be heated is guided the tunnel having a wall including openings throughout its total length with a plurality of burners inserted in the openings having their flames directly distributed to the material, and a plurality of consecutive, sectionally arranged fireproof shells disposed on the walls of said furnace tunnel.

3,632,094

PROCESSING AND PREHEATING SCRAP METAL FOR FURNACE UTILIZATION

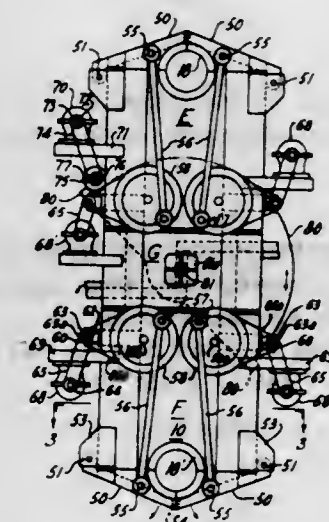
Levi S. Longenecker, 61 Mayfair Drive, Pittsburgh, Pa.

Filed Aug. 27, 1970, Ser. No. 67,520

Int. Cl. F27b 1/02

U.S. Cl. 263-36

29 Claims



Procedure and apparatus are utilized for charging scrap metal in accordance with its density to cushion the impact involved in loading it into a vessel such as a preheating silo, and for enabling an accurate control of the quantity of preheated scrap charged based on weighing it before it has been preheated. A preheating silo having upper and lower compartments and a separating partition therebetween utilizes a flow of hot furnace gases into a lower compartment, upwardly through the partition, and into and out of an upper compartment to preheat the scrap from the standpoint of providing a higher temperature portion in the lower compartment that may be directly charged into the furnace and a lower temperature portion in the upper compartment that is to be subjected to further treatment to bring it up to a furnace charging temperature. The compartments of the preheating silo are utilized interchangeably as cold scrap receiving and as hot scrap delivering chambers.

3,632,095

CARRIER FOR URANIUM OXIDE PELLETS

James A. Rode, St. Louis, and Paul W. Hubert, Pevely, both of Mo., assignors to United Nuclear Corporation, Elmsford, N.Y.

Filed Oct. 4, 1968, Ser. No. 765,072

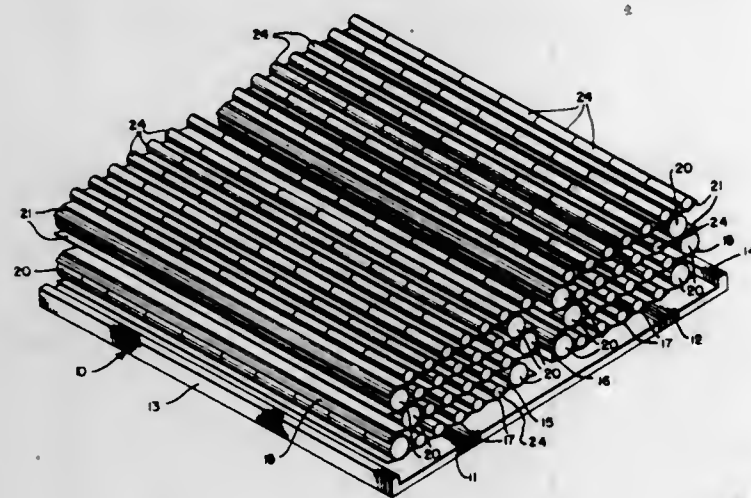
Int. Cl. F27b 21/04

U.S. Cl. 263-47

10 Claims

A carrier of uranium oxide pellets suitable for use in dewaxing and sintering of said pellets has a molybdenum or stainless steel base on which there are multiple layers of corrugated molybdenum sheets for holding the pellets within the depressions of the parallel corrugations. The molybdenum sheets are placed above each other with the corrugations

running in about the same general direction. The separation of these sheets is by the uranium oxide pellets during the sin-



tering operation and by molybdenum cylinders of a larger diameter than the pellets during the dewaxing operation.

3,632,096

APPARATUS AND PROCESS FOR DESLAGGING STEEL

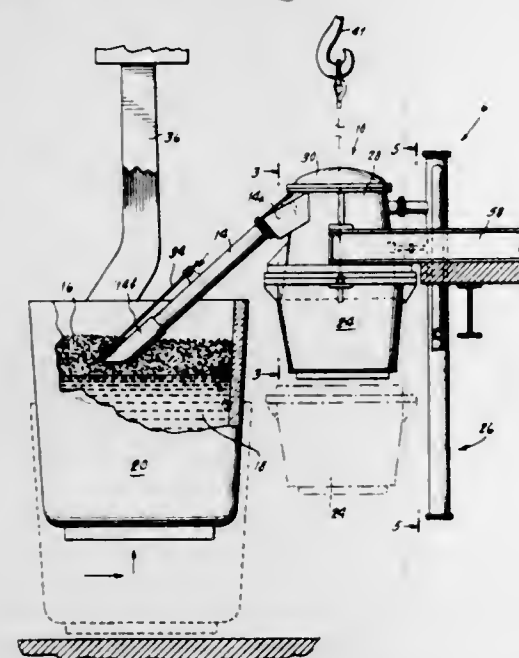
Thomas E. Perry, Chagrin Falls, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio

Filed July 11, 1969, Ser. No. 841,026

Int. Cl. C21c 7/00

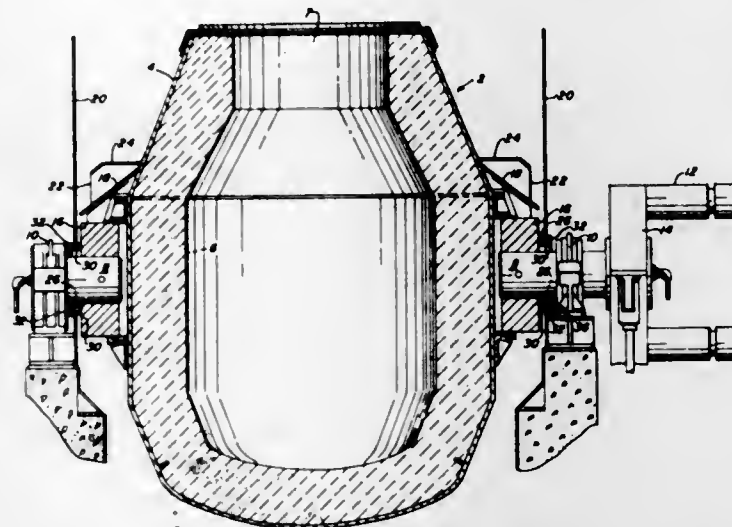
U.S. Cl. 266—37

9 Claims



Apparatus and process for deslagging molten metal such as steel. Molten steel is prepared in a conventional melting furnace and is tapped into a ladle. A vacuum is applied to the slag on the surface of the steel in the ladle by means of an uptake tube containing a thermally insulating paper or refractory lining. The proximity of the uptake tube to the steel-slag interface may be determined by an electrical probe. A chamber couples a vacuum source to the uptake tube, causing the slag to be funneled through the uptake tube until it is deflected by a baffle within the chamber. In an alternative embodiment the uptake tube terminates in a cap having a cross-sectional area substantially equal to the cross-sectional area of the ladle so that the slag is forced through the uptake tube into the chamber. The slag is received in a slag box forming the lower portion of the chamber. A cascade slag trap is provided for collecting that portion of the slag which manages to pass through the chamber. The vacuum source may be of such large capacity that it also provides a vacuum environment for a ladle degassing system.

3,632,097
STEEL CONVERTER
Harry W. Schurr, II, Moon Township, County of Allegheny, Pa., assignor to United States Steel Corporation
Filed Mar. 20, 1970, Ser. No. 21,322
Int. Cl. C21c 5/50
U.S. Cl. 266—36 R 7 Claims



A steel converter is provided with a slag deflector secured to the slag skirt above each of the trunnion shafts. Each slag deflector has a ridge generally centered above the axis of the trunnion shaft and two sides diverging downwardly from the ridge. A first ring generally coaxial with each trunnion shaft extends from the outer periphery of the trunnion ring toward the adjacent trunnion shaft bearing and is movable with the trunnion ring. A stationary ring surrounds each of the first rings, but has an opening at the bottom. Most of the slag and steel blown out of the top of the converter is deflected away from the trunnion shafts and bearings by the slag deflectors. Any of this material which is deflected in such a manner that it enters the space between the two rings is crushed or broken when the converter is tilted and then discharged from the lower end of the rings.

3,632,098
CONVERTER COMPRISING A CARRYING STRUCTURE THAT IS OPEN ON ONE SIDE OR CAN BE DIVIDED
Othmar Puhrlinger, Linz, Austria, assignor to Vereinigte Österreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

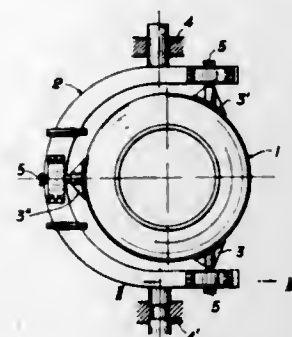
Filed Sept. 30, 1969, Ser. No. 862,275

Claims priority, application Austria, Oct. 8, 1968, A 9810/68

Int. Cl. C21c 5/50

U.S. Cl. 266—36 P

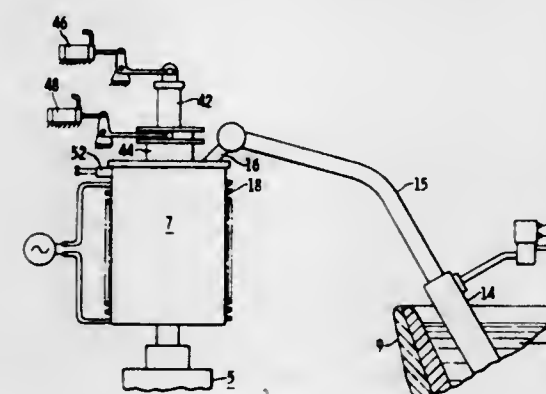
3 Claims



This invention relates to a bearing arrangement for supporting a converter in a horseshoe-shaped carrying structure and provides for accommodation of any shifts caused by thermal expansion of the converter vessel and the carrying structure, respectively, as well as easy assembly owing to automatic alignment means. According to the invention, pins

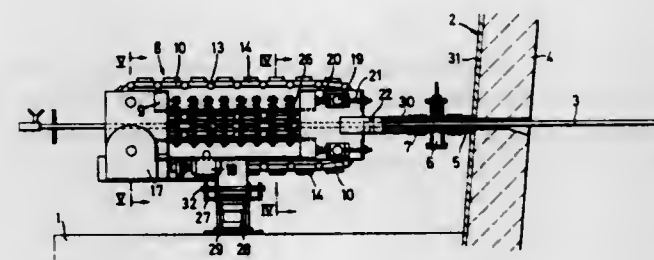
and lugs fixed to the converter are axially slidably and angularly displaceably received in bearing bridge members secured to the carrying structure and containing a bushing and a spherical slide bearing, each bridge member being provided with wedge-shaped alignment projections effective in the direction of said pin and cooperating with corresponding wedge-shaped recesses in the carrying structure.

3,632,099
MOLTEN METAL SUPPLYING APPARATUS
Harry A. Lord, Wake Forest, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 14, 1969, Ser. No. 849,975
Int. Cl. C21b 7/14
U.S. Cl. 266—38 1 Claim



Described is an apparatus for supplying molten metal to devices, apparatus, machines, etc., which accept charges or shots of metal on an intermittent basis, such as die caster and certain forging machines, for example. An induction crucible encircling both a single-charge measuring chamber means and a discharge control valve means melts and/or final heats the metal in accord with demand rate and under precise temperature control, and delivers measured single-charge volumes of such molten metal to suit the demand charge volume conditions. Included is a means which automatically furnishes input metal to the crucible commensurate with its discharge rate.

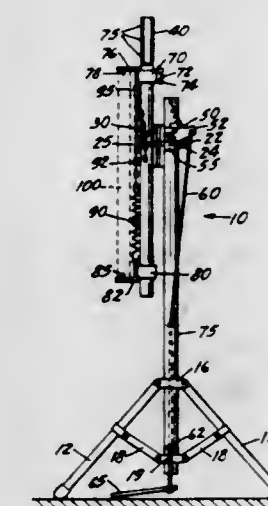
3,632,100
DEVICE FOR DRIVING A SAMPLING OR SENSING LANCE FOR A SHAFT FURNACE
Werner Schneider, Siegen 1, Westf., Germany, assignor to Dango & Dienenthal Kommanditgesellschaft, Westf., Germany
Filed Apr. 20, 1970, Ser. No. 30,012
Claims priority, application Germany, June 6, 1969, P 19 28 629.4
Int. Cl. C21b 7/12
U.S. Cl. 266—42 10 Claims



The invention relates to a device for advancing and withdrawing a sampling or sensing lance into and out of a shaft furnace through an opening in the wall of the furnace. The device includes at least two driven endless chains which

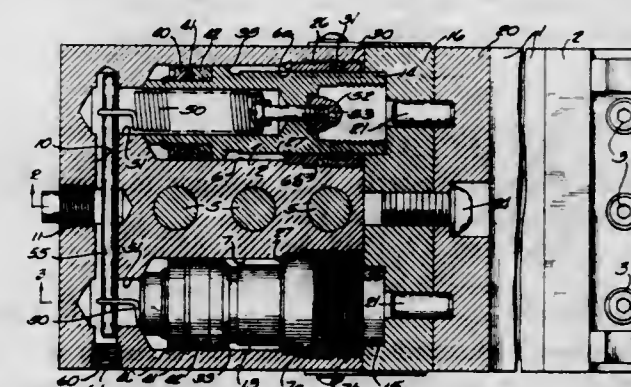
are equipped with gripping jaws. Parts of the runs of the chains are adjacent and parallel to one another and grip the lance between them.

3,632,101
ADJUSTABLE FRAME HOLDER
George E. Ross, St. Paul, Minn., assignor to Frances R. Drake, Minnetonka, Minn., a part interest
Filed Nov. 17, 1969, Ser. No. 877,293
Int. Cl. B23g 1/04
U.S. Cl. 269—70 6 Claims



An adjustable frame holder particularly adapted for holding a frame, such as a storm window or screen, for painting or maintenance work. The frame holder includes an upright support with a tripod base and a pair of plate members attached to the upper extremity thereof one of which is journaled on the other and carries a bar with a pair of angle-shaped holder members positioned thereon to engage the sides of the frame and securely hold the same. The holders are adjustable with one holder being slidably mounted on the bar and spring biased toward the other to provide a positive gripping surface on the frame being held. The plates have holes therethrough and a locking pin is mounted on the support to permit adjustment of the bar and frame holders in a plurality of angular positions relative to the support for ease in usage.

3,632,102
FLUID-OPERATED VISE
Donald W. Sessody, Milwaukee, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.
Filed Feb. 24, 1970, Ser. No. 13,719
Int. Cl. B23q 3/08
U.S. Cl. 269—25 5 Claims



A fluid-operated vise having a pair of extendible pistons to which is attached a front plate and which forms a subas-

sembly that can be easily and positively retracted by simple spring means, thus resulting in an axially compact vise. The two pistons need not be attached together at their rear ends and as a result, it is unnecessary to hold any critical tolerances between the parts or parallelism between the pistons.

3,632,103

PAPER-FOLDING MACHINE

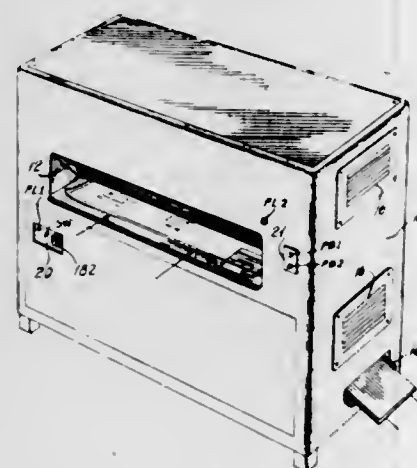
Edwin Nikitits, 3760 St. Joseph Street, Lachine, Quebec, Canada

Filed Oct. 3, 1969, Ser. No. 863,591

Int. Cl. B65h 45/20

U.S. Cl. 270-79

10 Claims



A paper-folding machine comprising a main structure holding a table for receiving a sheet of paper to be folded. A first folding device including a plurality of parallel plates is slidably mounted on the structure and a first mold device also including a plurality of parallel plates is fastened underneath the table. The first folding device is movable into the first mold device to fold the sheet of paper positioned on the table lengthwise in zigzag manner around the front edges of the plates of the first folding and mold devices. A second folding device including a plurality of parallel plates is slidably mounted on the structure of the machine and positioned transversely of the first folding device below the table on one side of the first mold device. To complement the second folding device, a second mold device including a plurality of parallel plates is located on the other side of the first mold device and facing the second folding device. The first mold device has a window therein aligned with the second folding device whereby the second folding device may be moved through said window into the second mold device to fold the sheet of paper transversely. Finally, means responsive to a further operation of the first folding device are provided for withdrawing the sheet of paper from the second mold device and for pressing it into a final shape.

3,632,104

BALANCED FOLDER ASSEMBLY

Charles H. Dufour, Westery, R.I., assignor to Harris-Inter-type Corporation, Cleveland, Ohio

Filed Aug. 27, 1969, Ser. No. 853,304

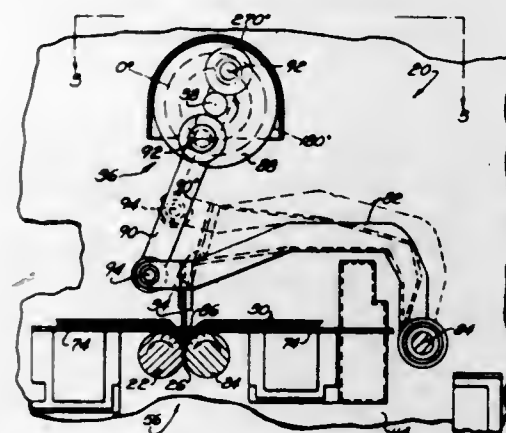
Int. Cl. B65h 45/18

U.S. Cl. 270-83

13 Claims

An improved sheet-folding apparatus includes a folder blade which is reciprocated by operation of a first crank assembly to move sheets into a nip formed by a pair of folder rollers. A second crank assembly is connected to a crankshaft for operating the first crank assembly. This second crank assembly is operable to maintain the torque

load applied to the crankshaft substantially constant by applying to the crankshaft a fluctuating torque load which off-



sets a fluctuating torque load applied to the crankshaft by the first crank assembly.

3,632,105

ARTICLE-CONVEYING DEVICE

Herman Karel Maria Verhoeven, St. Niklaas-Waas, Belgium, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 13, 1969, Ser. No. 849,684

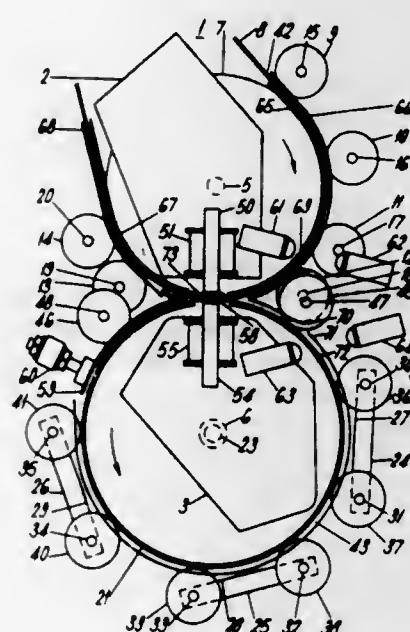
Claims priority, application Netherlands, Aug. 27, 1968,

6812166

Int. Cl. B65h 5/26, 9/16

U.S. Cl. 271-64

7 Claims



An article-conveying device for providing delay in the conveyance of an article when necessary without interrupting the speed of that article. The invention provides a regular circular path and an auxiliary circular delay path tangent thereto in FIG. 8 form with means to select which path an article is to follow. Detection of the presence of articles in either path is by photocells which relay information to a central control which controls the path-selection means. An article which is to be delayed is taken out of the regular path and guided into the auxiliary path to remain therein for at least one revolution of that path, and is returned to continue its journey in the regular path whenever the central control so directs.

3,632,106

MODIFIED STACKER

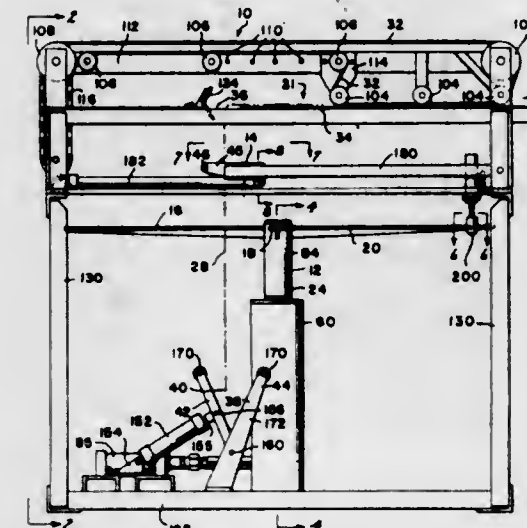
Arthur Schwenk, Gibbstown, N.J.; Herschel Baron, and Herbert V. Jacobs, both of Philadelphia, Pa., assignors to Jacobs Machine Corporation

Filed June 12, 1969, Ser. No. 832,698

Int. Cl. B65h 29/34, 31/22

U.S. Cl. 271-68

6 Claims



A stacker for flexible articles, such as cloth workpieces, that are successively presented to an output station. The stacker includes a support member for the flexible article and a movable member for transporting the articles from the output station to the support member. The output station has an opening which permits each flexible article to pass towards the support member to be grasped by clamping means, with there also being a movable member like a delivery tray which is adapted to assist in the draping of an edge of each article about an arm of the support member.

3,632,107

DEVICE FOR CONVEYING THIN SHEETS TO A STACKER

Karl Rehm, Konstanz, and Roland Zeitler, Neu Isenburg II, both of Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., am Danube, Germany

Filed Dec. 1, 1969, Ser. No. 881,149

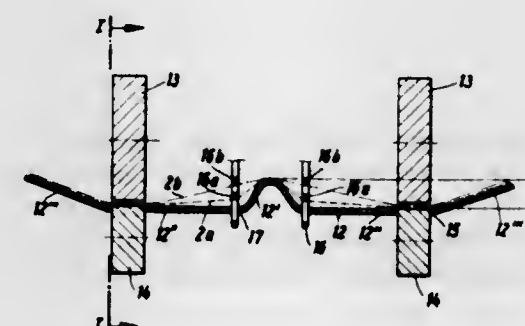
Claims priority, application Germany, Nov. 30, 1968, P 18 12

018.8

Int. Cl. B65h 29/22

U.S. Cl. 271-71

5 Claims



A device for delivering thin sheetlike items, such as vouchers, checks, or bills, to a stacker while giving the items a stiffening curvature about at least one axis extending in the conveying direction, the degree of curvature depending on the thickness of the sheet and being sufficient for the stacking process without producing an unacceptable degree of permanent deformation.

3,632,108

ILLUSORY APPARATUS

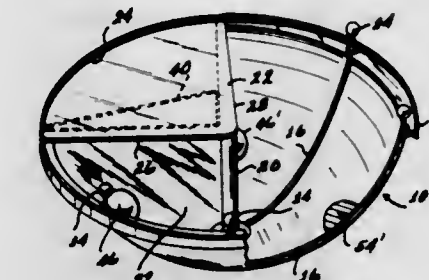
James Mark Wilson, 4149 Regal Oak Drive, Encino, Calif.

Filed Feb. 3, 1969, Ser. No. 796,113

Int. Cl. A63j 5/00

U.S. Cl. 272-13

9 Claims



The device or apparatus of the invention is one for use in a magical display which in a preferred form of the invention provides for undetectable concealment of an object or person. The apparatus comprises angularly positioned mirrors for concealing a space, the mirrors being associated with a spherical surface so arranged that the image reflected in the mirrors gives the appearance of a complete circular surface thereby creating the illusion of a vacant space behind the mirrors. The effect is enhanced by a symmetrical arrangement of sections of small spheres or balls including two ball sections having flat surfaces placed against the mirrors, and two other ball sections positioned to make it appear that four similar ball sections are symmetrically positioned relative to the spherical surface in space including that concealed behind the mirrors.

3,632,109

MODULAR RECREATIONAL UNIT AND COMBINATIONS THEREOF

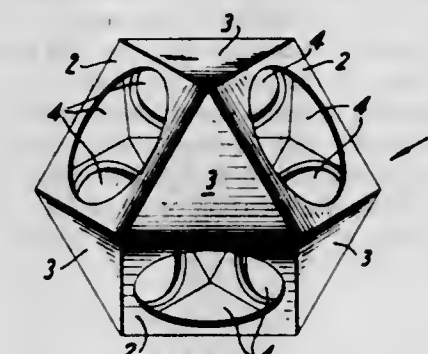
Richard Dettmer, 16 Chittenden Avenue, New York, N.Y.

Filed July 22, 1969, Ser. No. 843,506

Int. Cl. A63g 21/00; A63b 9/00, 17/00

U.S. Cl. 272-56.5 R

7 Claims



A simple structure which is in itself a recreational unit and which is adaptable for mating with like structures wherein infinitely variable combinations and permutations of recreational facilities are provided. The basic unit generally includes a hollow cuboctahedron with each of the square faces including a regular centrally located opening therethrough. Traverseway members for access to or egress from the interior of the cuboctahedrons may be fastened thereto either at one end of a traverseway or, if desired, at both ends thereby bridging the gap between cuboctahedrons. The traverseways may be hollow tubular or semicircular in cross section and if fastened at one end only can be utilized as a slide. The free end of the slide includes a depending support.

3,632,110

BOARD GAME APPARATUS

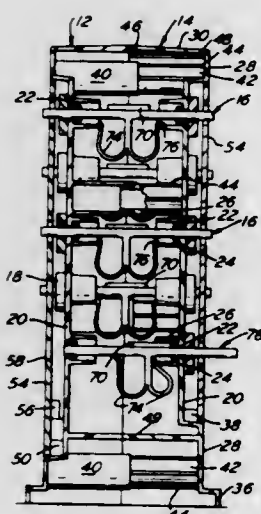
Derek J. Gay, Palos Verdes Peninsula, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Feb. 26, 1970, Ser. No. 14,603

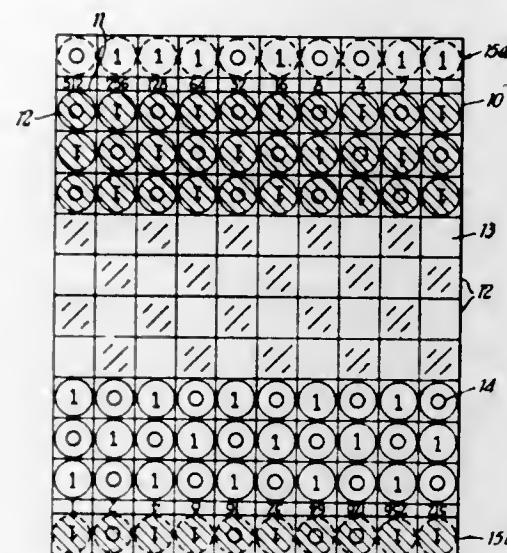
Int. Cl. A63F 3/00

U.S. Cl. 273—130 D

17 Claims



enable the player to improve the value and interim position of his own counters. The aim of each player is to move his



own counters into a predetermined pattern on his opponent's side of the board.

3,632,112

GOLF BALL RETRIEVING CLUB

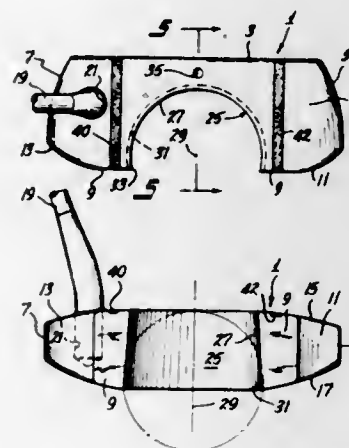
Charles D. Jacobs, 1100 South Lakeside Drive, Lake Worth, Fla.

Filed Oct. 29, 1970, Ser. No. 84,962

Int. Cl. A63b 53/04

U.S. Cl. 273—162 E

6 Claims



The golf ball holding cavity extends completely through the putter head and is open at the rear wall of the head. The rigid wall of the cavity is dimensioned and configured to encompass more than one half of a golf ball at its diametrical periphery for releasably holding a gold ball inserted therein.

3,632,113

CASSETTE-TYPE MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS

Kinya Nakamura, Saitama-ken, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 3, 1968, Ser. No. 780,645

Claims priority, application Japan, Mar. 14, 1968, 43/20547; 43/17084; 43/17085; 43/20548; 43/20549; 43/20550

U.S. Cl. 274—4 D

8 Claims

A cassette-type magnetic recording and reproducing ap-

3,632,111
BINARY ARITHMETIC BOARD GAME APPARATUS
Harold Ernest Wicks, Wickham Lodge, Bere Court Road, Pangbourne, England

Filed Feb. 14, 1969, Ser. No. 799,352

Claims priority, application Great Britain, Feb. 15, 1968, 7,344/68

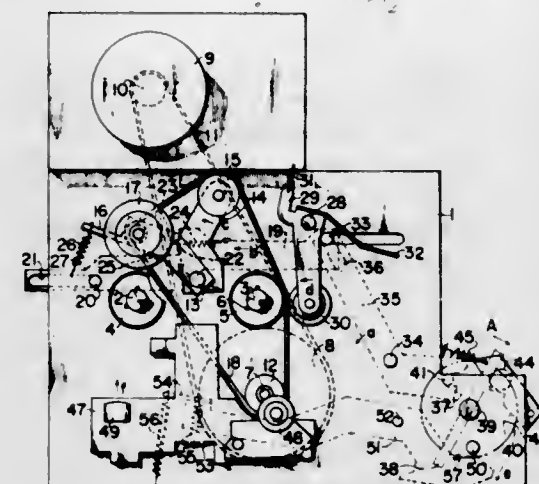
Int. Cl. A63F 3/02

U.S. Cl. 273—131 K

7 Claims

This invention relates to a board game which can be played by two or more players using counters on a board which is divided into discrete playing areas, such as a checkerboard design, for example. Each player moves one of his counters in turn towards his opponent's end of the board and, where the resulting pattern formed by both sets of counters allows, binary arithmetical operations are performed on the combination of his own and his opponent's counters to

paratus wherein the arrangement of parts constituting a tape-driving mechanism is rationalized so as to reduce the size of



the apparatus and to obtain accurate recording and reproducing operations.

3,632,114

TRACK-SELECTING APPARATUS

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo-to, Japan

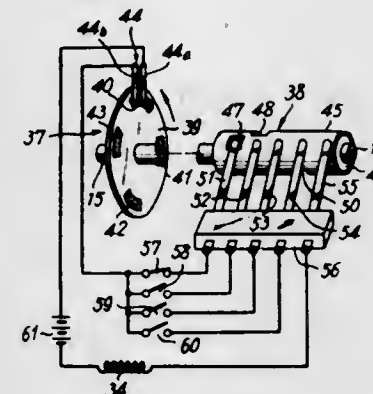
Filed Oct. 13, 1969, Ser. No. 865,554

Claims priority, application Japan, Oct. 14, 1968, 43/74164

Int. Cl. G11b 21/08

U.S. Cl. 274—4 A

6 Claims



A track-selecting apparatus for a multitrack magnetic tape player, wherein a plurality of track-selecting switches are provided corresponding to individual tracks on the tape. At least one rotary switch means is rotated synchronizing with a rotary cam actuable so as to allow a magnetic head to synchronize with the tracks thereby scanning across the tape. Rotation of the rotary cam is controlled by the track-selecting switches and the rotary switch, and the magnetic head being automatically moved to a position suitable for the track designated by the track-selecting switch.

3,632,115

TAPE CARTRIDGE POSITIONING APPARATUS

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo-to, Japan

Filed Dec. 22, 1969, Ser. No. 887,195

Claims priority, application Japan, Dec. 24, 1968, 43/94231

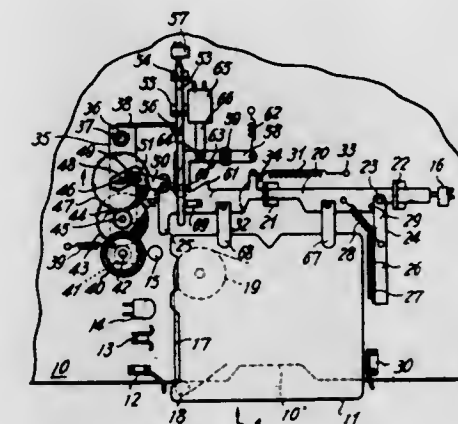
Int. Cl. G11b 15/28, 15/66

U.S. Cl. 274—4 B

9 Claims

A tape cartridge positioning apparatus for an endless magnetic tape cartridge player comprising a reciprocating lever member having front and rear arms between which the tape cartridge, which is transversely insertable in a player housing, is interposed and slidably mounted on a deck in the player

housing and normally held in a first position, a shifting device operated by use of rotational force of a rotary capstan for drivingly feeding the magnetic tape to shift the reciprocating lever member from the first position to a predetermined second position, a latching device for retaining the reciprocating lever member in the second position, a release device for allowing the latching device to release retention of the reciprocating lever member, and a tension spring for returning the disengaged reciprocating lever member to the



3,632,116

CENTRAL RECORD SPINDLE

Andreas Perge, Bromma, Sweden, assignor to U.S. Philips Corporation, New York, N.Y.

Filed July 3, 1969, Ser. No. 838,782

Claims priority, application Sweden, July 8, 1968, 9394/68

Int. Cl. G11b 17/04

U.S. Cl. 274—10 S

5 Claims



A record spindle for a record changer having supporting elements for holding a plurality of records. The elements are outwardly resilient in a radial direction with respect to a central housing and their movements are coordinated by a slidable operating member arranged within the housing.

3,632,117

SEAL LIFT-OFF MECHANISM

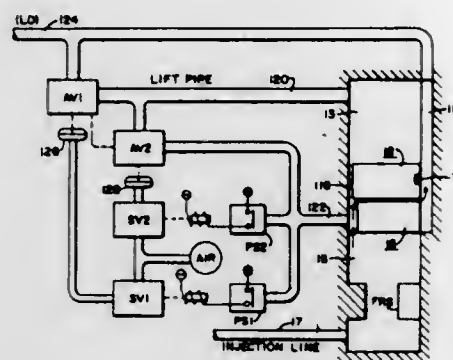
Angel P. Villanor, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 15, 1969, Ser. No. 824,762

Int. Cl. F16j 15/34, 15/54

U.S. Cl. 277-3

9 Claims



The operation of a controlled leakage faceplate-type seal depends on pressure to develop a hydrodynamic film at its interface. The film prevents actual contact between the seal faces. When the pressure is low, the tendency to slam the seal faces together increases. In order to prevent rubbing the seal faces together, a lift-off system is provided to open the seal at a specified low pressure. When the pressure increases to a specified safe value, the system causes the seal faces to approach each other until the normal operating position is reached.

3,632,118

DEVICE FOR MAKING A CENTERING AND SEALING JOINT BETWEEN HOT AND COLD PARTS OF A HOUSING

Hans Herger, Ennetbaden, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

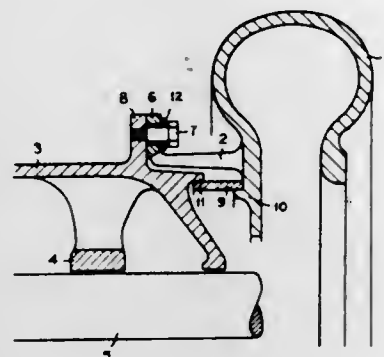
Filed July 23, 1969, Ser. No. 844,002

Claims priority, application Switzerland, Aug. 9, 1968, 12045/68

Int. Cl. F16j 9/00; F02i 5/00

U.S. Cl. 277-4

1 Claim



A device for making a combined centering and sealing joint between two axially spaced parts of a housing structure of a machine, such as a turbomachine, of which one part of the housing, such as the turbine runner housing, is hot and the other housing part, such as the bearing or compressor housing, is relatively colder, comprises a thin-walled cylindrical joint ring which extends between two cylindrical centering surface portions on the two housing parts and which is made of a material which has substantially the same coefficient of heat expansion as that of the hotter housing part. One end of the joint ring surrounds the centering surface on the hot part of the housing and the other end is surrounded by the centering surface on the colder part of the housing, and the joint ring exhibits such tolerances with respect to the centering surfaces that at least during operation of the

machine the ends of the joint ring bear in sealing fashion against the centering surfaces as a result of the different amounts of thermal expansion.

3,632,119

RESILIENT SEALING MEANS FOR JOINT BETWEEN ELEMENTS HAVING DIFFERENT COEFFICIENTS OF EXPANSION

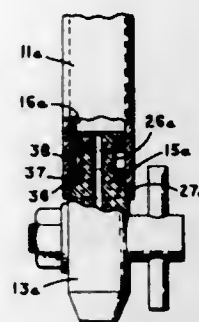
Robert E. Carpenter, Nutley, N.J., assignor to Chemplast, Inc., Wayne, N.J.

Filed Dec. 29, 1969, Ser. No. 888,572

Int. Cl. F16r 5/04; B011 3/02

U.S. Cl. 277-26

8 Claims



A resilient static and dynamic sealing assembly for maintaining a fluidtight joint or connection between operatively associated elements where the elements are made of materials having different coefficients of expansion and one element of a relatively stronger material acts to confine the other material in the operative position. The sealing assembly includes on the confined element an elastomeric means which coacts with an annular wall in engagement with the confining element and acts with the annular wall to maintain the seal within conventionally anticipated temperature ranges at least between 32° and 212° F. The sealing assembly can be provided with means for adjusting the force exerted to form the seal between the operatively associated elements. Further, the sealing assembly will provide an improved laboratory Burette, disposable hypodermic syringes and other devices adapted to utilize the same.

3,632,120

STERN SHAFT SEAL

Willem Matthijs Brandt, Bûderdijkstraat 12, Leiden, Netherlands

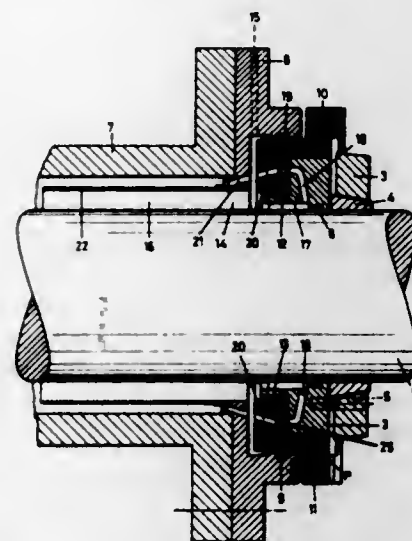
Filed Dec. 17, 1969, Ser. No. 885,866

Claims priority, application Netherlands, Dec. 17, 1968, 6818088

Int. Cl. F16j 15/34; F16c 33/72

U.S. Cl. 277-83

1 Claim



A stern shaft seal is provided with one or more intermediate rings between a flange on the shaft and another

3,632,123

SAFETY FRONT HOLDING MEMBER FOR SKI BOOT

Georges P. J. Salomon, 34, Avenue de Loverchy, Annecy, Haute-Savoie, France

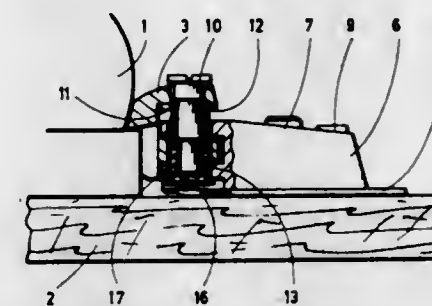
Filed Sept. 2, 1969, Ser. No. 854,365

Claims priority, application France, Sept. 6, 1968, 1069-74

Int. Cl. A63c 9/00

U.S. Cl. 280-11.35 T

4 Claims



A safety front holding member for ski boot on a ski which permits the lateral release of the boot over the ski, the said member having a holding jaw adapted to come in contact with the upper front edge of the sole of the boot, and characterized by a resilient element mounted between the jaw and the ski to enable a vertical displacement of the jaw without any abnormal restriction to the lateral release of the boot.

3,632,124

SNOW COASTER

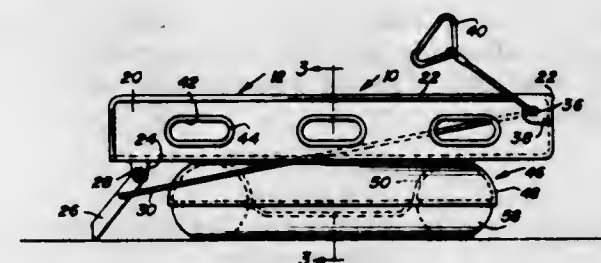
James P. Cropp, 330 East Cache La Poudre, Colorado Springs, Colo.

Filed Nov. 17, 1969, Ser. No. 877,232

Int. Cl. B62d 17/08

U.S. Cl. 280-12

9 Claims



A snow coaster body for supporting one or more riders thereon and including a horizontally centrally disposed annular under portion defining a generally circular lower horizontal surface bound by an outer peripheral downwardly opening channel generally semicircular in cross section. The inner and outer peripheral extremities of the channel include generally horizontal inwardly projecting inner and outer flange portions and the lower horizontal surface is disposed at an elevation slightly below a horizontal plane containing the flanges and includes an outer peripheral upwardly and outwardly beveled portion. Also, an inflated inner tube-type member is seated in the channel and frictionally retained therein by the inner and outer peripheral flanges.

3,632,125

OUTRIGGER SLED

Jacob Krippelz, 312 North Root Street, Aurora, Ill.

Filed May 12, 1970, Ser. No. 36,545

Int. Cl. B62b 13/04

U.S. Cl. 280-16

4 Claims

flange on the stern tube. The intermediate ring is freely rotatable between the flanges and reduces friction and heating of lubricant. Means are proposed for improving lubrication.

3,632,121

PISTON RING CONSTRUCTION

Gunnar A. Wahlmark, Rockford, Ill., assignor to Wahlmark Systems, Inc., Chicago, Ill.

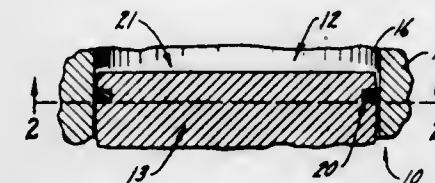
Continuation of application Ser. No. 635,429, May 2, 1967.

This application June 25, 1969, Ser. No. 840,590

Int. Cl. F16j 15/00

U.S. Cl. 277-188

1 Claim



A seal arrangement for relatively movable components including a seal ring assembly seated in a receiving groove. The ring assembly includes a plastic ring and a metal backup ring. The plastic ring is formed so that both a radial and axial seal is effected.

3,632,122

MULTIPLE COLLET CHUCK

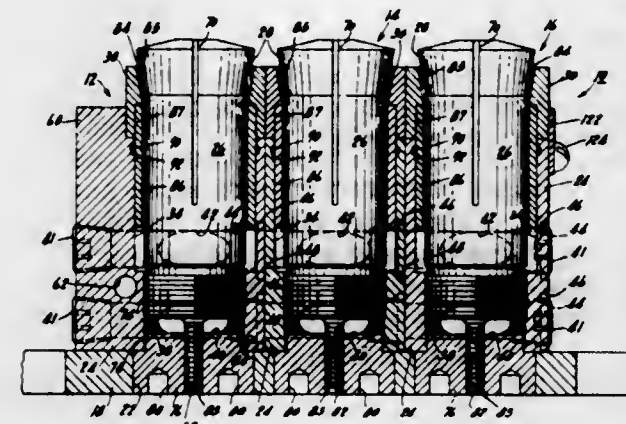
Donald W. Sensody, Milwaukee, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.

Filed Mar. 4, 1970, Ser. No. 16,275

Int. Cl. B23b 31/30

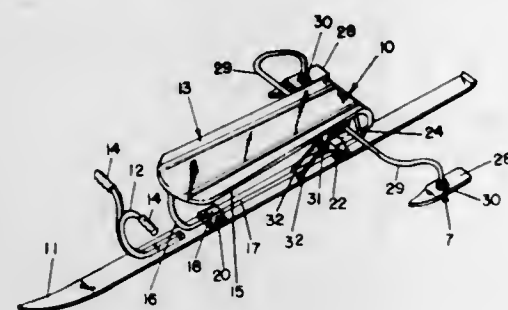
U.S. Cl. 279-4

12 Claims



A multiple collet chuck including a main collet chuck and a number of secondary collet chucks. Each main and secondary collet chuck including a split ring collet rigidly mounted in collet receiving openings provided in each of the base members for the chucks and an actuator bar having a bearing guide positioned in each of the collet receiving openings. The actuator bar being movable into engagement with each of the collets to produce a gripping action on a workpiece supported within the collets. A pair of pistons are mounted in each of the base members for moving the actuator bar into engagement with the collets. Chip flushing and cooling fluid passages are provided in each of the base members for each of the collets.

one being mounted on each side of the sled. The aforesaid ski and the two outrigger runners are removably secured to



the structure of the sled so that the sled may be disassembled in order to take up a minimum amount of space when it is being transported.

3,632,126

ADJUSTABLE KEEL FOR SNOWMOBILE SKIS AND THE LIKE

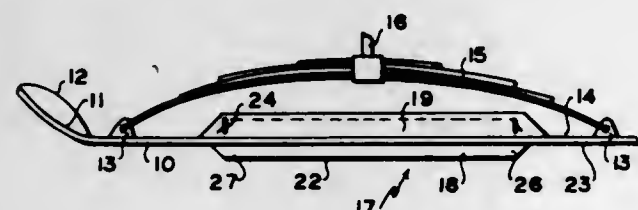
Nelson D. Shorrock, R.R. 1, Dryden, Ontario, Canada

Filed June 2, 1970, Ser. No. 42,621

Int. Cl. B62b 17/02

U.S. Cl. 280 22

1 Claim



A slot in the ski enables a keel to extend therethrough. This keel is adjustable vertically in the supports to compensate for wear and to permit adjustment to varying ice and snow conditions.

3,632,127

STEERING AXLES WITH LONGITUDINAL ELASTIC SUSPENSION

Albert Grosseau, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France

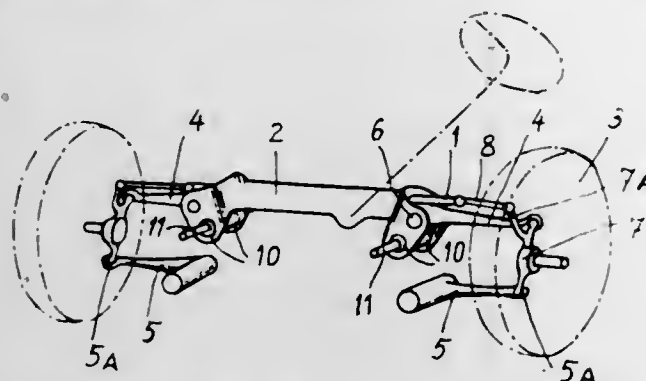
Filed Jan. 6, 1970, Ser. No. 962

Claims priority, application France, Jan. 14, 1969, 6900432

Int. Cl. B62d 7/16

U.S. Cl. 280-96

2 Claims

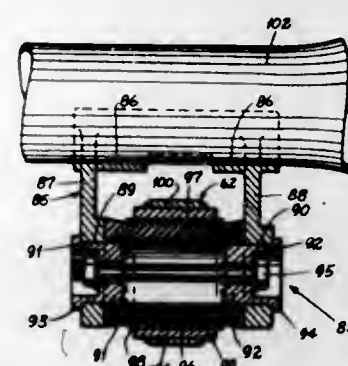


Steering axle with longitudinal elastic suspension for a vehicle, wherein the steering stability is not impaired by longitudinal wheel beats, this steering axle being characterized in that the steering box is secured to the body of the vehicle through any suitable resilient means permitting slight or low amplitude movements of one portion of the axle carried by said steering box and comprising wheel support members and the steering linkage.

3,632,128
MULTIPLE JOINT TANDEM SUSPENSION
 John E. Radel, Springfield, Mo., assignor to Ridewell Corporation, Springfield, Mo.
 Continuation-in-part of application Ser. No. 670,262, Sept. 25, 1967, now Patent No. 3,471,165. This application Sept. 25, 1969, Ser. No. 861,037
 Int. Cl. B60g 5/02

U.S. Cl. 280-104.5 R

8 Claims



A tandem vehicle suspension having a compensator member pivotally supported on a transverse trunnion depending from a vehicle chassis, independent forwardly and rearwardly extending torque beams pivotally connected to the compensator at one end and to the forward and rearward axles, respectively, at their other ends. Shock absorbing members between the compensator and the torque beams and additional shock absorbing means between the two torque beams.

The torque beams are connected to the compensator by resilient bushings and to the axles by resilient trunnions or bushings with the result of automatic tracking by the wheels mounted on the axles. The resilient bushings connecting the torque beams to the compensator are on opposite sides of and below the transverse trunnion so that reacting moments and forces on stopping and starting the truck tend to drive the compensator downwardly, thereby reducing bouncing.

In one embodiment, the shock absorbing means between the two torque beams is a unitary elastomer spring with movement of one beam transmitted through the spring to the other beam. In another embodiment, the spring is secured at its center plate to the compensator to prevent any such transmission through the spring. In other embodiments these compressible members are air springs.

3,632,129

TANDEM WAGON AXLE ASSEMBLY

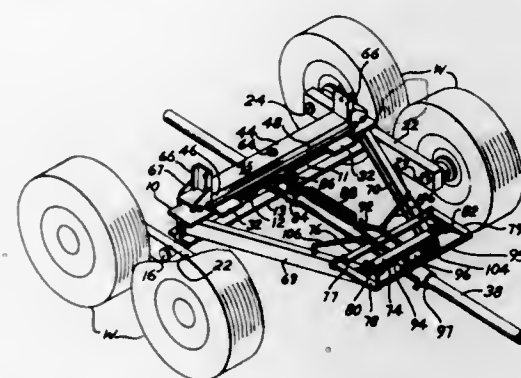
Harold F. Bear, Route 2, Timberville, Va.

Filed Sept. 29, 1969, Ser. No. 861,695

Int. Cl. B60g 25/00

U.S. Cl. 280-109

10 Claims



An axle assembly avoids lateral skidding of the tandem wheels of a vehicle when the vehicle is turning and includes an elongated beam upon which the wheels are rotatably

mounted. The beam is rotatable relative to the centerline and body of the vehicle when the vehicle is turned and spring centering means is provided to return the beam to a position substantially perpendicular to the centerline of the vehicle.

3,632,130

VEHICLE SUSPENSIONS

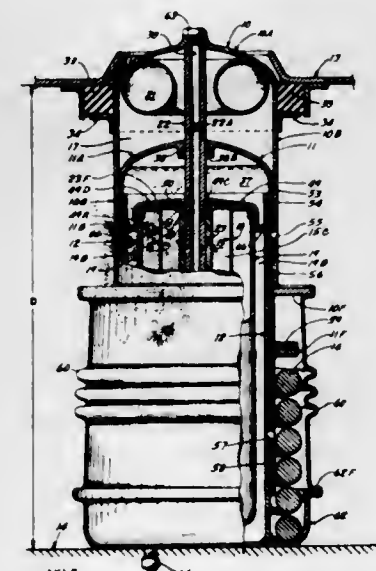
Raymond J. Novotny, Sparta, N.J., assignor to Abex Corporation, New York, N.Y.

Filed June 25, 1970, Ser. No. 49,830

Int. Cl. B60g 17/08

U.S. Cl. 280-124

7 Claims



A vehicle suspension unit of the shock-absorber-type with combined self-pumping, load-leveling capability. Includes a piston within a cylinder but separated by an air spring in a chamber therebetween, the piston in turn being supported by a second spring, the cylinder and second spring being confined between an axle and the vehicle chassis. In the event of a severe load, liquid from an accumulator is transmitted to the chamber between the cylinder and piston, restoring the cylinder and chassis to the normal level. Liquid is thus transmitted through the bore of a hollow rod which is connected to the cylinder, there being porting between the accumulator and rod allowing this only under severe load conditions; and preferably the rod has a piston, operating in a pump chamber of unusual form, for keeping the accumulator chamber charged with liquid.

3,632,131

BODY LEVELLING ARRANGEMENT FOR A CAR

Ortwin Engfer, Gerlingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed July 8, 1970, Ser. No. 53,110

Claims priority, application Germany, July 22, 1969, P 19 37

163.2

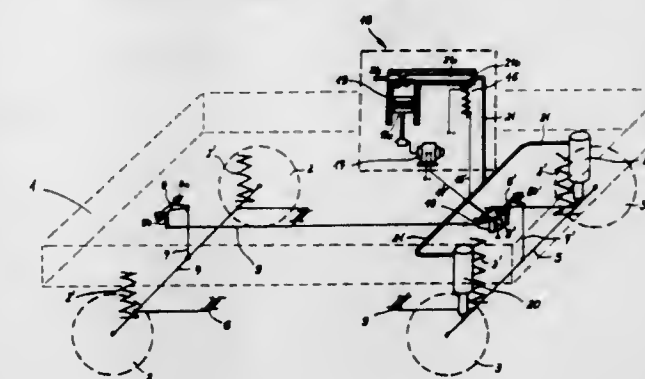
Int. Cl. B60g 17/04

U.S. Cl. 280-124 F

10 Claims

When the front end of the body of a car is at a lower or higher level than the rear end due to an uneven load, the rear end is lowered, or raised, respectively, by a pneumatic adjusting motor to the level of the front end. Front and rear sensing means sense the displacements of the front and rear ends of the body relative to the front and rear shafts, and control level regulator means which operate pressure control means

for discharging air from the pneumatic adjusting motor when lowering of the rear end is required, and supply air under



3,632,132

VEHICLE SAFETY DEVICE

Robert W. Richardson, Orchard Lake, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

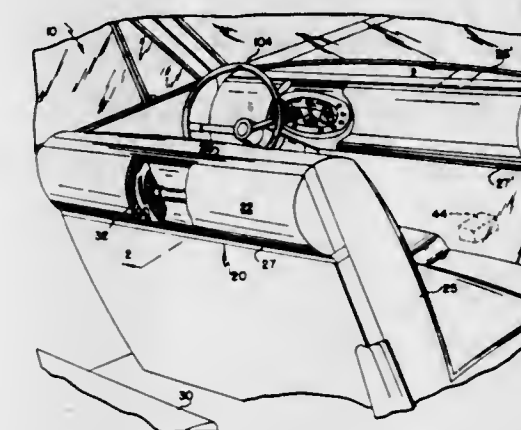
Original application Aug. 16, 1967, Ser. No. 661,086, now Patent No. 3,514,124. Divided and this application Apr. 20,

1970, Ser. No. 38,619

Int. Cl. B60r 21/10

U.S. Cl. 280-150 AB

4 Claims



A safety apparatus is operable to protect an occupant or occupants of a vehicle during a collision. The safety apparatus includes a safety device which is adapted to be mounted on an interior part of the vehicle. The safety device comprises an energy-absorbing panel member which is releasably secured to an interior part of the vehicle and contoured so as to form a part of the interior design and means for moving the panel member relative to the occupant or occupants to restrain the same against movement during a collision and absorb the energy. The means for moving the panel comprises an expansible confinement secured to the inner side of the panel, the confinement when expanded moving the panel outwardly of the interior part. The safety device further includes a porous, energy absorbing cushion means disposed behind the panel for absorbing the energy of the occupant or occupants upon the latter impacting thereagainst when the confinement is not expanded. The panel may be located at any suitable location within the automobile. In the illustrated embodiments, the panel comprises a portion of the dashboard or the entire dashboard of the vehicle and/or a panel mounted on the front seat for protecting either the occupants sitting in the front or rear seat of the vehicle.

3,632,133

VEHICLE SAFETY APPARATUS INCLUDING AN INFLATABLE CONFINEMENT

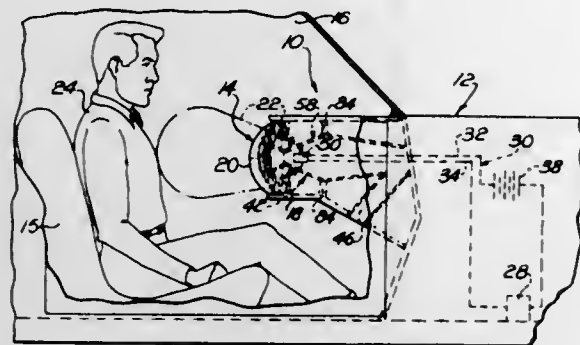
David P. Hass, Detroit, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Feb. 25, 1969, Ser. No. 801,983

Int. Cl. B60r 21/10

U.S. Cl. 280—150 AB

18 Claims



An improved safety device for protecting an occupant of a vehicle during an accident includes a confinement which is inflated to an expanded condition to restrain movement of the occupant. To effect inflation of the confinement, a fluid source is actuated to provide a high-velocity fluid stream which cooperates with a nozzle to draw a relatively large volume of air into the confinement.

3,632,134

ROLLOVER PROTECTIVE STRUCTURE FOR TRACTORS

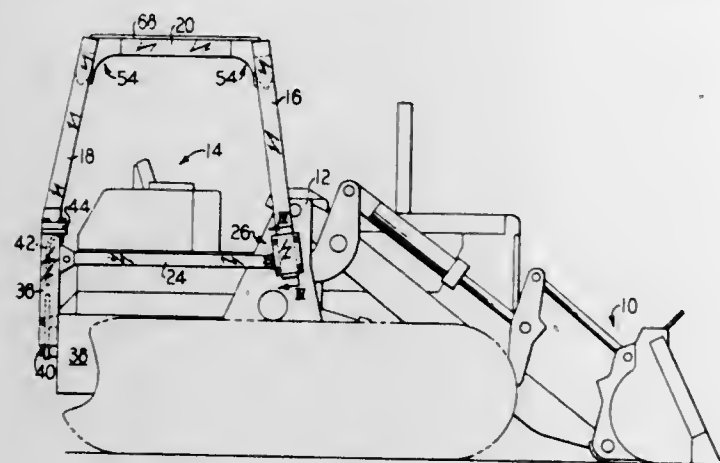
John H. Babbitt, Jr., Peoria, Ill.; Richard L. Bell, Washington; Edwin L. Riedesel, East Peoria, and Sheldon L. Stark, Bloomington, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 4, 1969, Ser. No. 855,154

Int. Cl. B60r 21/00

U.S. Cl. 280—150 C

10 Claims



This rollover protective structure is fabricated of tubular members welded to specially designed castings which form the corners of a framelike structure and eliminate corner failures which occur in many such structures.

3,632,135

RESERVOIR IN THE STEERING COLUMN

Richard Chute, Huntington Woods, and Russell J. Bergendahl, Detroit, both of Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Sept. 15, 1969, Ser. No. 857,733

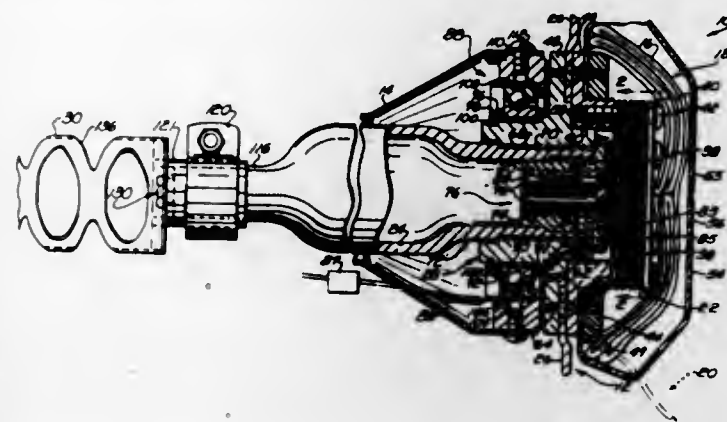
Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

10 Claims

A safety apparatus for protecting an operator or occupant of a vehicle during a collision includes a confinement having

a collapsed condition and an expanded condition for restraining movement of the occupant during an accident. The safety apparatus also includes a closed elongated fluid reservoir for providing a pressurized fluid supply for inflating the confinement, and diffuser means in fluid communication with the closed elongated fluid reservoir and the confinement. The diffuser directs fluid from the closed elongated fluid reservoir to expand the confinement from the collapsed condition to the expanded condition. The safety apparatus also has one end of the reservoir drivingly connected to a steering wheel such that the steering wheel is prohibited from axial move-



ment with respect to the reservoir. The other end of the reservoir is drivingly connected to a steering column member such that when torque is exerted on the steering wheel by the operator of the vehicle, the torque will be transmitted through the reservoir to a steering column member for steering the vehicle. The confinement is mounted on the steering wheel and is adapted to be expanded by the pressurized fluid contained in the reservoir upon the occurrence of an accident to protect the operator or occupant of the vehicle.

3,632,136

SAFETY APPARATUS

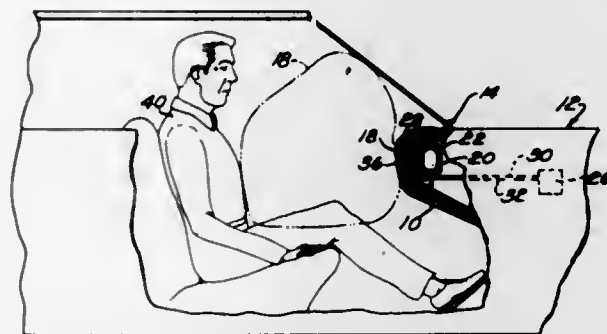
Ramon Doyle Foltz, South Euclid, Ohio, assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio

Filed Oct. 8, 1969, Ser. No. 864,641

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

10 Claims



An improved safety apparatus for protecting an occupant of a vehicle includes a pre-pressurized confinement which is expandable from a partially collapsed condition to an expanded condition under the influence of pressure applied to the confinement by a fluid medium contained within the confinement. A housing constrains the confinement in the partially collapsed condition against the influence of pressure applied to the confinement by the fluid medium. Upon the occurrence of an accident, a sensor detonates an explosive lock device to enable the housing to be opened by the confinement as it expands outwardly from the partially collapsed condition under the influence of the fluid medium within the confinement. A liner of sheet material advantageously encloses the confinement when it is in the partially collapsed

3,632,139

REMOVABLE GOOSENECK DRAWBAR FOR TRAILERS

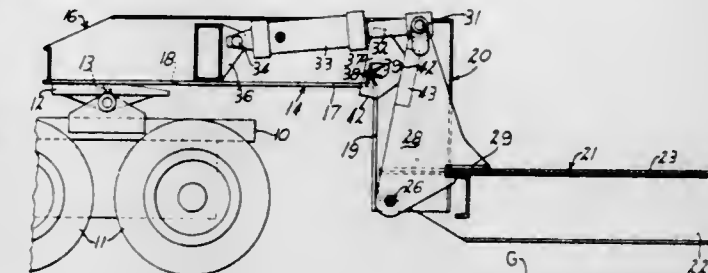
George T. Stafford, Jr., P.O. Box 2885, Birmingham, Ala.

Filed Mar. 4, 1970, Ser. No. 16,490

Int. Cl. B62d 53/06

U.S. Cl. 280—425 A

6 Claims



Gooseneck drawbar having depending rear portion pivotally connected to trailer bed. Upstanding bracket carried by depending rear portion and having lateral support engageable with trailer bed determining relative angular position of drawbar and trailer bed. Bracket held at selected angular positions to vary elevation of forward end of trailer bed.

3,632,140

TORSIONAL DISCONNECT UNIT

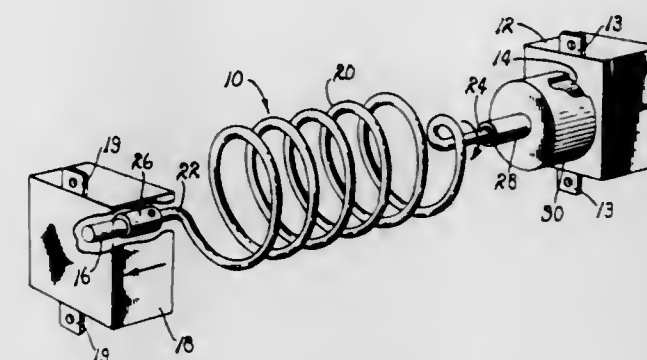
Thomas O. Palme, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Donald J. Starkey, Pasadena, and Kenneth C. Curry, La Canada, both of Calif.

Filed July 31, 1970, Ser. No. 59,895

Int. Cl. F16l 35/00

U.S. Cl. 285—18

4 Claims



A torsional disconnect unit particularly suited for use in releasably coupling distal ends of mutually displaceable, coaxially related portions of a fluid conduit, characterized by a substantially rigid tube, wound to a configuration conforming to a uniform helix and having an end thereof fixedly secured to one rotatably supported coupling component, of a pair of concentrically mated coupling components, while its opposite end rigidly is fixed against rotation. A particular feature of the invention resides in utilizing those characteristics of a helix which cause a helix to unwind, as it is elongated, in developing torque of a magnitude sufficient to overcome static friction as a mutual rotation between the components is initiated, whereby an axial separation of the components is attainable employing an axially directed force of magnitude sufficient to overcome sliding friction.

3,632,137

SIDE SPRAY INHIBITING APPARATUS FOR WHEELED VEHICLES

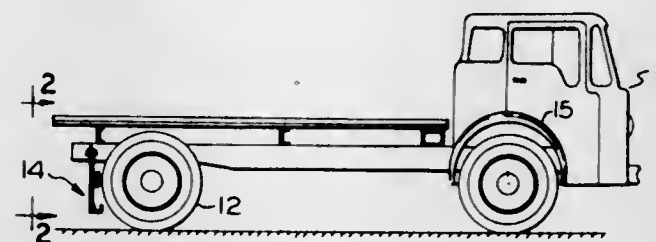
Wilfred E. Joasy, Milwaukee, Oreg., assignor to Transwestern Express Company, Portland, Oreg.

Filed Dec. 29, 1969, Ser. No. 888,329

Int. Cl. B62d 25/16

U.S. Cl. 280—154.5

11 Claims



Apparatus for inhibiting water spray from the sides of wheels of trucks is described, including a deflector means behind the tires for preventing the tire spray from striking the undercarriage of the trucks and a discharge means for conveying the deflected water to a point inward of the wheels where it is discharged to the ground. The deflector means may be either a brush or a solid deflector member which may contact the tire or be spaced slightly therefrom. The discharge means may be a trough positioned under the deflector to catch the deflected water. In one embodiment, the deflector member and trough are molded integral with a support member made out of plastic material.

3,632,138

IMMERSIBLE BOAT TRAILER WITH BOAT CRADLING AND LATCHING MEANS

William Paul Whiteley, Jr., 4525 E. 10th Lane, Hialeah, Fla.

Filed Jan. 5, 1970, Ser. No. 587

Int. Cl. B60p 3/10

U.S. Cl. 280—405

9 Claims



A boat trailer with an adjustable support bed for a boat, said trailer having coactive guide and latch structure operative in loading and unloading the boat, the boat loaded trailer being adapted to be positioned partially submerged in shallow water with the main boat support surfaces under the water to permit the boat to be floated onto or off of the trailer. Coactive latch structure on the boat and trailer permits semiautomatic latching together of the boat and trailer during the boat loading procedure. The latch means may be arranged in an unlatched disposition preparatory to launching the boat into the water. The trailer vehicle of the invention includes also wheel members mounted as a wheeled bogie unit which is adjustable relative to the fore and aft extension of the trailer. The wheel members each is provided with independent wheel suspension means, including torsion bar spring means.

3,632,141

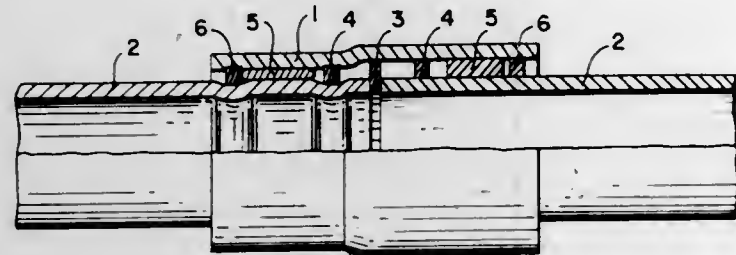
ARRANGEMENT FOR JOINING A SLEEVE WITH A TUBE

Gunnar Larsson, Helsingborg, Sweden, assignor to AGA-Platforadling Aktiebolag, Helsingborg, Sweden
 Filed Sept. 19, 1969, Ser. No. 859,265
 Claims priority, application Sweden, Sept. 19, 1968, 12603/68

Int. Cl. F16I 35/00

U.S. Cl. 285—24

29 Claims



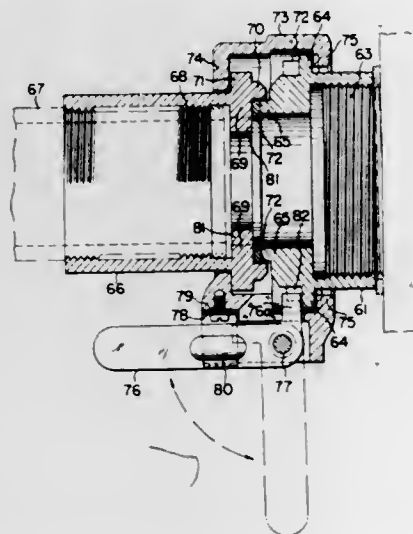
A tubular joint having a sleeve formed tightly onto a tube by compression of the latter onto the former. The joint includes, in order from the inside of the tube outwardly, a support section for guiding the inner end of the tube, a sealing ring and an outer support section located adjacent the sealing ring. Either one of or both of the support sections may be integral with the sleeve or formed as a ring located between the tube and the sleeve. After assembly of all elements, the sleeve is compressed onto the tube to form the permanent joint.

3,632,142
PIPE-COUPLING DEVICE

Kiyoshi Ichihara, 11-15, 2-chome, Nakane, Meguro-ku, Tokyo, Japan
 Filed Apr. 2, 1970, Ser. No. 25,012
 Claims priority, application Japan, Apr. 5, 1969, 44/30918
 Int. Cl. F16I 19/00

U.S. Cl. 285—88

3 Claims



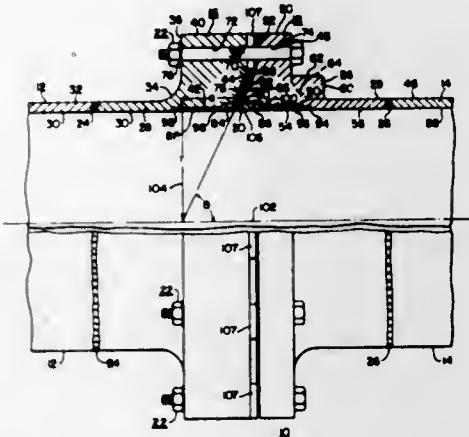
A first pipe coupler member secured to one end of a hose pipe is pressed into connected state against a second pipe coupler member with a packing compressed therebetween by a lock collar slidably engaged at one end with the first coupler member and rotated into lock engagement at the other end with the second coupler member in the manner of a bayonet coupling with the aid of a retractable lever handle. The second coupler is connected previously to a port in a vessel or equipment such as a pump or to another pipe. Coupling or uncoupling of the hose pipe can be carried out thus by turning the lock collar through an angle of only about 45°.

3,632,143
BIMETALLIC COUPLING JOINT FOR TUBES OF DISSIMILAR MATERIALS

Gerald G. Lemmann, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed June 19, 1969, Ser. No. 834,709
 Int. Cl. F16I 55/00

U.S. Cl. 285—187

13 Claims



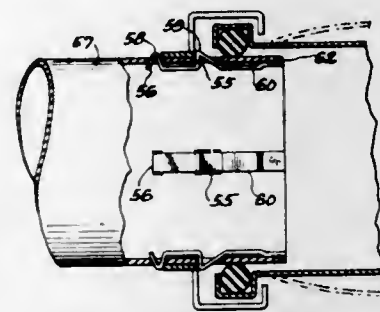
A bimetallic metallurgical joint between tubes having widely differing coefficients of thermal expansion particularly wherein one tube comprises a low-coefficient-expansion refractory metal and the other tube is of a conventional alloy. The joint is designed to maintain its integrity while accommodating repeated severe thermal cycles.

3,632,144
CONNECTOR CLAMP

Harold Shire, Los Angeles; Ira R. Newman, Lakeview Terrace, and Robert S. Allison, San Gabriel, all of Calif., assignors to General Connectors Corporation, Burbank, Calif.
 Filed Dec. 19, 1969, Ser. No. 886,492
 Int. Cl. F16I 21/00

U.S. Cl. 285—231

9 Claims



The invention is a generally cylindrical split ring adapted to tightly embrace a thin-walled tube. The ends of the clamp have constricting means for decreasing the diameter of the split ring in order to cause it to tightly embrace a tube. The ring is provided with a plurality of channel-shaped claws designed to embrace the cylindrical ribs of a slip joint connector, whereby the thin-walled tube and slip joint connector are releasably held in longitudinally fixed relationship.

3,632,145
SEMI-AUTOMATIC KINGPIN LOCKING MECHANISM

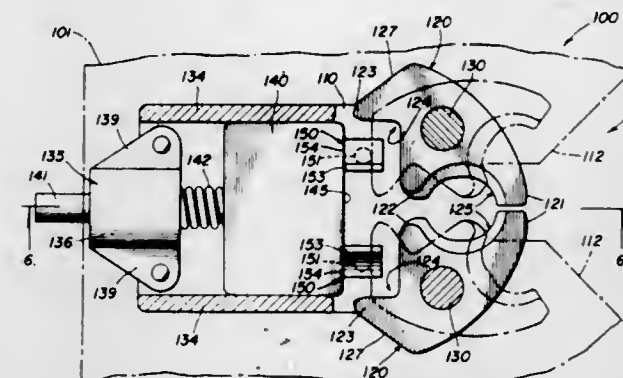
Edward L. Davis, Chicago, Ill., and Leslie Becsey, East Chicago, Ind., assignors to General American Transportation Corporation, Chicago, Ill.
 Filed Mar. 25, 1970, Ser. No. 22,642
 Int. Cl. F16b 9/00

U.S. Cl. 287—20.5 R

7 Claims

A semiautomatic kingpin-locking mechanism comprises a hollow head including a slotted support plate defining a

home position for an associated kingpin, a pair of opposed spaced-apart locking jaw members pivotally mounted on the plate for movement between locking and unlocking configurations about the kingpin, a block movable among forward and intermediate and rearward positions respectively restraining the jaw members in their locking and unlocking configurations and permitting movement of the jaw members to their locking configurations, and a pair of triggers movable



between holding and releasing conditions for respectively holding the block in its rearward position and permitting movement of the block among its various positions, the jaws in their unlocking configurations respectively engaging the triggers and moving them to their releasing conditions; a slide bar may be connected to the block for effecting movement thereof from without the head.

3,632,146
PANEL JOINING STRUCTURES

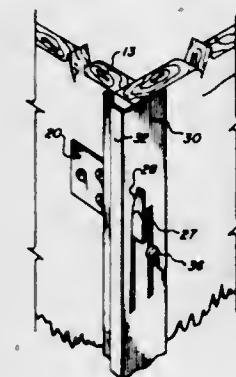
Robert Y. Buzby, Edina; John T. Hammang, Fridley; Ronald A. Hudak, Anoka, and Harry C. Osbold, Minneapolis, all of Minn., assignors to Hauenstein & Burmeister, Inc., Minneapolis, Minn.

Filed Jan. 20, 1970, Ser. No. 3,716

Int. Cl. F16b 5/07

U.S. Cl. 287—20.924

12 Claims



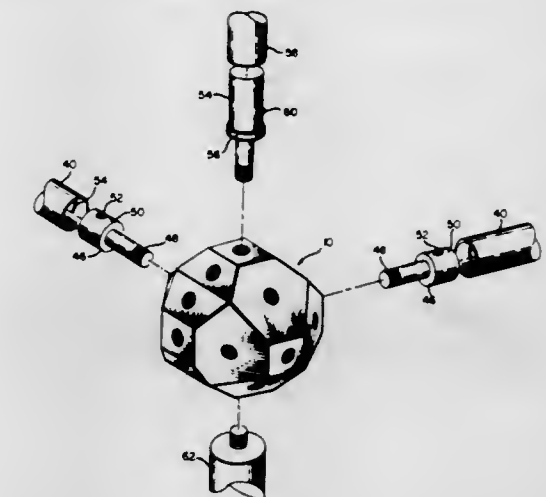
An improved panel joining structure for panel assemblies of the modular-type to facilitate construction or assembly of the panels. The structure includes flange members mounted on the side edge of a panel to be connected to another panel in a normal or perpendicular relationship. The flange members each include a camming notch therein with a straight portion for locking of the structure in assembled relationship. The panel to be joined has an elongated locking member extending along the extent of the side of the panel with a plurality of pairs of slots therein, one slot of each pair having a camming surface thereon adapted to fit over the slotted camming surface in the flange members and move the panels to assembled relationship. The second slot of the pair is a straight sided mounting slot permitting the locking member to be slidably moved on the panel being joined.

3,632,147
MODULAR FRAME STRUCTURE AND CONNECTOR

Julie Finger, 156 South Gardner Street, Los Angeles, Calif.
 Filed Apr. 2, 1970, Ser. No. 25,218
 Int. Cl. F16b 2/16

U.S. Cl. 287—189.36

6 Claims

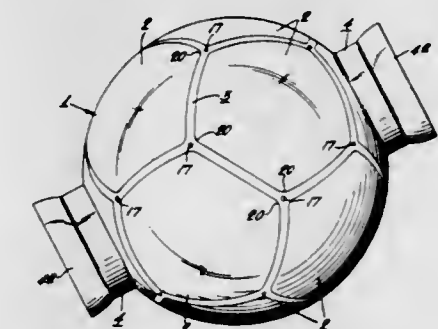


A modular frame structure and connector is provided in which the connector contains a plurality of pairs of diametrically opposed openings which are each female receptacles for receiving and holding a corresponding male plug. A first pair of these openings defines an axis of the connector. A first plurality of the pairs of openings are positioned around the center of the connector with the axes of these openings being coplanar. The central plane so defined is normal to the axis of the connector and substantially divides the connector into equal halves. A second plurality of pairs of openings is provided one end of which lies between the above-mentioned central plane and one of the axial pair of openings of the device. The other end of this plurality of openings lies between the central plane and the other axial opening. A plug is provided which has two ends, one of which is a male plug adapted to mate with the female openings in the connector. The other end of the plug is adapted to connect to the frame members.

3,632,148
WELDED JOINT AND METHOD OF FABRICATING SAME

Daniel C. Garber, Overbrook Hills, Pa., assignor to Sun Shipbuilding & Dry Dock Company, Chester, Pa.
 Filed July 10, 1970, Ser. No. 53,779
 Int. Cl. B63c 11/00; B65d 7/02; E04b 1/32
 U.S. Cl. 287—189.36

13 Claims



A lattice-type framework which is designed to withstand large compressive forces is fabricated from spokelike members or struts which are welded together at their ends. Each welded joint involves three members each having intersecting surfaces forming a "V" at the end to be joined, the members being assembled into a wye configuration and then welded together along the three pairs of mated surfaces. A tapered

bore centered at the common point of intersection of all of the surfaces is drilled through the joint, and a tapered element (made from the same metal as the members, e.g., titanium is lapped and driven into this bore.

3,632,149

CONNECTION FOR PREFABRICATED SHEETS

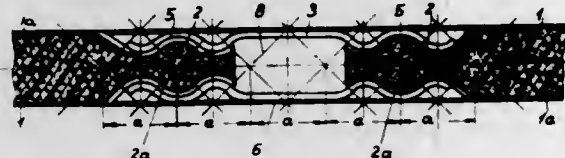
Gustav König, Doffingen, Kapellenbergstr. 77, Württemberg, Germany

Filed Jan. 9, 1968, Ser. No. 696,571

Claims priority, application Germany, Jan. 4, 1967, K 61168
Int. Cl. F16b 5/00

U.S. Cl. 287-189.36D

12 Claims



A building or structural assembly comprising boards held in spaced relationship between one another by connection plates and/or spacing material wherein the edges of the boards have undulated or wavy formations which are matched with similar undulations and formations of the connecting plates, said connecting plates being joined with the boards by the matching of the undulations by any suitable means such as screws, rivets or adhesives. A covering may be provided over the undulations of the boards and connecting plates to give the appearance of a plain smooth wall surface. The connection plates may also be formed and provide for latterly extending window constructions, at least one of which may be hingeable to the wall structure and guide surfaces for slidable doors. The boards may be press-formed with spacing material and the connection plates can be press-formed therewith.

3,632,150

DETACHABLE COMPONENTS FOR A CHAIR

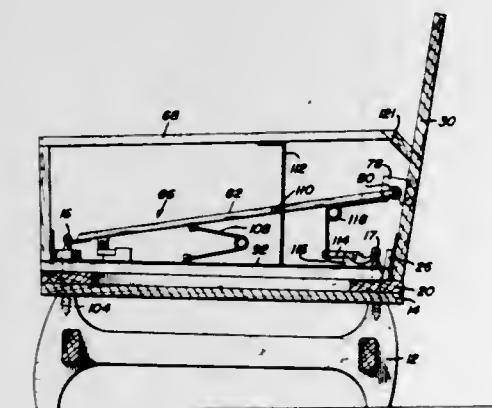
Joseph Milakovich, 5120 Comanche N.E., Albuquerque, N. Mex.

Filed Sept. 16, 1969, Ser. No. 858,489

Int. Cl. F16b 13/10

U.S. Cl. 287-20.926

4 Claims



A chair which includes a base having guide pins extending upwardly. A seat includes apertures therein which slip over the guiding pins in the base so as to position the seat on the base. A backrest is provided which has a ratchet projection for engaging a releasable latch in the seat. Arms for the chair are hollowed to contain clamping devices for clamping the armrest to the seat. Assembly and disassembly of the aforementioned components can be performed manually, without the aid of tools.

3,632,151

FISH-CLAMPING IMPLEMENT

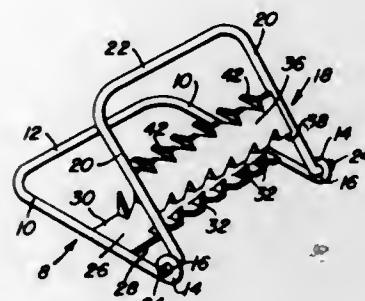
Lawrence F. Wosnitzky, 729 2nd Street North, Texas City, Tex.

Filed June 2, 1969, Ser. No. 829,474

Int. Cl. B65g 7/12

U.S. Cl. 294-16

2 Claims



A wholly portable manually usable implement for clamping and holding a fish by its tail while it is being scaled, skinned, dressed, cut up for cooking or while carrying it about. It comprises a pair of simple hinged united U-shaped frames, or units provided with confronting plates whose lengthwise edges are provided with tail-gripping, antislipping teeth.

3,632,152

HINGED CLAMP

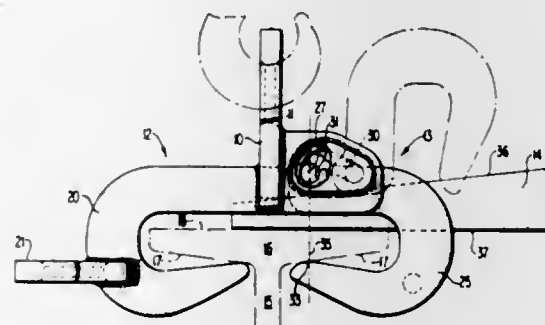
Charles J. Renfro, Jacksonville, Fla., assignor to J. C. Renfro & Sons, Inc., Jacksonville, Fla.

Filed Apr. 24, 1970, Ser. No. 31,508

Int. Cl. B66c 1/34

U.S. Cl. 294-85

10 Claims



A hinged clamp for engaging the flange of a beam comprising first and second complementary clamping members, each of which has a spaced pair of hooks in mutually opposed relationship when the clamping members are in a clamped position. One of the clamping members is rigidly attached to a hoist plate which has a load supporting means thereon. The second clamping member is movable between a clamping position in complementary alignment with the other clamping member engaging the inner sides of the flange of a beam, and an open position disengaged from the flange. To lock the clamp against movement relative to the beam, a wedge is driven between the beam and the clamp at a point between the spaced pair of hooked clamps.

3,632,153

HARD PANEL FOLDOUT BUNK SHELTER

Keith W. Knudsen, 1066 Campbell Street, Neenah, Wis.

Filed May 18, 1970, Ser. No. 38,448

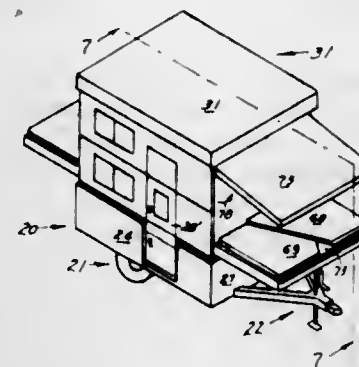
Int. Cl. B60p 3/34

U.S. Cl. 296-23 R

11 Claims

A collapsible foldout bunk shelter, extendable from a camper trailer, comprising a floor movable externally

through an opening in a wall of said trailer, having stable, hard and impervious wall panels foldable and collapsible over material which has flange portions at at least some of the peripheral edges thereof and is secured to the front seat of



said floor, and a stable, hard and impervious roof panel for such wall panels.

3,632,154

HEAT-RETAINING PARTITION FOR AUTOMOTIVE VAN

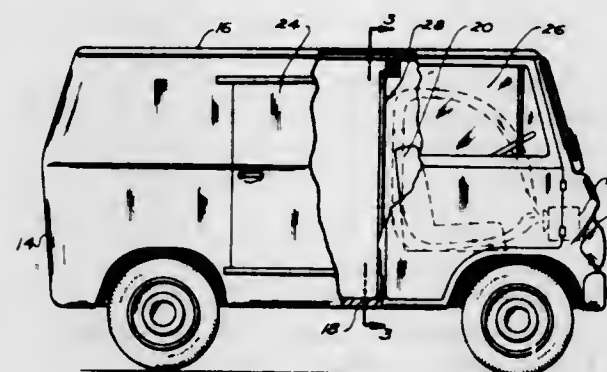
Paul F. Woodrich, 3459 Fairmount Blvd., Cleveland, Ohio

Filed June 29, 1970, Ser. No. 50,636

Int. Cl. B62d 33/06

U.S. Cl. 296-24

15 Claims



An automotive van having a heat-retaining partition disposed to define an operator's compartment within the front portion of the van. The partition includes a wall constructed of a material exhibiting the characteristics of being generally flexible and transparent, and which extends from the ceiling to the floor of the van at a position behind the operator's seat. The partition wall is removably attached to the ceiling and to the floor thereby substantially preventing the transfer of heat into and out of the operator's compartment.

3,632,155

AUTOMOBILE WITH ROBBERY PREVENTION PARTITION

Marvin L. Parker, 11725 Strathmore Avenue, Detroit, Mich.

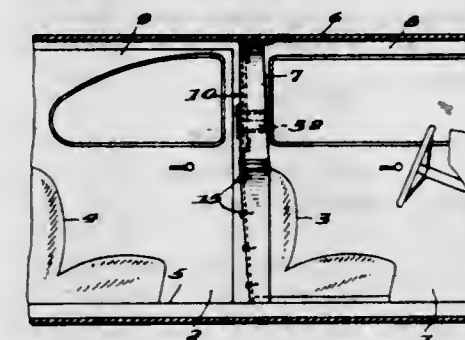
Filed Dec. 31, 1969, Ser. No. 889,363

Int. Cl. B60r 27/00

U.S. Cl. 296-24

12 Claims

A robbery prevention shield located between the front and rear seats of an automobile and bridging the space between the floor, roof and opposite door posts of the automobile. The shield includes an upright unitary wall of bullet resistant



the automobile for adjustment therewith. The shield has a sliding door with an opening for passage of money.

3,632,156

FUN BUGGY VEHICLE

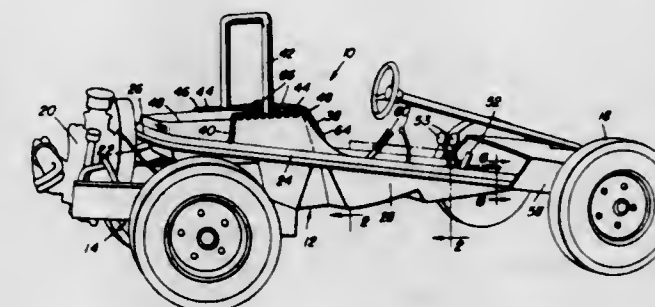
Frederick G. Schweser, P.O. Box 5 West Military Rd., Fremont, Nebr.

Filed Aug. 7, 1969, Ser. No. 848,279

Int. Cl. B62d 29/04

U.S. Cl. 296-31 P

6 Claims



This invention is a one-piece fun buggy or dune or beach buggy vehicle body insert for use with a vehicle chassis having spaced-apart chassis side bars, the buggy insert body having outwardly extending inverted side channels complementary to the chassis bars to support the vehicle body insert on such bars. In addition, the buggy floor and seat bottoms depend from the inverted side channels, so that the weight of the occupants is mainly suspended below the chassis side bars rather than supported thereabove as customary.

3,632,157

AUTOMOBILE REAR SEAT AND INTERIOR SIDE PANEL ASSEMBLY

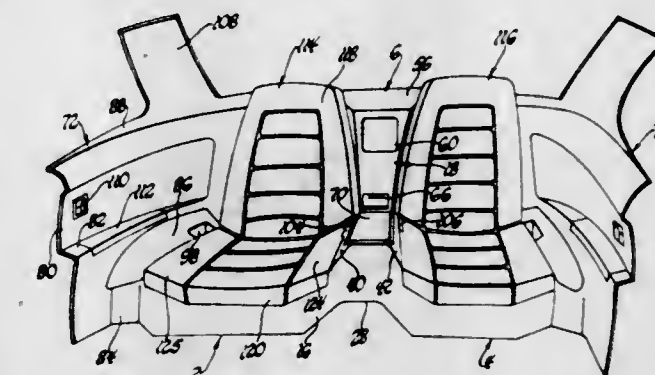
Thomas E. Lohr, Warren, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Sept. 4, 1969, Ser. No. 855,195

Int. Cl. B60n 1/00

U.S. Cl. 296-31 P

8 Claims



An automobile rear seat and interior side panel assembly including a unitary seat-supporting member of rigid urethane

foam having a pair of seat walls formed therein and separated by an integral central divider. One-piece interior side panels are provided on each side of the seat-supporting member of rigid urethane foam, and an elastomeric urethane foam seat is received in each seat well.

3,632,158

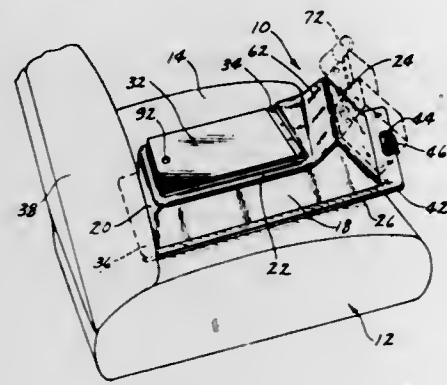
VEHICLE CONSOLE

Arlas L. Boothe, Indianola, Iowa, assignor to Auto Safety, Inc., Des Moines, Iowa

Filed Nov. 12, 1969, Ser. No. 875,932

Int. Cl. B60r 7/00

U.S. Cl. 296—37 R



A console adapted to be placed on a vehicle seat with a lip on the lower end extending between the back and seat portions and the front end being engaged by a fastener extending downwardly and rearwardly into engagement with the under front side of the vehicle seat to maintain the console in place on the vehicle seat. A lid is pivotally connected to the top of the unit and when pivoted to an open position, provides a writing surface for the operator of the vehicle and also access into the chamber. The front end of the unit includes a top portion which tapers upwardly and merges into a front wall which extends downwardly and forwardly and the front end is angularly arranged so that the top portion will face the operator of the vehicle and so that communication controls on the top portion and on the front end wall will face the operator of the vehicle as well as provide a rest for the lid when pivoted to an open position.

3,632,159

CANTILEVER VEHICLE DRIVER'S SEAT

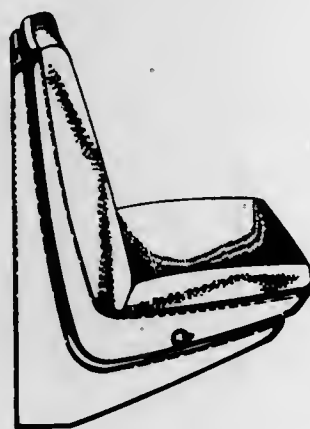
Chester J. Barecki, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed May 13, 1970, Ser. No. 36,843

Int. Cl. B60n 1/00

U.S. Cl. 296—63

10 Claims



A cantilever base frame has a vertical back attached to and suspended upon a vehicle front wall with a forwardly extending seat support portion connected to the back by inclined

struts and the seat is slidably carried on the support which is also inclined upwardly to raise the seat as it is advanced.

3,632,160

SLIDING ROOF CONSTRUCTION FOR A MOTOR VEHICLE

Albert Schlapp, Spremlingen, Germany, assignor to Firma H. T. Golde GmbH, Frankfurt, Main, Germany

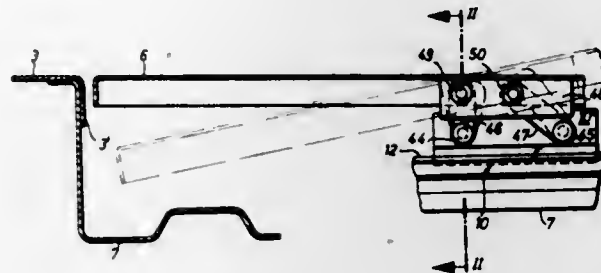
Filed Nov. 17, 1969, Ser. No. 877,103

Claims priority, application Germany, Nov. 16, 1968, P 18 09 332.8

Int. Cl. B60j 7/04

U.S. Cl. 296—137 F

5 Claims



A cover for a roof opening in a motor vehicle is supported on a pair of guide rails mounted on a frame attached to the interior surface of the roof. At its forward end on each of its longitudinally extending sides, the cover is secured by a pair of links and a slide member into the guide rails. The links which permit pivotal movement of the cover when it is displaced from its closed position, are spaced apart in the longitudinal direction of the guide rails with the forward link being shorter than the rearward link. When the cover is in the closed position the forward link is perpendicular to the guide rail while the rearward link forms an acute angle with the guide rail and converges toward the forward link as it extends toward the cover.

3,632,161

SIDE ARM STOWABLE TABLE

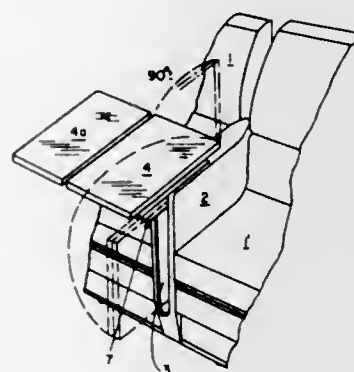
George Arfaras, Newtown; Reni J. Brunelle, Waterbury, and Robert J. Richardson, Litchfield, all of Conn., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed July 13, 1970, Ser. No. 54,268

Int. Cl. A47c 7/70

U.S. Cl. 297—145

5 Claims



A foldable and stowable table is provided in the side arm rest of a vehicle seat or chair in a manner to be entirely out of the way when stored but readily unfolded and usable as a cocktail or meal table. A preferred embodiment has a compression spring in combination with a hinge support portion so as to permit an initial release and a partial outward movement of the table from within a storage space.

3,632,162

CHAIR FOR THE HANDICAPPED

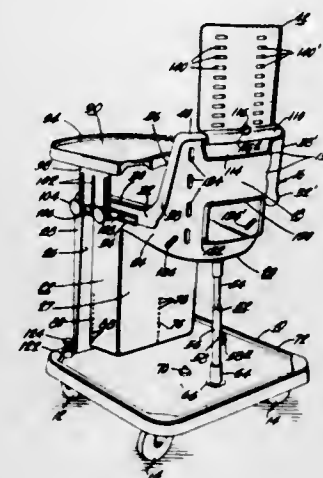
Edward J. Trethaway, 116 Salem Drive, Ithaca, N.Y.

Filed Mar. 12, 1970, Ser. No. 19,006

Int. Cl. A47b 39/00; A47c 1/10, 7/02

U.S. Cl. 297—149

14 Claims



A unitary structure is molded from resinous impregnated fabric material to provide a back, seat and front leg portions with side flanges which together form a channel for containing parts of the body of a handicapped user. The unitary structure is supported on a stable base by the front leg portions which preferably provide a hingedlike effect due to the flexibility of the impregnated fabric material. The base may be a wheeled dolly with suitable braking means. Further support is provided by an adjustable length rear leg, extending between the base and the rear of the seat portion. The channel-shaped unitary structure preferably had additional oppositely directed reinforcement channels sharing in common the side flanges along each side. In addition to other reinforcement there are preferably provided a detachable headrest and adjustable and detachable tray and footrest members.

3,632,163

ADJUSTABLE SWINGING TRAY FOR HIGH CHAIRS

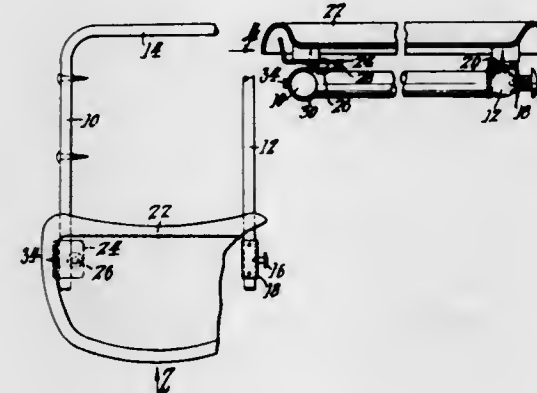
Benjamin K. Burnham, Gardner, Mass., assignor to Thayer, Inc., Gardner, Mass.

Filed Sept. 17, 1970, Ser. No. 73,096

Int. Cl. A47c 7/68

U.S. Cl. 297—155

6 Claims



In combination with the arms of a high chair, a tray having a detachable snap connection with respect to one arm and a removable and adjustable swinging bracket connecting the tray to the other arm so that the tray is swingable in a compound manner on arcs having axes generally parallel to the arm to which it is secured and also on an axis at right angles thereto.

3,632,164

VEHICLE SEAT HAVING AN IMPROVED SEAT COVER ATTACHMENT SYSTEM

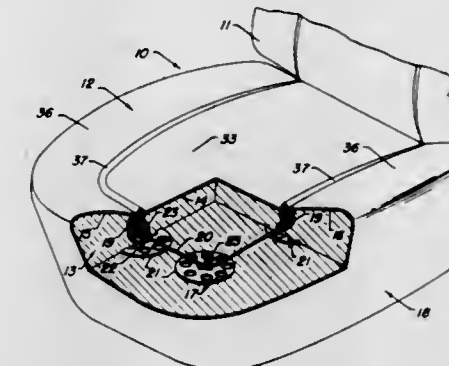
Arthur O. Radke, Milwaukee, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Apr. 2, 1970, Ser. No. 25,043

Int. Cl. A47c 31/02

U.S. Cl. 297—219

9 Claims



In a vehicle seat, the improvement comprising a plurality of isolated anchor means embedded in a resilient foam cushion below the seating surface of the cushion. A seat cover is positioned in contact with the foam cushion and fastening means link the seat cover to each of the anchor means, thereby firmly attaching the seat cover to the foam cushion.

3,632,165

AUXILIARY CAR SEAT

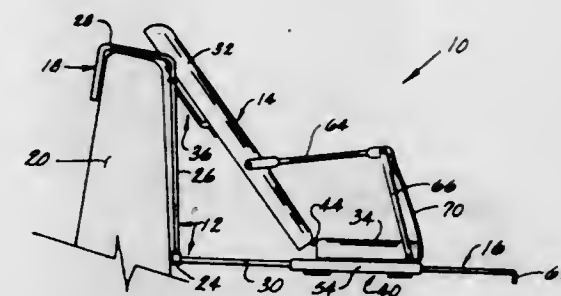
Wilbur D. Miller, Rural Route 1, Norton, Kans.

Filed Aug. 3, 1970, Ser. No. 60,314

Int. Cl. A47d 1/10

U.S. Cl. 297—254

3 Claims



An auxiliary car seat is provided mountable with the back of a vehicle seat. A frame engageable with the back of the vehicle seat supports a reclining auxiliary seat having a back and seat hinged thereto. A lock assembly is provided to hold the seat in the upright position, or in the desired reclined position.

3,632,166

VEHICLE SEAT HAVING COMBINED CONTOUR AND TILT ADJUSTMENT

Thomas E. Lohr, Warren, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed June 16, 1969, Ser. No. 833,370

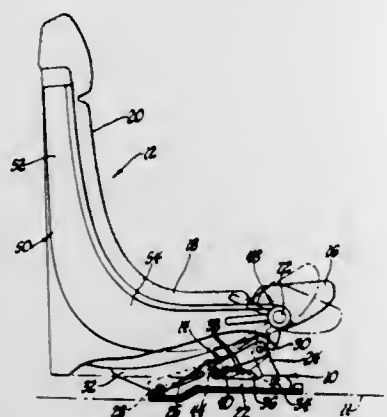
Int. Cl. A47c 3/00, 1/02, 15/00

U.S. Cl. 297—284

5 Claims

A vehicle seat assembly including a base portion adapted to be secured to a supporting surface in fixed relationship therewith with a seat mounted on the base portion for fore and aft tilting movement with respect to the base portion and means for locking the seat relative to the base portion in a selected position. The seat has a movable leg rest or thigh

supporting section which is adjustable to selectively change the contour of the seat to obtain a desired relationship the lower end of the detent out of engagement with a spring loaded latch rotor and allow the rotor to rotate under the



between the contour of the seat and the tilted position of the seat with respect to the base portion.

3,632,167

VEHICLE SEATS

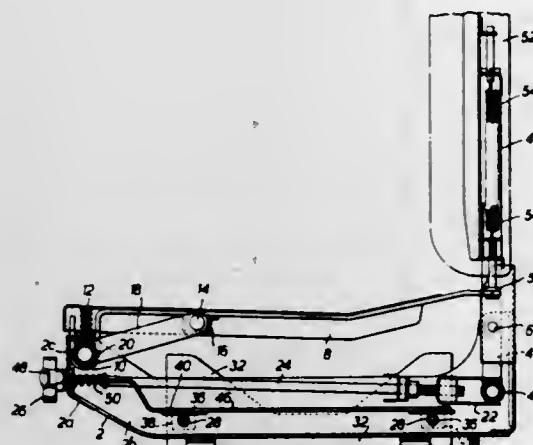
Donald Sinfeld, Olney, England, assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Jan. 21, 1970, Ser. No. 4,634

Int. Cl. B60n 1/00

U.S. Cl. 297-307

6 Claims



A seat for vehicles in which both a seat part and a back part are resiliently mounted in a frame to damp the transmission of vibration from the vehicle to the occupant of the seat. The seat part moves both vertically and pivotally about a horizontal axis.

3,632,168

SEAT BACK LATCH

Joseph G. Barelli, Detroit; Donald K. Keller, Grosse Pointe Farms, and Anthony S. Rish, Detroit, all of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Nov. 17, 1969, Ser. No. 877,338

Int. Cl. B60n 1/04

U.S. Cl. 297-379

3 Claims

A latch for the pivotal seat back of a motor vehicle seat comprising a button positioned in an aperture in the outboard face of the outboard hinge arm of the seat back and having an inwardly extending push rod which pushingly engages the upper end of a pivotally mounted detent to pivot

urging of its spring to an unlatched position with respect to a striker pin carried by the seat cushion.

3,632,169

VEHICLE CHAIR UNIT

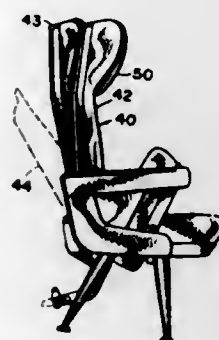
Chester J. Barecki, Grand Rapids, and Kenneth W. Hoesaki, Grandville, both of Mich., assignors to American Seating Company, Grand Rapids, Mich.

Continuation-in-part of application Ser. No. 792,031, Jan. 17, 1969. This application May 15, 1970, Ser. No. 37,727

Int. Cl. A47c 7/54; B60n 3/06

U.S. Cl. 297-425

4 Claims



A vehicle chair has a pair of arms projecting rearwardly from the chair base, a pad pivotally supported on the rear of said arms for movement to a generally vertical position and to horizontal position forwardly and rearwardly of the pivot, and a spring normally biasing the pad to vertical position.

3,632,170

MODULAR FURNITURE

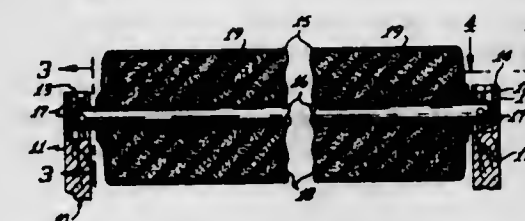
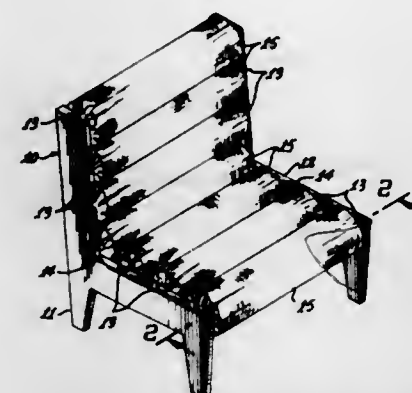
Jack C. Witt, 3721 N. 7 Street, Phoenix, Ariz.

Filed July 24, 1970, Ser. No. 58,045

Int. Cl. A47c 7/00, 7/20

U.S. Cl. 297-445

4 Claims



Modular furniture formed by the use of spaced-apart supports on which are placed a plurality of replaceable tubular seat and back members.

3,632,171

METHOD OF CONTROLLING GROWTH OF BRINE WELLS

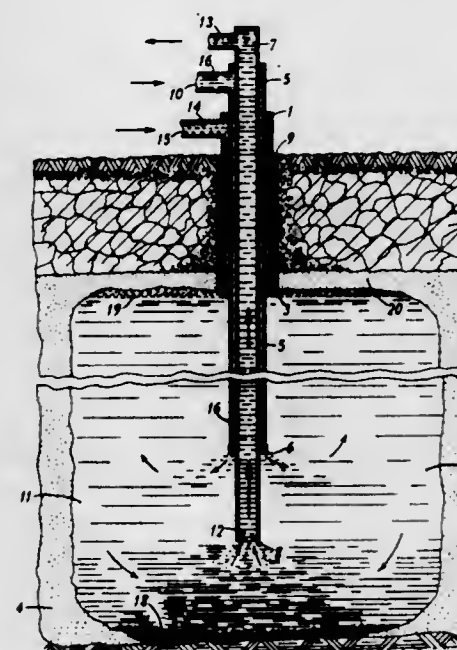
Gordon Blair French, Mendham, N.J., and Michael Slezak, Tully, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Feb. 4, 1970, Ser. No. 8,652

Int. Cl. E21b 43/28

U.S. Cl. 299-5

6 Claims



A method of solution mining of soluble salt and mineral deposits with an aqueous solvent to control the shape and dimension of a subterranean cavity, by maintaining an immiscible, liquid petroleum pad (oil pad) between the interface of the soluble deposit and the aqueous solvent used to dissolve the deposit. Since only the deposit below the petroleum oil

pad is exposed to the action of the solvent, the shape of the cavity can be readily controlled by periodically raising the level of the oil pad in the well. The present process provides an improved method for solution mining whereby the depth and width of the well cavity is optimized for maximum life and minimum pumping costs.

3,632,172

METHOD OF AND APPARATUS FOR WEAKENING ICE FOR ASSISTING AN ICEBREAKER

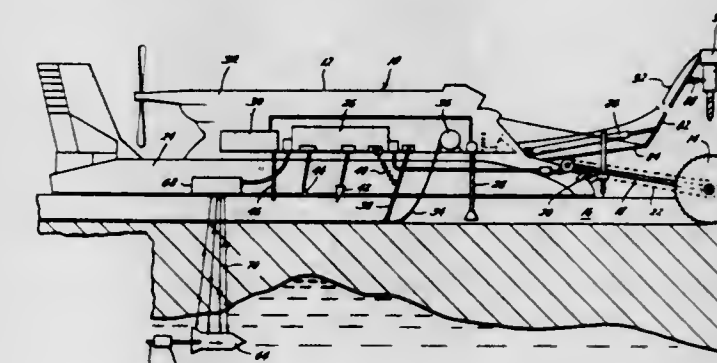
Charles L. Robinson, and Frank Clynch, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed July 17, 1969, Ser. No. 842,454

Int. Cl. B63b 35/08

U.S. Cl. 299-13

21 Claims



A self-powered vehicle is disclosed for moving across the ice ahead of an icebreaker and carrying trench-cutting means for cutting a trench along the path of travel of the icebreaker and carrying means for placing an explosive cord in the trench which can be exploded for weakening the ice. An air cushion vehicle carries a rotary saw and means for removing ice cuttings from the trench made by the saw with means for melting part of the ice cuttings for backfilling along the trench after inserting an explosive cord therein. Drill means are carried by the air cushion vehicle for drilling spaced holes along the ice for additional explosive charges. An elongate pipe has at least one opening in the wall or bottom end thereof for insertion into spaced drilling holes adjacent the trench with seal means normally covering the openings and an air supply means carried by the vehicle and connected to the pipe for building up pressure therein for rupturing the seal means and creating an airblast adjacent the trench. A buoyant fish is adapted to float under the ice and tow a length of buoyant explosive cord connected thereto with control and/or motivation means carried by the vehicle for controlling the direction of movement of the fish thereby towing the explosive cord beneath the ice in the desired direction. Additional floating explosive charges are connected along the explosive cord.

3,632,173

PNEUMATIC CONVEYING APPARATUS AUTOMATICALLY OPERABLE SUCCESSIVELY FOR WEIGHT RESPONSIVE FILLING, AND FOR ACTIVATION, DISCHARGING, PURGING, AGAINST BACK PRESSURE, AND VENTING

Brian R. Reuter, Houston, Tex., assignor to Consolidated Engineering Company, Houston, Tex.

Continuation-in-part of application Ser. No. 518,353, Jan. 3, 1966, now Patent No. 3,355,221, dated Nov. 28, 1967 which is a continuation-in-part of Ser. No. 686,018, Nov. 28, 1967, abandoned, continuation-in-part of Ser. No. 822,126, May 6, 1969, Pat. No. 3,549,206

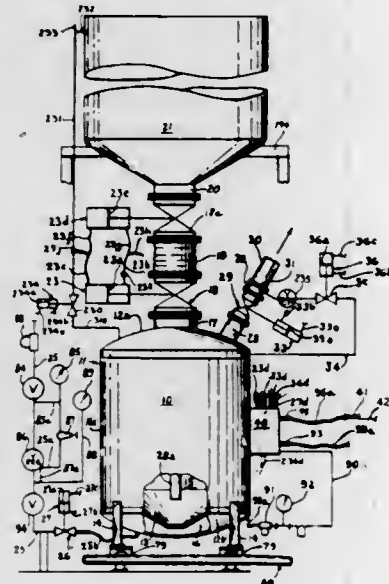
Int. Cl. B65g 53/00

U.S. Cl. 302-3

2 Claims

The disclosure is of pneumatic conveying apparatus that includes a pneumatic conveying pressure vessel with continuity from parent, now patented apparatus of U.S. Pat. No.

3,355,221. The pressure vessel is automatically operatable successively to actuate a fill valve to let air flowable materials thereinto and to close the fill valve and open the air valve to activate the material responsive to a signal proportionate in degree to a predetermined weight having been attained, then,



successively as pressure falls to close air supply and open discharge, then to close discharge and open purge, then to open vent as back pressure from container being discharged into equals falling purge pressure, and then to start cycle again as atmospheric is approached.

3,632,174

PNEUMATIC DISCHARGE ARRANGEMENT FOR HOPPERS

Roy W. Miller, Highland, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Sept. 15, 1970, Ser. No. 72,469
Int. Cl. B65g 53/06, 53/14

U.S. Cl. 302-27

11 Claims

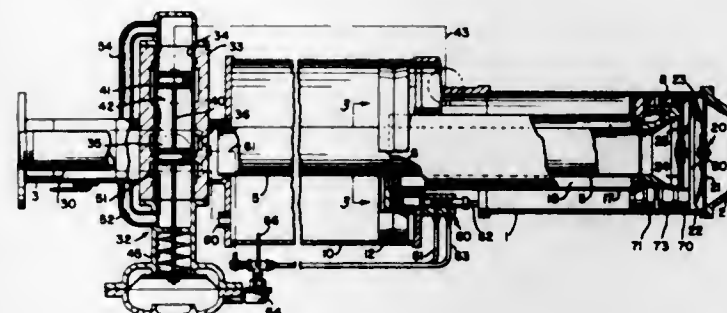


A hopper discharge arrangement includes a housing having a plurality of compartments and a material receiving trough therebeneath adapted to be connected to pneumatic conveying means. Each compartment is provided with a valve operable selectively to provide communication with the trough for selective discharge. Valve operating means includes a rotatable and slidable shaft including toggle linkage means in each compartment which is actuated by sliding or indexing movement of the shaft to provide for operative interengagement of an actuating element with said toggle linkage means.

3,632,175
PNEUMATIC CONVEYING APPARATUS
Paul Ervin Solt, Allentown, Pa., assignor to Fuller Company
Filed May 18, 1970, Ser. No. 37,998
Int. Cl. B65g 53/40

U.S. Cl. 302-36

9 Claims



A pneumatic conveying apparatus which includes a housing having an inlet for material to be conveyed and an outlet. A tubular member is slideably mounted in the housing and serves as a conduit for conveying the material from the inlet to the outlet. A gas pressure operated piston-cylinder arrangement is used to reciprocate the tubular member. As the tubular member reciprocates, a reduced pressure zone is created at the inlet to drawing material into the housing and charge the apparatus. Air exhausted from the piston-cylinder arrangement is used to convey the material. Suitable valving is provided to conduct gas under elevated pressure to opposite sides of the piston to reciprocate the piston and tubular member and direct most of the gas exhausted from the piston-cylinder arrangement to the outlet of the pump to convey the material. Some of the gas exhausted from the piston-cylinder is used to convey the material through the apparatus.

3,632,176

VEHICLE WHEEL SLIP CONTROL SYSTEM AND ROAD GRADE SENSOR THEREFOR AND METHOD OF CONTROLLING WHEEL SLIP

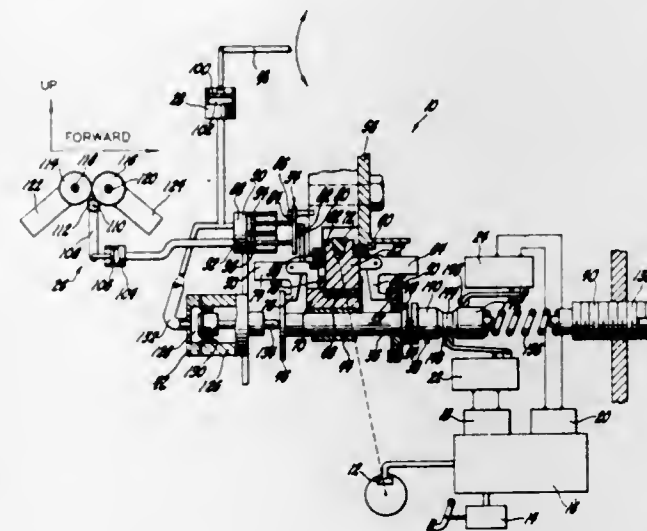
Edward G. Gaeke, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 9, 1969, Ser. No. 883,386

Int. Cl. B60t 8/16

U.S. Cl. 303-21 A

9 Claims



A vehicle wheel brake system in which vehicle and wheel speed signals are generated and utilized to generate a wheel brake pressure command signal, with a road grade sensor generating a signal reflecting the grade of the road on which the vehicle is moving. The road grade signal is used to further refine the command signal by taking into account the road grade. The system also senses brake torque and refines the

command signal by considering the effect of changes in The radial flange bears against a plane force-distributing brake torque. The command signal controls mechanism, flange which is applied against the element and is part of a which, in turn, controls the wheel/brake apply pressures.

3,632,177

MEANS FOR PREVENTING SKIDDING OF VEHICLE WHEELS

Mervyn Brian Packer, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, England

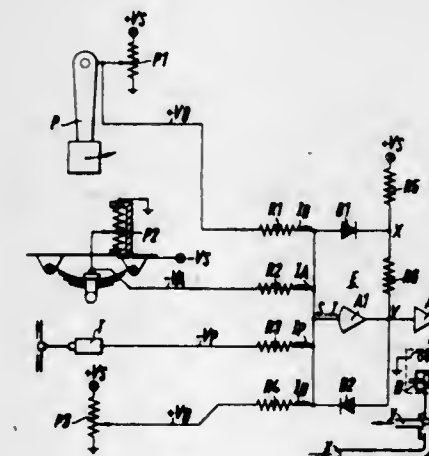
Filed Jan. 15, 1969, Ser. No. 791,231

Claims priority, application Great Britain, Jan. 15, 1968, 2,077/68

Int. Cl. B60t 8/14, 8/22

U.S. Cl. 303-21 A

1 Claim



Vehicle braking control apparatus including first, second and third transducers responsive to vehicle deceleration, axle load or displacement and antilock controlled brake pressure respectively to produce electrical signals V_D , V_A and V_P indicative thereof, a comparator device responsive to the electrical signals to produce an output signal therefrom whenever the signals at the input of the comparator bear the following relationship:

$$I_P - I_A + I_D$$

where currents I_P , I_A and I_D are proportional to voltages V_P , V_A and V_D respectively and I_n is the current proportional to a fixed bias voltage V_n , and antilock modulating solenoid operated valve means being arranged to be actuated in response to the presence of an electrical signal at the output of the comparator device.

3,632,178

COMBINED RADIAL AND THRUST ROLLING BEARING

Alfred Pitner, Paris, France, assignor to Nadella, Rueil-Mal-maison, France, a part interest

Filed June 30, 1970, Ser. No. 51,220

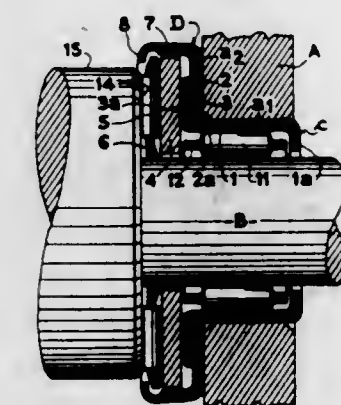
Claims priority, application France, July 9, 1969, 6923322

Int. Cl. F16c 19/04

U.S. Cl. 308-174

8 Claims

Combined radial and thrust rolling bearing comprising a cylindrical ring of the radial bearing and a radial flange connected to the ring. A localized boss defining an annular face on the flange is adapted to transmit thrust, exerted by a machine part around which the radial bearing is mounted, to an element surrounding the bearing so as to avoid concentration of thrust forces in marginal zones of thrust-transmitting means interposed between the machine part and said flange.



sleeve having a skirt portion which surrounds the thrust-transmitting means.

3,632,179

FURNITURE UNIT CONSTITUTED OF SECTIONS HELD TOGETHER BY A TENSION CABLE

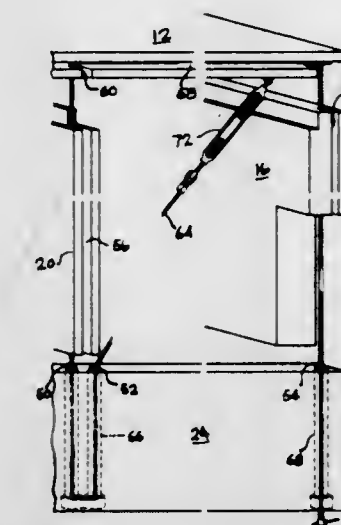
Jon D. Vredevoogd, 314 Clinton Avenue, Brooklyn, N.Y.

Filed Dec. 17, 1969, Ser. No. 885,743

Int. Cl. A47b 87/00

U.S. Cl. 312-108

13 Claims



A piece of furniture comprising a plurality of sections which are rigidly held together by a tension cable. The furniture, which may be in the form of a table, has a cable passing through the top and side sections thereof and which is provided with a turnbuckle mechanism for compressing the top and sides of the table so that the same is held together solely by compression and without the use of adhesive, nails, screws or the like. In addition, other furniture units, such as chairs, benches, tables or case pieces may be constructed according to the principles of the present invention.

3,632,180

CARRIAGE, NOTABLY FOR LABORATORY TABLE

Francois Hamville, 24 rue Lalo, Paris XVI^e, France

Filed Mar. 20, 1970, Ser. No. 21,236

Claims priority, application France, May 30, 1969, 6917754, Dec. 4, 1969, 6941847

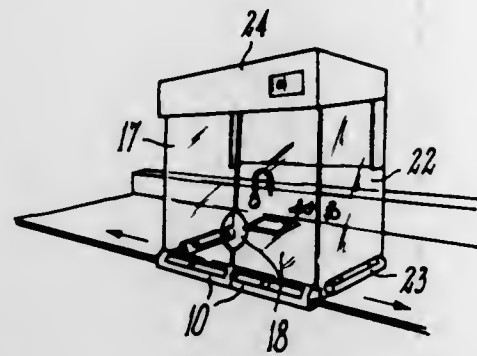
Int. Cl. B011 1/00

U.S. Cl. 312-209

11 Claims

Movable carriage adapted to equip tables, benches and other work or handling surfaces, more particularly laboratory worktables.

This carriage comprises two trains of wheels, rollers or casters, one train rolling on the table surface and being so arranged that the other train, rolling along the vertical edge of the table, remains in constant engagement with said edge,



thus acting as a guide means, irrespective of the direction in which the carriage is propelled for changing its position on the table. Thus, the carriage may have a constant position in relation to the table edge.

3,632,181

TWO-DIMENSIONAL HOLOGRAPHIC IMAGE PROJECTION SYSTEMS

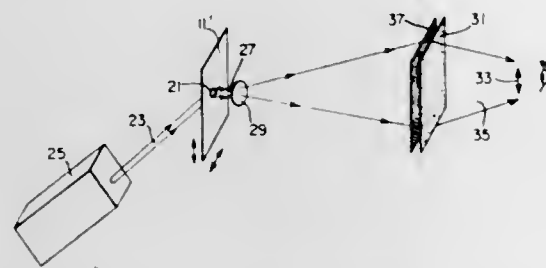
Jerald D. Lee, Wilmington, Del., assignor to Holotron Corporation, Wilmington, Del.

Filed Mar. 12, 1970, Ser. No. 19,024

Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

9 Claims



A system for projecting an image onto a two-dimensional screen from a Fresnel-type off-axis hologram constructed of a three-dimensional object. The hologram is illuminated with at least one narrow beam of reconstructing light having an area significantly smaller than that of the hologram. As the beam of reconstructing light is moved relative to the hologram, the two-dimensional image presents a changing view of the three-dimensional object. If two narrow parallel reconstructing beams illuminate the hologram, two images of the three-dimensional object are formed in a stereoscopic effect, the two images being separated from each other by distinct polarization of the two hologram reconstructing beams or by a provision of separate exit pupils. A plurality of holograms may be so reconstructed in succession to form an apparently continuously changing view of the object and has application to simulated motion relative to the object, such as that of an aircraft approaching a runway as an object.

3,632,182

METHOD AND APPARATUS FOR INTERFERENCE PATTERN RECORDING

Glenn T. Sincerbox, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y. Continuation-in-part of application Ser. No. 719,880, Apr. 9, 1968, now abandoned. This application Mar. 5, 1970, Ser. No. 16,835

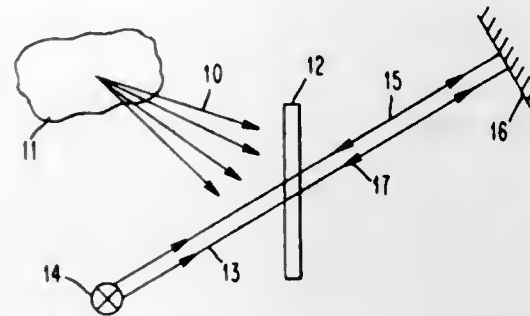
Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

19 Claims

Interference pattern recording is accomplished by simultaneous holographic and Lippmann holographic methods by

directing the otherwise wasted radiation of the noninformation modulated beam back into the storage medium. Interference again takes place with the information-bearing beam



to form another image in the medium. After processing the medium, reconstruction of the stored information is performed and a substantially stronger output image is generated.

3,632,183

HOLOGRAPHIC IMAGING BY SIMULTANEOUS SOURCE AND RECEIVER SCANNING

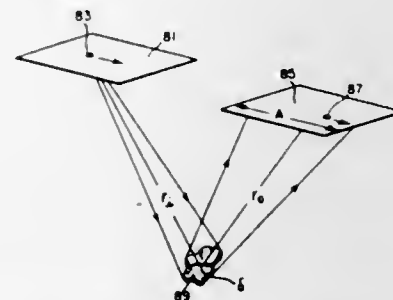
Kenneth A. Haines, Hockessin, Del., and Bernard P. Hildebrand, Kennewick, Wash., assignors to Holotron Corporation, Wilmington, Del.

Filed July 15, 1968, Ser. No. 744,732

Int. Cl. G02b 27/22

U.S. Cl. 350—3.5

25 Claims



Both a radiation source and a radiation receiver are scanned relative to an object scene under investigation for obtaining holographic information as to the scene. By relating the relative movement of the source and receiver in a predetermined manner, various characteristics of the holographically reconstructed image of the object scene may be controlled. In one embodiment, the source and receiver are locked together and scanned relative to an object scene during the construction of a hologram capable of reconstructing an image of the object scene with twice the resolution that is obtained by ordinary holographic techniques. Apparatus for carrying out this improved scanning technique is disclosed in the embodiment of ultrasonic holography wherein a hologram is constructed directly on photographic film or displayed on a cathode ray oscilloscope.

3,632,184

THREE-DIMENSIONAL DISPLAY

Michael Charles King, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J. Continuation-in-part of application Ser. No. 868,342, Oct. 22, 1969. This application Mar. 2, 1970, Ser. No. 15,380

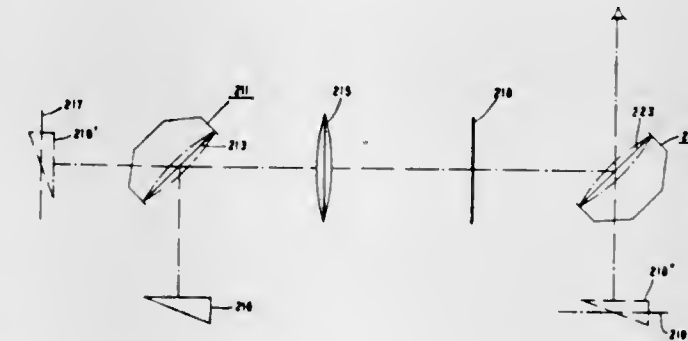
Int. Cl. G02b 23/00

U.S. Cl. 350—9

12 Claims

A varifocal mirror is typically comprised of a thin aluminumized Mylar film that is stretched over a loudspeaker driven sinusoidally at low frequencies. When an object is placed a short distance from the film and the film is oscillating

lated, the position of the image of the object in the mirror will be constantly swept back and forth in the image space with an amplitude typically several times the mirror displacement. In the system herein described a first varifocal mirror is used to sweep an image of a three-dimensional scene through the first of a pair of conjugate planes of a large aperture, low f -number lens. Inasmuch as such a lens has a small depth of focus, only one depth plane of the scene at a time will be in focus at the second of the pair of conjugate planes of the lens. Thus, as the varifocal mirror oscillates, the images of a series of two-dimensional depth planes are formed at the second conjugate plane. These two-dimensional



sional images are then viewed through a second varifocal mirror vibrating at the same frequency as the first mirror but 180° out of phase. Consequently, this mirror forms a series of two-dimensional virtual images each located in the correct depth plane so as to re-create the original three-dimensional scene. By recording the images formed at the second conjugate plane of the low f -number lens and then projecting them at the second varifocal mirror this system can be used for three-dimensional television or movies. By using a microscope to form the image that is swept through the first conjugate plane of the lens, this system can be used in three-dimensional microscopy. Alternatively, varifocal lenses can be used in place of the varifocal mirrors.

3,632,185

TELESCOPING CONCAVE PROJECTION SCREEN

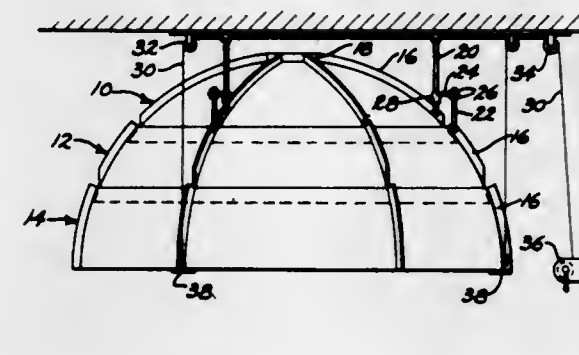
Howard Allen Meador, 5317 East Boulevard N.W., Canton, Ohio

Filed Nov. 17, 1969, Ser. No. 877,370

Int. Cl. G03b 21/58

U.S. Cl. 350—125

10 Claims



A projection system using an image forming light transmitting globe over a light source to project the image onto a telescoping concave projection screen centered with respect to the light source and preferably formed in three sections which telescope upwardly when not in use to a position adjacent the ceiling of a room.

3,632,186

CLOSEUP STEREOSCOPIC SLIDE VIEWER

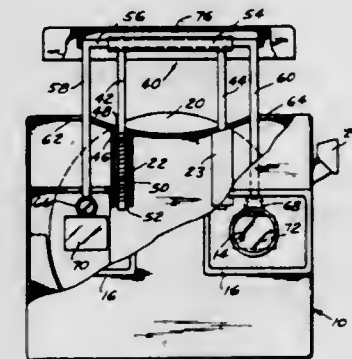
David Kahn, Yellowbrook Road, R.D. 2, Box 59, Farmingdale, N.J.

Filed Sept. 4, 1970, Ser. No. 69,838

Int. Cl. G02b 27/22

U.S. Cl. 350—133

5 Claims



There is disclosed a slide viewer wherein a slide is interposed in a housing supporting a viewing lens and a translucent window. Movably supported between the viewing lens and the slide is an enlarging lens which is movable over different regions of the slide for obtaining enlarged views of portions of the slide.

3,632,187

LIGHT DEFLECTOR AND SCANNER

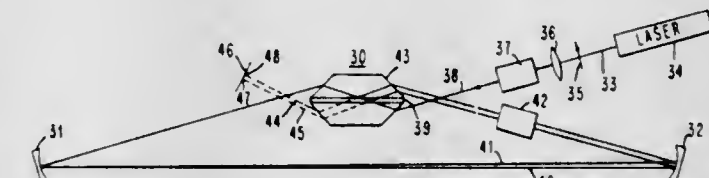
Millard A. Habegger, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 5, 1969, Ser. No. 874,173

Int. Cl. G02l 3/00

U.S. Cl. 350—150

8 Claims



Light deflection and scanning apparatus employing a non-reciprocal optical device as a part of an optical circulator. The device has the property that if light is projected to it in one direction it is totally reflected and if it is projected in a second direction it is totally transmitted. By employing this device, optical energy may be coupled into and out of the circulator. The circulator is adjusted so that the optical energy follows a slightly off axis path with each revolution. Electro-optic means of a segmented type are provided in the path of the light in the circulator. The segments are individually controllable for selecting the location of exiting of the light from the circulator.

3,632,188

FIVE COMPONENT ZOOM LENS

Souichi Nakamura, Kamakura-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Dec. 18, 1969, Ser. No. 886,128

Claims priority, application Japan, Dec. 23, 1968, 43/93732

Int. Cl. G02b 15/14

U.S. Cl. 350—186

1 Claim

An objective lens comprising a first group consisting of negative and positive components. When focusing is made, the negative component moves toward the object point and simultaneously, the positive component is moved in the same

3,632,197

VIEWING METHOD AND MEANS

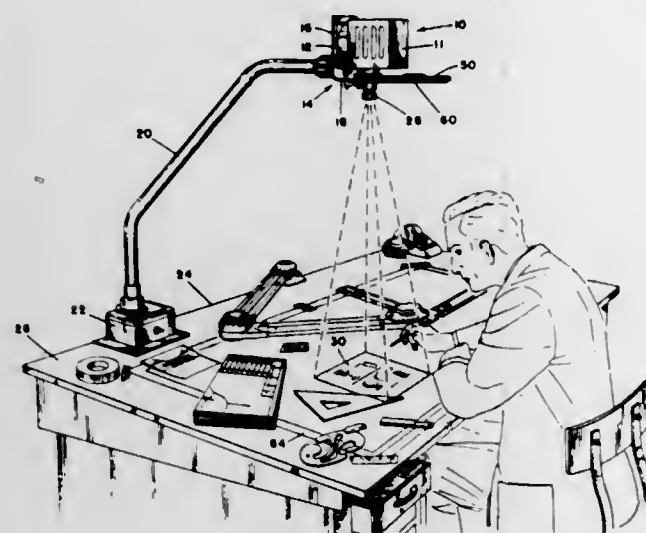
Thomas M. Shelton, Glendale, Calif., assignor to North American Rockwell Corporation

Filed Aug. 11, 1969, Ser. No. 848,807

Int. Cl. G03b 21/00, 21/16

U.S. Cl. 353-44

2 Claims U.S. Cl. 353-103



A microfilm projector is mounted over a draftsman's worktable by a fixed overhead support and adapted to receive microfilmed data such as technical reports. The projected and enlarged image of each separate page of data is cast onto the worktable surface at a location convenient for viewing, comparing, and/or copying by the draftsman.

3,632,198

TRANSPARENCY PROJECTOR

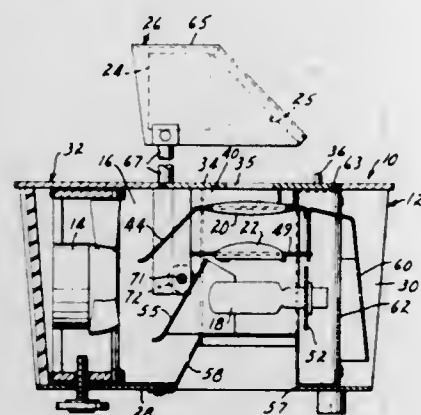
Nathan D. Puffer, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 9, 1970, Ser. No. 17,453

Int. Cl. G03b 21/16

U.S. Cl. 353-60

7 Claims



A transparency projector in which the housing is formed with an airflow passageway therethrough and a normally horizontal transparency support deck above the airflow passageway. The deck is formed with a projection aperture through which light is directed from within the housing to project the image contained on a transparency positioned over the projection aperture and a fan is supported within the housing to project the image contained on a transparency positioned over the projection aperture and a fan is supported within the housing to move air through the airflow passageway. The moving air is directed by walls positioned in the airflow passageway through a venturi-type path with its throat between a first lens and the projection aperture to create a partial vacuum below the projection aperture when a transparency is over it to locate and cool the transparency during projection thereof.

3,632,199

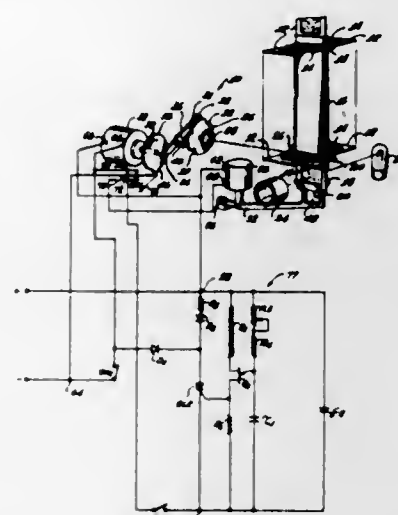
AUTOMATIC SLIDE-CHANGING MECHANISM

Gary E. Peterson, Sun Valley, Calif., assignor to Gerald J. Frey

Filed Oct. 9, 1969, Ser. No. 865,149

Int. Cl. G03b 23/00; H03k 17/26

9 Claims



A slide-changing mechanism for use in a photographic slide projector and including an electric motor for changing slides under both manual and timed automatic control. Manual control is effected by a switch which energizes the motor for rotation in a selected direction for one cycle that is terminated by a switch opened by a cam turned by the motor, and automatic control is effected by a silicon-controlled rectifier triggered by a relaxation oscillator circuit including a potentiometer for varying the rate of charge of a timing capacitor in the circuit. The cam-operated switch controls the power supply of the timing circuit to disconnect the circuit during changing of slides, and resets the circuit substantially to initial conditions preparatory to timing the next interval.

3,632,200

MAGAZINE-TYPE SLIDE PROJECTOR

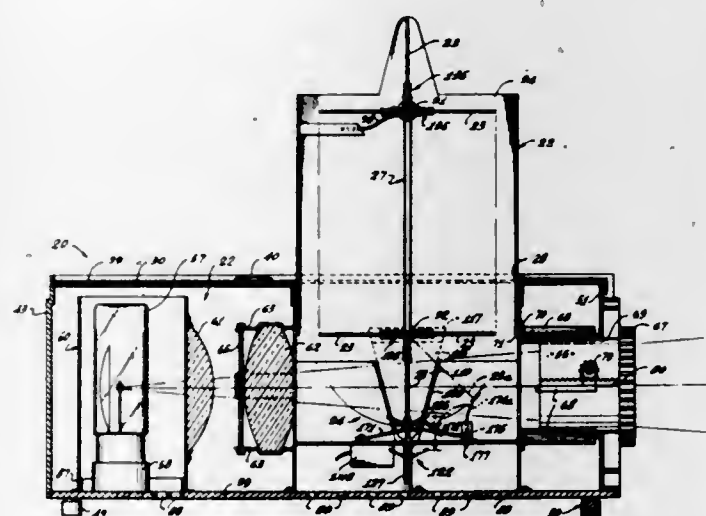
Gerald J. Frey, 1834 Devon Road, Pasadena, Calif.

Filed Oct. 13, 1969, Ser. No. 865,613

Int. Cl. G03b 21/28; G09f 11/26, 11/32

U.S. Cl. 353-109

11 Claims



A slide projector of the type having a removable magazine supporting a series of slides on an endless carrier for movement one by one into a projection position at one open end of the magazine. The latter has positioning elements coacting with elements of the projector case to align the magazine ac-

curately relative to the optical system as an incident to insertion of the magazine in a recess in the projector, and a cooling system is included with a squirrel cage fan drawing air through the area of the illuminating lamp, through the lens area, and directly through the projection gate to cool the slide therein. An indexing drive mechanism is controlled electrically for either semiautomatic or timed automatic operation, and a scanner wheel is provided for fully manual operation, the scanner wheel having a movable cover controlling elements of the electrical control circuit. In both semiautomatic and automatic operation, the lamp is controlled to fade out between slides, and a signal device indicates completion of the full series of slides. The slide carrier and the clips thereon are also of novel construction for more effective operation and ease of manufacture.

3,632,201

GRAPHIC RECORDER

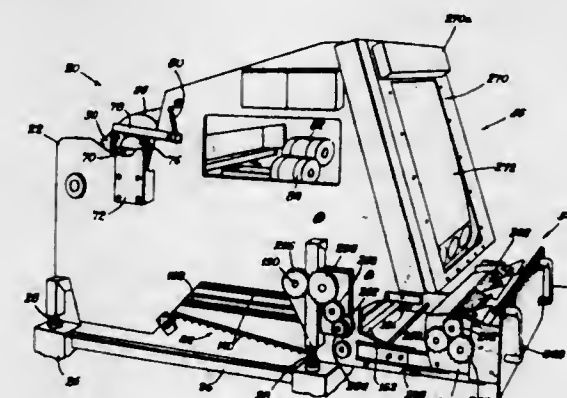
Daniel B. Granzow; Stanley A. Gawron, both of Arlington Heights; William P. Graft, Chicago, all of Ill., and Pervis A. Swain, Colorado Springs, Colo., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Continuation of application Ser. No. 736,237, Mar. 11, 1968, which is a division of application Ser. No. 475,522, July 28, 1965, now Patent No. 3,397,628. This application Jan. 23, 1970, Ser. No. 5,235

Int. Cl. G03g 15/02

U.S. Cl. 355-3

2 Claims



The copying machine includes both line and frame exposing means for a photoelectrostatic member and controls for conditioning the machine to operate in one of these two modes. A movable charging assembly is positioned in different locations in the two modes by the control, and other factors such as charging voltage, speed of movement of the member, and the continuous or intermittent nature of the charging operation are changed by the control in accordance with the copying mode for which the machine is conditioned.

3,632,202

EXPOSURE FRAME FOR ELECTROPHOTOGRAPHY

Seiji Matsumoto, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

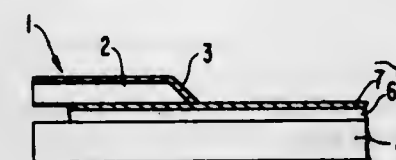
Filed Apr. 2, 1969, Ser. No. 812,794

Claims priority, application Japan, Apr. 2, 1968, 43/26212

Int. Cl. G03g 5/10

U.S. Cl. 355-3

2 Claims



An exposure frame for use with an electrographic plate. The frame includes a resistant layer on a metal frame

member. The resistant layer has a charging characteristic which is the same as the charging characteristic of the photoconductive layer of the electrographic plate. Since the charging characteristics are the same the portion of the photoconductive layer near the frame will not be irregularly charged. The layer on the frame has a discharge characteristic which is different from that of the photoconductive layer such that it discharges in a relatively short time compared to the photoconductive layer of the electroplate. In this manner, the frame may be used for subsequent electroplates.

3,632,203

OPTICAL SCANNER

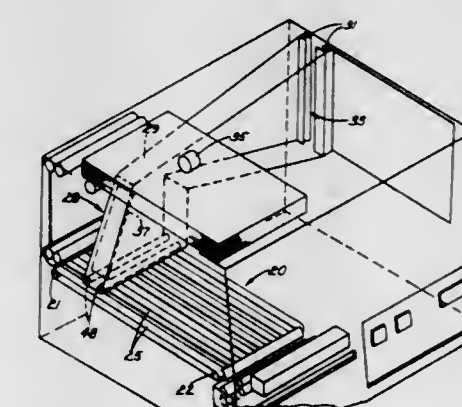
James A. Kolbas, Broadview Heights, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Oct. 31, 1969, Ser. No. 873,020

Int. Cl. G03g 15/04

U.S. Cl. 355-8

6 Claims



A scanning device for a copying machine in which the original to be copied is stationary, the photosensitive paper moves on a conveyor, and a lens carriage moves at half the speed of the conveyor in the direction of its motion. The carriage rolls on wheels which rest on the conveyor and contact a fixed track from below, moving at half the speed of the conveyor because of the frictional contact of the wheels with the two parallel surfaces.

3,632,204

PHOTOPRINTING AND PROCESSING DEVICE

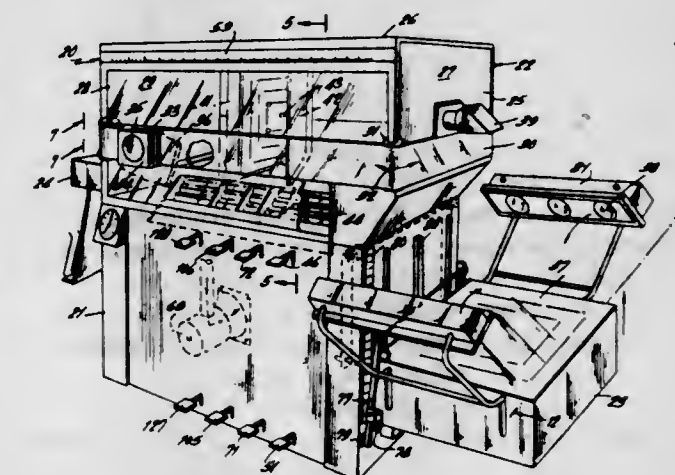
Murray Friedel, North Miami Beach, Fla., assignor to Visual Graphics Corporation, New York, N.Y.

Filed Dec. 23, 1969, Ser. No. 887,713

Int. Cl. G03b 27/32

U.S. Cl. 355-27

8 Claims



A self-contained camera, photoprinting and processing machine in which the interior of the camera is accessible to

the operator through a lighttight sleeve carried by a horizontally movable flat strip. Operations within the camera are visible through a light-filtering window which prevents ambient light from exposing the photographic paper or film within the camera. The copy holder is illuminated by swivable lamp holders and the lamps rocked to prevent hot spots on the copy. Vacuum means are used to hold the light-sensitive paper upon a platen while it is being positioned.

3,632,205

ELECTRO-OPTICAL IMAGE-TRACING SYSTEMS, PARTICULARLY FOR USE WITH LASER BEAMS

Raymond Marcy, Paris, France, assignor to Thompson-CSF

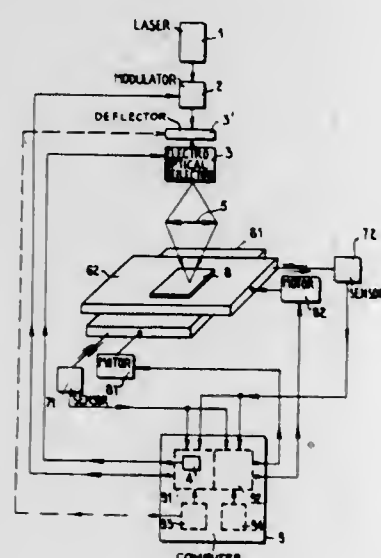
Filed Jan. 26, 1970, Ser. No. 5,619

Claims priority, application France, Jan. 29, 1969, 6901745

Int. Cl. G03b 27/42, 27/58

U.S. Cl. 355-53

12 Claims



To provide for digital positioning, without inertia of moving parts, a laser beam is transmitted to a substrate which is to be exposed, etched, or the like, particularly when microcircuits are to be produced, by monitoring the displacement of the substrate, mechanically, in two mutually perpendicular directions and positioning the laser beam, as monitored, in at least one direction by controlling voltages applied to a deflector cell in the path of the laser beam, by digitally, selectively, energizing an electro optical crystal effective to rotate the polarized laser beam through a plane of 90°, followed by a doubly refracting crystal which deviates the path of the laser beam, depending on its direction of polarization with respect to the optical axis of the crystal, so that, by successive deflections, the beam, from the laser, can be positioned in predetermined locations on the substrate. The entire arrangement is preferably computer controlled, so that data inserted into the computer will cause deflection of the laser beam in accordance with a predetermined program.

3,632,206

DUPLICATING APPARATUS

Othmar Schneider, Berthold Fergg, and Wolfgang Zahn, all of Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 26, 1969, Ser. No. 861,279

Claims priority, application Germany, Sept. 27, 1968, P 17 97 436.6

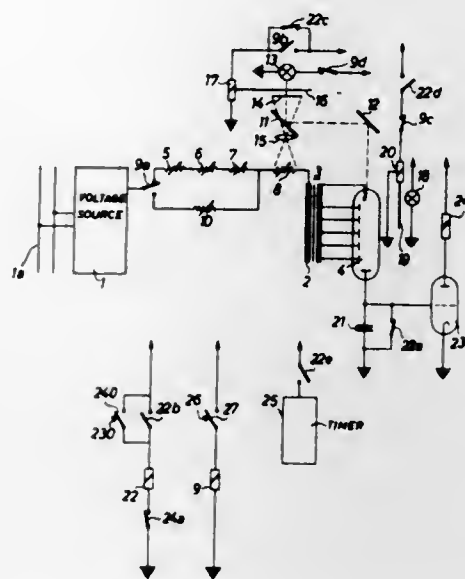
Int. Cl. G03b 27/74

U.S. Cl. 355-68

10 Claims

An arrangement for controlling the exposure times of duplicators. In addition to the light source used for carrying out the exposure, a constant light source is used for applying the light to the photoelectric device in the duplicator, when

the duplicator is not in use, for the purpose of maintaining the photoelectric fatigue effect constant. The constant light source is also used for calibrating the controlling circuitry for the exposure time. A timer connected to the switching circuitry



cuitry which establishes the exposure interval gives an indication of the measured time interval. Adjustable resistors permit settings and compensations for the varying characteristics of the duplicating paper, as well as the characteristics of the individual duplicating machines.

3,632,207

APPARATUS FOR IMAGE TRANSFER

Reinhold Wachter, Heepen über Bielefeld, Germany, assignor to Bio Bielefelder Offsetdruckplatten Und Zubehör B. Krause, Jollenbeck am Westf., Germany

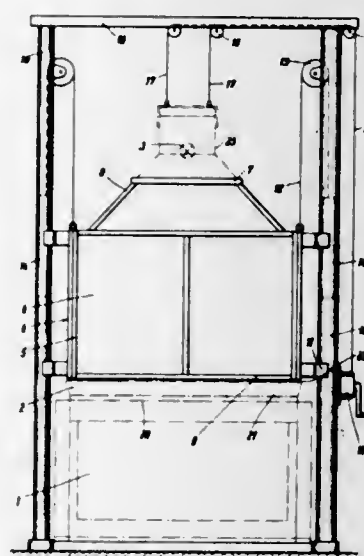
Filed Mar. 6, 1969, Ser. No. 804,897

Claims priority, application Germany, Mar. 6, 1968, B 17 107/57

Int. Cl. G03b 27/04

U.S. Cl. 355-85

4 Claims



Apparatus for transferring images to carriers, particularly to offset printing plates, comprises a hollow reflector which is provided with internal light-reflecting surfaces and is interposed between the light source and the transparency on top of the sensitized plate. The reflecting surfaces diffuse the light, so that upon exposure of the plate shadows from the edges of the transparency and from the adhesive tape holding it on the plate are eliminated.

3,632,208

IMAGE REPRODUCTION DEVICE

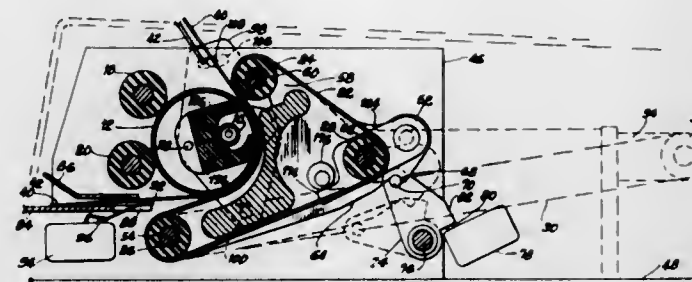
Frederick O. Bach, Villa Park, Ill., assignor to A. B. Dick Company, Niles, Ill.

Filed Nov. 19, 1969, Ser. No. 878,049

Int. Cl. G03b 27/10

U.S. Cl. 355-108

7 Claims



An image reproduction device using a radiation source mounted in a reflector is aimed at the periphery of a transparent tube encompassing the reflector and the source. A driver belt has a portion of its surface engaging with the tube and moves an original and a copy sheet past radiations from the source. Means are provided to aim and focus the source and to adjust the tracking of the belt.

3,632,209

SYSTEM FOR MEASURING LIGHT TRANSMITTANCE THROUGH ABSORPTIVE OR DIFFUSIVE MEDIA

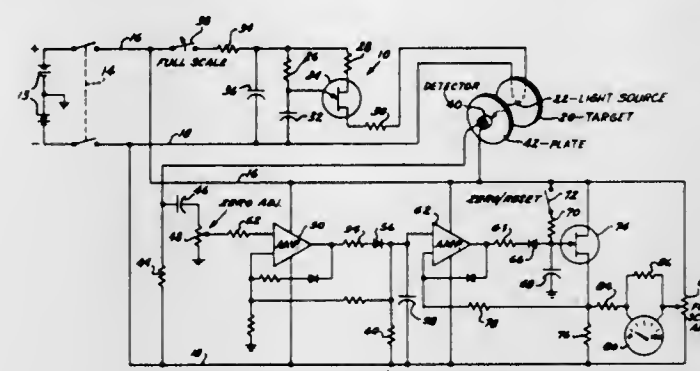
Edward F. Kingman, San Clemente, Calif., assignor to The Susquehanna Corporation, Fairfax County, Va.

Filed Apr. 28, 1970, Ser. No. 32,549

Int. Cl. G01n 21/26

U.S. Cl. 356-201

11 Claims



A system and process are disclosed for measuring the transmittance or opacity of a smoke plume discharged from a smokestack or diesel engine exhaust. Measurement is accomplished by passing light pulses through the smoke plume and detecting the remaining energy with a photoelectric detector. The effect of scattered light is eliminated. An electrical signal proportional to the unabsorbed light received at the detector is displayed on a calibrated opacity meter.

3,632,210

VARIABLE RATE CONTINUOUS FLOW CONDENSATION NUCLEI METER HAVING ADJUSTABLE EXPANSION PERIOD AND IMPROVED GAIN

Theodore A. Rich, Scotia, N.Y., assignor to Environmental-One Corporation, Latham, N.Y.

Filed June 19, 1969, Ser. No. 834,822

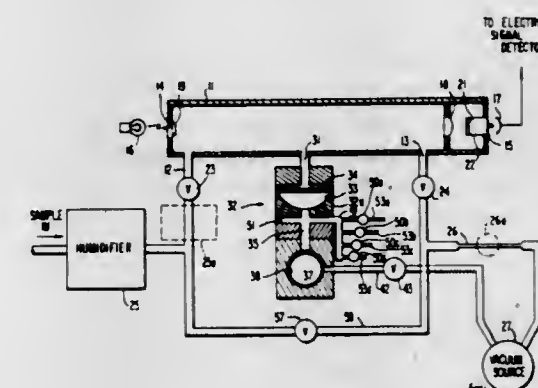
Int. Cl. G01n 1/00, 21/00, 21/12

U.S. Cl. 356-37

26 Claims

A variable rate continuous flow condensation nuclei meter is described which includes an expansion chamber having

inlet and outlet passageways for introducing into and withdrawing from the expansion chamber specimens of a sample gaseous atmosphere to be monitored for condensation nuclei. Inlet and outlet cutoff valves are disposed in the inlet and outlet passageway for allowing a specimen of a sample gaseous atmosphere being monitored to be drawn from an intake probe or other sample atmosphere intake arrangement through the inlet passageway and expansion chamber, out the outlet passageway and to a source of low pressure provided by a suitable evacuating apparatus. With the valves open, differential flow of a sample gaseous atmosphere takes place from the intake probe through the expansion chamber into the evacuated space. During each operating cycle the inlet and outlet valves are closed simultaneously for at least a short time duration sample interval to trap a specimen of the atmosphere being tested in the expansion chamber during the sample interval. At this point, the interior of the expansion chamber is suddenly decreased in pressure so as to form small liquid droplets around the condensation nuclei contained in the gaseous atmosphere as centers. A radiant energy irradiating and detecting device is positioned to view the interior of the expansion chamber and is operative during the sample interval to derive an output electric signal representative of the intensity of the radiant energy attenuated or scat-



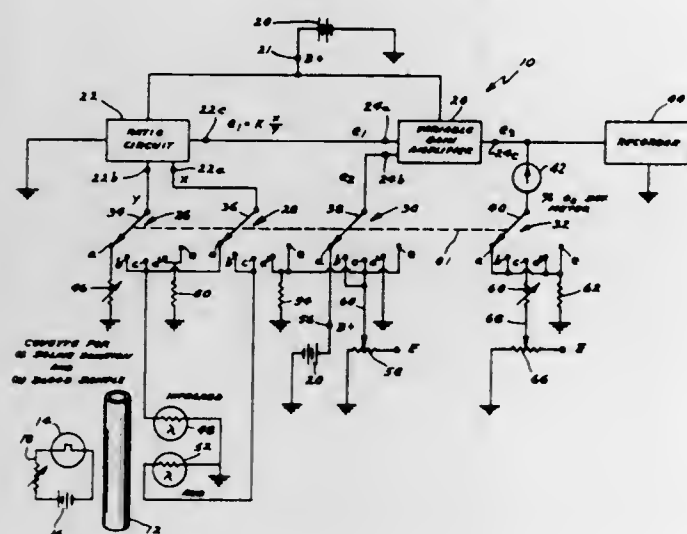
tered by the small liquid droplets thus formed on the condensation nuclei as centers. The output electrical signal thus derived comprises a measure of the number of condensation nuclei contained in the specimen of the gaseous atmosphere being tested during each sample interval. Following measurement the interior of the expansion chamber is recompressed to a pressure corresponding to its preexpansion value. A bypass flow path is connected in parallel with the expansion chamber and is designed such that with the inlet and outlet valves open, a portion of the flow of the sample gaseous atmosphere takes place through the expansion chamber, and with the inlet and outlet valves closed substantially all of the flow takes place through the bypass flow path and a continuous flow rate is maintained over a complete operating cycle and from one operating cycle to the next. Additional means are provided for variably controlling the flow rate of the sample gaseous atmosphere being monitored through the condensation nuclei meter by a suitable control valve or replaceable restriction located in a passageway common to the parallel connected expansion chamber and bypass path. The length of time or period of the expansion cycle apparatus employed with the condensation nuclei meter is separately adjustable independently of flow rate to provide a linear measurement of particle count over a wide range of particle concentrations.

3,632,211

METHOD AND APPARATUS UTILIZING ELECTRICAL RESISTANCE RATIOS DERIVED FROM BLOODLESS AND BLOOD DATA FOR DETERMINING THE PERCENTAGE OXYGEN SATURATION IN BLOOD
George F. Sedivy, and William F. Sutterer, both of Rochester, Minn., assignors to The Waters Company, Rochester, Minn.
Filed Feb. 24, 1970, Ser. No. 13,672
Int. Cl. G01n 33/16

U.S. Cl. 356-41

12 Claims



Spectral data is obtained with respect to both bloodless and blood specimens. Signals are derived from this data representative of certain ratios and these signals are processed so as to obtain a direct indication of the percentage oxygen saturation without resorting to logarithmic relationships.

3,632,212

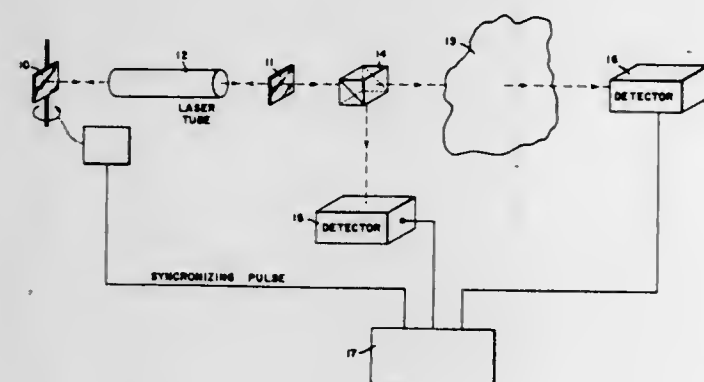
GAS TEMPERATURE MEASUREMENT SYSTEM EMPLOYING A LASER

G. Enrique Bernal, Minnetonka, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 18, 1970, Ser. No. 47,400
Int. Cl. G01j 5/60; G01k 11/00

U.S. Cl. 356-45

10 Claims



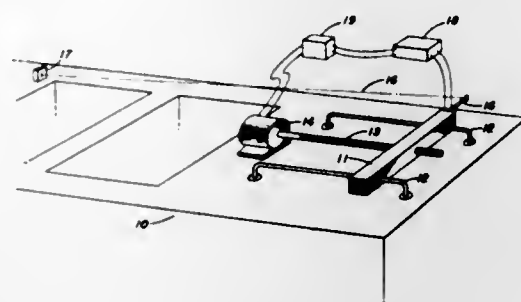
A system for measuring the temperature of gases in a region by determining the attenuation of light pulses of various frequencies has as its light source a laser having an active gas which is the same as one of the gases contained in the region, and having variable-frequency selective positive feedback.

3,632,213

EMISSION SPECTROMETER FOCUS CONTROL
Blount C. Trice, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
Filed Apr. 30, 1970, Ser. No. 33,465
Int. Cl. G01j 3/00, 3/04

U.S. Cl. 356-74

1 Claim



Malfocus of an emission spectrometer caused by changes in length of the instrument chassis due to ambient temperature changes is corrected by adjusting the optical system responsive to strain gauge measurement of the length changes.

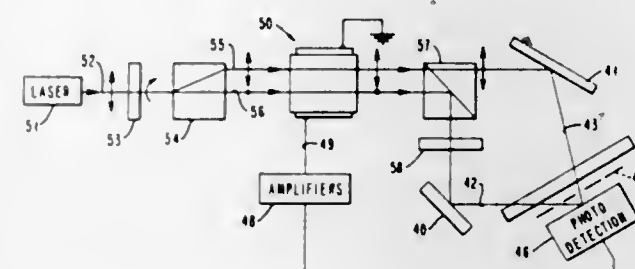
3,632,214

METHOD AND APPARATUS FOR STABILIZING THE PHASE OF RADIATION

David C. Chang, Pleasant Valley; Rodman S. Schools, Poughkeepsie; Glenn T. Sincerbox, Wappingers Falls, and Tien-yu Tao, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 23, 1969, Ser. No. 835,322
Int. Cl. G01b 9/02; G02b

U.S. Cl. 356-106

9 Claims



Stabilization of the phase of the radiation utilized in a plural beam interferometric-type system is accomplished. Monitoring of the intensity of the interfering beams of radiation is performed so that a correction signal is generated. By applying the correction signal to control means, the speed of propagation of at least one of the radiation beams is altered to maintain a constant phase relationship.

3,632,215

APPARATUS FOR DETERMINING THE POSITION COORDINATES OF A POINT RELATIVE TO A REFERENCE POINT

Eberhard Holtz, Aachen, Germany, assignor to Carl Zeiss Stiftung, Wuerttemberg, Germany

Filed Mar. 27, 1970, Ser. No. 23,401
Claims priority, application Germany, Mar. 28, 1969, P 19 15 891.9

Int. Cl. G01b 11/26; G01n 21/44

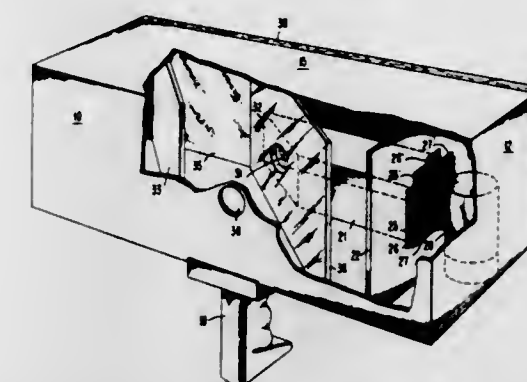
U.S. Cl. 356-114

5 Claims

For measuring the coordinates of one point relative to a reference point a linearly polarized laser beam from the reference point impinges upon a circular polarization filter of a measuring device at the point to be measured. The filter

which consists of two semicircular filters whose directions of polarization are perpendicular to each other has a larger diameter than the beam. The filter or the polarization plane of the beam rotates about the center of the filter and a lens focuses the beam passing through the filter onto a photoelectric receiver to produce a current. If the filter is centered relative to the beam a direct current is only produced; if not, an AC component is generated. A phase-sensitive rectifier

tube and includes a reference white light. Optical means are provided for presenting an image of the reference light and



that of the cathode-ray tube over distinct areas of a diffusing medium, together with ocular means for simultaneous viewing of these areas for comparison.

ERRATUM

For Class 356-203 see:
Patent No. 3,632,226

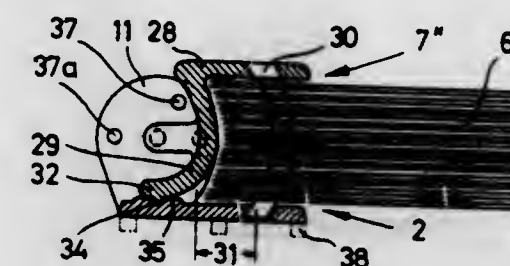
3,632,218

DEVICE FOR LOCKING PERFORATED STATIONERY TOGETHER ON A SUPPORT

Georg Alfred Zippel, Altdorf near Nurnberg, Germany, assignor to Herbert Zippel K.G., Nurnberg, Germany
Original application June 6, 1966, Ser. No. 555,540, now abandoned. Divided and this application July 14, 1969, Ser. No. 871,110
Int. Cl. B42t 3/04

U.S. Cl. 402-33

5 Claims



A device for holding a plurality of stacked, perforated leaves of stationery having a base member and a complimentary member with aligning elements thereon in side-by-side relation, which aligning elements are received into the perforations of the leaves of stationery for holding same.

3,632,219

BACKING PUMPS MORE PARTICULARLY FOR VOLATILE LIQUIDS

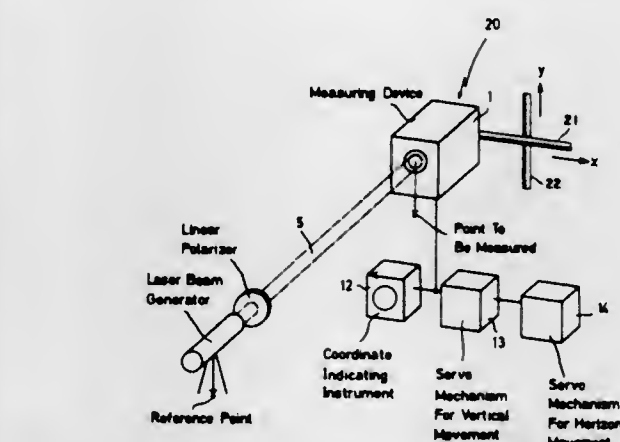
Peter J. Taylor, Ilford, England, assignor to The Plessey Company Limited, Ilford, England

Filed Jan. 27, 1970, Ser. No. 6,175
Claims priority, application Great Britain, Jan. 31, 1969, 5390/69
Int. Cl. F04d 3/02

U.S. Cl. 415-72

6 Claims

A backing pump 4 for volatile fuel is constructed as an axial flow helical impeller pump operating in a cylindrical housing, having a tapered coaxial inlet portion at one end for connection to a small-diameter inlet line and a volute outlet at the other end. The helical vane extends to near the minimum diameter housing part at the inlet so that the pumped liquid, as it is accelerated through the length of the



coupled to the receiver produces an electric signal whose phase and amplitude represent the angular position of the point of impingement of the beam relative to the center of the filter. The signal may be fed to an indicating device for indicating the coordinates represented thereby and/or may be fed to means, such as servomechanism, operable to move the measuring device until the filter is centered with the beam.

3,632,216

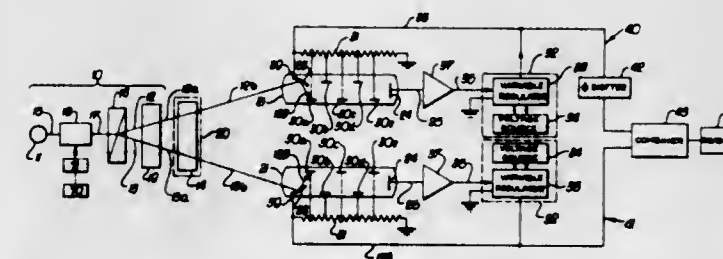
CIRCULAR-DICHROISM MEASUREMENT SYSTEM CHARACTERIZED BY NOISE CANCELLATION

Henry H. Cary, Pasadena, Calif., assignor to Cary Instruments, Monrovia, Calif.

Filed May 28, 1969, Ser. No. 828,664
Int. Cl. G01n 21/40

U.S. Cl. 356-114

27 Claims



The disclosure concerns the provision of means for reducing problems associated with lamp intensity fluctuation and random noise in circular-dichroism measurement instrumentation.

3,632,217

TESTING DEVICE FOR DETERMINING THE CHROMATICITY SETTING OF TELEVISION MONITORS

C. James Bartleson, Poughkeepsie, N.Y., assignor to Kollmorgen Corporation, Holyoke, Mass.

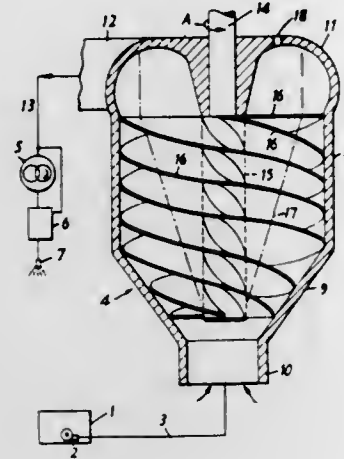
Filed Apr. 13, 1970, Ser. No. 27,808
Int. Cl. G01j 3/46

U.S. Cl. 356-176

1 Claim

A testing device for determining the chromaticity setting of television monitors is described. It consists of a housing adapted to be placed against the surface of a cathode-ray

housing, will be substantially confined to an external part of progressively increasing inside diameter leaving a central "fluid hub" portion separated from it by a boundary zone and



having little axial movement due to centrifugal action, vapors and gases will collect in the fluid hub, thus ensuring a substantially bubble-free outlet.

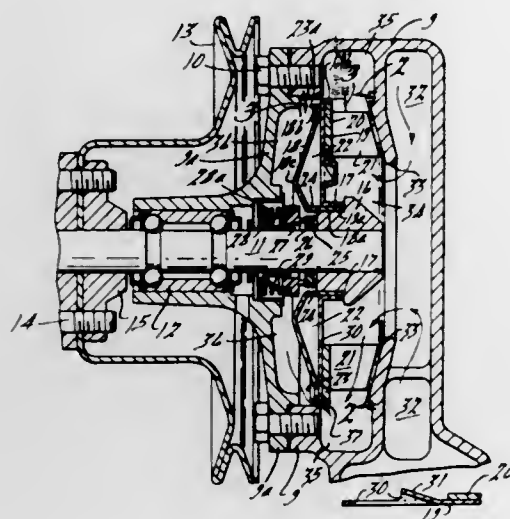
3,632,220 COOLANT PUMP

Jere R. Lansinger, Westland, and James E. MacAfee, Troy, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Aug. 27, 1970, Ser. No. 67,436
Int. Cl. F01d 11/00

U.S. Cl. 415-112

9 Claims



A rotary coolant pump for an internal-combustion engine has a coaxial annular centrifuge cavity and a scoop operable upon rotation of the pump to collect fluid coolant into the cavity under pressure through an inlet port located between radially outer and inner discharge ports of the cavity. The inner discharge port communicates with an annular seal for the pump journal and is isolated from high-velocity coolant flow within the cavity by a region therein of enlarged cross-sectional area which reduces the coolant velocity at a location spacing the inner discharge port from the inlet and outer discharge ports. Coolant and high-density particles such as core sand are thus discharged radially outwardly from the cavity by centrifugal force through the outer discharge port, whereas clean pressurized coolant flows through the inner discharge port to cool the seal.

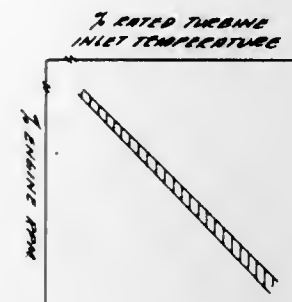
3,632,221 GAS TURBINE ENGINE COOLING SYSTEM INCORPORATING A VORTEX SHAFT VALVE

Donald E. Uehling, Cincinnati, Ohio, assignor to General Electric Company

Filed Aug. 3, 1970, Ser. No. 60,320
Int. Cl. F01d 5/18

U.S. Cl. 415-115

14 Claims



A gas turbine engine cooling system is disclosed which has the capability of varying the amount of cooling flow delivered to the turbine components. Cooling flow is bled from the compressor through a split compressor disc, which forms a vortex chamber through which the cooling flow passes. A plurality of small nozzles are positioned within this chamber with their outlets directed opposite the direction of rotation of the split disc. Control flow is directed through these nozzles to counteract a natural vortex which is formed within the chamber due to rotation of the disc. The strength of the vortex field is then utilized to control the amount of cooling flow which passes through the chamber and thus ultimately to the turbine section of the engine.

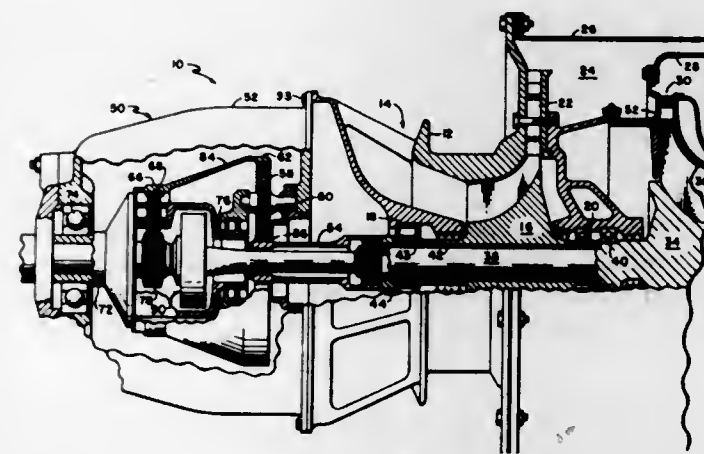
3,632,222 DAMPING MEANS FOR DIFFERENTIAL GAS TURBINE ENGINE

Val Cronstedt, Williamsport, Pa., assignor to Avco Corporation, Williamsport, Pa.

Filed Oct. 21, 1970, Ser. No. 82,759
Int. Cl. F01d 15/12; F02c 3/00

U.S. Cl. 415-119

5 Claims



The disclosure illustrates a damping device for a gas turbine engine of the type that has a centrifugal compressor impeller and aft positioned turbine wheel connected by concentric shafts to a forward mounted differential which has an output shaft. The device is positioned on the turbine shaft closely adjacent the differential drive to damp torsional vibrations.

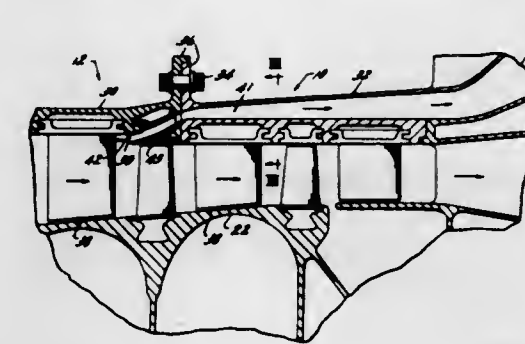
3,632,223 TURBINE ENGINE HAVING MULTISTAGE COMPRESSOR WITH INTERSTAGE BLEED AIR SYSTEM

Thomas L. Hampton, Loveland, Ohio, assignor to General Electric Company

Filed Sept. 30, 1969, Ser. No. 862,197
Int. Cl. F01b 25/00

U.S. Cl. 415-144

5 Claims



A bleed system which provides air for other than combustion purposes in a gas turbine engine. Bleed air is diverted from a multistage axial flow compressor through a diffuser flow passageway formed in the casing of the compressor. The entrance to this bleed passageway is defined by an annular lip disposed, in an axial sense, between a row of stator vanes and a row of rotor blades.

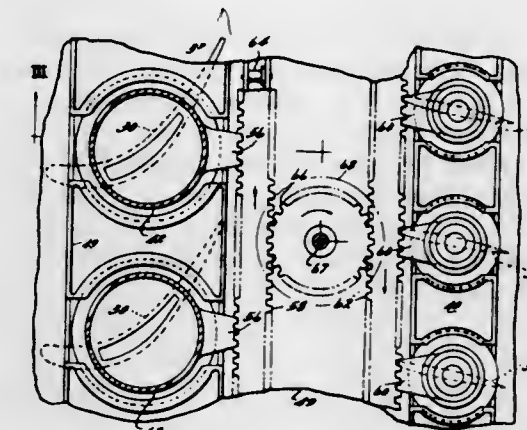
3,632,224 ADJUSTABLE-BLADE TURBINE

Jack D. Wright, Mason, and Werner E. Howald, Cincinnati, both of Ohio, assignors to General Electric Company

Filed Mar. 2, 1970, Ser. No. 15,353
Int. Cl. F04d 27/00

U.S. Cl. 415-149

1 Claim



A gas turbine engine is shown in which the turbine nozzle vanes and turbine outlet guide vanes are simultaneously pivotal to obtain greater efficiencies over a broad range of gas stream energy levels.

3,632,225 STEAM TURBINES

Allen Smith, and Colin Trevor Moore, both of Newcastle upon Tyne, England, assignors to C. A. Parsons & Company Limited, Newcastle upon Tyne, England

Filed Aug. 14, 1969, Ser. No. 850,167
Claims priority, application Great Britain, Aug. 21, 1968, 39987/68

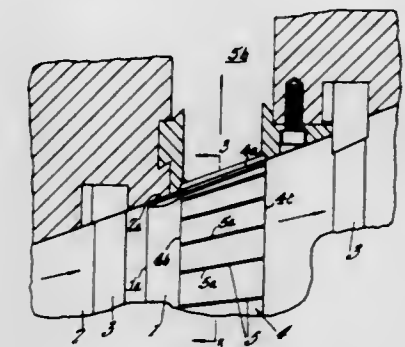
U.S. Cl. 415-168

Int. Cl. F01d 1/00

6 Claims

A steam turbine in which means for extracting water from wet steam has at least one drainage area in the turbine cas-

ing, with such area being located downstream of a row of rotatable blades adjacent the outlet for steam therefrom and intermediate the row of rotatable blades and an immediately adjacent downstream row of stationary blades, the drainage area comprising a plurality of circumferentially spaced elongated slots, the slots being disposed to lie transversely across the path of the wet steam in the region of the drainage area and being adapted for connection to a region which in operation of the turbine is at a lower pressure than the steam pressure in the region of the drainage area.



gated slots, the slots being disposed to lie transversely across the path of the wet steam in the region of the drainage area and being adapted for connection to a region which in operation of the turbine is at a lower pressure than the steam pressure in the region of the drainage area.

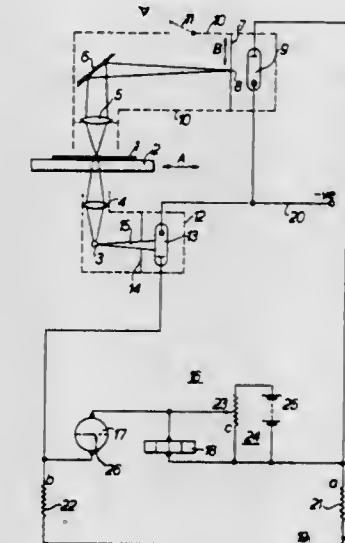
3,632,226 METHOD AND APPARATUS FOR DETERMINING OPACITY OF AN OBJECT

Eric George Filby, and Derek John Hobbs, both of London, England, assignors to Johnson Matthey & Co. Limited, London, England

Filed Sept. 10, 1968, Ser. No. 764,012
Int. Cl. G01n 21/30

U.S. Cl. 356-203

6 Claims



This invention relates to a method and apparatus for determining the opacity of an object, for example the opacity of a line or mark on a photographic plate. In carrying out the invention a beam of energy is interrupted by the object and a measure of the variation of energy along a path which intersects the energy shadow of the object is obtained using an energy-sensitive device. Where the source of energy is a source of light, the energy-sensitive device may be a photomultiplier.

The apparatus is particularly useful in connection with spectrographic analysis.

3,632,227

MIXING DEVICES

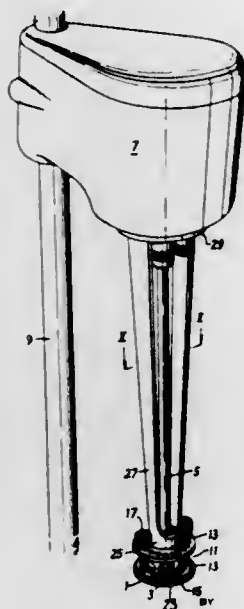
Gordon Love, London, England, assignor to Silverson Machines Limited, Watnall, Chesham, England
Filed Feb. 10, 1969, Ser. No. 797,907

Claims priority, application Great Britain, Feb. 13, 1968, 7141/68

Int. Cl. F04d 1/00, 29/00

U.S. Cl. 415-211

8 Claims



A mixing device having cooperating rotor and stator elements. The rotor element is mounted at one end of a shaft which is driven by an output shaft of an electric motor. The stator element is supported on the motor housing by support means which include a plurality of elongated support members, each member extending in a direction axially and radially outwardly of the rotor shaft from the stator element to the housing.

3,632,228

DEVICE FOR LOCKING TURBOMACHINERY BLADES

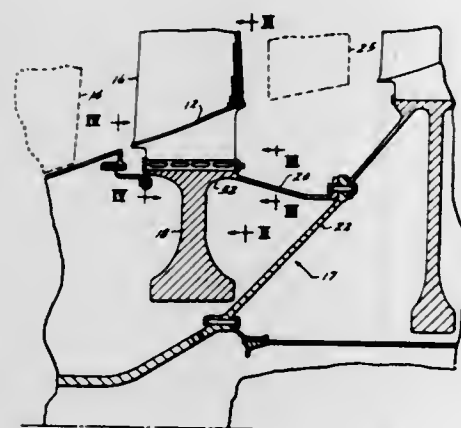
Ronald C. Acres, Hamilton, Ohio, assignor to General Electric Company

Filed July 29, 1970, Ser. No. 59,045

Int. Cl. F01d 5/32

U.S. Cl. 416-220

5 Claims



A unitary assembly is inserted into a space between a blade tang and the bottom of a dovetail slot. A bolt is rotated relative to the spacer so that its head overlies the side of the rotor and the blade tang. A nut threaded on the opposite end of the bolt is tightened to clamp a plate against the other side of the rotor and the blade tang.

3,632,229

PROCESS FOR DOSING OF LIQUID METALS, ESPECIALLY FROM MELTING OR HEAT PRESERVING CONTAINERS BY MEANS OF AN ELECTROMAGNETIC CONVEYING TROUGH

Axel vonStarck, Remscheid-Luttringhausen, Germany, assignor to AEG-Elotherm GmbH, Remscheid-Hasten, Germany

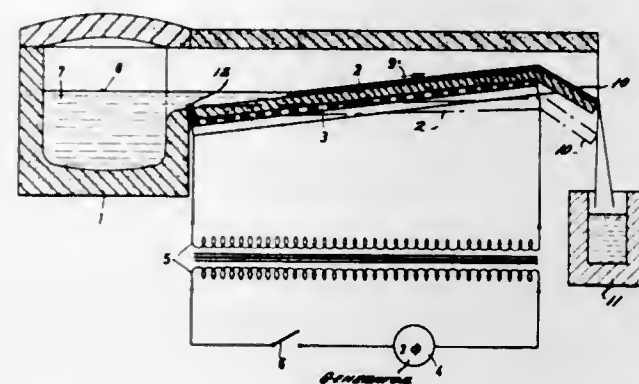
Filed Apr. 20, 1970, Ser. No. 30,057

Claims priority, application Germany, June 21, 1969, P 19 31 674.6

Int. Cl. F04b 37/00

U.S. Cl. 417-50

5 Claims



A method and apparatus for conveying molten metals up an inclined trough from a vessel by producing a travelling electromagnetic wave beneath the trough wherein the field strength of the wave is increased into a particular range in which substantial variations in field strength do not result in substantial variations in the thickness of the flow layer. The layer thickness in this range can be varied by varying the frequency of the three phase signal used to generate the electromagnetic wave or by varying the gradient of the trough with respect to the horizontal.

3,632,230

HYDRAULIC INTENSIFIER

Atsumi Ueda, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Asahi-machi, Kariya-shi, Aichi-ken, Japan

Filed Oct. 16, 1970, Ser. No. 81,281

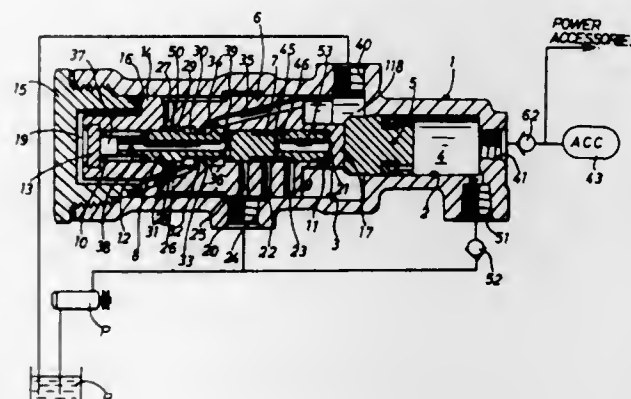
Claims priority, application Japan, Oct. 18, 1969, 44/83503

Jan. 20, 1970, 45/6323

Int. Cl. F04b 17/00, 35/00; F15b 11/08

U.S. Cl. 417-225

5 Claims



A hydraulic intensifier interposed between an accumulator and a source of pressure fluid including a hydraulic pump, comprising a housing with small and large diameter cylindrical bores therein, a small diameter piston reciprocatably engaged in the small diameter cylindrical bore to form a pressure chamber for amplifying fluid pressure from the source of pressure fluid, a large diameter piston reciprocatably engaged in the large diameter cylindrical bore to operate the

small diameter piston, and a control valve means incorporated within the large diameter piston to control reciprocation of the large diameter piston, thereby, easy assembling work is realizable with a small number of parts and accurate operation of the device is obtainable, and above all, the time necessary to charge the accumulator with fluid pressure can much be reduced.

3,632,231

SUCTION PRESSURE RELIEVING SYSTEM FOR A ROTARY VANE COMPRESSOR

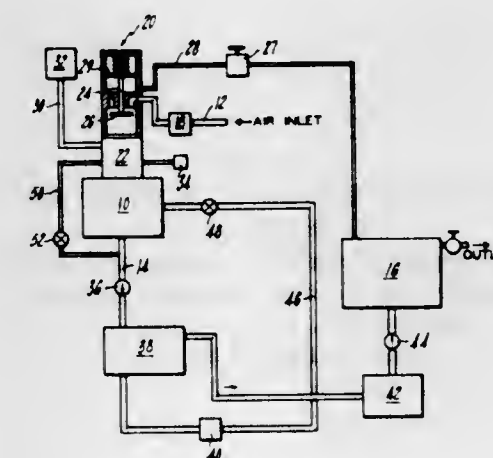
Carl Bloom, Springfield, Mass., assignor to Worthington Compressor and Engine International Division of Worthington Corporation, a division of Worthington Corporation, Holyoke, Mass.

Filed Feb. 19, 1970, Ser. No. 12,546

Int. Cl. F04c 29/08; F04b 49/00, 39/00

U.S. Cl. 417-295

9 Claims



A suction pressure relieving system for a rotary vane gas compressor which automatically establishes a safe startup pressure at the compressor inlet ports whenever the compressor is shut down.

3,632,232

ROTARY PUMP

Tamaki Tomita, and Akira Suzuki, both of Kariya, Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

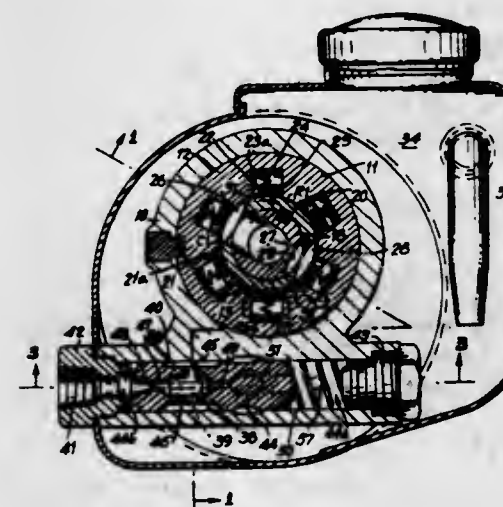
Filed Mar. 19, 1970, Ser. No. 21,828

Claims priority, application Japan, Apr. 1, 1969, 44/25014

Int. Cl. F04b 49/00

U.S. Cl. 417-300

15 Claims



A rotary pump is provided for supplying pressure fluid to power steering apparatus of a vehicle. The rotary pump is

equipped with a control device which comprises the combination of flow control and pressure relief valves for regulating the flow rate and pressure of delivery fluid respectively, the flow control valve including a slidable spool valve which is operably responsive to the pressure differential between the fluid pressure at a venturi throat and the fluid pressure at the downstream of the venturi throat.

3,632,233

FLUID PUMP APPARATUS AND SYSTEM

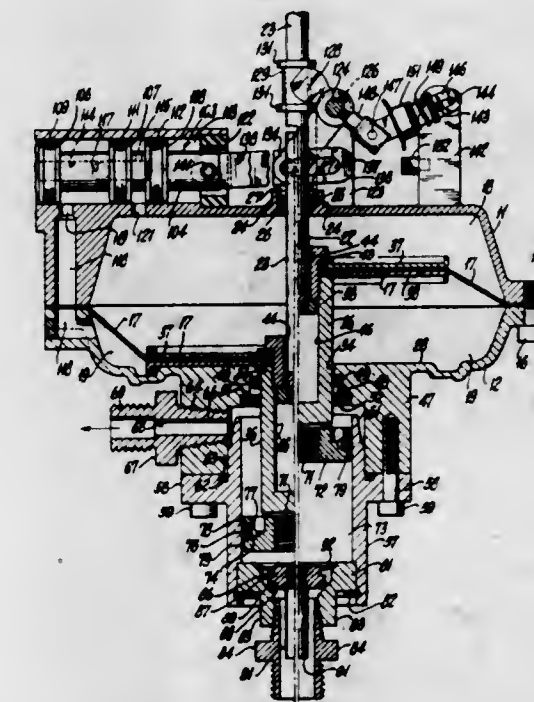
George C. Graham, 76 Crest Road, Ridgewood, N.J.

Filed July 9, 1970, Ser. No. 53,399

Int. Cl. F04b 17/00, 7/00

U.S. Cl. 417-375

4 Claims



A pump apparatus and system wherein a single piston in a single cylinder produces positive pumping action in both of its reciprocating movements into a single-output outlet at one end of said cylinder. A valving system incorporated into the piston itself establishes communication of the pumping medium between one side of the piston and the other within the confines of the single cylinder. Suction of fluid into the cylinder is produced by said piston in one direction only of its rectilinear movement through a one-way valve at the other end of the cylinder. When constructed in conjunction with a vacuum-operated diaphragm for operating the piston, liquid pressure in the cylinder is utilized also to ensure a fluidtight seal between the cylinder and the adjacent vacuum chamber housing the diaphragm.

3,632,234

METHOD AND APPARATUS FOR ACTUATING A SUBSURFACE RECIPROCAL WELL PUMP

Jack Takt Lake, Dallas, Tex., assignor to Pump Specialties, Inc., Dallas, Tex.

Filed Nov. 4, 1969, Ser. No. 873,809

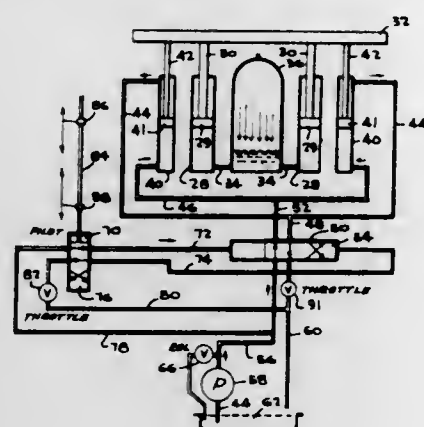
Int. Cl. F04b 9/08, 17/00; F15b 15/18

U.S. Cl. 417-390

11 Claims

A subsurface well pump actuator drive having a pair of slave cylinders and a pair of auxiliary control cylinders mounted on a wellhead and connected to a pumping string of rods for reciprocal pumping movement of a given stroke. A closed accumulator is connected to the slave cylinders and pressurized to such an extent as to lift the position the string of rods at a balance point in the middle of the pump stroke with automatic valving means supplying hydraulic pressure to the control cylinders to cause upward movement from the

midway balance point to the top of the stroke and for supplying hydraulic pressure upon reaching the top of the stroke to cause reverse movement to the bottom of the stroke after



reaching the midpoint balance with the slave cylinders providing the majority of work for the upward stroke.

3,632,235

CRYOGENIC PUMP SYSTEM

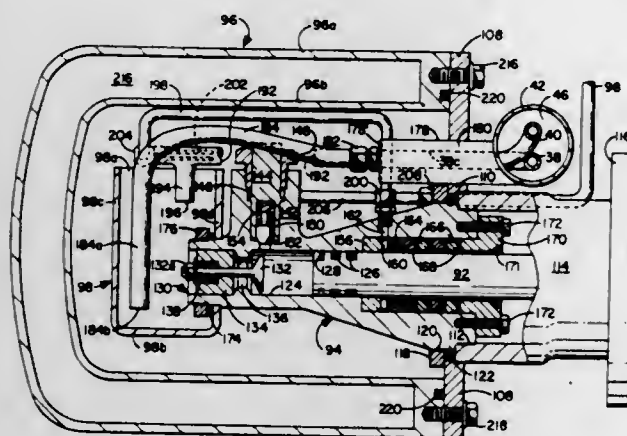
Carl A. Greci, 4791 Lesa Pl., Yorba Linda, Calif.

Filed June 9, 1969, Ser. No. 831,342

Int. Cl. F04b 21/00, 15/08

U.S. Cl. 417-439

8 Claims



A cryogenic pump system having low heat leak and low net positive suction head. The supply and vent lines between a pump and a cryogenic liquid storage Dewar are contained in a vacuum jacket manifold which provides vacuum insulation over the entire length of the lines. The manifold has bellows sections for flexibility and is adapted for bayonet connection to the storage Dewar outlets. The pumping element or "cold end" of the pump is insulated by a horizontal Dewar which also encloses a relatively small sump flooding only the suction port of the pump. The sump is filled with cryogenic liquid via the supply line, appropriate liquid level being maintained by a vent dip tube connected to the storage Dewar vent line. A Venturi built into the vent dip tube and powered by the piston ring blowby aspirates excess liquid from the sump.

3,632,236

CAM OPERATED FLUID PUMPS

Max Edward Grantham, Plympton, England, assignor to Tealemit (Engineering) Limited

Filed Dec. 22, 1969, Ser. No. 887,120

Claims priority, application Great Britain, Jan. 3, 1969, 596/69

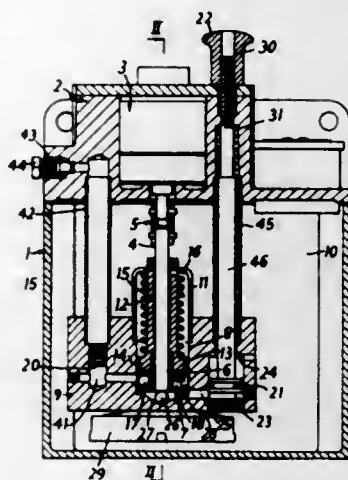
Int. Cl. F04b 19/00, 37/00

U.S. Cl. 417-471

5 Claims

This invention relates to a fluid pump comprising a piston which is reciprocable in a cylinder against a biasing force

which may be a helical spring. The piston is caused to reciprocate in the cylinder by means of a cam system therein



3,632,237

COOLANT PASSAGE CONSTRUCTION FOR GAS COMPRESSORS

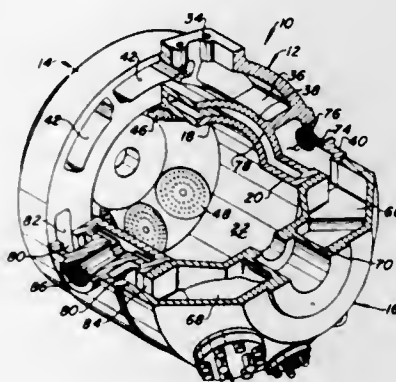
Arvid L. Nelson, and John E. Seckman, both of Quincy, Ill., assignors to Gardner-Denver Company, Quincy, Ill.

Filed Jan. 30, 1970, Ser. No. 7,276

Int. Cl. F01p 3/02, 3/14

U.S. Cl. 417-536

2 Claims



In a double-acting gas compressor cylinder and head assembly the gas inlet and discharge valves are grouped separately on opposite sides of transverse cooling water passages in the cylinder heads which operate to form barriers to the transfer of heat from the discharge gas passages to the inlet gas passages. The cooling water passages in the cylinder and heads are constructed to provide parallel flow paths transversely through the heads followed by a merging of the paths in a single circumferential passage around the cylinder bore.

3,632,238

PUMP ASSEMBLY

Clark A. Searle, Marshall, Mich., assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio

Filed Sept. 5, 1969, Ser. No. 855,689

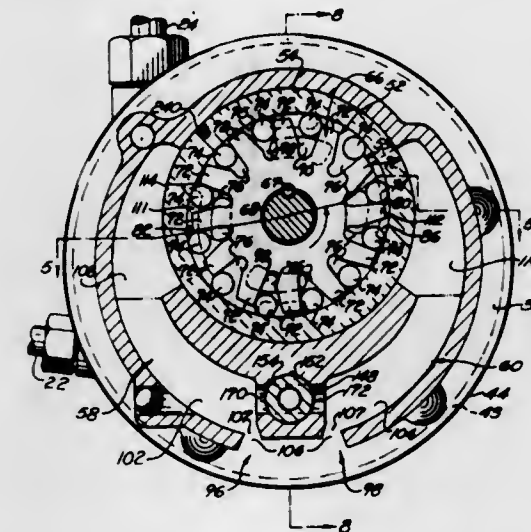
Int. Cl. F01c 13/00, 21/00; F04c 15/00

U.S. Cl. 418-15

9 Claims

An improved pump assembly includes intake passage which conduct fluid from a reservoir assembly to radially opposite sides and opposite ends of a rotor assembly. To provide controlled reduction in velocity and corresponding increase in pressure as the fluid flows through intake passages toward the rotor assembly, the intake passages increase in

cross sectional area in the direction of flow. A bypass valve directs a flow of fluid from the pump assembly to an auxiliary external system when a main external system is shut off. The rate of fluid flow to the auxiliary and main external systems is maintained at a predetermined maximum rate by a flow control valve assembly which diverts fluid from a discharge passage to the intake passages in response to a predetermined pressure drop as fluid flows through a nozzle at the



predetermined maximum rate. When the pump assembly is to be used in different environments, the direction in which the pump assembly is adapted to be driven can be reversed by changing the orientation of the rotor assembly and end plates of the pump assembly. This adaptability of the pump assembly to different environments is enhanced by the reservoir assembly which can be rotated to any one of a plurality of positions relative to the pump assembly.

3,632,239

ROTATABLE WORM FLUID COMPRESSION-EXPANSION MACHINE

Bernard Zimmermann, 27, rue Delabordere, Neuilly-sur-Seine, (Hauts de Seine), France

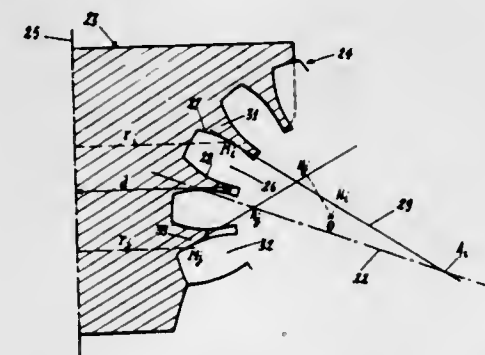
Filed Dec. 12, 1969, Ser. No. 884,606

Claims priority, application France, Dec. 27, 1968, 181,008

Int. Cl. F01c 1/24; F04c 17/04, 17/16

U.S. Cl. 418-150

8 Claims



A fluid compression-expansion machine comprising a worm rotatable inside a casing and at least one toothed pinion meshing with the worm and rotatable about an axis transversal to the axis of the worm, wherein the dimensions and relative positions of the worm and the pinion are so selected that there exists at least one axis of insertion for the pinion which satisfies the equation:

$$d_i h_i / r_i \geq d_j h_j / r_j$$

in which:

d_i is the algebraic distance between the axis and a point M_i of contact between one flank of a pinion tooth and a worm thread, the flank in question being on the opposite side of the tooth from the axis,

h_i is the algebraic distance from this point M_i to the perpendicular dropped from the center of the pinion onto the

tangent at point M_i to the flank of the tooth, r_i is the absolute value of the distance from point M_i to the projection of the axis of the worm on the plane of contact between the worm and the pinion, d_j , h_j , r_j are analogous quantities relating to a point M_j of contact between a flank of a tooth and a thread, this flank being on the the same side of the tooth as the axis.

3,632,240

WEAR-REDUCING ARRANGEMENT FOR HYDRAULIC GEAR APPARATUS

Wilhelm Dwerak, Stuttgart-Vaihingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

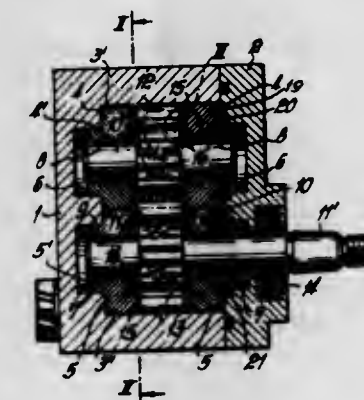
Filed Nov. 19, 1969, Ser. No. 877,882

Claims priority, application Germany, Nov. 22, 1968, P 18 10 314.5

Int. Cl. F01c 19/08; F03c 3/00; F04c 27/00

U.S. Cl. 418-131

12 Claims



Wear-resistant annular discs in recesses of bearing bushings supporting the gears of a gear pump or gear motor, have an outer diameter not greater than the root circle of the gears so that the surfaces of the bearing bushings within the root circles, which are subjected to greater wear than the surface portions engaging the sides of the teeth, are protected.

3,632,241

MOLDING SYSTEM

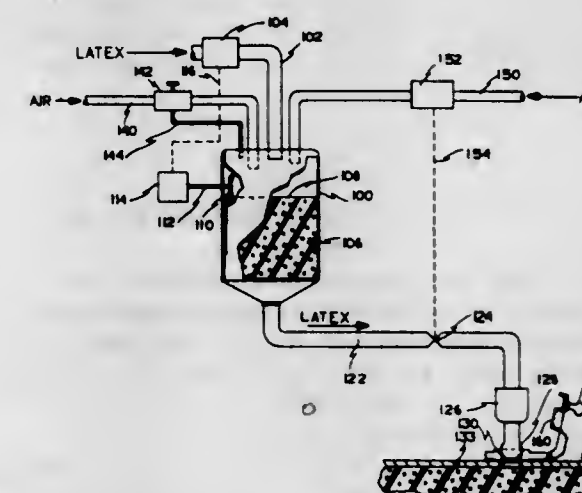
Lawrence P. Vanderhagen, Mishawaka; Gerald R. Ritter, South Bend, and Gilbert C. Zlow, Mishawaka, all of Ind., assignors to Uniroyal, Inc., New York, N.Y.

Filed Mar. 18, 1969, Ser. No. 808,184

Int. Cl. B29d 27/00

U.S. Cl. 425-4

4 Claims



Low-density foam objects are made from a material so highly frothed that it is difficult to pour into a mold. It is therefore delivered to the mold under pressure by means of system having a holding tank with appropriate foam inlet and outlet means, a mechanism for maintaining constant pressure in the tank, a mechanism for preventing overfilling of the

tank, and a control which allows air to enter the tank to replace the foam material displaced during filling of the mold. The foam delivery hose has a special nozzle which rapidly couples to and decouples from the mold-filling port. The mold has special provision for preventing leakage of foam between the mold cavity and its top plate.

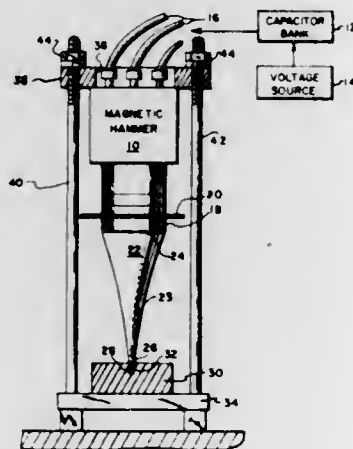
3,632,242

APPARATUS FOR MAKING DIAMONDS

John R. Rasquin, Madison, and Marvin F. Estes, Lacey Springs, both of Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Jan. 16, 1970, Ser. No. 3,418
Int. Cl. B30b 11/32

U.S. Cl. 425—77

6 Claims



The apparatus includes an exponential horn tapering from a large end down to a small end. A copper plate is mounted against the large end of the horn and a magnetic hammer abuts the copper plate. The magnetic hammer and copper plate function to create a shock wave in the exponential horn. An anvil having a small pocket formed therein is mounted adjacent to the small end of the exponential horn so that the small end rests in the pocket. The anvil, horn and hammer are all secured together by bolts or other suitable means and, in operation, graphite is placed in the anvil pocket. The magnetic hammer generates a shock wave in the exponential horn and because of the horn shape, which is critical, the velocity of the shock wave is amplified and the shock wave energy concentrated so that all of the energy in the shock wave arrives simultaneously at the small end of the horn. This energy is transferred to the graphite in the anvil pocket and results in pressure and temperature levels that causes the graphite to be transformed, in part at least, to diamonds.

3,632,243

APPARATUS FOR FORMING POROUS SEAMLESS TUBING

Lambert H. Mott, c/o Mott Metallurgical Corp., P.O. Drawer "L", Farmington Industrial Park, Farmington, Conn.
Continuation of application Ser. No. 729,696, May 16, 1968, now Patent No. 3,567,437. This application Nov. 4, 1970, Ser. No. 86,914

Int. Cl. B29c 5/00

U.S. Cl. 425—78

4 Claims

A spacer for use with a core rod, a flexible tubular mold disposed about the core rod, means introducing a powder between the core rod and the mold, and means sealing the ends of the tubular mold so that the powder may be compacted on subjecting the mold to fluid pressure, the compacted powder being removed and sintered to form porous seamless tubing; the spacer having a cylindrical outer shell larger in diameter than the inside of the mold, guide means

sliding on the core rod and fixed to the shell positioning the shell concentrically about the core rod, the spacer containing at least one longitudinal opening allowing powder to flow through, and handle means extending through the mold



between the mold and the core rod so the spacer may be drawn upward through the tubular mold as powder flows through the opening in the spacer to be positioned about the core rod within the mold, the tubular mold on passage of the spacer contracting to hold powder against shifting.

3,632,244

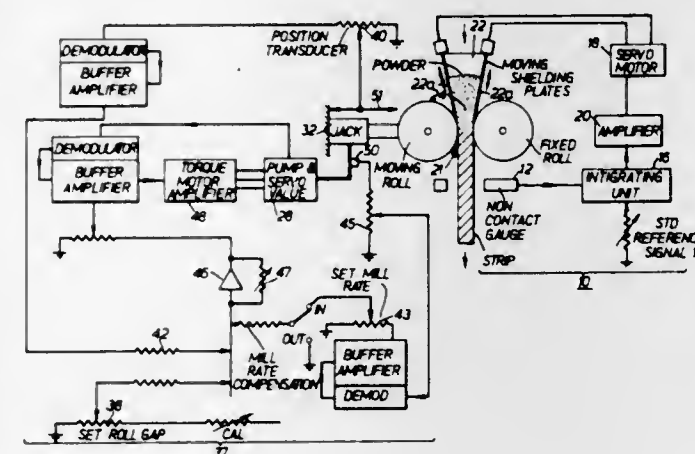
ROLLING STRIP FROM POWDER

George M. Sturgeon, Dore, and Geoffrey M. H. Sykes, Geecross Hyde, both of England, assignors to The British Iron and Steel Research Association
Filed Oct. 30, 1969, Ser. No. 872,577
Claims priority, application Great Britain, Oct. 30, 1968, 51,450/68

Int. Cl. B29d 7/14; B29c 15/00

U.S. Cl. 425—79

10 Claims



Apparatus for producing sheet and strip material, wherein particulate material is fed between a pair of opposed rolls and wherein a gauge is provided to sense the density of the rolled strip leaving the rolls and to provide a signal which is used in the control of the feed of particulate material to the rolls whereby rolled sheet and strip material of constant density is produced.

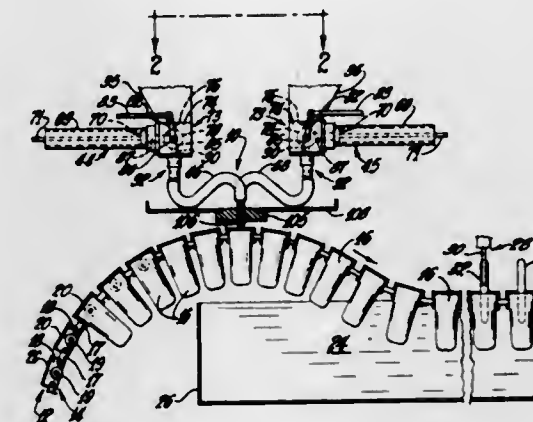
3,632,245

APPARATUS FOR THE PRODUCTION OF FROZEN CONFECTIONS

Harlan R. Getman, Toledo, Ohio, assignor to Vroman Foods, Inc., Toledo, Ohio
Filed May 13, 1970, Ser. No. 36,729
Int. Cl. A21c 3/00; A23g

U.S. Cl. 425—130

8 Claims



The disclosure embraces an apparatus for forming frozen confections in which movable molds are conveyed through filling, freezing, stick inserting and extraction stations, the apparatus including opened topped molds arranged in transverse rows on a conveyor system, and compartments containing liquid confection compositions connected with delivery tubes arranged to deliver metered amounts of liquid compositions simultaneously into the molds of a transverse row wherein liquid compositions of different flavors are delivered into groups of molds as the rows of molds are successively moved through the filling station.

3,632,246

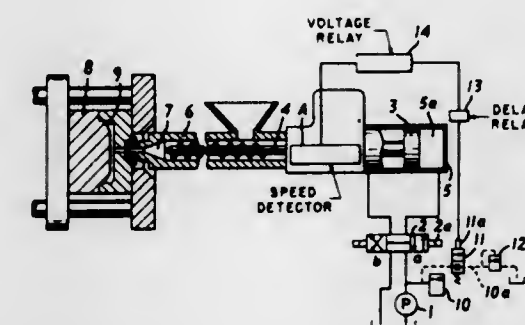
INJECTION MOLDING APPARATUS

Shigeo Ichikawa, and Ketsu Nagawa, both of Aichi-ken, Japan, assignors to Kabushiki Kaisha Meikiseisakusho, Nagoya-shi, Aichi-ken, Japan
Filed Sept. 29, 1969, Ser. No. 861,903
Claims priority, application Japan, Oct. 1, 1968, 43/71,264
Oct. 1, 1968, 43/71,265

Int. Cl. B29f 1/04

U.S. Cl. 425—135

6 Claims



A molding extruder having a pressure-relieving device which will relieve relatively high pressure to a lower holding pressure within the extruder on a delay after fluid molding material has been fully injected into the cavity of a mold and in which the time of completion of injection into the mold cavity is determined by an inherent reduction of feed speed of the extruder plunger.

3,632,247

COMPRESSION AND DEAERATION OF POWDERS

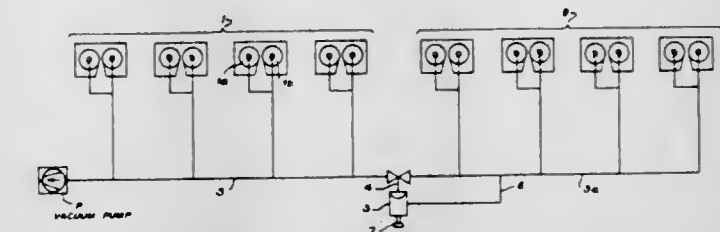
Friedrich Löffler, Bruhl, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt Vormals Roessler, Frankfurt (Main), Germany
Continuation-in-part of application Ser. No. 724,566, Apr. 26, 1968, now abandoned. This application July 16, 1970, Ser. No. 55,398

Claims priority, application Germany, D 53061

Int. Cl. B29c 15/00; B29f 5/02

U.S. Cl. 425—135

2 Claims



Powders are compressed and deaerated between vacuum cylinders which are arranged in groups requiring different vacuum and connected to a common vacuum line. Valve control means in said line automatically and continuously adjusts the vacuum pressure for the groups of cylinders.

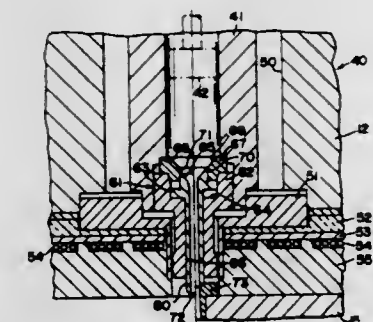
3,632,248

INJECTION PRESS APPARATUS

Nyles V. Reinfeld, 610 Treese Ave., Akron, Ohio
Filed Jan. 15, 1969, Ser. No. 791,381
Int. Cl. B29f 1/03

U.S. Cl. 425—157

5 Claims



This new apparatus includes or relates to an injection molding press wherein injection means including a cylinder and power-actuated piston is provided for forcing a plastic material into a mold cavity and wherein a slidably positioned injection nozzle connects the injection cylinder to a charge sprue provided in the mold. Special means position the injection nozzle for limited sliding movement in sealed relationship with the injection nozzle whereby the injection nozzle can be operated and will function satisfactorily under varied injection molding pressures and conditions. The invention further relates to an automatic power timer and cycle control means connecting to the injection means and to mold positioning means whereby the pressure exerted on the mold for mold closing action can be momentarily relieved to permit entrapped air to escape during an injection molding cycle.

3,632,249

APPARATUS FOR MOLDING HOLLOW PLASTIC ARTICLES

William S. Pearson, Hampstead, Md., assignor to Cypro Incorporated, Hampstead, Md.

Filed July 1, 1969, Ser. No. 838,074

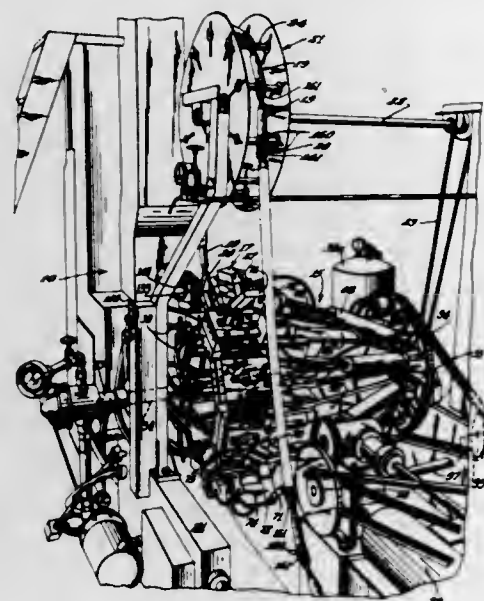
Int. Cl. B29d 23/03; B29f 1/06; B29c 1/06

U.S. Cl. 425—151

30 Claims

Apparatus for molding hollow plastic articles such as bottles comprises a rotor driven in one direction, with a plurality

of separable mold assemblies with complementary cavitated mold halves articulated for opening and closing and mounted in circumferential alignment on the rotor, adapted while travelling a circular path therewith to register serially with a plastics extruder. Motivating means operable cyclically in the rotation of the rotor open each of the mold assemblies sequentially before reaching the extruder to release molded



articles and while still open and upon registering with the extruder to receive plastic material therefrom, the motivating means then acting to close the mold assemblies for molding the thus received plastic material. The mold assemblies are substantially permanently mounted on the rotor and have replaceable cavity inserts facilitating changeovers.

A method of molding blown hollow plastic articles in a continuous string with ribbed integral connecting links.

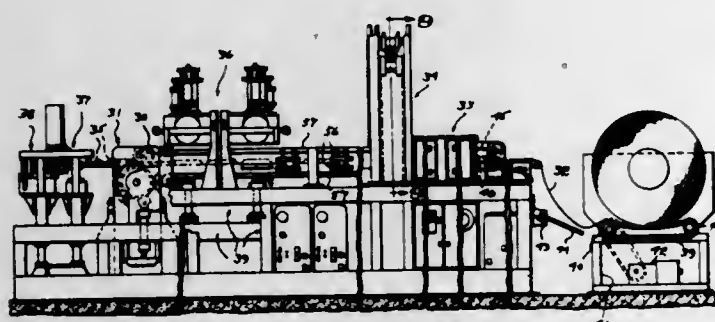
3,632,250

APPARATUS FOR FORMING ARTICLES FROM THERMOPLASTIC SHEET MATERIAL

Gerald A. Snow, Cumberland Foreside, Maine, assignor to United Industrial Syndicate, Inc., Portland, Maine
Filed Feb. 24, 1970, Ser. No. 13,631
Int. Cl. B29c 17/02

U.S. Cl. 425-155

11 Claims



Apparatus is disclosed in which equal lengths of sheet material are advanced step by step through an article-forming station and one or more subsequent stations such as printing and blanking and stacking stations. Means are provided that establish a positive but adjustable step length with a timer-controlled dwell and a positive lock against movement of the material during a dwell. Each subsequent station is provided with means enabling its coating members to be positioned lengthwise as required by the step length being used. In addition, the positions of the coating members at the printing station are adjustable transversely as is the distance between the margin gripping chains of the material-advancing means.

3,632,251

PROCESS CONTROL SYSTEM

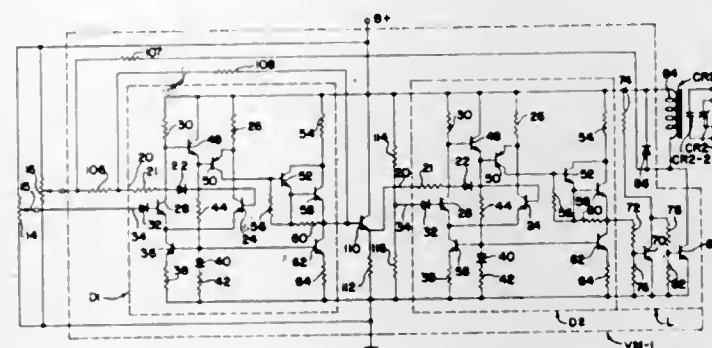
Donald E. Henry, Davenport, Iowa, assignor to Gulf & Western Industries, Inc., New York, N.Y.

Filed Aug. 26, 1968, Ser. No. 812,482

Int. Cl. 425 450; B29c 3/06

U.S. Cl. 425-166

8 Claims



There is provided a process control system for controlling the position of a movable machine member, for example, the movable die member of a plastic molding machine, comprising an actuable means, such as a solenoid-controlled valve system, for upon energization driving the movable member; circuit means for developing a signal having a value representative of the position of the movable member; and signal monitoring means having a first and a second condition, and being responsive to the value of the signal developed by the circuit means so that when the developed signal attains a predetermined value, the monitoring means is actuated from the first condition to the second condition; the actuable means is coupled to the monitoring means so that the actuable means is actuated and deactivated in dependence upon the condition of the monitoring means.

3,632,252

APPARATUS FOR FORMING ARTICLES

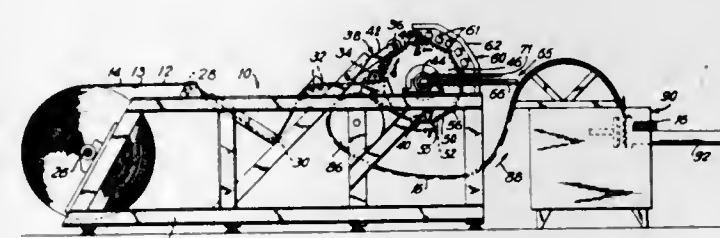
Stephen W. Amberg, St. James; Thomas E. Doherty, Setauket, and Jacob J. Flkert, Huntington, all of N.Y., assignors to Owens-Illinois, Inc.

Filed Mar. 5, 1969, Ser. No. 804,467

Int. Cl. B29c 17/04

U.S. Cl. 425-168

16 Claims



The present invention relates to a method and apparatus for forming articles from a web of single-ply or laminate plastic material that may have information thereon, and which information is to be in register with the article formed.

3,632,253

PRESSURE-RESPONSIVE SHAFT SEAL FOR PLASTIC MATERIALS EXTRUDERS

Robert Tillis, Edison, N.J., assignor to Rheem Manufacturing Company

Filed Jan. 16, 1970, Ser. No. 3,344

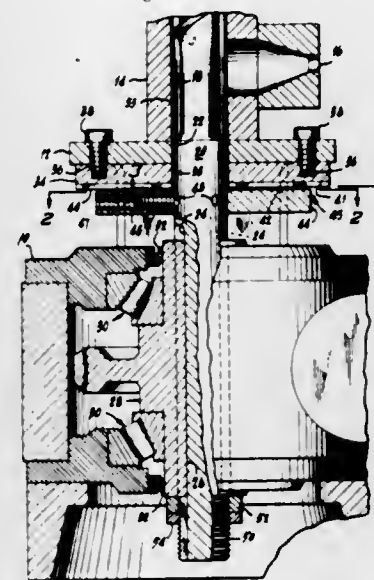
Int. Cl. B29f 3/01

U.S. Cl. 425-168

9 Claims

Axial thrust force on the feed screw of a plastic materials extruder increases in proportion to the increase of pressures developing within the discharge chamber of the extruder, to

produce a proportionate increase in the sealing force developed between a stationary seal plate, and a rotary seal plate secured to the feed screw shaft. The seal takes up automatically for wear. An interchange of seal plates is provided



to control the rate of escape of materials through the seal. Prepositioning of the feed screw shaft in the axial direction is also provided, to adjustably predetermine the seal space dimension between the plates.

3,632,254

APPARATUS FOR PRODUCING FIBER REINFORCED PLASTICS

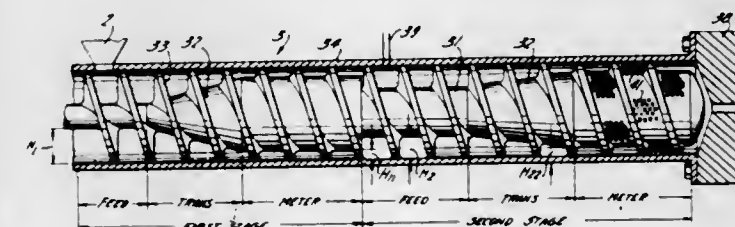
George W. Woodham, Evansville, and James L. Stuart, Boonville, both of Ind., assignors to Dart Industries, Inc., Los Angeles, Calif.

Filed Jan. 14, 1970, Ser. No. 2,783

Int. Cl. B29f 3/02

U.S. Cl. 425-205

10 Claims



An apparatus is disclosed for producing fiber reinforced plastics wherein the fibers are more uniformly dispersed throughout the resin. Briefly, the apparatus includes an extrusion means and a means for feeding glass fibers and thermoplastic resin thereto, said extrusion means comprising a two-stage extruder having a multiflight extruder screw extending through the two stages and defining within each stage, respectively, a feed zone, a transition zone and a metering zone, the compression ratio in the first stage being in the range of about 3:1 to 5:1, the compression ratio in the second stage being in the range of about 1.5:1 to 3.5:1, and the ratio of the flight depth of the extruder screw in the second stage feed zone to the flight depth of the extruder screw in the first stage feed zone being in the range of about 1:1.25 to 1:2.5, said extruder screw being provided with flow deflection means in the second stage metering zone to cause uniform dispersion of the fibers throughout the resin.

3,632,255

EXTRUSION APPARATUS

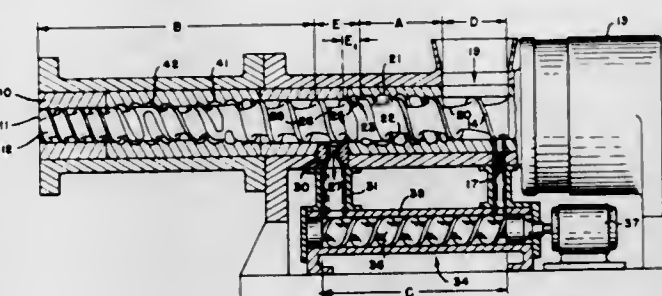
Paul Geyer, Detroit, Mich., assignor to Uniroyal, Inc.

Filed Jan. 10, 1969, Ser. No. 790,406

Int. Cl. B29f 3/02

U.S. Cl. 425-205

5 Claims



Apparatus for the extrusion of thermoplastic materials. First and second worm-type extruders are provided, the first being designed to produce a uniformly extrudable material and having a capacity in excess of that of the second. The uniformly extrudable material discharged from the first extruder enters pressure relief and control means from which it is fed into the second extruder, to the extent of its lesser capacity, at a constant pressure. Excess material discharged from the first extruder passes through an orifice and is returned by feedback means to a preferred position in the feed means for the first extruder. The material fed into the second extruder is discharged therefrom at a uniform volumetric extrusion rate, thereby providing a metering effect, and without significant physical or dimensional variations in the extrudate.

3,632,256

EXTRUSION-COMPOUNDING APPARATUS

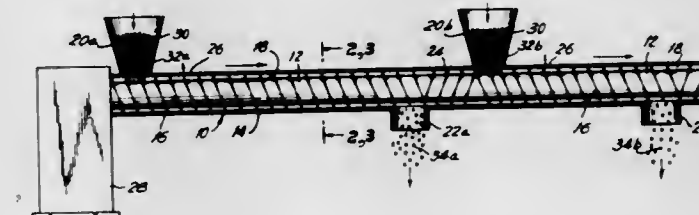
Howard Edward Kasting, and Roger Brown Staub, both of Somerville, N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 19, 1969, Ser. No. 808,394

Int. Cl. B29f 3/02

U.S. Cl. 425-205

1 Claim



The disclosure relates to apparatus for the extrusion compounding of plastic material employing extruder screw means mounted in extruder housing means having a plurality of plastic material feed port means and compounded plastic material discharge port means arranged to define a plurality of separate compounding zones in tandem along the length of said extruder housing means.

3,632,257

APPARATUS FOR MAKING GRANULES

Naoyoshi Ashizawa, No. 101 Shoankita-machi, Suganami-ku, Tokyo, Japan

Filed Sept. 4, 1969, Ser. No. 855,330

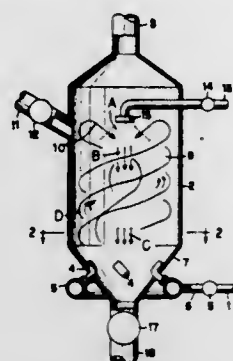
Int. Cl. B29b 1/03; B29c 23/00

U.S. Cl. 425-222

7 Claims

This invention pertains to a method and device for manufacturing granules by the controlled cohesion of particles. The method consists in producing a spiralling up and downstream of particles by means of jets of pressurized gas

and of sprinkling suitable granulating agents onto the outer layers of the stream of particles, or on to the inner layers, or by coating the particles with suitable granulating agents prior to producing the spiralling up and downstream of the particles by the pressurized gas and thereby producing granules by cohesion of the particles. The device comprises a tower-like cylindrical vessel with conical top and bottom sections,



the bottom section mounting a plurality of gas ejecting nozzles forming a ring with the nozzles pointing tangentially upwards to produce the spiralling stream of particles. The top conical section has a gas exhaust port at its apex for exhausting the gas. A feeder pipe and valve for loading the vessel, and a sprinkler nozzle and supply pipe for ejecting granulating agents, when required are mounted on the top sidewalls of the cylindrical section.

3,632,258

CONFECTIONERY BAR EXTRUDING MACHINE

Hans Arthur Faerber, Castle Cove, New South Wales, Australia, assignor to NID Pty. Limited, Alexandria, New South Wales, Australia

Filed Dec. 2, 1969, Ser. No. 881,499

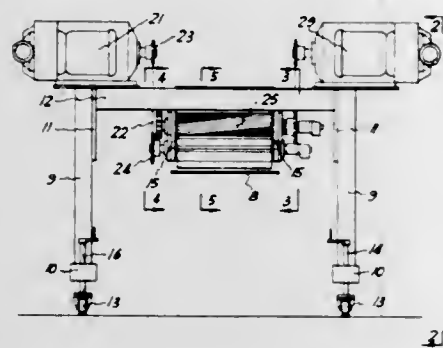
Claims priority, application Australia, Dec. 2, 1968,

47,106/68

Int. Cl. A21c 11/04

U.S. Cl. 425-223

14 Claims



Apparatus for making a strip of dough having a roller with at least one circumferential groove and driving means to rotate the roller. The groove is preferably covered with a nonsticking material such as polytetrafluoroethylene. A barrier makes sliding contact with the roll (except for a space between it and the floor of the groove) to define a pressure zone so as to fill the groove within the zone with dough. Stripping means removes the dough from the groove as a continuous strip, after it has been carried past the space between the groove bottom and the barrier.

3,632,259

WAX INJECTION NOZZLE

Virgil V. Stanciu, Rocky River, Ohio, assignor to Tempcraft Tool & Mold, Inc., Cleveland, Ohio

Filed May 15, 1969, Ser. No. 824,824

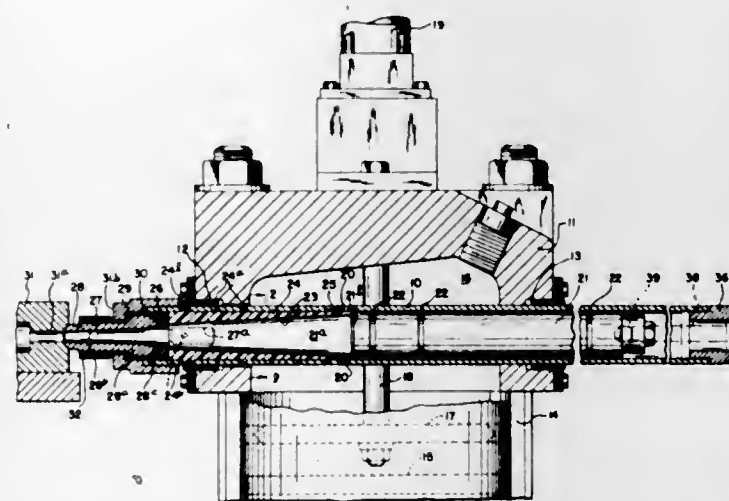
Int. Cl. B29f 1/03, 1/05

U.S. Cl. 425-245

4 Claims

A nozzle structure is provided for injecting a flowable medium into a die or mold, specifically for injecting hot wax

into a die. The nozzle structure comprises a generally tubular housing an intermediate portion of which is submerged in a reservoir of hot wax with the discharge end of the housing extending beyond the reservoir. A nozzle plug is reciprocally mounted in the hollow of the housing with a major portion of the plug being frustoconical and coacting with a complementary portion of the housing to provide a valve. Movement of the plug toward the discharge end prevents the ejection of wax and movement of the plug in the opposite direction permits the ejection of hot wax because the hot wax in the reservoir is under pressure and there is a



direct flow from the reservoir through the valve in the nozzle plug when the same is open. Because of the mating conical surfaces, the wax flow begins slowly and increases gradually and continuously to full flow. The wax flow is laminar, and turbulence and splashing of wax in the die is avoided. The nozzle contains an evacuating system, so that no wax is left in the nozzle after the injection cycle is completed. As a consequence, the wax injected into the die is always fresh from the reservoir, uniform in temperature, and uniform in viscosity. This, of course, results in a greatly improved pattern finish and appearance.

3,632,260

FOAM PLASTIC MOLDING MACHINE

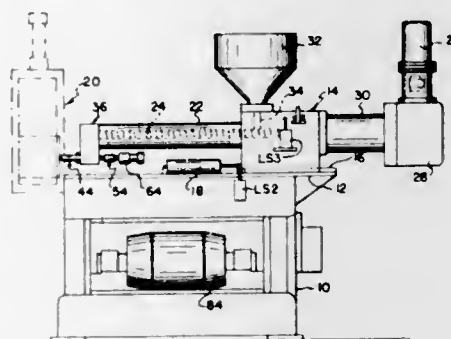
Ernest P. Mosko, 12700 Lake Ave., Lakewood, Ohio

Filed July 14, 1969, Ser. No. 841,194

Int. Cl. B29f 1/05

U.S. Cl. 425-245

13 Claims



A molding machine for molding foam plastic material such as, for instance, polystyrene beads, comprising a plasticizing extruder mechanism including an extruder barrel for plasticizing and heating the foam plastic material and possessing the ability to maintain the heated plastic material under sufficient pressure to prevent the foaming thereof in the machine, with a nozzle coating with the barrel, for injecting the heated plastic material into a mold, and with shutoff means coacting with the leading or emitting end of the nozzle for controlling the flow of heated plastic material out the emitting end of the nozzle, and preventing foaming of the

plastic material in the nozzle, and in the extruder barrel, but permitting high-pressure ejection of the heated plastic material out through the emitting end of the nozzle into the mold upon movement of the shutoff means to inactive position, after which the shutoff means moves back to active position. Foaming of the heated plastic material occurs in the mold to form the finished part.

3,632,261

CONTINUOUS-PARISON BLOW-MOLDING MACHINE

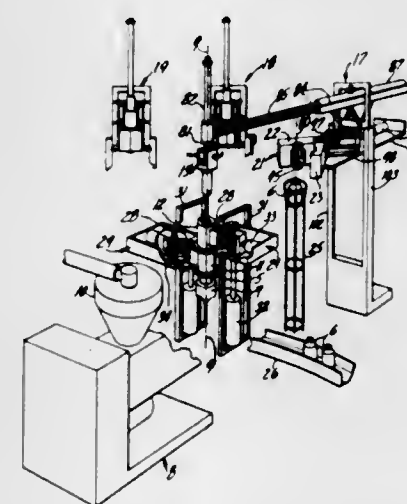
Joseph Gasior, Bloomfield, N.J., and Charles J. Waechter, Wayland, Mass., assignors to Midland Ross Corporation, Cleveland, Ohio

Filed Sept. 22, 1969, Ser. No. 859,894

Int. Cl. B29d 23/04

U.S. Cl. 425-292

9 Claims



A high-production machine for blow molding articles, such as plastic bottles, from sections of a continuously extruded parison wherein the parison is received in a succession of concurrently moving, cyclically returned preliminary or "preform" molds into each of which a section of parison is received, advanced into enveloping relation with a transfer pin, and then severed and formed into a closed-end "cell" while in transit. In this machine, one or more transfer pins cooperate with the preform molds to close the ends and otherwise partly shape successive parison sections or cells. Each preliminarily shaped cell is shifted by a transfer pin from the reciprocal ambit of the preform mold to a position wherein it is embraced by a final blow mold or one of a plurality thereof. The transfer pin has important functions in cooperation with the molds in shaping the necks and closed ends of the finished blow-molded articles without the formation of scrap fragments.

3,632,262

ANGLED CUTOFF IN BOTTOM OF BLOW MOLD

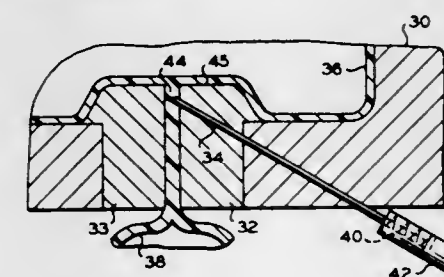
Richard D. Johnston, Blackfoot, Idaho, assignor to Phillips Petroleum Company

Filed Sept. 12, 1969, Ser. No. 857,420

Int. Cl. B29d 23/03

U.S. Cl. 425-302

4 Claims



Mold parts are closed about a preformed parison pinching it shut at one end preparatory to blow molding it to a hollow article. A cutoff blade slides within one mold part at an angle

so as to enable it to sever the parison at a point adjacent the seal line of the article being formed. This arrangement allows pinching shut parisons made of crystalline materials such as 1-olefin polymers, which parisons have been heated to a temperature just below the crystalline melting point, in such a manner that a good seal is obtained with the seal line being in an indented portion of the bottom; thus the bottle will sit flat on a surface.

3,632,263

DEVICES FOR BLOWING THERMOPLASTIC HOLLOW BODIES

Hubert Blanchard, Le Havre, France, assignor to Sidel, Societe Anonyme, Le Havre, France

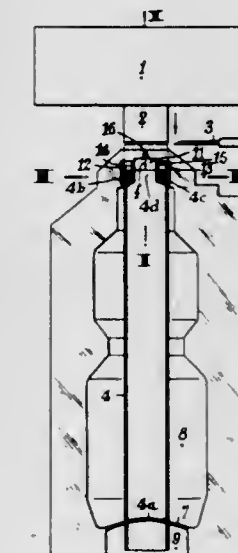
Filed July 7, 1969, Ser. No. 839,198

Claims priority, application France, July 8, 1968, 158.303

Int. Cl. B29d 23/03

U.S. Cl. 425-324

9 Claims



Device for blowing a hollow thermoplastic body manufactured according to the extrusion-blowing process from a continuous vertically extruded tubular parison cut into sections enclosed into separate split moulds disposed beneath the extrusion head. This device is characterized in that a blowing chamber of relatively reduced dimensions is formed in the two mould halves or sections and adapted to retain therein one open end of the parison section when the mould is closed, and that a compressed-gas injection nozzle connected to a source of compressed gas opens into said blowing chamber and is so arranged that the gaseous jet issuing from said nozzle is directed towards said open end of the parison.

3,632,264

NECK-FORMING COLLET HAVING ALTERNATE INVERTED WEDGE-SHAPED JAWS

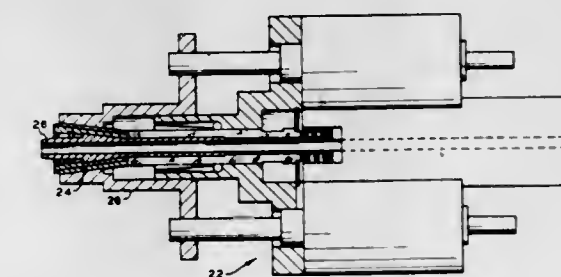
Alvin E. Butcher, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Nov. 26, 1969, Ser. No. 880,342

Int. Cl. B29d 23/03

U.S. Cl. 425-326

8 Claims



Apparatus for forming the thread and/or neck area at one end of a tubular parison comprises a collet having alternate

jaws which are flared at the inward extension thereof and corresponding jaws which flare in a direction away from the center. The jaws which flare in a direction toward the center are biased outwardly and the other jaws are biased inwardly so that as the collet closes on a parison, no cracks are present between adjacent jaws.

3,632,265

FLATTENING AND TAKE-AWAY DEVICE FOR BLOWN TUBING OF PLASTICS MATERIAL

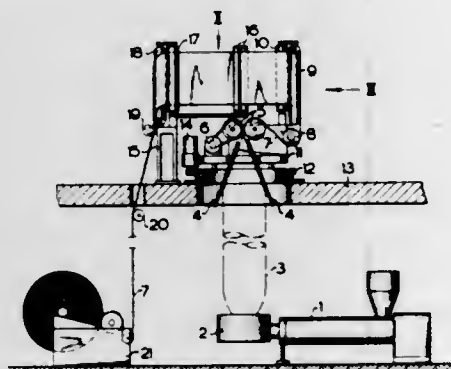
Hartmut Upmeyer, Tecklenburg, Germany, assignor to Windmoller & Holscher, Lengerich Westphalia, Germany
Filed Jan. 6, 1970, Ser. No. 923

Claims priority, application Germany, Jan. 7, 1969, P 19 00 614.5

Int. Cl. B29d 7/00

U.S. Cl. 425—326

5 Claims



The flattening and take-away device is combined with a stationary blow head and comprises flattening plates and deflecting rolls, to which an oscillating angular movement is imparted about an axis of rotation which coincides with the axis of the tubing which emerges from the blow head. The take-away rolls are succeeded by a deflecting rod, which is inclined at an angle of 45° from the axis of rotation and revolves about the same. The deflecting rod is succeeded by at least one deflecting roll, which is parallel to the axis of rotation and also revolves about the same. The tubing is further moved from said deflecting roll over at least one additional deflecting roll, which is also parallel to the axis of rotation but in a stationary position.

3,632,266

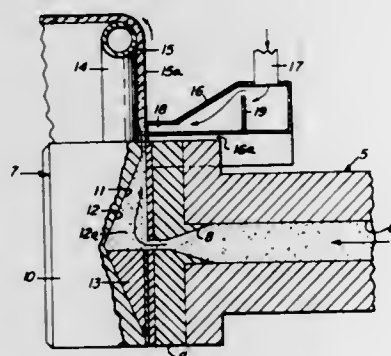
CONTINUOUS APPARATUS FOR EXTRUDING AND FORMING THERMOPLASTIC ARTICLES

Thomas W. Winstead, 2 Overlook Lane, Baltimore, Md.
Continuation of application Ser. No. 729,856, Apr. 2, 1968, now abandoned, which is a division of application Ser. No. 508,417, Nov. 18, 1965, now abandoned. This application Oct. 3, 1969, Ser. No. 864,294

Int. Cl. B29d 23/03

U.S. Cl. 425—326

9 Claims



Apparatus for extruding a sheet of foamed thermoplastic material having an expanded, cellular, inner structure and a

thin, unexpanded, molecularly integrated skin of the same material covering at least one side thereof, and, without interruption, forming thermoplastic articles therefrom. The skin is formed by controlling the temperature of the desired surface of a foamable thermoplastic sheet immediately after it is extruded so as to prevent the expanding and foaming of said surface.

3,632,267

APPARATUS FOR MAKING HOLLOW ARTICLES OF THERMOPLASTICS

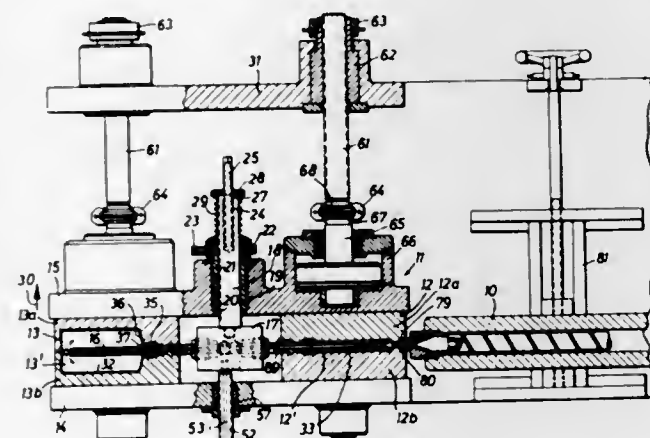
Reiner Kader, Holzlar, Germany, assignor to Kautex-Werk Reinold Hagen, Rheinland, Germany
Filed Mar. 12, 1969, Ser. No. 806,597

Claims priority, application Germany, Mar. 12, 1968, P 17 04 162.2

Int. Cl. B29d 23/03

U.S. Cl. 425—326

13 Claims



The specification describes apparatus for manufacturing hollow plastic articles such as bottles. Injection mold halves and blow mold halves are carried by a fixed and a reciprocable mounting plate to open and close injection and blow mold cavities. Mandrels are carried by a rotatable member so that a mandrel in each injection mold cavity with a parison injection molded thereon, can be swiveled into a blow mold, while a further mandrel leaves the blow mold, has the blown bottle stripped therefrom, and enters the injection mold. When the molds are closed a further parison is injected and a further bottle blown.

3,632,268

WEB-CLAMPING APPARATUS

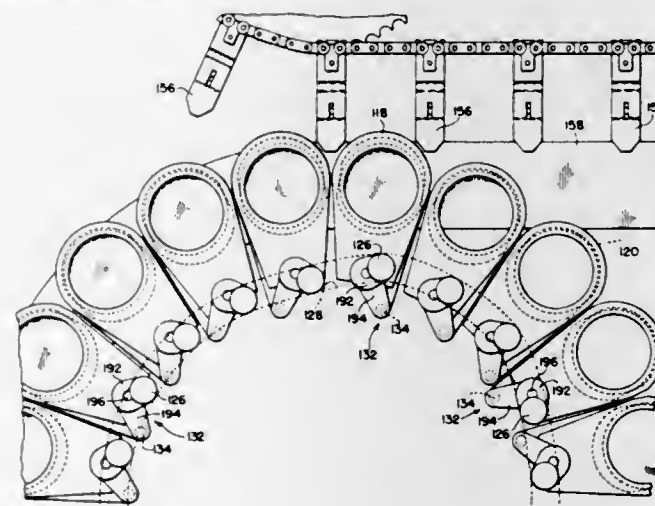
Henry Pomernacki, Northbrook, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Nov. 12, 1969, Ser. No. 875,882

Int. Cl. B29c 17/00

U.S. Cl. 425—348

5 Claims



In a continuous motion container molding machine for forming thin-wall, disposable, plastic containers, circum-

ferential, opposed web clamping means are arranged to provide angular and rotational displacement thereof after being clamped to a moving web of heated thermoplastic material traveling in a linear path, thereby permitting the web-clamping means to move in a predetermined arcuate path and enabling containers to be formed from the area of the web within the circumferential, opposed web-clamping means.

3,632,269

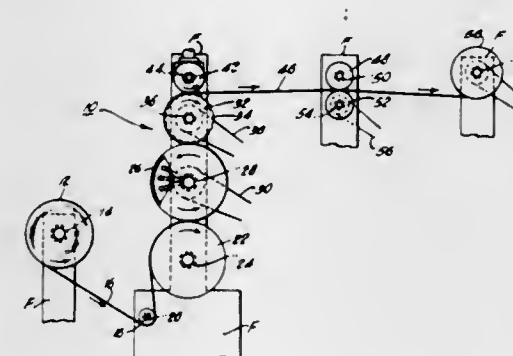
APPARATUS FOR PRODUCING A PLASTIC NET PRODUCT

Peter L. Doviak, Kendall Park, and Frank Kalwaites, Somerville, both of N.J., assignors to Johnson & Johnson
Filed Feb. 14, 1969, Ser. No. 799,438

Int. Cl. B92d 7/04; B29d 7/14

U.S. Cl. 425—362

2 Claims



A method and apparatus for producing a plastic net product from a thermoplastic film wherein the film is embossed while at an elevated temperature with an embossing roll having a resilient surface and the film is removed from the resilient embossing surface while simultaneously being cooled and drafted.

3,632,270

MANUFACTURE OF CONCRETE PIPES

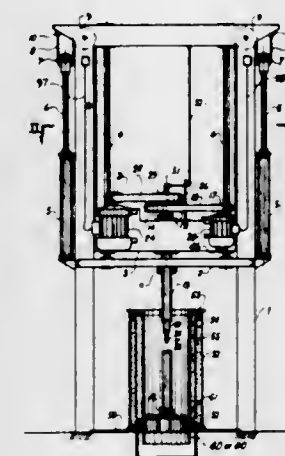
Clifford Aubrey Baker, 4 Solway Drive, Glen Waverley, Victoria, and Morris Charles Kiefel, 19 Longbourne Ave., N. Clayton, Victoria, both of Australia
Continuation-in-part of application Ser. No. 567,272, July 22, 1966, now abandoned. This application Mar. 14, 1969, Ser. No. 807,210

Claims priority, application, Australia, 61,968/65

Int. Cl. B28b 21/24

U.S. Cl. 425—365

5 Claims



An apparatus for the manufacture of concrete pipe, in which injurious tangential force exerted between the compacting rollers and the pipe is substantially overcome. The means for overcoming or modifying the tangential force includes motor means operatively connected to drive the compacting rollers and motor means operatively and controllably connected to drive the roller head.

3,632,271

APPARATUS FOR MAKING SOLID CARBON DIOXIDE

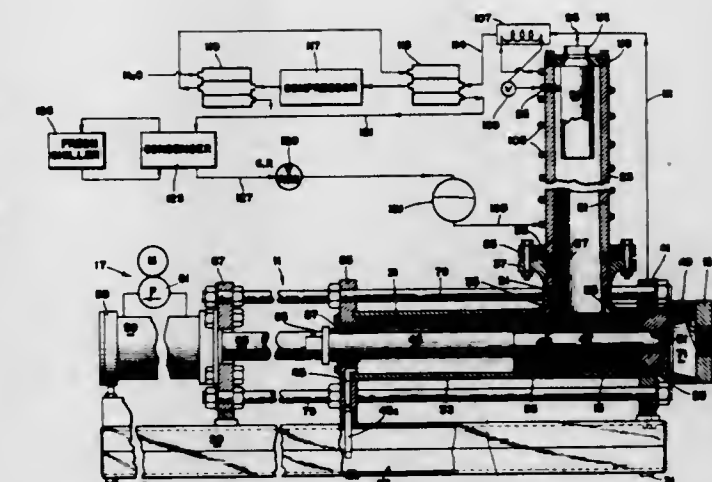
Lewis Tyree, Jr., 10401 S. Oakley Ave., Chicago, Ill.

Filed July 18, 1969, Ser. No. 843,019

Int. Cl. B29f 3/00

U.S. Cl. 425—378

7 Claims



Carbon dioxide snow from an overlying snow tower is intermittently fed into an extrusion chamber wherein a ram is reciprocated by a hydraulic drive. The snow is compressed at a pressure of at least 1 ton per square inch and extruded through a die having a plurality of apertures to make rods of dense supercooled CO₂ that break into short nuggets. The size and number of the die apertures are controlled relative to the cross-sectional area of the ram. A gas reservoir is provided in fluid communication with the rear end of the extrusion chamber which precludes the entry of humidity-bearing air into the cold extrusion chamber.

3,632,272

THERMOFORMING APPARATUS

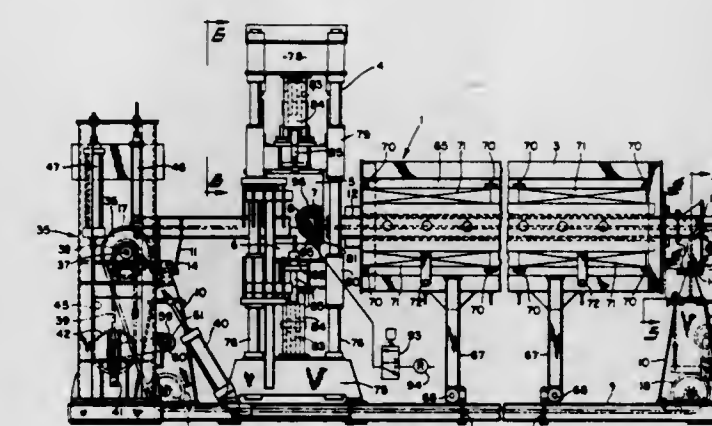
Albert Herbener, Akron, Ohio, assignor to NRM Corporation, Akron, Ohio

Filed Apr. 29, 1969, Ser. No. 820,098

Int. Cl. B29c 17/04, 3/00

U.S. Cl. 425—387

10 Claims



Thermoforming apparatus including an oven and an adjacent thermoformer through which a plastic sheet is successively conveyed for heating the sheet for forming temperature as it is indexed through the oven and for pressure and/or vacuum forming the heated sheet in the thermoformer.

3,632,273

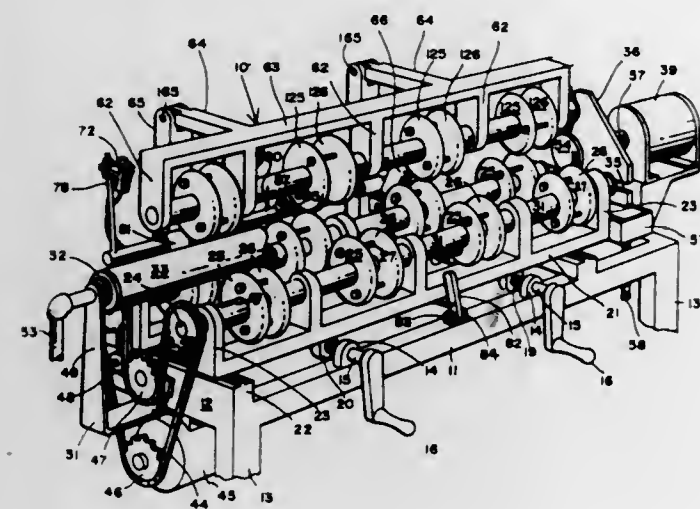
MACHINE FOR PRODUCING SIMULATED BAMBOO
 Anthony P. Savickas, 7931 East Drive, North Bay Village,
 Miami Beach, Fla.

Filed June 19, 1970, Ser. No. 47,745

Int. Cl. B29c 17/00

U.S. Cl. 425—392

8 Claims



A machine for converting plain plastic tubing such as polyvinyl chloride tubing and the like into simulated bamboo for use in the manufacture of furniture, etc. by forming on the plain plastic tubing a plurality of spaced peripheral ridges along the full length of the tubing. The machine supports a length of the tubing by means of pairs of rollers and heats the tubing between the rollers at the positions ridges are to be formed as the tube is rotated. The pairs of rollers are mounted so that one roller may slide a short distance in the direction of the other roller whereby upon heating the tubing and sliding one roller in each pair in the direction of the other rollers simultaneously with forcing the axial movement of the plastic tubing, peripheral or circumferential ridges will be formed on the plain plastic tubing. The tubing is then cooled off to cause the ridges to become set.

3,632,274

BRIM-CURLING APPARATUS

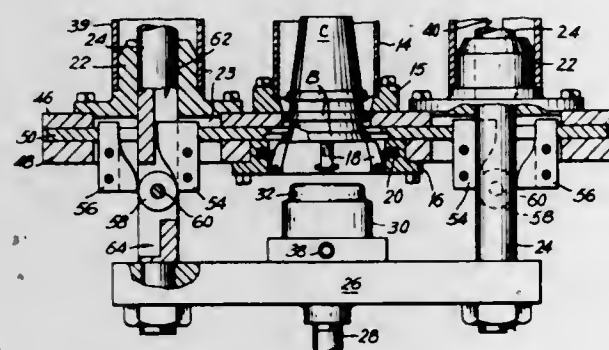
William Stanley Gillespie, Glen Ellyn, Ill., assignor to American Can Company, New York, N.Y.

Filed Nov. 25, 1969, Ser. No. 879,685

Int. Cl. B29c 17/02

U.S. Cl. 425—395

10 Claims



Brim-curling equipment for plastic or like disposable cups wherein the lowermost cup in an inverted stack thereof is engaged by cooperating internal and external dies to shape the lip curl or brim of the cup to a desired rounded configuration while the stack is supported by the internal die, after which the finished lowermost cup is denested and removed from the stack by the internal die while the remainder of the stack remains supported during cup removal first by the external die and thereafter by a circumferential series of dogs for a succeeding curling operation on the next lowermost cup.

3,632,275

APPARATUS FOR FORMING A BEND IN SHEET MATERIAL

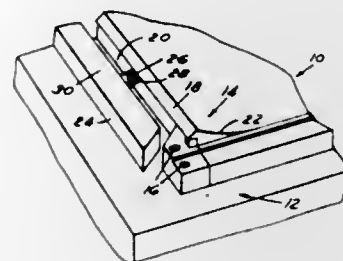
Howard R. Misner, Rochester, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 3, 1970, Ser. No. 60,486

Int. Cl. B29c 17/04, 23/00

U.S. Cl. 425—405

5 Claims



The apparatus is utilized in conjunction with a vacuum forming system to place a reverse bend in a plastic sheet. The apparatus includes a base, a stationary mold member and a movable mold member. The two mold members, in an associated position, define therebetween the reverse bend to which the plastic sheet is to be formed. The movable mold member is biased to a first position remote from the stationary mold member. The movable mold member has a gripping surface thereon which grips the plastic sheet to be formed. When the movable mold member moves to a second position associated with the stationary mold member, a portion of the plastic sheet is carried by the gripping surface between the two mold members thereby to be formed into the reverse bend.

3,632,276

MOLD FOR PRODUCING MOLDED ELEMENTS WITH PARTS OF DIFFERENT THICKNESSES FROM FIBROUS MIXTURES

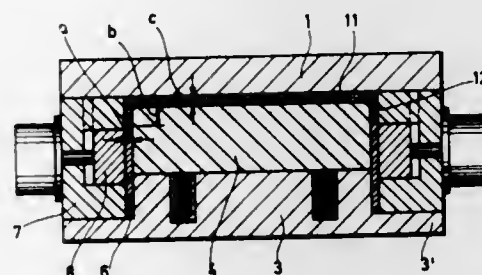
Edmund E. Munk, Oberstenfeld, Germany, assignor to Furnier- & Sperrholzwerk J.F. Werk Jr.K.G. Werzallt-Pressholzwerk, Oberstenfeld, Germany

Filed Apr. 28, 1969, Ser. No. 819,880

Int. Cl. B29j 5/00

U.S. Cl. 425—415

5 Claims



A mold for producing especially plate-shaped elements each of which is provided with a flange or wall portion projecting from one or more of its lateral edges from a mixture of comminuted fibrous materials and a binder, preferably of hot-setting synthetic resins, wherein the part of the mold chamber in which the thin lateral wall portion or portions are molded has a considerably greater width than the final thickness of this wall portion and thus permits the molding mixture to be easily filled uniformly into the entire mold chamber. The mixture in the lateral downwardly projecting chamber part or parts is then first compressed by lateral, horizontally moving dies to the final thickness of the wall

portions, whereupon several lower dies are moved independently of each other to press against the thin lower ends of the precompressed wall portions and against the lower side of the material in the main part of the mold chamber to compress the material in the entire mold chamber to the dimensions and shape of the final product.

3,632,277

METHOD AND APPARATUS FOR MOLDING ELBOWS AND THE LIKE

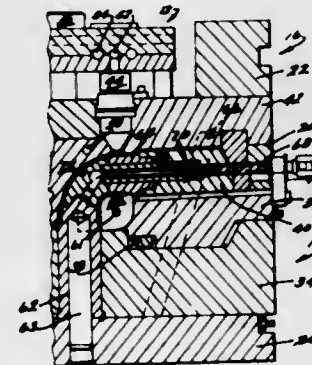
John D. Stalter, Elkhart, Ind., assignor to Nibco, Inc., Elkhart, Ind.

Filed Sept. 5, 1968, Ser. No. 757,536

Int. Cl. B29d 23/02; B29c 9/00

U.S. Cl. 425—438

4 Claims



An injection-molding apparatus including a mold structure having a plurality of spaced, adjacent internal mold cavities, with the mold structure formed of a pair of relatively movable members, each of which have concavities comprising half of each such molding cavity, wherein the molding cavities have a curving shape designed for the molding of curved objects, wherein the mold structure members form parting lines along each side of such object which lie in planes spaced from and parallel to the plane in which the longitudinal axis of the molded object lies, and wherein one mold structure member is moved relative to the other when the two members are parted in a manner which wipes the molded objects off a central core structure used to produce tubular objects.

3,632,278

ELASTOMERIC SHOE SOLE MOLD

Myron W. Hall, Sunfish Lake, and Harvey A. Chapman, Richfield, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

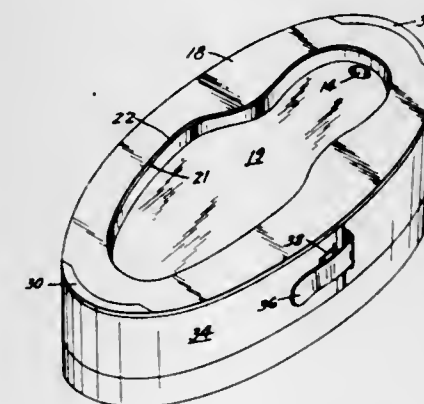
Continuation of application Ser. No. 716,779, Mar. 28, 1968.

This application Aug. 27, 1970, Ser. No. 67,542

Int. Cl. B29c 1/00

U.S. Cl. 425—450

4 Claims



Mold for forming shoe soles in situ which is formed from a single cast elastomeric polyurethane piece having an opening on one side with an inwardly projecting lip encircling the

opening to support a shoe upper placed over the mold, liquid polyurethane-forming reaction mixture being cast into the cavity, hardened at a low temperature and then stripped from the mold, encircling lip being sufficiently flexible to permit stripping of shoe from mold without tearing away of sole, said mold preferably having a releasable clamping means such as an encircling band for sealing the mold around a shoe upper and being releasable to facilitate removal of the soled shoe from the mold.

3,632,279

EXTRUDER DIE CLAMP

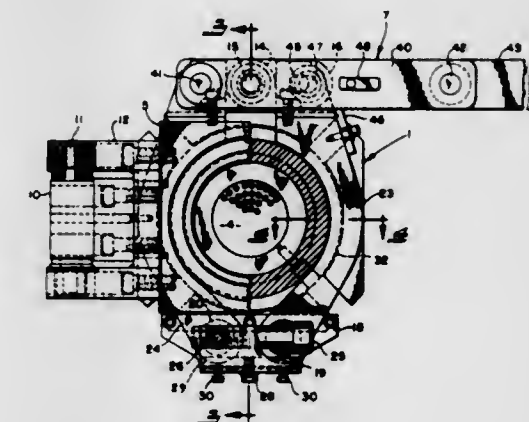
Raymond L. Christy, and Paul D. Uhlenhaut, both of Akron, Ohio, assignors to NRM Corporation, Akron, Ohio

Filed June 24, 1969, Ser. No. 836,074

Int. Cl. B29f 3/00

U.S. Cl. 425—450

10 Claims



An extruder die clamp having arcuate clamping members engageable with oppositely tapered flanges on a die adapter and on the end of an extruder cylinder thus to form a fluid-tight joint around the registering extruder and adapter openings. The clamp has parallel pivots at one end of the clamping members which are adjustable toward or away from each other to adjust clamping pressure when the toggle linkage at the other end of said members is actuated to clamping position, and has an equalizer link associated with the toggle linkage to maintain substantial symmetry of the clamping members as the clamp is opened. Also, the clamp is mounted on the extruder so that it may float radially for self-centering action and axially as the clamping members are drawn together against the beveled flanges of the die adapter and the extruder.

3,632,280

DEVICE FOR HOLDING A STAMPER ON THE DIE OF A RECORD PRESS

Leonard Palmer, 22 Lakeview Ave., Elizabeth, N.J., and Joseph Flusfeder, 801 N. Broad St., Florham Park, N.J.

Filed Sept. 16, 1969, Ser. No. 858,426

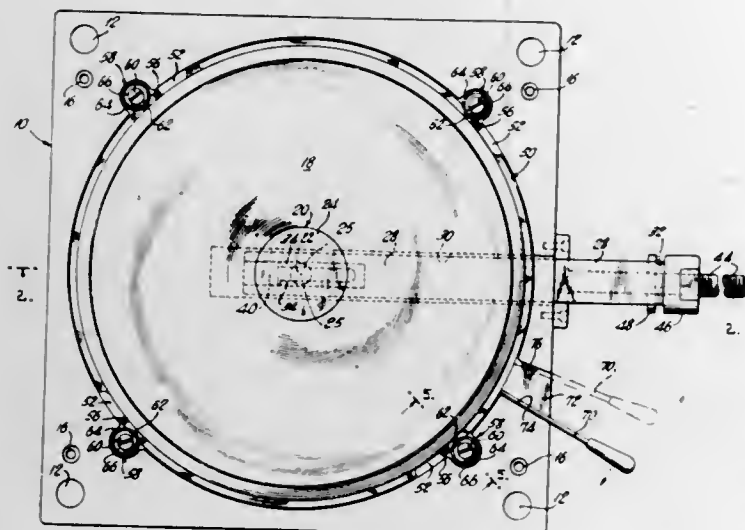
Int. Cl. B29d 17/00

U.S. Cl. 425—450

5 Claims

A record press having structure for releasably holding a stamper on a die of the press. This structure includes a circular clamping ring for clamping the periphery of the stamper to the die. A plurality of spring units coact with the ring to urge it to its clamping position. The ring can be displaced with respect to the spring units to a released position where the ring is free to move to and from the periphery of the stamper. The center of the stamper is locked to the die prior

to clamping of the periphery of the stamper to the die, and this locking is brought about by way of a central locking



member which is held releasably in a locking position by a radially movable locking wedge.

3,632,281

PLASTIC-MOLDING MACHINE

Georgy Alexandrovich Ilyashenko, prospect Mira, 34, kv. 33; Vilyam Efimovich Laventman, ulitsa Generala Petrova, 21, kv. 69; Nikolai Iosifovich Lichman, ulitsa Stolbojaya, 19, kv. 30, all of, Odessa; Iosif Moiseevich Rabinovich, ulitsa Dzerzhinskogo, 75, kv. 6, Khmel'nitsky; Nikolai Yakovlevich Ryaboi, ulitsa Novoselov, 31, kv. 57, and Andrei Lukyanovich Lugovskoi, both of Odessa, all of U.S.S.R.

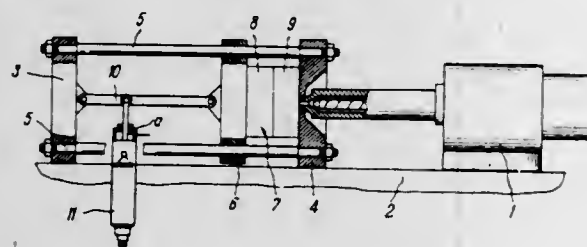
Filed Aug. 14, 1969, Ser. No. 850,037

Claims priority, application U.S.S.R., Sept. 4, 1968, 1267679

Int. Cl. B29f 1/00; B30b 1/16

U.S. Cl. 425-450

3 Claims



A plastic-molding machine with a hydromechanical mold-clamping device whose leverage system comprises a pusher with a rigid stop. The machine is adapted for processing all known kinds of plastic materials by injection-molding and flow-molding methods, and allows the molded article to be degassed while it is in the mold.

3,632,282

APPARATUS FOR PRODUCING FILAMENTARY OR SHEETLIKE MATERIAL OF PLURAL COMPONENTS

Ole-Bendt Rasmussen, 28, Rugmarken, Farum, Denmark
Original application June 7, 1966, Ser. No. 555,835, now Patent No. 3,505,162. Divided and this application Dec. 9, 1969, Ser. No. 871,305

Claims priority, Great Britain, June 8, 1965, 24,068/65

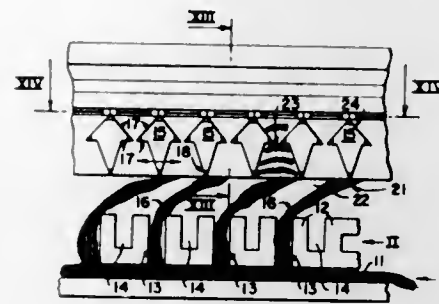
Int. Cl. B29f 3/00, 3/12

U.S. Cl. 425-464

10 Claims

An extrusion apparatus for producing synthetic sheet material in which a plurality of extrudable synthetic materials are extruded as interspersed streams through alternating groups of extrusion orifices arranged in a row and collected into a coherent assembly within a collecting chamber having an outlet orifice slot therein for removal of the thus formed coherent assembly, combing means being provided to draw

out threads of the materials from the interspersed streams thereof on at least certain surfaces of the coherent assembly. Preferably an array of spaced-apart wedge-shaped elements are arranged in gridlike manner between the row of orifices and the collecting chamber and a relative movement generally transverse to the extrusion direction is imparted to



such an array in order to subdivide the interspersed streams into thin lamellae of the extrudable materials. One or more of the edges of such wedge-shaped elements can be serrated in order to draw out threads from the lamellae passing in contact therewith and the relative movement of the array serves to interconnect the thus drawn out threads and bond the lamellae together.

3,632,283

GAS CONTROL MECHANISM

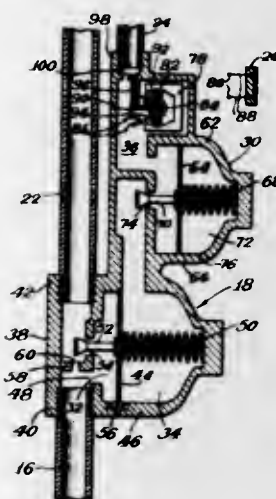
Duane V. Kniebes, La Grange, Ill., assignor to Institute of Gas Technology

Filed Aug. 13, 1970, Ser. No. 63,431

Int. Cl. F23q 9/08

U.S. Cl. 431-60

5 Claims



A gas control mechanism for gas light responsive to exterior light and its absence. A housing having a first chamber, a second chamber, and a third chamber is provided and a first path of travel for the gas is defined through the first chamber only and a second path of travel for the gas is defined through the first, second and third chambers. A pressure-responsive valve is provided at the first chamber to interrupt the flow of gas in the first path of travel in the presence of light. A passage is defined between the first and second chambers to bypass gas to the second chamber at a reduced pressure. A pressure regulator is intermediate the second and third chambers to provide a lower pressure in the third chamber than in the second chamber. The gas passes by the pressure regulator from the second chamber to the third chamber and a fixed gas outlet is provided in the third chamber. An adjustable gas outlet is also provided in the third chamber and it is adjustable between open and closed positions by a light-sensitive arrangement which adjusts the adjustable outlet between the open and closed position in response to the presence or absence of light energy.

3,632,284

BURNER

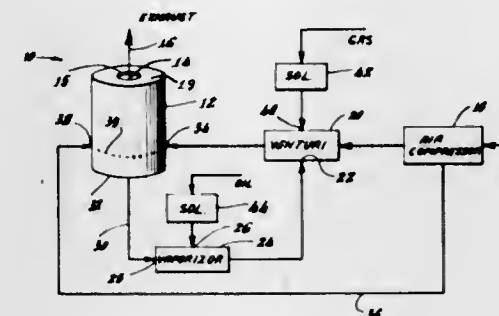
Robert Reichhelm, Lancaster, Pa., assignor to Burnham Corporation, Irvington-on-Hudson, N.Y.

Filed July 20, 1970, Ser. No. 56,482

Int. Cl. F23d 11/46

U.S. Cl. 431-116

16 Claims



An improved compact liquid fuel burner is described wherein vaporized liquid fuel mixed with combustion gases and an airstream is supplied to the lateral side of a cylindrical burner structure in a lateral plane. An additional stream of air is supplied directly to the fire chamber in the burner in the vicinity of the lateral plane to enhance combustion of the vaporized fuel. A combustion gas feedback conduit is coaxially located in an end of the chamber in the vicinity of the entry port of the vaporized fuel to supply heat to a vaporization chamber for gassification of the liquid fuel. A venturi is employed to draw the vaporized fuel into an airstream for combustion in the fire chamber. The burner may be alternatively fueled by gas.

3,632,285

GAS IGNITER SYSTEM

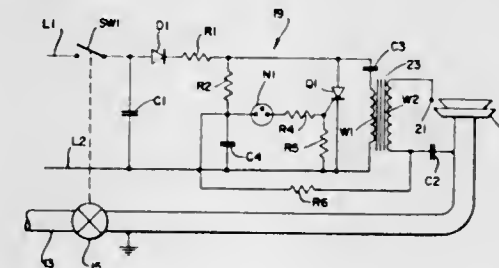
George B. Foster, Mattapan, Mass., assignor to Fenwal Incorporated, Ashland, Mass.

Continuation-in-part of application Ser. No. 793,832, Jan. 24, 1969. This application Dec. 31, 1969, Ser. No. 889,727

Int. Cl. F23q 3/00

U.S. Cl. 431-264

14 Claims



The AC powered, electronic igniter system disclosed herein generates sparks to ignite gas at a burner and includes means for inhibiting sparking when a flame is present at the burner. The spark gap itself is resistively isolated from the AC supply to prevent the creation of a shock hazard without requiring an AC power transformer.

3,632,286

DUAL FUEL GRID BURNER

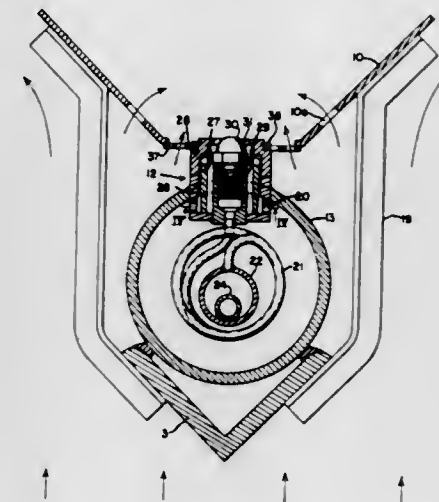
Robert E. Kegan, Boxford, Mass.; Frank A. Underwood, Akron, Ohio, and General Electric Company

Filed Sept. 18, 1970, Ser. No. 73,411

Int. Cl. F23q 9/00

U.S. Cl. 431-284

8 Claims



A grid burner suitable for combustion of either gas or liquid fuel. The gas fuel supply manifold surrounds and shields the liquid fuel manifold which is supported by tubular expansion coils connected to the fuel nozzles. Recirculation of liquid fuel through an inner pipe prevents overheating. Gutter-type flameholders aid in flame stabilization.

3,632,287

BURNER ASSEMBLY FOR COMBUSTION OF OIL

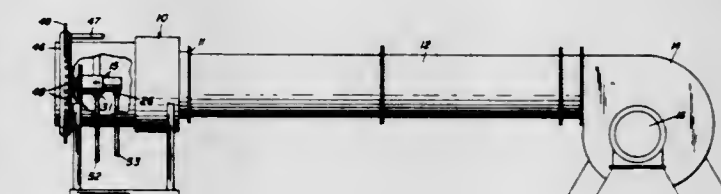
Robert D. Reed; Hershel Goodnight, and John Smith Zink, all of Tulsa, Okla., assignors to John Zink Company, Tulsa, Okla.

Filed June 29, 1970, Ser. No. 50,416

Int. Cl. F23d 13/24

U.S. Cl. 431-350

5 Claims



A burner assembly for the combustion of crude oil such as often escapes from offshore wells. The assembly includes means for breaking the oil into small droplets to facilitate the combustion thereof and structure adjacent the discharge ports for preserving ignition of the burning oil. A supply of air serves to direct the flame and the heat of combustion away from the apparatus and personnel. The assembly includes structure which develops a screen of water for the absorption of heat and the protection of the burner assembly and other elements located upstream of the combustion zone.

3,632,288

PROCESS FOR DYEING STYRENE POLYMERS

Michal Niechwiadowicz, and Arnold B. Finestone, both of Leominster, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

Filed May 8, 1969, Ser. No. 823,140
Int. Cl. D06p 3/00; C08f 45/26

U.S. Cl. 8—4 12 Claims
Expandable styrene polymers in particulate form are suspended in aqueous medium and heated under pressure in the presence of a finely divided, water-insoluble, organic solvent-soluble dye and a high-boiling organic solvent in which the polymer is soluble.

3,632,289

STABLE SOLUTIONS OF 4,4'-BIS(DIETHYLAMINO)-BENZOPHENONIMINE HYDROCHLORIDE

Mead S. Moores, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 1, 1969, Ser. No. 812,426
Int. Cl. D21h 1/46

U.S. Cl. 8—7 4 Claims
Storage-stable concentrated solutions, and their preparation, of up to 45 weight percent 4,4'-bis(diethylamino)-benzophenonimine hydrochloride in a mixture of 60-90 weight percent ethylene glycol and 10-40 weight percent urea.

3,632,290

DYEING OF HUMAN HAIR USING ETHYLENE GLYCOL ETHERS

Harold H. Tucker, Scarsdale, and Irwin Schwartz, Brooklyn, both of N.Y., assignors to Lowenstein Dyes & Cosmetics, Inc., Brooklyn, N.Y.

Filed Jan. 26, 1968, Ser. No. 700,701
Int. Cl. A61k 7/12

U.S. Cl. 8—10.1 10 Claims
Composition and methods for the dyeing of human hair in vivo involving the use of mixtures of aryl and alkyl glycol ethers in aqueous media as carriers and solubilizers for normally water-insoluble dyes. Applicable classes of dyes are basic, solvent soluble, acid, nitro, premetallized, mordant, anionic and direct.

3,632,291

TRANSFER PRINTING

Raymond Defago, Riehen; Alfred Litzler, Itingen; Jean Hertig; Hans-Joerg Angliker, both of Basel, and Hans Wilhelm Liechti, Oberwil/Basel, all of Switzerland, assignors to Ciba Limited, Basel, Switzerland

Filed Feb. 25, 1969, Ser. No. 802,224
Claims priority, application Switzerland, Feb. 26, 1968, 2724/68

Int. Cl. D06p

U.S. Cl. 8—2.5 12 Claims
A dyeing or printing process wherein a natural or synthetic polyamide material or other material made from a linear, fiber-forming polymer is dyed or printed according to the transfer printing process with a fiber-reactive organic dyestuff that sublimates at a temperature below 240° C.

3,632,292

1-METHYLAMINO-2-NITRO-4-(2'-HYDROXYETHYL)-METHYLAMINOBENZENE FOR DYEING HUMAN HAIR

Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne sur Seine, both of France, assignors to Societe anonyme dite: L'Oreal

Filed Nov. 18, 1965, Ser. No. 508,578

Claims priority, application Luxembourg, Nov. 19, 1964, 47,385

Int. Cl. A61k 7/12

U.S. Cl. 8—10.1 8 Claims
An improved dye compound 1-methylamino-2-nitro-4-(2'-hydroxyethyl)-methylaminobenzene and a method of making it. A hair dye composition containing this compound and the method of dyeing hair with this composition.

3,632,293

PROCESS FOR DYEING OR PRINTING ACRYLONITRILE COPOLYMER TEXTILE MATERIALS WITH VAT DYE STUFFS

Pavel Krug, Manchester, England, assignor to Hardman & Holden Limited, Manchester, Lancashire, England

Filed Oct. 17, 1968, Ser. No. 768,553

Claims priority, application Great Britain, Oct. 24, 1967, 48,225/67

Int. Cl. D06p 1/22

U.S. Cl. 8—34 5 Claims
Textile materials comprising fibers of a copolymer of essentially acrylonitrile and vinylidene chloride are dyed or printed, with a dyebath or printing paste comprising a vat dyestuff reduced with thiourea dioxide, which is then oxidized in situ to regenerate the dyestuff.

3,632,294

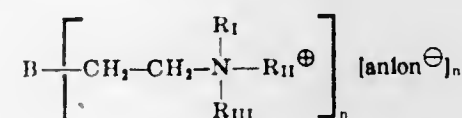
QUATERNARY NITROGEN COMPOUND ASSISTED REACTIVE DYEING

Gerd Hoelzle, Liestal, and Paul Ulrich, Basel, both of Switzerland, assignors to Ciba Limited, Basel, Switzerland

Continuation-in-part of application Ser. No. 317,138, Oct. 18, 1963, now abandoned. This application Nov. 12, 1968, Ser. No. 775,208

Int. Cl. D06p 3/60

U.S. Cl. 8—54.2 8 Claims
New quaternary nitrogen compounds and dyeing processes using these quaternary nitrogen compounds are provided. The quaternary nitrogen compounds may be represented by the formula



wherein B represents an acidifying substituent, R_I, R_{II}, and R_{III} each represents an alkyl radical, or one of them represents an NH₂-group while the remaining radicals are linked together forming five- and six-membered cycloalkyl residues; n is a small whole number and anion[⊖] represents the negative radical of a monobasic or polybasic acid.

The dyeing processes provided are for the coloring of fibrous materials with reactive compounds in which the quaternary nitrogen compound is employed as dyeing assistant to promote the reaction between the reactive compound and the fibrous material.

3,632,295

METHOD OF BLEACHING HAIR OR WOOL

Kathleen E. Hall, Silver Spring, and Leszek J. Wolfram, Rockville, both of Md., assignors to The Gillette Company, Boston, Mass.

Filed Apr. 29, 1969, Ser. No. 820,307

Int. Cl. D06l 3/02

U.S. Cl. 8—111 7 Claims
Bleaching of hair or wool with alkaline peroxide solutions is accelerated and incidental decomposition of keratin is lessened by first impregnating the hair or wool with an aqueous solution of ferrous salt and chelating agent having log K_M from two to eight.

3,632,296

APPLICATION OF REACTANTS AND/OR CATALYSTS TO TEXTILE FABRICS IN MICROENCAPSULATED FORM

Nestor W. Pandell, Waccabuc, N.Y., and Samuel C. Temin, Needham, Mass., assignors to Cluett, Peabody & Co., Inc., New York, N.Y.

Filed Apr. 12, 1968, Ser. No. 721,102

Int. Cl. D06m 13/14, 13/20, 13/38

U.S. Cl. 8—115.5 22 Claims
Process for imparting improved wrinkle-recovery and crease-retention characteristics, frequently referred to as durable press or wash-and-wear characteristics, to textile fabrics containing at least some reactive fibers usually natural fibers such as cellulosic or regenerated cellulose fibers, by cross-linking such fibers in delayed-cure or conventional procedures. Either the resin or other cross-linking material or materials or the catalyst, when a catalyst is used, may be encapsulated in microcapsules. Alternatively, both the cross-linking material or materials and the catalyst are thus encapsulated. The capsules are applied to the fabric, before or after or simultaneously with the application of such unencapsulated materials as may be used, to sensitize the fabric for subsequent cross-linking operation. Cross-linking is effecting when desired usually by application of heat and/or pressure to the sensitized fabric, to release the encapsulated materials and to complete the reaction.

3,632,298

CELLULOSE

DICYCLOPENTADIENEMONOCARBOXYLATES AND A PROCESS OF DURABLY CREASING SAID BY DELAYED CURE

William E. Franklin; Charles H. Mack, and Stanley P. Rowland, all of New Orleans, La., assignors to The United States of America as represented by the Secretary of Agriculture

Filed Nov. 14, 1968, Ser. No. 775,892

Int. Cl. D06m 13/20, 13/22; C08b 3/10

U.S. Cl. 8—120 3 Claims
A cellulosic material is reacted with a monofunctional dicyclopentadiene wherein the functional group is any cellulose-reactive group to produce a material which is self-cross-linking when exposed to elevated temperatures.

3,632,299

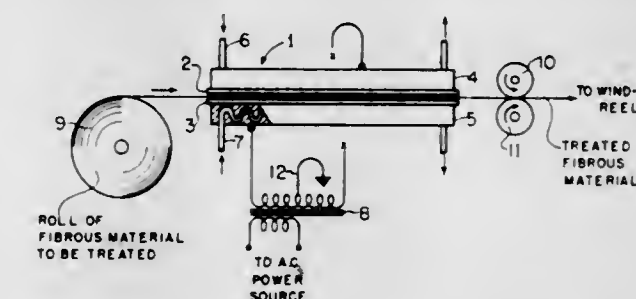
SHRINKPROOFING OF ANIMAL FIBERS BY PASSING SAID THROUGH AN ELECTRICAL DISCHARGE ZONE CONTAINING OZONE

Walter J. Thorsen, El Cerrito, Calif., assignor to The United States of America as represented by the Secretary of Agriculture

Continuation of application Ser. No. 442,561, Mar. 24, 1965, now abandoned. This application Sept. 19, 1969, Ser. No. 861,225

Int. Cl. D06m 3/06; C01b 13/12; B01k 1/00

U.S. Cl. 8—128 3 Claims



Proteinous animal fibers are rendered shrinkproof by passing said directly through a high-voltage electrical discharge ozone-generating zone which is at atmospheric pressure and open to the atmosphere. The dyeing properties of the fiber are unaffected by the treatment. Apparatus embodying both planar and curved discharge zones are described.

3,632,300

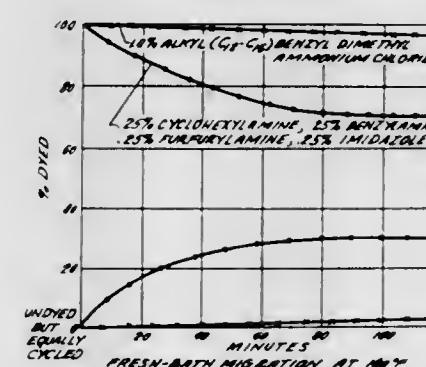
POLYACRYLONITRILE DYEING PROCESS

John A. Komninos, Uppersaddle River, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 10, 1969, Ser. No. 797,978

Int. Cl. D06p 5/06, 3/70

U.S. Cl. 8—172 9 Claims



Fibrous material consisting of a synthetic material is dyed with a basic dyestuff in the presence of at least one member of a group of amine or nitrogen-containing compounds. Effective compounds include cyclohexylamine including alkyl

substituted cyclohexylamines, furfurylamine, 1,2,3,4-tetrahydroisoquinoline, and the like. The aforesaid compounds are characterized by the ability of facilitating the migration-transfer of dye from a densely dyed or normally dyed portion of a synthetic fabric fiber to a sparsely dyed or undyed portion.

3,632,301

PROCESS AND APPARATUS FOR THE FIXING OF DYES
Christian August Meier-Windhorst, Schwalbenplatz 18, Hamburg 33, Germany

Filed June 10, 1966, Ser. No. 556,618

Claims priority, application Germany, June 10, 1965, A 49439

Int. Cl. D06p 3/00, 5/00

U.S. Cl. 8—176

7 Claims

A dye-fixing process which follows the treatment of lengths of materials containing synthetic fibers, such as polyester and polyamide fibers, with dyes, including dispersion dyes, said process comprising the steps of heating a dried dye-carrying length of material with pure steam or a steam-air mixture containing over 75 percent steam by volume by condensation of steam to a saturation temperature of substantially 90° to 100° C., then heating said length of material with media having heat-transmission values of at least 50 k. cal./m²/°C. /h. by a heating curve which is a continuously increasing temperature of the fabric and which approaches asymptotically and then reaches a fixing and treating temperature of at least 150° C., the heat flux being determined by measuring temperatures, duration, length surfaces as well as average flow amounts and speeds, and then subjecting the material to a continuous thermostorage treatment at said treating temperature for a time period ranging between 10 and 100 seconds.

3,632,302

PROCESS FOR DYEING OR PRINTING TEXTILE MATERIALS WHICH CONSIST OF ACRYLONITRILE POLYMERS

Roland Entschel, Basle; Viktor Kaeppli, Allschwil/BL, and Curt Mueller, Binningen/BL, all of Switzerland, assignors to Sandoz Ltd. (a/k/a Sandoz A.G.), Basle, Switzerland

Filed June 13, 1969, Ser. No. 833,185

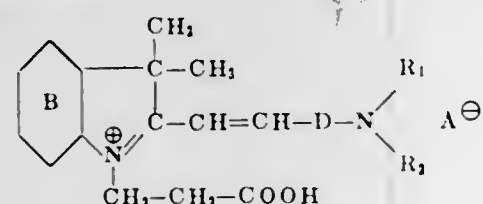
Claims priority, application Switzerland, May 13, 1969, 7282/69

Int. Cl. D06p 3/70

U.S. Cl. 8—177 AB

11 Claims

A process for dyeing polyacrylonitrile with cycloimmonium dyes of the styryl series containing one carboxylic acid, e.g. of the formula



wherein R₁ and R₂ represent hydrogen or a hydrocarbon radical and A⁻ represents an anion and wherein the ring B and/or D may bear further nonwater-solubilizing substituents.

3,632,303

STERILIZING APPARATUS

Franz Xaver Aigner, Bielitzerstr. 12, Munich, Germany

Filed Sept. 10, 1968, Ser. No. 758,847

Claims priority, application Germany, Sept. 11, 1967, M 59927, Apr. 30, 1968, P 17 67 346.0

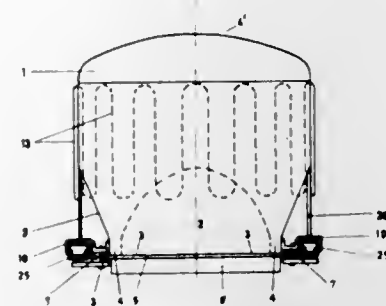
Int. Cl. A61I 3/00

U.S. Cl. 21—93

4 Claims

A sterilizing apparatus with a cylindrical chamber is provided with a rectangular opening adapted to be closed by a

rectangular, plane (not curved) door having hydraulically operated sealing means, whereby the good compressive



strength of the cylindrical chamber and the good sealing characteristics of a plane door are combined with each other.

3,632,304

CATALYTIC OXIDATION OF WASTE GAS STREAMS WITH FLUIDIZABLE SUBDIVIDED PARTICLES

Leslie C. Hardison, Norwalk, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Sept. 3, 1968, Ser. No. 756,874

Int. Cl. B01d 53/34; B01j 9/20

U.S. Cl. 23—2 S

7 Claims



Means for effecting the continuous catalytic oxidation of a waste gas stream by providing for the concurrent flow of subdivided catalyst particles therewith upwardly in the lower part of a reactor-stack unit, separating the catalyst particles from the contacted gas stream at the upper end of the reactor section and returning them to a collecting and flow regulating means for reintroduction into a waste gas inlet zone to the unit. Burner means, mounted in combination with the inlet zone, is utilized to provide a hot gas stream to contact the recirculated catalyst particles and thus heat and regenerate them for use in the continuous catalytic oxidation system.

3,632,305

PROCESS FOR DECONTAMINATING A FLUE GAS SYSTEM

Leslie C. Hardison, Norwalk, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 16, 1968, Ser. No. 784,146

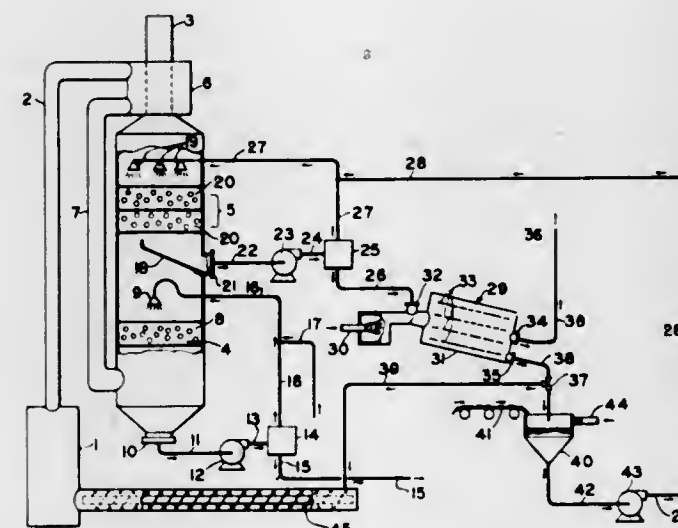
Int. Cl. B01d 53/34

U.S. Cl. 23—2 SQ

11 Claims

A process for reducing the fly ash and sulfur dioxide content of a flue gas stream comprising passing the flue gas through a first mobile-packing scrubber stage to effect col-

lection of the bulk of the fly ash. The flue gas is then passed through subsequent mobile-packing scrubber stages. In these subsequent stages the flue gas is washed with a liquid in which an oxygen-containing compound of magnesium or calcium is present. The sulfur dioxide in the flue gas stream



reacts with these compounds and the resulting liquids and solids are carried to a kiln, where the reaction products are decomposed. Sulfur dioxide is driven off and collected, and the magnesium or calcium compound is regenerated for reuse in part.

3,632,306

REMOVAL OF SULFUR DIOXIDE FROM WASTE GASES

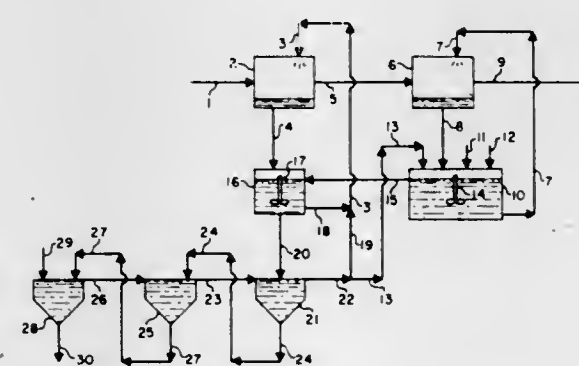
John F. Villiers-Fisher, Kendall Park, and Abe Warshaw, Chesapeake Village, both of N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Feb. 18, 1969, Ser. No. 800,138

Int. Cl. B01d 53/34; C01b 17/60

U.S. Cl. 23—2 SQ

25 Claims



Waste gases containing sulfur dioxide, which may also contain sulfur trioxide, are scrubbed with an aqueous slurry containing solid reactant particles of an oxide or carbonate of calcium, magnesium or barium, together with an additive containing an acidic radical which solubilizes the calcium, magnesium or barium ion, so that the aqueous slurry absorbs sulfur dioxide from the waste gas. The dissolved sulfur dioxide forms the soluble sulfite radical in solution, which reacts with the dissolved calcium, magnesium or barium ion to precipitate a solid sulfite and regenerate the additive in solution. The solid sulfite or calcium, magnesium or barium is separated from the aqueous liquid phase which is recycled for further scrubbing, together with makeup solid reactant particles. The scrubbed waste gas is discharged to atmosphere.

3,632,307

PROCESS FOR THE PREPARATION OF PHOSPHORIC ACID AND GYPSUM FROM PHOSPHATE ROCK

Adriaan Cornelis van Es, and Arnoud Waller, both of Rotterdam, Netherlands, assignors to Albatros Super Fosfaat-fabrieken N.V., Utrecht, Netherlands

Continuation-in-part of application Ser. No. 576,482, Aug. 31, 1966, now abandoned. This application Apr. 9, 1969, Ser. No. 822,829

Int. Cl. C01f 11/46

U.S. Cl. 23—122

20 Claims

Phosphoric acid and gypsum are prepared from phosphate rock by acidulating same with sulfuric acid or a mixture of sulfuric and phosphoric acids to form a slurry of CaSO₄·1/2 H₂O in phosphoric acid. The CaSO₄·1/2 H₂O is washed to remove adhered phosphoric acid and recrystallized from a solution containing phosphoric and sulfuric acids to form CaSO₄·2H₂O.

3,632,308

RECOVERY OF COPPER VALUES FROM SLAG

Lawrence C. Klein, Hubbell, Mich., and Laurence G. Stevens, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 5, 1969, Ser. No. 882,809

Int. Cl. C01g 3/10

U.S. Cl. 23—125

3 Claims

Recovery of metal values from slag, produced during the pyrometallurgical processing of metal concentrate or scrap material, by grinding the slag, agitating the ground slag with sulfuric acid in a free oxygen atmosphere at 250°–450° F., and separating a liquid concentrate containing said metal values from a solid precipitate low in said values.

3,632,309

FORMATION AND SEPARATION OF BARIUM HYDROSULFIDE AND BARIUM HYDROXIDE FOR USE IN CHEMICAL RECOVERY PROCESSES

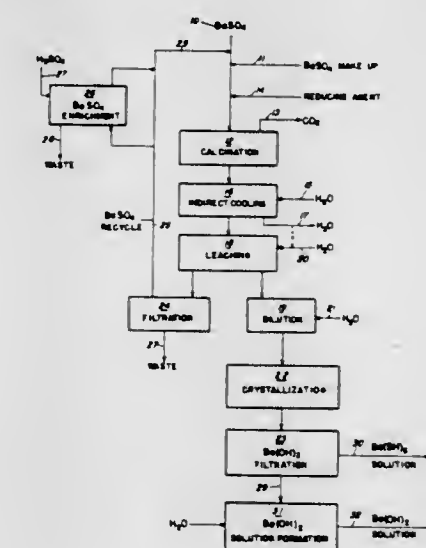
William Pechenick, Lafayette Hill, and Gideon P. Gelblum, Philadelphia, both of Pa., assignors to The United States of America as represented by the Secretary of the Interior

Original application Dec. 19, 1967, Ser. No. 691,780, now Patent No. 3,547,579, dated Dec. 19, 1970. Divided and this application Mar. 27, 1970, Ser. No. 29,719

Int. Cl. C01f 11/00, 11/02

U.S. Cl. 23—134

4 Claims



A process for the formation and separation of barium hydrosulfide and barium hydroxide from barium sulfide by hot hydrolysis and evaporative crystallization. The method may form an integral part of processes designed to recover chemicals from sulfate containing brines.

3,632,310

PROCESS FOR MANUFACTURING ALUMINA

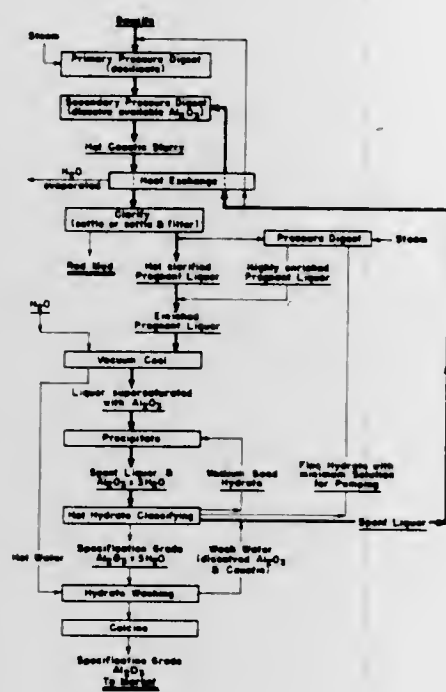
Arthur F. Johnson, 203 Creole Lane, North Gate Urban Farms, Franklin Lakes, N.J.

Filed Oct. 23, 1967, Ser. No. 677,353

Int. Cl. C01f 7/02, 7/06, 7/14

U.S. Cl. 23-143

22 Claims



In both the European and American versions of the Bayer alumina process, precipitation of alumina trihydrate from the caustic solution is limited to about one-half of the alumina in solution, in order to obtain a product of commercial specification grade. The partly-spent caustic is recycled to the digestion state. In the process of this invention, the partly-spent liquor is further cooled to intentionally precipitate very fine particles of alumina hydrate. This is separated from the spent liquor which is recycled to digestion. The fine alumina is dissolved in a reheated sidestream of the clarified pregnant liquor to provide a hot, saturated liquor which is combined with the remaining clarified pregnant liquor, enriching it in alumina. More than 50 percent of the alumina in this richer liquor is recovered from precipitation as specification grade alumina. The recycled spent liquor has a correspondingly greater capacity to dissolve alumina from the bauxite ore due to its lower alumina content. The smaller volume of recycle liquor compared to bauxite digested therein also aids desiccation, and proportionately lessens evaporation and filtration loads. The process of the invention can be used in existing European or American Bayer process plants and, with slight modification in processing steps and conditions, essentially any type of bauxite ore can be treated.

3,632,311

SEPARATION OF PHOSPHOROUS ACID FROM MIXTURES OF PHOSPHOROUS ACID AND PHOSPHORIC ACID BY AMINE EXTRACTION

William L. Kovacs, Springfield Township; Phillip F. Pflaumer, Colerain Township, and David D. Whyte, Springfield Township, Hamilton County, all of Ohio, assignors to The Proctor & Gamble Company, Cincinnati, Ohio

Filed May 28, 1970, Ser. No. 41,581

Int. Cl. C01b 25/18

U.S. Cl. 23-165

11 Claims

Disclosed herein is a process for separating phosphorous acid (H_3PO_3) from mixtures of phosphorous and phosphoric acid (H_3PO_4). An aqueous solution of the acids is mixed with a solvent which is essentially immiscible with water and which contains an alkyl amine, thereby causing the H_3PO_3 to migrate preferentially into the solvent phase primarily

through formation of an amine-acid salt and resulting in an extract phase which is rich in H_3PO_3 and an aqueous raffinate phase rich in H_3PO_4 . The extract phase is then removed from the raffinate phase and the acid is displaced from the extract phase by a suitable means such as acid-stripping, alkali-stripping or high-temperature hydrolysis.

3,632,312

PRODUCTION OF HIGH-STRENGTH SULFUR DIOXIDE

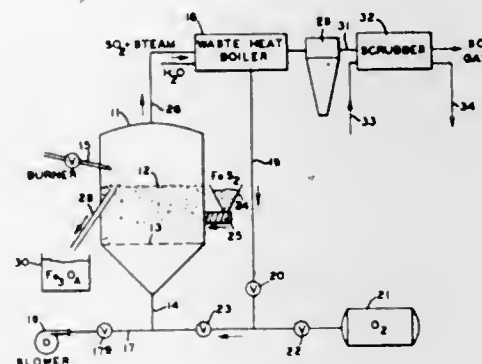
Walfred W. Jukkola, Westport, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn.

Filed June 12, 1968, Ser. No. 736,477

Int. Cl. C01b 17/52; C21b 1/00

U.S. Cl. 23-177

8 Claims



Roasting sulfide ore to produce high-strength SO_2 using steam as the fluidizing agent and commercial grade O_2 as the oxidizing agent to produce a mixture of SO_2 and steam and condensing the steam to produce high-strength SO_2 with reduced or negligible dilution by atmospheric gases.

3,632,313

METHOD OF HEATING OXYGEN-CONTAINING GASES FOR THE PRODUCTION OF TITANIUM DIOXIDE PIGMENT

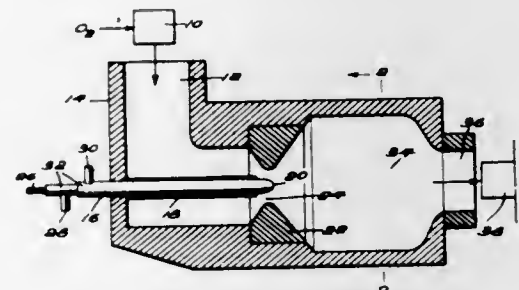
Arnold W. Kilgren, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 17, 1969, Ser. No. 816,962

Int. Cl. C01g 23/04; C01b 13/00

U.S. Cl. 23-202

3 Claims



An oxygen-containing gas is heated to a temperature between 1,200° C. and 1,800° C. to be used in oxidizing titanium Chloride to titanium dioxide. The oxygen-containing gas is first preheated by known means above the ignition temperature of a fuel used in a burner apparatus having a fuel nozzle. The oxygen-containing gas is then passed rectilinearly around the nozzle between 350 and 1,000 feet per second thereby preventing flame eddies. The oxygen-containing gas is commingled with fuel distributed by the nozzle in a combustion zone resulting in an elevation of the gas temperature and is then transferred to a reaction zone where the oxidation process takes place.

3,632,314

REGENERATION OF SULFURIC ACID LADEN ACTIVATED CARBON

Samuel L. Torrence, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

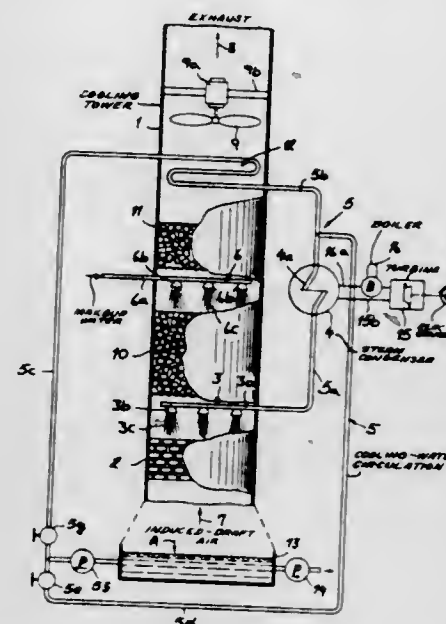
Continuation-in-part of application Ser. No. 752,298, Aug. 13, 1968, now Patent No. 3,563,704. This application Mar. 10, 1970, Ser. No. 18,353

Int. Cl. C01b 17/04

U.S. Cl. 23-224

3 Claims

A two-stage process for regenerating sulfuric acid laden activated carbon by contacting at a temperature below about 350° F. the activated carbon with hydrogen sulfide in an amount of at least 3:1 mole ratio of hydrogen sulfide to adsorbed sulfuric acid whereby the sulfuric acid is reduced to elemental sulfur which remains adsorbed on the activated carbon. The sulfur is then removed from the activated carbon in a second stage by contacting with a sulfur-reducing gas, such as hydrogen to produce a sufficient amount of hydrogen sulfide for use in the first step and the remaining sulfur is recovered.



3,632,315

LIQUID-LIQUID CONTACTING TRAY SYSTEM

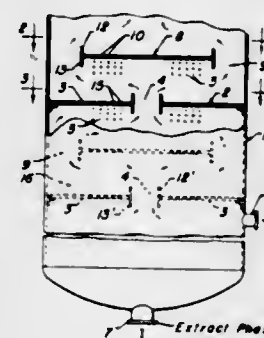
Kenneth D. Ulti, Bensenville, and Donald B. Broughton, Evanston, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Oct. 23, 1968, Ser. No. 769,972

Int. Cl. B01d 11/04, 3/20; C10b 33/00

U.S. Cl. 23-270.5

4 Claims



For a vertically disposed liquid-liquid contact column using spaced perforated trays of the "rain deck" type, an improved tray construction that has weir means on each deck to provide a liquid coverage at each deck and, in turn, insure uniform droplet flow from all the holes through each deck, as well as curtain means on the opposing side of each tray to preclude the countercurrently flowing liquid stream from immediately sweeping droplets from the downstream face of each perforated deck and causing an undesirable back-mixing effect. A preferred design also uses specially located non-perforated areas on each tray section to permit a solvent liquid, or other contact liquid, a chance to settle and minimize entrainment.

3,632,316

PROCESS FOR PRODUCING HEAVY WATER

Hans Kluge, Essen-Hüttrop, Germany, assignor to Steinkohlen-Elektrizität AG, Essen, Germany

Filed June 4, 1969, Ser. No. 830,260

Claims priority, application Germany, June 6, 1968, P 17 67 700.8

Int. Cl. B01d 1/02

U.S. Cl. 23-307

3 Claims

A process for producing heavy water using the waste heat of a steam turbine electricity-generating plant wherein a circulation of cooling water is passed through the condenser of the electrical generating plant and is in turn cooled in a cooling tower, above the trickle body of which is provided a deu-

terium oxide separating column or stage in which the lower boiling-point component of the water, namely, H_2O , is

preferentially evaporated while the deuterium oxide falls into a collecting vessel.

3,632,317

METHOD OF MANUFACTURING ELEMENTAL PHOSPHORUS

Milton P. Albert, and Milton J. Scott, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 19, 1969, Ser. No. 878,208

Int. Cl. C01b 25/00

U.S. Cl. 23-223

1 Claim

Electric furnace processes for the manufacture of elemental phosphorus are substantially improved by the use of amorphous carbon electrodes having sonic propagation velocities of from 5,000 to 5,900 feet/second.

3,632,318

PROCESS FOR PREPARING HYDRAZINIUM DIPERCHLORATE

John E. Paustian, Whippany, and Waldo De Thomas, Parsippany, both of N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

Filed July 7, 1965, Ser. No. 470,215

Int. Cl. C01b 21/52, 7/00

U.S. Cl. 23-356

3 Claims

1. A process for concurrently decreasing the perchloric acid and water content of hydrazinium diperchlorate dihydrate contaminated with perchloric acid and water, comprising the steps of at least once:

- contacting the hydrazinium diperchlorate dihydrate with at least about an equal weight of concentrated hydrogen fluoride below about 19° C. until a slurry of solid anhydrous hydrazinium diperchlorate, hydrogen fluoride, perchloric acid and water is formed; and
- separating the solid anhydrous hydrazinium diperchlorate present in the slurry.

3,632,319

DIFFUSION BONDING OF SUPERALLOY MEMBERS

George S. Hoppin; Reed E. Yount; Thomas F. Berry, and James F. Barker, all of Cincinnati, Ohio, assignors to General Electric Company

Filed July 11, 1969, Ser. No. 841,093

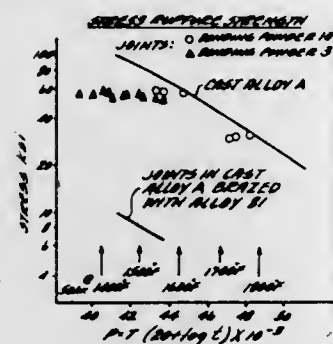
Int. Cl. B23k 31/02

U.S. Cl. 29-487

5 Claims

An improved diffusion-bonded, age hardenable joint between superalloy members results from a method which

combines the benefits of vacuum high-temperature brazing and pressure solid-state diffusion bonding through use of an age hardenable bonding powder related to the superalloy and



including temperature depressants selected from B, Si, Mn, Cu, Ta and their mixtures. The method avoids the need for pressure during the diffusion bonding portion.

ERRATUM

For Class 51—295 see:
Patent No. 3,631,638

3,632,320

PROCESS FOR THE MANUFACTURE OF RESIN-BOUND ABRASIVE GRINDER

Yoshinori Henmi, Komaki-shi; Hideaki Suzuki, Ohbu-shi, and Tadao Kamiya, Nagoya-shi, all of Japan, assignors to Nippon Toki Kabushiki Kaisha, Nagoya-shi, Japan
Continuation-in-part of application Ser. No. 795,700, Jan. 31, 1969, now abandoned. This application Oct. 23, 1969, Ser. No. 868,928

Claims priority, application Japan, Feb. 13, 1968, 43/8682
Int. Cl. C08g 51/12

U.S. Cl. 51—298

7 Claims

A process for the manufacture of a resin-bound abrasive grinder having superior strength, grinding performance and wear resistance, which comprises heating a synthetic resin or dissolving it in a suitable solvent to liquidize it, adding at least one inorganic filler to the liquidized resin to thoroughly wet the filler therewith and bind same together thereby forming a binding composition, incorporating the binding composition with an abrasive material and then pressure forming the resultant mixture to manufacture the resin-bound abrasive grinder.

3,632,321

PROCESS FOR ENHANCING THE EFFECTIVENESS OF CHEMICAL TEMPERING OPERATIONS OF VITREOUS MATERIAL

Emile Plumet, Gilly; Jean Duthoit, Marcincelle; Francois Tousse, Lodelinsart, and Robert Van Laethem, Lovervall, all of Belgium, assignors to Glaverbel S.A., Watermael Boitsfort, Belgium

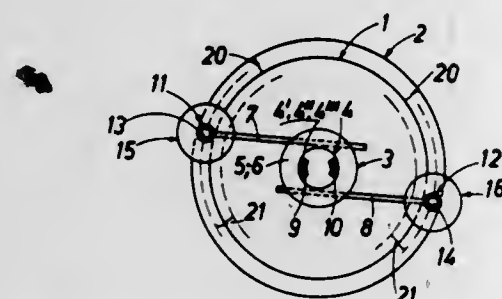
Filed Apr. 22, 1968, Ser. No. 723,122

Claims priority, application Luxembourg, Apr. 28, 1967, 53,554

Int. Cl. C03c 21/00

U.S. Cl. 65—30

39 Claims



Processes and apparatus for enhancing the effectiveness of chemical tempering processes by subjecting the interface

between a diffusion medium and a body between which an ion exchange is occurring to an electric field whose polarity through the interface is inverted at least once during the diffusion operation. The diffusion operation is also improved by subjecting the interface to pressure waves in the sonic or ultrasonic frequency range.

3,632,322

METHOD AND APPARATUS FOR PRODUCING GLASS HAVING A METALLIC SURFACE FINISH

David Gordon Loukes, Eccleston Park, Prescott, and William Ramsey Maltman, Prescott, both of England, assignors to Pilkington Brothers Limited, Liverpool, England

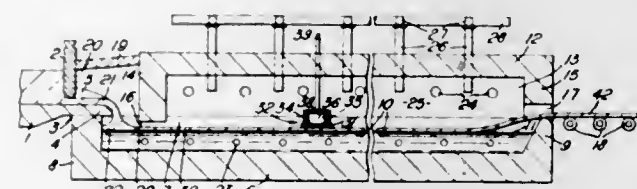
Filed Oct. 7, 1968, Ser. No. 765,428

Claims priority, application Great Britain, Oct. 23, 1967, 48,049/67

Int. Cl. C03c 21/00

U.S. Cl. 65—30

10 Claims



Method and apparatus for producing glass having a metallic surface appearance wherein the glass is supported on a molten metallic support while a protective atmosphere is maintained over the support. A molten metallic body is located in contact with an area of the upper surface of the glass with a source of oxidizing element confined in contact with the upper surface of the molten body and in nondestructive relationship with respect to the protective atmosphere. Controlled migration of the oxidizing element into the molten body controls the metallic migration from the molten body into the upper surface of the glass.

3,632,323

METHOD AND APPARATUS FOR MODIFICATION OF ARTICLE SURFACE CHARACTERISTICS IN A FLOAT GLASS PROCESS

Albert Sidney Robinson, Southport, and Jack Lawrenson, St. Helens, both of England, assignors to Pilkington Brothers Limited, Liverpool, England

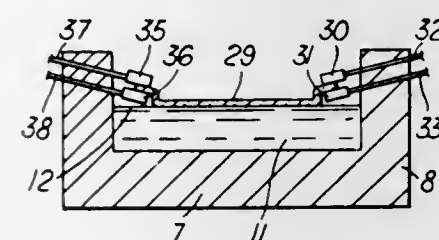
Filed Dec. 6, 1968, Ser. No. 781,797

Claims priority, application Great Britain, Dec. 28, 1967, 58,939/67

Int. Cl. C03c 21/00

U.S. Cl. 65—30

2 Claims



In a float glass process, apparatus and method to form continuous marginal ridges along each edge of the glass ribbon and a pool of molten material confined on the upper surface of the ribbon by those ridges.

3,632,324

METHOD OF SEALING DISPLAY CATHODES IN A GLASS ENVELOPE

Kiyoshi Sasaki, and Satoshi Watanabe, both of Tokyo, Japan, assignors to Okaya Denki Sangyo Kabushiki Kaisha, Tokyo, Japan

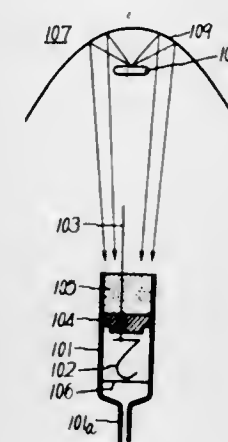
Filed May 31, 1968, Ser. No. 733,660

Claims priority, application Japan, Aug. 10, 1967, 42/51361

Int. Cl. C03c 27/04

U.S. Cl. 65—43

9 Claims



A method of sealing display cathodes in a glass envelope wherein the cathodes having lead wires attached thereto are inserted into a glass envelope having an insertion port. A heatproof insulating stem is then inserted into the glass envelope to a position based inwardly from the insertion port. The stem has apertures which receive the lead wires of the cathodes so that they lead out to the insertion port side of the envelope. Fusion glass is then packed in the space between the stem and the part of the glass envelope about the insertion port and in the spaces formed between the lead wires and the apertures. The fusion glass is then heated by an infrared radiation source to simultaneously fuse and integrally bond the stem with both the lead wires and glass envelope.

3,632,325

METHOD OF SEALING GLASS TO METAL

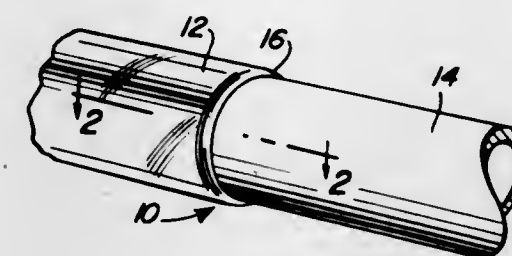
Gaylord H. Evey, and John B. Carson, both of Vineland, N.J., assignors to Richland Glass Company, Inc.

Filed June 11, 1969, Ser. No. 832,344

Int. Cl. C03c 27/02

U.S. Cl. 65—56

7 Claims



The use of specific sealing glass formulations utilized when the particular sealing glass formulations are sealed to metal components.

3,632,326

METHOD AND APPARATUS FOR BENDING GLASS SHEETS

George F. Ritter, Jr., Toledo, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Sept. 25, 1969, Ser. No. 861,000

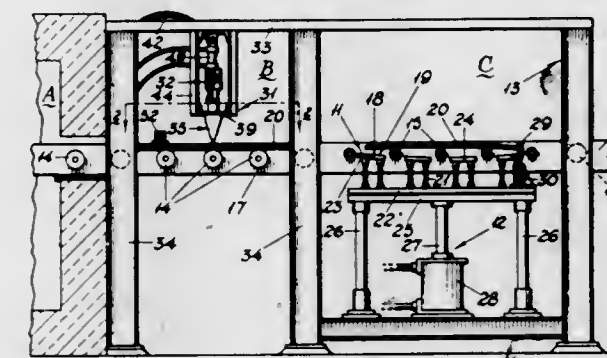
Int. Cl. C03b 23/02

U.S. Cl. 65—106

8 Claims

A method and apparatus for bending glass sheets in which a sheet is heated, prebent convexly upward by applying a jet

of cool air to the upper surface thereof, and then bent in the opposite direction on an inertia-gravity bending mold. The apparatus includes an air nozzle which is arranged and con-



trolled such that cooling air is applied only to the central area of the sheet in order to prevent edge vents from occurring.

3,632,327

MACHINE FOR PLANTING A REFRACTORY PIECE IN A SHEETLIKE THERMOPLASTIC MASS

Tamuro Matoba, Tokyo, and Toshio Nakayama, Otsu, Shiga, both of Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

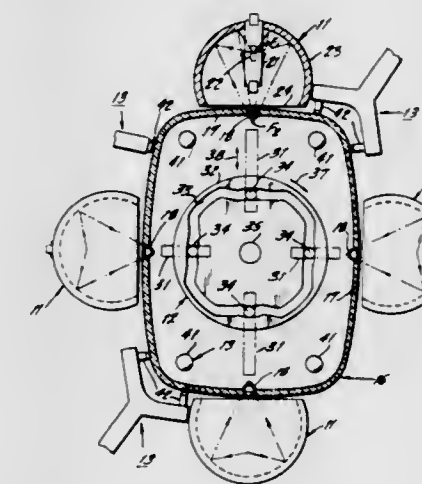
Filed May 5, 1969, Ser. No. 821,893

Claims priority, application Japan, May 7, 1968, 43/31414

Int. Cl. C03b 23/26

U.S. Cl. 65—154

3 Claims



On planting a refractory piece in a sheetlike mass of a thermoplastic material permeable to infrared rays, concentrated infrared rays are directed to the piece through the mass along the path of drive of the piece to heat the piece to a temperature at which the piece can be pushed into the mass. When applied to planting of the shadow-mask holding pins in the flange glass wall of a color-television picture tube face plate, the machine makes it possible to accomplish reliable and easy planting of the pins.

3,632,328

TURF APPEARANCE IMPROVEMENT

Timothy Allen Gaskin, Marysville, and Robert Joseph Bell, West Mansfield, both of Ohio, assignors to The O. M. Scott & Sons Company, Marysville, Ohio

Filed Aug. 31, 1967, Ser. No. 664,616

Int. Cl. A01n

U.S. Cl. 71—3

7 Claims

A method of improving and extending turf color and otherwise improving turf appearance by concomitantly applying nitrogen-containing fertilizer and pentachloronitrobenzene to the turf. Compositions for use in practicing the method.

3,632,329

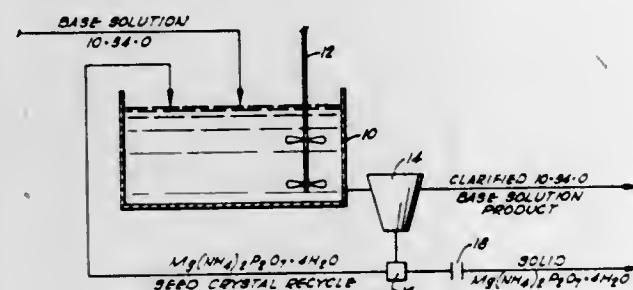
REDUCTION OF MAGNESIUM IN FERTILIZER BASE SOLUTIONS

Richard M. Tillman, and Donald L. Whitfill, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Mar. 16, 1970, Ser. No. 19,565
Int. Cl. C05b 7/00

U.S. Cl. 71-34

9 Claims



A process for removing magnesium from ammonium phosphate fertilizer solutions by seeding the solution with magnesium ammonium pyrophosphate crystals while the temperature and pH of the solution are about 100° F. and about 6.2, respectively, and agitating the solution concurrently with the seeding.

3,632,330

COMBATting ALGAE, BACTERIA AND FUNGI WITH NITROSO ARYLOXY QUATERNARY AMMONIUM COMPOUNDS

Joseph B. Michaelson, North Hollywood, Calif., assignor to The Applied Biological Sciences Laboratory, Inc., Glendale, Calif.

Original application Aug. 9, 1967, Ser. No. 659,321. Divided and this application Apr. 20, 1970, Ser. No. 14,837
Int. Cl. A01n 9/00, 11/00, 23/00

U.S. Cl. 71-67

6 Claims

Nitroso aryloxy quaternary ammonium compounds, such as tetra alkyl ammonium nitrosophenates, are new compositions of matter in which the presence of the nitroso substituent, which is oxidizable to NO₂ or reducible to NH₂ in appropriate media, enhances the known effectiveness of the component ammonium radicals in bactericidal, fungicidal, antiseptic and other biologically prophylactic roles and confers on the compound other beneficial properties such as rust inhibition. The invention further contemplates method for the in situ generation of amino and nitrite substituted quaternary ammonium compounds in liquid media.

3,632,331

PROCESS OF DESICCATING PLANTS

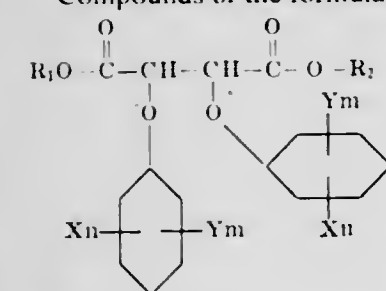
Delta W. Gier, Laurinburg, N.C., and Daniel M. Wasleski, Kansas City, Mo., assignors to Chemagro Corporation, New York, N.Y.

Filed Oct. 16, 1967, Ser. No. 675,350
Int. Cl. A01n 9/00, 9/24

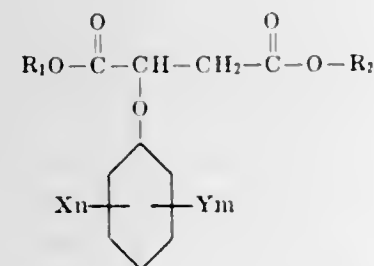
U.S. Cl. 71-70

13 Claims

Compounds of the formulae



and



where R₁ and R₂ are hydrogen, alkyl, chloroalkyl, phenyl and alkyl phenyl, X is halogen, Y is nitro, m is an integer from 1 to 2 and n is an integer of 1 to 3 are useful as herbicides and desiccants and to a lesser extent as defoliants. For the best desiccant properties there should be a halogen in the ortho position of the chloronitrophenyl group.

ERRATUM

For Class 71-92 see:
Patent No. 3,632,397

3,632,332

HERBICIDAL COMPOSITION FOR SELECTIVELY KILLING UNDESIRABLE WEEDS IN PADDY RICE FIELDS AND A METHOD FOR USE THEREOF

Taizo Maeda, Tokyo, Japan, assignor to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan

Filed Oct. 27, 1969, Ser. No. 870,679
Claims priority, application Japan, Oct. 31, 1968, 43/79549
Int. Cl. A01n 9/12

U.S. Cl. 71-100

2 Claims

A herbicidal composition for selectively killing undesirable weeds in paddy rice fields comprises as an active ingredient a herbicidally effective amount of S-(4-methylbenzyl)-N,N-diethylthiocarbamate and a major portion of an inert diluent.

3,632,333

N-ACYLSUBSTITUTED-N'-HYDROXYGUANIDINES AS HERBICIDES

Herman Breuer, Regensburg, Germany, assignor to Olin Mathieson Chemical Corporation

Original application Oct. 9, 1967, Ser. No. 673,975, now Patent No. 3,564,608, dated Feb. 16, 1971, which is a continuation-in-part of application Ser. No. 566,480, July 20, 1966, now abandoned. Divided and this application Aug. 29, 1969, Ser. No. 872,797
Int. Cl. A01n 9/20

U.S. Cl. 71-118

5 Claims

Selected N-acylsubstituted-N'-hydroxyguanidines are provided by the reaction of selected acyl carbodiimides with hydroxylamine or salts thereof. The substituted guanidines are useful agricultural chemicals particularly as herbicides.

3,632,334

REFINING OF IMPURE METALS

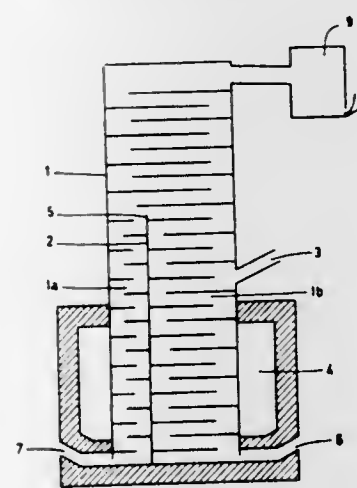
Albert Andre Joseph Quintin, Overpelt, Belgium, assignor to Compagnie des Metaux d'Overpelt-Lommel et de Corphalie, Overpelt, Belgium

Filed Jan. 31, 1969, Ser. No. 795,481
Claims priority, application Luxembourg, Feb. 19, 1968, 55,506

Int. Cl. C22b 7/00

U.S. Cl. 75-63

9 Claims



A refining column for refining impure metals which comprises:

a. an upper portion containing trays;

3,632,337

ELECTROSTATIC IMAGING PROCESS WHEREIN THE DEVELOPER INCLUDES BORON NITRIDE

Walter Crooks, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 2, 1970, Ser. No. 8,008

Int. Cl. G03g 13/14

U.S. Cl. 96-1.4

3 Claims

Wetting by toners of the surface of reusable photoconductors in electrophotographic processes results in image cycling in adhesion of the toner to the photoconductor surface to form a film. Such filming is reduced or eliminated by introducing into the system a small amount of boron nitride.

3,632,338

PHOTOGRAPHIC DIFFUSION TRANSFER PRODUCT AND PROCESS

Dorothy J. Beavers, Rochester; William J. Staudenmayer, Pittsford, and Edmond S. Perry, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 4, 1969, Ser. No. 796,559

Int. Cl. G03c 5/54

U.S. Cl. 96-29

17 Claims

A substantially protein free receiving layer for use in a photographic diffusion transfer process comprises silver precipitants and a colloid binder comprising at least 90 percent, by weight, of a copolymer of (1) about 90 percent to about 98 percent, by weight, of at least one haloalkyl methacrylate in which the haloalkyl group contains 1 to 10 carbon atoms with (2) about 2 percent to about 10 percent, by weight, of an unsaturated polymerizable organic acid having three to six carbon atoms. The layer can also contain toning and/or processing compounds.

3,632,339

METHOD OF SCREENING A COLOR CATHODE-RAY TUBE

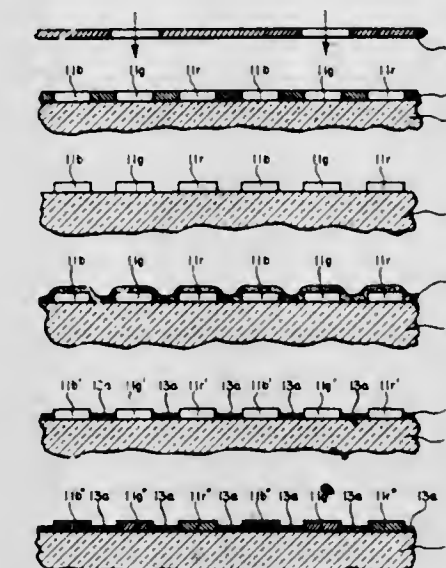
Ghulam A. Khan, Niles, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Apr. 28, 1969, Ser. No. 819,688

Int. Cl. G03c 5/00

U.S. Cl. 96-36.1

1 Claim



3,632,336

SILVER RECOVERY PROCESS

Eric C. Cameron, Yakima, Wash., assignor to The Battelle Development Corporation, Columbus, Ohio

Filed July 25, 1969, Ser. No. 845,091

Int. Cl. C22b 11/00

U.S. Cl. 75-83

9 Claims

Silver from used manufactured organic materials such as photographic film, sensitized paper and printed circuit boards, is recovered by placing the material in an enclosed retort and subjecting the retort to a noncombustible atmosphere such as steam and then increasing the temperature of the material to a final temperature between 500° and 960° C. to vaporize the volatile constituents and carbonize the organic material to leave a silver and carbon residue. The silver is then separated from the carbon by burning the carbon in a combustible atmosphere to transform the residue into silver and ash. The silver and resulting ash may be efficiently separated by conventional flux or flotation processes.

A multiplicity of dots of clear polyvinyl alcohol (PVA) are formed on the inner surface of the screen of a color cathode-ray tube, these dots covering the space separated elemental areas of the screen that are intended to receive deposits of different phosphor materials characteristics of a color tube having a mosaic or triad type of screen. A slurry of colloidal graphite is applied over the entire screen, constituting an overcoat of the PVA dots. The graphite coating is dried to fit it securely to the screen portions that surround the PVA dots. Hydrogen peroxide is applied to the screen to release

the adherence of the PVA dots to the screen. A stream of water applied to the screen washes off the PVA dots with their overcoat of colloidal graphite and exposes elemental areas of the screen in which assigned ones of the various color phosphor materials are then deposited.

3,632,340

CORED DIRECT POSITIVE SILVER HALIDE EMULSION DEVELOPED WITH POLYHYDROXYBENZENE

Bernard D. Illingsworth, deceased, late of Rochester, N.Y. (by Mary D. Illingsworth, executrix), assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 9, 1968, Ser. No. 759,818
Int. Cl. G03c 5/24

U.S. Cl. 96—64

14 Claims

Processing exposed, direct-positive, high-contrast photographic elements with a polyhydroxybenzene developing agent wherein the silver halide emulsion of the element contains silver halide grains comprising internal centers which promote the deposition of photolytic silver and an outer region comprising a fogged silver halide that develops to silver without exposure. Certain halogen-conducting compounds and electron-accepting compounds can also be added to the element to increase speed.

3,632,341

PHOTOGRAPHIC DEVELOPER

Arthur Zacchia, Westford, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Mar. 13, 1970, Ser. No. 19,372
Int. Cl. G03c 5/30

U.S. Cl. 96—66 HD

12 Claims

An extended range fast-working photographic developer solution containing a hydroxybenzene compound and a 3-pyrazolidone compound in about a 1:1 weight ratio, and having a highly alkaline pH is disclosed.

3,632,342

PHOTOGRAPHIC ELEMENT CONTAINING ACRYLIC LATEX POLYMERS

Eugene Dennis Salesin, and Robert Calvin Harvey, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 3, 1969, Ser. No. 803,960
Int. Cl. G03c 1/76, 1/72

U.S. Cl. 96—68

18 Claims

Multilayer photographic elements with improved sensitometric properties are disclosed. In one aspect, this invention relates to a multilayer photographic element comprising a support, 1) at least one layer containing a light-sensitive silver halide emulsion and a synthetic polymeric acrylic latex material and 2) at least one additional layer positioned outward from said support with respect to any light-sensitive silver halide layer comprising a synthetic polymeric acrylic latex, wherein said additional layer comprises a silver halide and a hydrophilic colloid material which is substantially free of synthetic polymeric acrylic latex micelles.

3,632,343

PHOTOGRAPHIC EMULSIONS AND PROCESSES

Peter J. Hillson, London, and Michael Ridgway, Aldbury, Tring, both of England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 29, 1969, Ser. No. 845,910
Int. Cl. G03c 1/00

U.S. Cl. 96—88

15 Claims

Chemically developable photosensitive aurous iodide emulsions are described. Photosensitive elements prepared from the aurous iodide emulsions can be developed with conventional silver halide developers and by diffusion transfer processes.

3,632,344

DIAZO-TYPE MATERIAL USING ALPHA-PYRONE ULTRAVIOLET RADIATION ABSORBERS

Roland Moraw; Johannes Munder, both of Wiesbaden-Bierbrich, and Gerhard Lohaus, Kelkheim, Taunus, all of Germany, assignors to Keuffel & Esser Company, Morristown, N.J.

Filed Jan. 15, 1969, Ser. No. 791,516
Claims priority, application Germany, Jan. 17, 1968, P 16 68 358.2

Int. Cl. G03c 1/60

U.S. Cl. 96—91

9 Claims

Alpha-pyrone compounds are employed to provide colorless, lightfast ultraviolet radiation absorber materials. In addition to being normally colorless these materials are noncoloring due to their colorless decomposition products. The materials provide barriers for protection from ultraviolet radiation, and when incorporated in diazo-type reproduction materials, provide broad tonal gradations. Alpha-pyrones including an azocoupling group in the molecule may be combined with light-sensitive diazonium compounds to provide two-component diazo-type material without the inclusion of additional azocoupler compounds.

3,632,345

PHOTOGRAPHIC MATERIAL USING SPLITTABLE COUPLERS

Paul Marx, Cologne-Buchheim; Ulrich Heb, Leichlingen; Rigobert Otto; Walter Puschel, both of Leverkusen, and Willibald Pelz, Opladen, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Apr. 2, 1968, Ser. No. 723,344
Claims priority, application Germany, Apr. 10, 1967, A 55408

Int. Cl. G03c 1/06

U.S. Cl. 96—95

9 Claims

A color photographic material having a silver halide emulsion layer containing a nonperformed development-inhibiting-releasing compound of the tetrazole class which is non-color forming.

3,632,346

PROCESS FOR RENDERING INNOCUOUS FLATULENCE-PRODUCING SACCHARIDES

Samuel E. Sherba, Willingboro, N.J., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Apr. 30, 1968, Ser. No. 725,497
Int. Cl. A23l 1/20

U.S. Cl. 99—98

24 Claims

This invention is directed to a process for rendering innocuous flatulence-producing saccharides in foodstuffs by contacting such with an enzyme preparation capable of hydrolyzing the 1, 6 linkages of stachyose in an amount and for a time which is effective to hydrolyze said flatulence-producing saccharides.

3,632,347

SILVER HALIDE EMULSIONS CONTAINING CYAN-FORMING COUPLERS

Friedrich Wilhelm Kunitz, Leverkusen; Helmut Mader, Odenthal-Hahnenberg, and Rigobert Otto, Leverkusen, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Apr. 28, 1970, Ser. No. 32,725
Claims priority, application Germany, May 3, 1969, P 19 22 628.9

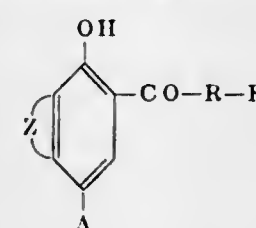
Int. Cl. G03c 1/40

U.S. Cl. 96—100

4 Claims

Improved color reproduction can be achieved using a color photographic material which contains as cyan-forming cou-

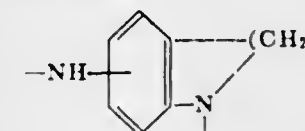
pler a compound of the following formula:



wherein

F stands for a residue making the coupler diffusion resistant, A stands for H, halogen or sulfo, Z completes a condensed benzene or tetrahydrobenzene ring and

R stands for the bifunctional group:



These couplers can advantageously be combined with red azo masking couplers.

3,632,348

METHINE DYE SENSITIZERS FOR EMULSIONS EXPOSED AT -180° C.

Thomas H. James, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 7, 1969, Ser. No. 822,670
Int. Cl. G03c 1/28, 1/08, 1/10

U.S. Cl. 96—107

6 Claims

Photographic silver halide emulsions which are exposed at low temperatures have adsorbed thereto a sufficient amount of a methine dye to increase the sensitivity and contrast of the emulsion at temperatures below about -180° C. The highest occupied electronic energy level of the methine dye adsorbed on the silver halide is more positive than the highest occupied energy level in the valence band of the silver halide, and the lowest vacant electronic energy level of the dye adsorbed on the silver halide is more positive than the conduction band of the silver halide. Particularly good results are obtained with the quinoline monomethine cyanines. Preferred results are obtained when the dye is employed in a concentration sufficient to give monomolecular layer coverage of the silver halide grains.

3,632,349

SILVER HALIDE SUPERSENSITIZED PHOTOGRAPHIC EMULSION

Keisuke Shiba, and Akira Sato, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

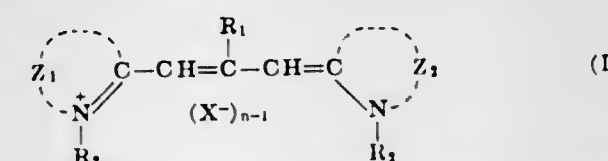
Filed Apr. 9, 1970, Ser. No. 27,035
Claims priority, application Japan, Apr. 9, 1969, 44/27421

Int. Cl. G03c 1/28

U.S. Cl. 96—123

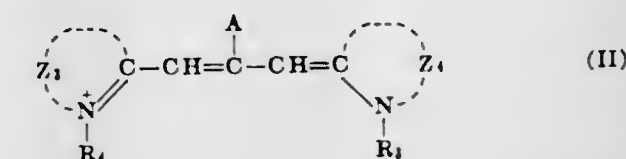
11 Claims

A silver halide photographic emulsion containing at least one sensitizing dye represented by the following formula I:



wherein R₁ is an alkyl group having from one to four carbon atoms; R₂ and R₃ are individually selected from the group consisting of an alkyl group, an allyl group and an alkyl group substituted by a hydroxyl group, an alkoxy group, a carboxyl group, a sulfo group, a carboxyalkoxy group or a sulfoalkoxy group; Z₁ and Z₂ are the same or different atomic groups necessary to complete a benzothiazole nucleus

or a benzoselenazole nucleus; n is 1 or 2 and X⁻ is an anion group; and at least one sensitizing dye represented by the following formula II:



wherein A is a thienyl group, a furyl group or a thienyl group substituted by a halogen atom, an alkyl group or an alkylcarboxyl group; R₄ and R₅ are individually selected from the group consisting of an alkyl group, an aryl group and an alkyl group substituted by a hydroxyl group, an alkoxy group, a carboxyl group, a sulfo group, a carboxyalkoxy group or a sulfoalkoxy group; at least one of R₄ and R₅ being a sulfoalkoxy group; Z₃ is an atomic group necessary to complete a naphthothiazole nucleus or a naphthoselenazole nucleus, and Z₄ is an atomic group necessary to complete a naphthothiazole nucleus, a naphthoselenazole nucleus, a benzothiazole nucleus or a benzoselenazole nucleus.

3,632,350

FOOD COMPOSITIONS CONTAINING MICROCRYSTALLINE COLLAGEN

Orlando A. Battista, Yardley, Pa., assignor to FMC Corporation, New York, N.Y.

Original application Oct. 17, 1966, Ser. No. 586,969, now abandoned, which is a continuation-in-part of application Ser. No. 436,371, Mar. 1, 1965, now abandoned. Divided and this application Feb. 2, 1970, Ser. No. 12,503

Int. Cl. A23l 1/00

U.S. Cl. 99—1

6 Claims

Food compositions containing a new physical form of collagen. This form of collagen has been termed microcrystalline collagen and is a water-insoluble but water-dispersible ionizable, partial salt of collagen and is formed by treating undenatured collagen with dilute acid solutions having a pH between about 1.6 and 2.6. Mechanically disintegrating the treated collagen in aqueous liquids until at least 10 percent by weight has been reduced to a submicron size produces dispersions in the aqueous liquids which have an essentially constant viscosity. This new form of collagen is edible, bland in taste and odor and is indistinguishable in the food compositions.

3,632,351

METHOD FOR TREATING WITH TANNIN OLEAGINOUS AND PROTEINIC MATERIAL OF VEGETABLE ORIGIN, AND PRODUCTS OBTAINED BY SAID METHOD

Zelmen Zelter, Paris; Jean Delort-Laval, La Verriere; Jean Lassonnery, Saint Junien, and Jacques Rodeaud, Chabanais, all of France, assignors to Institut National de la Recherche Agronomique, Paris and Produits Chimiques et Celluloses Rey, Velizy-Villacoublay, Yvelines, France

Filed Mar. 11, 1968, Ser. No. 711,885

Claims priority, application France, Mar. 10, 1967, 98223
Int. Cl. A23k 1/00; A23j 1/14

U.S. Cl. 99—2 E

6 Claims

Treatment of oleaginous and proteinic vegetable substances by adding a tannin-containing substance thereto, submitting the vegetable substance to mechanical pressure and friction forces in the presence of water at a temperature higher than normal ambient temperature while adjusting the amount of water such that it corresponds to a moisture content of about 10-15 percent of the vegetable substance, and separating the oily constituents from the proteinic constituents.

3,632,352

ANIMAL FEED COMPOSITION INCLUDING MILK EXCHANGE MATERIAL

Karl-Hans Muller, Grossauheim, and Gottfried Kallrath, Bruehl-Vochem, both of Germany, assignors to Deutsche Gold-Und Silber-Scheideanstalt Vormals Roessler, Frankfurt am Main, Germany

Filed Dec. 2, 1969, Ser. No. 881,611

Claims priority, application Germany, Dec. 3, 1968, P 18 12 350.7

Int. Cl. A23k 1/00; A23c 9/00

U.S. Cl. 99—2

7 Claims

An animal feed composition on the basis of a milk exchange material comprises, in addition to dry skimmed milk, animal and/or vegetable fats, emulsifying agent and nutrients an amount between 0.5 and 10 percent by weight relative to the total composition of a finely divided synthetic silicic acid.

The addition prevents caking of the composition and improves the flow properties.

3,632,353

REMOVAL OF TARS AND WAXES IN FREEZE CONCENTRATION OF COFFEE

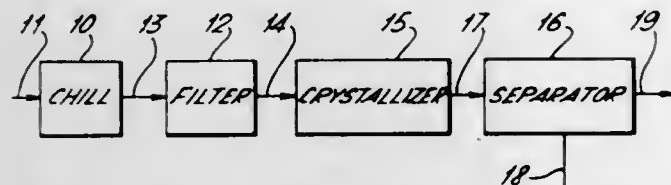
Richard G. Reimus, and Anthony Saporito, both of Warren, Pa., assignors to Struthers Scientific and International Corporation

Continuation of Ser. No. 763,217, Sept. 27, 1968, abandoned, which is a division of application Ser. No. 718,510, Apr. 3, 1968, now Patent No. 3,432,308, dated Mar. 11, 1969, which is a division of application Ser. No. 511,173, Dec. 2, 1965, now Patent No. 3,381,302, dated Apr. 30, 1968. This application May 12, 1969, Ser. No. 828,419

Int. Cl. A23f 1/08; B01d 9/04

U.S. Cl. 99—71

12 Claims



A process for making coffee concentrates is described in which liquid coffee of high solids concentration is chilled within a temperature range of 80° to 36° F. and precipitates formed within this temperature range are removed prior to freeze concentration by forming slush ice in the coffee, separating the ice from the coffee and then treating the ice so separated to recover residual coffee.

3,632,354

COLA BEVERAGE COMPOSITION AND METHOD OF MAKING

Robert L. Swaine, Lynnfield, and Anne M. Prendergast, Arlington, both of Mass., assignors to William C. Clay, Jr., Mt. Sterling, Ky.

Continuation-in-part of application Ser. No. 471,730, Mar. 13, 1965, now Patent No. 3,525,626. This application June 24, 1970, Ser. No. 49,572

Int. Cl. A23l 1/00

U.S. Cl. 99—78

4 Claims

A dry powder composition which is suitable for blending with heated water to form a hot cola beverage consisting essentially of from 1.40 to 2.34 weight percent of a spray dried cola flavoring, from 0.18 to 0.56 weight percent of vanilla powder, from 0.37 to 1.13 weight percent of anhydrous citric acid, from 2.62 to 4.36 weight percent of powdered caramel color, and from 85 to 95.4 weight percent of sucrose. The components of the powder composition are mixed together in dry form in a conventional blender whereby the usual granulation step, including the evaporation of water or water and alcohol, is eliminated.

3,632,355

METHOD OF CONTROLLING LEAVENING IN A BAKERY MIX AT VARYING ELEVATIONS

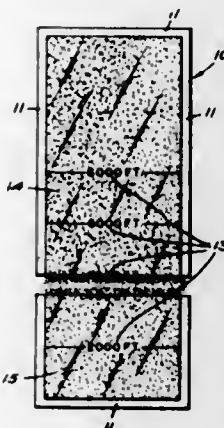
Anthony P. Umina, Hopkinton, and Donald E. Westcott, Acton, both of Mass., assignors to The United States of America as represented by the Secretary of the Army

Filed June 16, 1970, Ser. No. 46,672

Int. Cl. A21d 8/00; A23p 1/00

U.S. Cl. 99—86

7 Claims



Method of controlling leavening a bakery mix to be used at various elevations comprising packaging all of one of the ingredients (preferably sodium bicarbonate) which produce leavening in a separate package from that containing the remaining ingredients of the bakery mix, the package containing this one ingredient being provided with indicia at various levels along one face thereof indicating where the package should be cut to separate the contents into two portions, one portion to be discarded while the other portion containing the proper amount of sodium bicarbonate or other leavening ingredient for a selected elevation is added to the remaining ingredients of the bakery mix at the selected elevation and converted into a bakery product in a conventional manner.

3,632,356

METHOD AND APPARATUS FOR LIQUID CURTAIN COATING OF ONLY PORTIONS OF ADVANCING ARTICLES

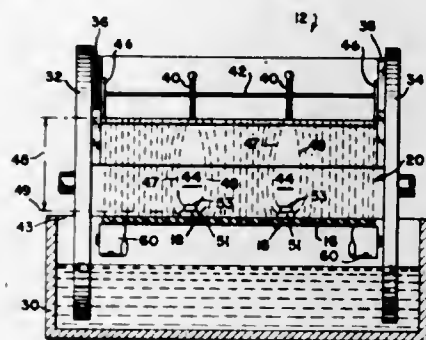
Samuel Silverstein, 8 Avon Avenue, Methuen, Mass., and Stanley Niemiec, 161 Berkeley Avenue, Lowell, Mass.

Filed May 26, 1969, Ser. No. 827,569

Int. Cl. A23g 3/20

U.S. Cl. 99—134

8 Claims



Apparatus for coating articles with a viscous liquid in such a way that the viscous liquid coats the sides and bottoms of said articles but not the tops thereof. Objects are carried on a conveyor through openings in a free-falling curtain of the liquid, which openings are caused by placing flow-interrupting means above the liquid-discharging wall of a dam-type liquid dispenser. The vertical position of these interrupting means is selected to assure the cohesive forces of the viscous liquid will close the openings proximate the surface of the conveyor, i.e., proximate the bottom of said objects to be coated.

Thus the lower portions of the articles are conveyed through the closed bottom of the curtain openings, and receive coating therefrom while the upper portions of the articles ride through the openings uncoated.

3,632,357

METHOD OF PRODUCING HARD CANDY

Wesley H. Childs, Chicago, Ill., assignor to Standard Brands Incorporated, New York, N.Y.

Filed July 29, 1969, Ser. No. 845,876

Int. Cl. A23g 3/00

U.S. Cl. 99—134 R

7 Claims

A mixture containing a sweetening agent, water and fumaric acid is formed and cooked until a homogeneous mass is formed. A second mass containing corn syrup, sucrose and water is formed and cooked at a temperature in the range of 250° to 330° F. until the constituents are uniformly distributed throughout the mass and the desired moisture level is reached. This second mass is cooled and the first mass is incorporated therein. Hard candy is then prepared from this mixture.

3,632,358

CHEWING GUM WITH FREEZE-DRIED FOOD PARTICLES

James F. Echeandia, and Robert M. Lehman, both of Richmond, Va., assignors to Philip Morris Incorporated, Richmond, Va.

Filed Apr. 18, 1968, Ser. No. 722,195

Int. Cl. A23g 3/30

U.S. Cl. 99—135

2 Claims

Chewing gum containing particles of freeze-dried food which are of small particle size but large enough to be visible and a process for making such a product, by charging a pre-heated mixer with corn syrup and a melted gum base for a period of time sufficient to allow wetting of the base, mixing in sugar in several portions, admixing freeze-dried food, with or at any time after the second sugar portion is added, adding glycerin, flavor and color and/or plasticizer, if any, adding the remainder of the sugar, then cooling, extruding, roller milling and forming the resulting mass into desired shape.

ERRATUM

For Class 99—98 see:
Patent No. 3,632,346

3,632,359

ZRO₂-AL₂O₃-SiO₂ FUSION-CAST REFRACTORY

Allen M. Alper; Ronald M. Lewis, and Robert N. McNally, all of Corning, N.Y., assignors to Corhart Refractories Company, Louisville, Ky.

Filed Nov. 29, 1968, Ser. No. 780,175

Int. Cl. C04b 35/48

U.S. Cl. 106—57

12 Claims

Fusion-cast refractory with the overwhelming majority of its crystalline mass being zirconia crystals and containing siliceous glass phase interstitially between the zirconia crystals. Composition analytically consists of, by weight, at least 62 percent ZrO₂, not more than 24 percent SiO₂, at least 1 percent Al₂O₃ not exceeding the amount of SiO₂, 0 to 10 percent oxide of Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, Ba or mixtures thereof, 0 to 4 percent fluorine, and not more than 1 percent Fe₂O₃ plus TiO₂. Useful in lining glass melting tanks. Characterized by being substantially crack-free as manufactured and less subject to cracking in service, and by minimal stoning, corrosion, and blistering in contact with many molten glasses, especially aluminosilicate, borosilicate and other glasses melted at temperatures of 1,550° C. or higher.

3,632,360

REFRACTORY COMPOSITION AND METHOD FOR THE PRODUCTION OF CERAMICALLY BONDED REFRACTORIES

Glenn H. Lufcy, Tiffin, Ohio, assignor to Basic Incorporated, Cleveland, Ohio

Filed Jan. 24, 1969, Ser. No. 793,892

Int. Cl. C04b 35/04, 35/06

U.S. Cl. 106—58

13 Claims

In producing ceramically bonded basic refractories, the basic refractory particles are bonded together with a tempo-

rary binder. The temporary binder includes a pitch which may be a tall oil pitch or a fatty acid pitch and an asphalt binder oil.

3,632,361

WATER-INSOLUBLE MICROCRYSTALLINE COLLAGEN ABSORBENT MAT

Orlando A. Battista, Yardley, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 527,054, Feb. 14, 1966, now Patent No. 3,471,598, dated Oct. 7, 1969, which is a continuation-in-part of application Ser. No. 436,731, Mar. 1, 1965, now abandoned. This application June 26, 1969, Ser. No. 836,998

Int. Cl. C08h 7/06

U.S. Cl. 106—122

5 Claims

A water-insoluble, highly absorbent body or mat of a partial salt of collagen (microcrystalline collagen) formed by preparing a dispersion of the salt of collagen in an aqueous medium, introducing the dispersion into a mold and freeze-drying the dispersion.

3,632,362

INSULATION COATING FOR ELECTRICAL STEEL SHEET AND METHOD OF APPLICATION

Nobuo Urushiyama; Hiromichi Koshiishi, and Kaneko Akanuma, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation of application Ser. No. 624,072, July 9, 1963, now abandoned. This application June 27, 1969, Ser. No. 845,601

Int. Cl. C08h 15/02; H01f 5/06

U.S. Cl. 106—123 LC

6 Claims

An aqueous composition producing an insulation coating having excellent adhesion to electrical steel sheet consists of 5-50 percent of a lignin sulfonate, 0.5-15 percent of a water soluble phosphate, 0-15 percent of a water soluble chromate or borate and up to 50 percent of a high molecular weight water soluble organic compound such as polyvinyl alcohol, polyethyleneglycol, etc.

The aqueous solution or dispersion is coated onto the steel sheet after which it is heated to 200°-500° C. in 1 to 120 seconds to cure the coating.

3,632,363

CELLULOSE ACETATE AND NYLON FIBERS CONTAINING THIOREA DYESITES

Francis S. Moussalli, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.

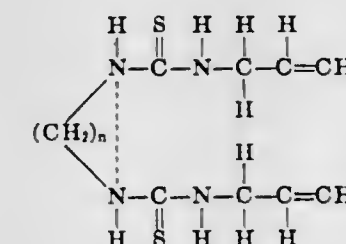
Continuation-in-part of application Ser. No. 562,512, July 5, 1966, now abandoned. This application Oct. 28, 1969, Ser. No. 871,965

Int. Cl. C08b 27/68

U.S. Cl. 106—186

8 Claims

There is provided a process for improving the dyeability and fading resistance of fiber, comprising mixing into said fiber prior to the time it is extruded and dried from about 0.1 to about 6 percent (by weight of fiber) of a compound of the formula



wherein *n* is from 0 to about 18, there being a direct bond between the nitrogen atoms when *n* is 0.

3,632,364

PRINTED SHEETS CONTAINING CONCEALED IMAGES AND METHOD & MATERIALS FOR PREPARATION AND VISUAL DEVELOPMENT OF SAME

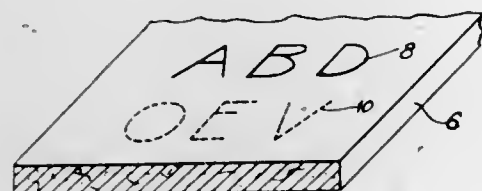
Richard E. Thomas, Chicago; Robert T. Florence, Park Ridge; Ruston H. Dalal, Chicago, and Raymond I. Scheuer, Lindenhurst, all of Ill., assignors to A. B. Dick Company, Niles, Ill.

Filed Sept. 3, 1968, Ser. No. 757,067

Int. Cl. B44f 1/10; B41m 5/12; G09b 3/06

U.S. Cl. 117-1.7

11 Claims



A system for the preparing of copy containing concealed images and a marking material for the development of same in which the components comprise a receiving material in the form of starch or polyvinyl alcohol, an iodide which is oxidizable to iodine, and an oxidizing agent for oxidizing the iodide in which the oxidizing agent is contained in the imaging material to produce the concealed image, the iodine is contained in the marking material for the development of the image and the starch or polyvinyl alcohol are contained in the copy sheet, the printing material or the marking material whereby, when the marking material is applied to the concealed image, the oxidizing agent oxidizes the iodide to release iodine for producing an intense color with the starch or polyvinyl alcohol and in which the printing process is adapted to conventional printing systems.

3,632,365

DECORATIVE DECAL WITH A PYROLYZABLE FILM BASE

Don N. Gray, Okemos, Mich., assignor to Owens-Illinois, Inc.

Filed July 13, 1967, Ser. No. 653,020

Int. Cl. B41m 3/12

U.S. Cl. 117-3.4

9 Claims

This invention relates to a decorative decal comprising a pyrolyzable film base containing a decorative organic base ink or coating. The decal is conveniently applied to a suitable surface, e.g., a glass surface, and subjected to radiation sufficient to pyrolyze the film and cure, but not degrade, the ink, such that the ink adheres to the surface.

3,632,366

METHOD OF PRODUCING MOLDABLE REINFORCED THERMOPLASTIC MATERIAL

Hisao Hiraga; Syunichi Ito; Keitaro Inoue, and Hideharu Hosoya, all of Yokohama-shi, Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Dec. 27, 1968, Ser. No. 787,604

Claims priority, application Japan, Jan. 11, 1968, 43/1095

Int. Cl. C03c 25/02; B41k 3/28

U.S. Cl. 117-4

9 Claims

A process for producing moldable reinforced thermoplastic material which comprises impregnating filaments with an aqueous emulsion of thermoplastic resin containing a small amount of organic solvent, drying said impregnated filaments to remove water and the organic solvent and then chopping said filaments into granules, thereby obtaining fiber reinforced thermoplastic material in the form of granules in which thermoplastic resin particles coalesce firmly with one another and adhere firmly to filaments, thus providing useful material for injection or extrusion molding into desirable reinforced finished shaped articles.

3,632,367

ROTOGRAVURE PRINTING PROCESS

Paul R. Brown, Scotch Plains, and Philip H. Cooper, Glen Ridge, both of N.J., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed June 28, 1968, Ser. No. 740,858

Int. Cl. B44d 1/16, 1/09

U.S. Cl. 117-12

8 Claims

There is provided an improved process for printing by rotogravure printing means which is characterized by the use of an overcoating of a styrene-acrylonitrile copolymer which can be applied over a printed image at high speeds encountered in such printing process without adversely affecting the equipment.

3,632,368

LUBRICANT COATED BEARING AND METHOD

Robert D. Nelson, Sunnyvale, Calif., assignor to Lubrication Sciences, Inc., Mountain View, Calif.

Continuation-in-part of application Ser. No. 777,161, Nov. 16, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 504,063, Oct. 23, 1965, now abandoned, and a continuation-in-part of 657,784, Aug. 2, 1967, now abandoned. This application Nov. 12, 1970, Ser. No. 89,046

Int. Cl. B44d 1/094

U.S. Cl. 117-16

7 Claims

Method of providing a dry lubricant coating on a bearing surface by cleaning the surface to remove contaminants, maintaining the surface in an essentially atomically clean condition and impinging discrete particles of a layer lattice structured dry lubricant against the clean bearing surface with sufficient energy to cause the particles to become diffusion bonded to the bearing surface.

3,632,369

POLYMER PIGMENTATION

Granville J. Hahn, Big Spring, Tex., assignor to Cosden Oil & Chemical Company, Big Spring, Tex.

Continuation-in-part of application Ser. No. 525,854, Feb. 8, 1966, now abandoned, Continuation-in-part of application

Ser. No. 576,208, Aug. 31, 1966, now abandoned,

Continuation-in-part of application Ser. No. 594,998, Nov. 17, 1966, now Patent No. 3,484,262. This application Dec.

11, 1969, Ser. No. 884,353

Int. Cl. B44d 1/02; B05c 5/00

U.S. Cl. 117-16

10 Claims

Particles of polyethylene, polypropylene, polyacrylic lower alkyl esters, and polymethacrylic lower alkyl esters are pigmented by progressively mixing the dry particles with dry pigment in a high-speed mixer having a blade tip speed exceeding about 200 inches per second for a short period of a few minutes or less, whereby all of the pigment becomes firmly adhered to the surfaces of the polymer particles.

3,632,370

MULTIPLE BRUSH DEVELOPMENT

Ernest A. Weiler, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of application Ser. No. 659,518, Aug. 9, 1967, now abandoned. This application Mar. 20, 1970, Ser. No.

19,557

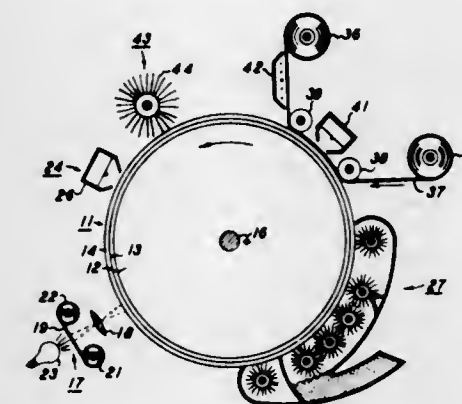
Int. Cl. G03g 13/08, 15/08

U.S. Cl. 117-17.5

4 Claims

Two or more brushes are placed adjacent to and in mesh with each other and a surface bearing a latent electrostatic image to form a high-speed development system. Adjacent development brushes in the system are rotated at different speeds relative to one another to create a swirling motion during development. The primary brush in the system is the brush which initially contacts the latent image as it passes the

development area and is, preferably, the only brush in the system which is loaded with toner by external means, the



other brushes in the system receiving toner as a result of their meshing one with another.

3,632,371

METHOD OF MAKING MULTILAYER MAT OF PARTICULATE MATERIAL

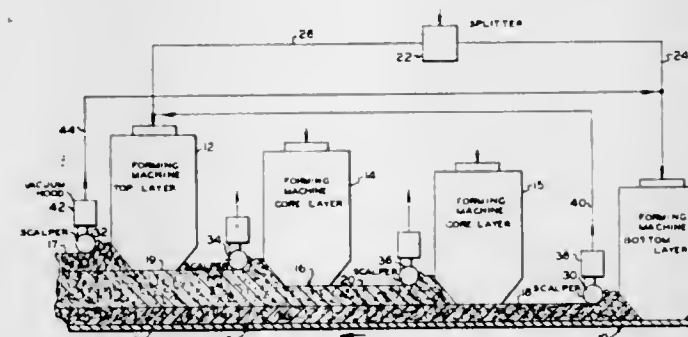
Bohuslav E. Mikulka, Richmond, Va., assignor to Evans Products Company, Portland, Ore.

Filed Apr. 24, 1970, Ser. No. 31,531

Int. Cl. B44c 1/08; B44d 1/094

U.S. Cl. 117-19

3 Claims



A method of making a multilayer mat or board comprises splitting an initial supply of particulate material into two parts and supplying one of such parts to a first forming machine and the other of such parts to a second forming machine positioned downstream of the first forming machine. The first forming machine spreads a first amount of the material on a moving conveyor at a rate in excess of that necessary to form a first layer on the conveyor. The second forming machine spreads a second amount of the material downstream of the first forming machine at a rate in excess of that necessary to form a second layer above the first layer. The excess material spread by the forming machines is removed by first and second scalpers positioned downstream of and adjacent each of said forming machines to insure uniform thickness of the layers. The invention is characterized by the fact that the excess material removed by the first scalper is returned to the supply for the second forming machine, and the excess material removed by the second scalper is returned to the supply for the first forming machine. In this manner the total supply of material to each of the forming machines remains substantially constant notwithstanding variations in the amounts of particulate material supplied to or fed from each of the machines.

3,632,372

PLASTIC COATING OF PLASTERBOARDS OR WOOD

John Richard William Heslop, and Albert Edward Riley, both of Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England

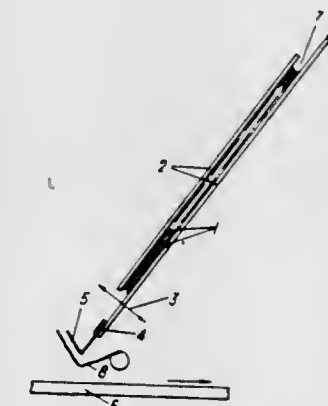
Filed Mar. 19, 1965, Ser. No. 441,031

Claims priority, application Great Britain, Mar. 24, 1964, 12,403/64

Int. Cl. B44d 1/094, 1/46

U.S. Cl. 117-21

1 Claim



Process for coating the surface of materials such as wood and plasterboard with a thermoplastic material, e.g. polypropylene, by spreading a layer of the thermoplastic material in powdered form over the surface to be coated, subjecting the spread surface to heating by infrared radiation until the thermoplastic material is softened and, before the thermoplastic material has had time to harden, applying pressure to the spread surface so as to cause fusion of the thermoplastic particles, and causing or allowing the resulting thermoplastic coating to set.

3,632,373

METHOD FOR PREPARING SILVER HALIDE LAYERS HAVING SUBSTANTIALLY UNIFORM IMAGE CONTRAST

Reid J. O'Connell, and John H. Van Campen, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 1, 1968, Ser. No. 717,920

Int. Cl. G03c 1/00, 1/76

U.S. Cl. 117-34

7 Claims

Photographic elements are provided which comprise a support having thereon a layer containing silver halide and a photographic image forming coupler, the ratio of coupler to the silver halide varying from area-to-area in the layer, the layer also including a development inhibitor-releasing coupler which is maintained at a constant ratio to the image-forming coupler in all areas of the layer. The development inhibitor-releasing coupler functions to reduce variations in dye image contrast caused by the varying ratio of photographic image-forming coupler to silver halide in the layer. Methods for preparing photographic elements are also provided.

3,632,374

METHOD OF MAKING PHOTOGRAPHIC ELEMENTS

Jack Francis Greiller, Ruislip, Middlesex, England, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 3, 1968, Ser. No. 733,944

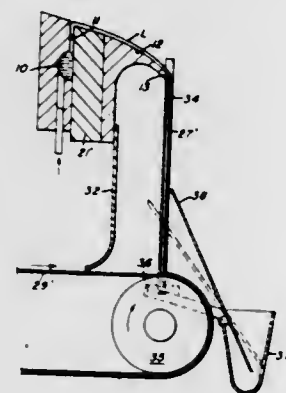
Int. Cl. B44d 1/02; G03c 1/74

U.S. Cl. 117-34

14 Claims

In the manufacture of photographic elements, such as photographic film or paper, the support is coated by forming a free-falling vertical curtain of liquid photographic coating composition in such manner that the curtain is stable and has

a uniform flow rate across its width and directing the support so that the free-falling curtain impinges thereon, while maintaining a controlled relation between the flow rate and the speed at which the support is moved, to form a thin layer of the coating composition on the face of the support. Apparatus which is particularly advantageous for carrying out



this method includes means for advancing the support at the desired speed and a hopper for the coating composition which is provided with a downwardly inclined slide surface down which the coating composition flows by gravity, the slide surface terminating in a lip spaced vertically above the moving support from which the coating composition flows as a free-falling curtain.

3,632,375

PLATE FOR DRY PLANOGRAPHY AND METHOD OF MAKING SAME

Harry Frank Gipe, Baltimore, Md., assignor to Scott Paper Company, Delaware County, Pa.

Filed Nov. 14, 1969, Ser. No. 876,688

Int. Cl. C03c 1/00, 3/25; G03c 1/00

U.S. Cl. 117-34

3 Claims

A negative acting presensitized plate for use in dry planography, said plate comprised of a flexible substrate having coated thereon a layer of silicone rubber which when cured will not accept printing ink, a layer of polymeric anchoring material overlying and adhered to the silicone rubber layer and a layer of photoresponsive image forming material coated over said anchoring material with the anchoring material serving to bond the photoresponsive image forming material to the silicone layer.

3,632,376

HEAT-STENCIL ASSEMBLY

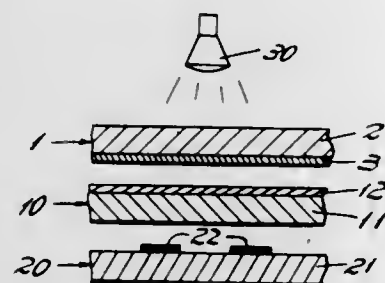
Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.

Filed May 9, 1969, Ser. No. 823,338

Int. Cl. B41n 1/24; B44d 3/30

U.S. Cl. 117-35.5

5 Claims



Heat-stencil assembly for producing an imaged stencil sheet corresponding to an imaged original sheet by means of infrared radiation. The stencil sheet comprises an ink-imperious layer over an ink-permeable substrate, and said layer is

removable to the receptive layer on a copy sheet in the heated areas.

3,632,377

IMAGE TRANSFER SHEET AND METHOD

Donald J. Williams, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 6, 1969, Ser. No. 789,392

Int. Cl. B41m 5/22

U.S. Cl. 117-36.2

4 Claims

A copy sheet having a coating comprising a binder and a reactive water-insoluble heavy metal salt of an organic acid and capable of forming a visible image on application of a heat pattern in presence of a coreactant for said salt, the resulting image areas being physically separable from the remaining background areas in the absence of any temperature differential therebetween.

3,632,378

METHOD AND APPARATUS FOR MANUFACTURE OF DUAL COATED SHEET WITH PRESSURE RUPTURABLE MATERIALS

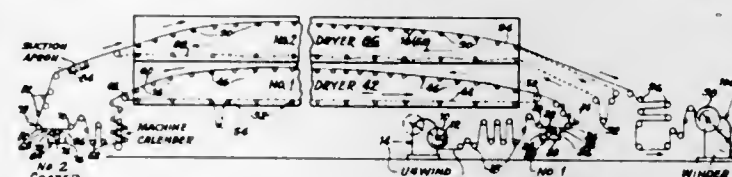
Thomas W. Busch, Appleton, Wis., assignor to Appleton Papers, Inc., Appleton, Wis.

Filed Jan. 31, 1969, Ser. No. 795,663 The portion of the term of the patent subsequent to Oct. 27, 1987, has been disclaimed.

Int. Cl. B41m 5/22

U.S. Cl. 117-36.2

2 Claims



Tandem coating of paper web on one side with a clay coat and on the other side with a coating of pressure-rupturable encapsulated materials with the clay coat applied first and with a calender immediately before the coating with the encapsulated materials.

3,632,379

HEAT-SENSITIVE COPY SHEET

Joseph A. Wiese, Jr., St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 30, 1969, Ser. No. 870,532

Int. Cl. B41m 5/18

U.S. Cl. 117-36.8

10 Claims

The reaction temperature of a copy-sheet containing bis(triphenylphosphine)borohydridocopper(I) as heat-decomposable image-forming component is significantly reduced by incorporating certain nonfugitive nitrogen bases or heat-decomposable progenitors of nitrogen bases.

3,632,380

METHOD OF FABRIC FINISHING

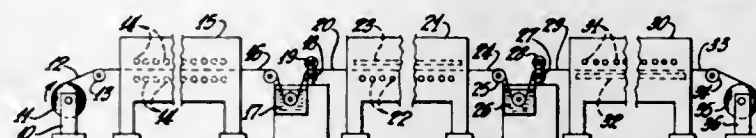
Remus F. Caroselli, Cumberland; Vincenzo Mastrianni, Cranston, both of R.I., and David W. Boyes, Bedford, Va., assignors to Owens-Corning Fiberglas Corporation.

Filed Sept. 11, 1968, Ser. No. 758,967

Int. Cl. B44d 1/10, 1/44

U.S. Cl. 117-37

18 Claims



A method of fabric finishing wherein color migration of colorants is effected on fabric by the use of faster drying sur-

face zones in cooperating relationship with the fabric to provide novel and decorative effects on specific portions of the fabric.

3,632,381

METHOD OF PRINTING ON GLASSWARE AND EARTHENWARE SUCH AS TUMBLERS AND SIMILAR

Richard Chromcek, Praha; Leopold Meinhold, Hermanova Hut; Jaroslava Otoupalova, and Vlastimil Kruntorad, both of Prague, all of Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

Filed Oct. 2, 1968, Ser. No. 764,659

Claims priority, application Czechoslovakia, Oct. 5, 1967, 7034-67

Int. Cl. C03c 17/00; B29h 9/12

U.S. Cl. 117-38 1 Claim
An elastic layer made of sparingly cross-linked polymeric hydroxyalkyl methacrylates is used for printing ethereal oil containing printing liquids on glassware and earthenware articles.

3,632,382

APPLICATION OF LIQUID COLORS TO PAPER CARD OR OTHER SMOOTH SURFACES

Kenneth James Reed, London; Donald Ian McGillvray, Knutsford, and Jack Fletcher, Newton-le-Willows, all of England, assignors to McCorquodale Colour Display Limited, London, England

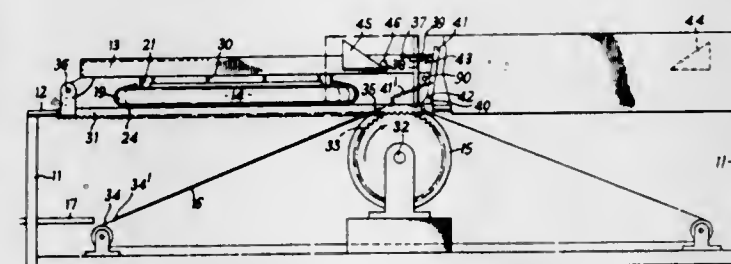
Filed July 15, 1969, Ser. No. 871,987

Claims priority, application Great Britain, Dec. 22, 1964, 52,131/64

Int. Cl. B05c 1/16, 3/20

U.S. Cl. 117-38

2 Claims



Method for applying liquid color to smooth, flexible sheet material in defined areas, said method comprising loading a container, said container having downwardly directed outlets corresponding to the defined areas covered by mesh screen, with the liquid color so that menisci are formed at the lower surface of the screen, and contacting the sheet material to the exterior of said mesh screen so as to break said menisci and transfer the liquid to the surface.

3,632,383

METHOD OF COATING THE CUT EDGE OF A FABRIC

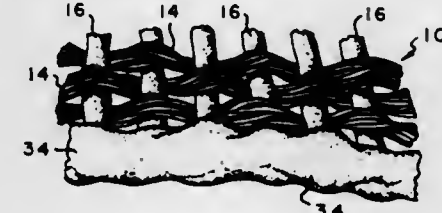
Joseph W. Dominick, and William P. Warthen, both of Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 18, 1968, Ser. No. 713,628

Int. Cl. B44d 1/02, 1/09

U.S. Cl. 117-44

10 Claims



The cut edge of a fabric is preheated to a temperature which will cause an increase in viscosity of a subsequently

applied heat-solidifiable composition and reduce its migration into the fabric. The composition is applied to the preheated edge and further heated to solidification.

3,632,384

METHOD OF MAKING CIGARETTE PAPER WITH ASH-RETAINING MEANS

Joseph Saint-Pastou, 5 rue Pierre Mouren, 13 Marseille 7, France

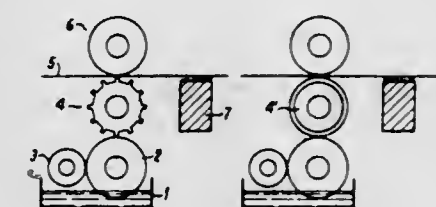
Filed July 2, 1968, Ser. No. 741,924

Claims priority, application France, July 18, 1967, 114577; July 24, 1967, 115396; Nov. 4, 1967, 22035; Dec. 19, 1967, 22085; Jan. 8, 1968, 22115

Int. Cl. B44d 5/12, 5/00

U.S. Cl. 117-44

2 Claims



This disclosure concerns cigarette paper which has an open network consisting of a flameproof substance intended to maintain ashes in place after combustion of the tobacco and of the paper, characterized by the fact that the elements forming said network are slightly profiled and that the junction points of these elements are reinforced in order to give the assembly sufficient rigidity. The disclosure also concerns a process for making this cigarette paper and cigarettes using such paper.

3,632,385

CARBON COMPOSITE STRUCTURES AND METHOD FOR MAKING SAME

Charles R. Schmitt, and James M. Schreyer, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 17, 1970, Ser. No. 20,392

Int. Cl. B41m 5/24; B44c 1/097; C23c 7/00

U.S. Cl. 117-46 CC

9 Claims

Porous carbon structures such as honeycomb and reticulated carbon foam contain cavities or interstices which are filled with cellular carbon foam to provide thermal insulating products having relatively high strength-to-weight ratios and structural integrity at high temperatures. A tenacious bond between the carbon foam and the porous carbon structure is attained by impregnating the porous structure with partially polymerized furfuryl alcohol, curing the latter, and then filling the cavities with a carbon foam formulation which includes a binder of partially polymerized furfuryl alcohol. After the foam producing reaction and the curing of the binder the filled structures are heated to a temperature sufficient to carbonize the furfuryl alcohol. The partially polymerized furfuryl alcohol employed as the impregnant and the binder provides the bond between the porous structure and the carbon foam filler.

3,632,386

TREATED SILICONE SURFACE

Alan R. Hurst, Hinsdale, Ill., assignor to Arhco, Inc. Continuation-in-part of application Ser. No. 772,118, Oct. 31, 1968, now Patent No. 3,518,158, and a continuation-in-part of 815,952, Apr. 14, 1969, now Patent No. 3,509,991. This application Apr. 28, 1969, Ser. No. 819,921

Int. Cl. B44d 1/44

U.S. Cl. 117-46 FC

19 Claims

A silicone polymer release surface is corona treated to decrease its release properties. The corona treatment results

in change of the molecular structure of the silicone polymer at the surface and the surface can then be coated with a pressure sensitive adhesive before the silicone molecules are permitted to completely realign to their original structure. The adhesive blocks realignment and can be applied immediately after corona treatment by in line processing or after the lapse of a sufficient period of time to permit the molecules to realign to the extent providing the particular desired release properties. Alternatively, the corona treatment can be controlled to give the desired release properties and the adhesive can be immediately applied.

3,632,387

POROUS TEFLON HAVING GRAFTED POLYMER LAYERS ON THE WALLS OF THE PORES AND ON OTHER SURFACES

Judith E. Sutherland, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Jan. 30, 1969, Ser. No. 795,366

Int. Cl. B44d 1/092

U.S. Cl. 117—47 A

10 Claims

An improved polyhalogenated ethylene product which may have a grafted polymer on its surface, and a process for lining the internal pores of the polyhalogenated ethylene product is given whereby the polyhalogenated ethylene product is pretreated with a surface active agent, followed by etching which renders the surface and internal pores receptive to grafting. This base may then be impregnated with a monomer and subjected to grafting reactions which form the improved polyhalogenated product which may be used as a membrane, nonreactive tubing or cannula and the like.

3,632,388

PREACTIVATION CONDITIONER FOR ELECTROLESS METAL PLATING SYSTEM

John J. Grunwald, New Haven; Eugene D. D'Ottavio, Thomaston, and John J. Kuzmik, Torrington, all of Conn., assignors to MacDermid Incorporated, Waterbury, Conn.

Filed Apr. 14, 1969, Ser. No. 816,034

Int. Cl. B44d 1/092, 1/102

U.S. Cl. 117—47 A

3 Claims

A method is disclosed for treating the surface of a polymeric plastic substrate in a chemical plating process incorporating a preliminary chromic acid etch followed by one-step activation in a tin-palladium hydrosol. The method involves the step of immersing the substrate in a dilute aqueous acid solution of stannous chloride between the etching and activating steps.

3,632,389

PROCESS FOR THE SURFACE TREATMENT OF COPPER AND ITS ALLOYS

Hargovind N. Vazirani, Stirling, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 3, 1968, Ser. No. 718,517

Int. Cl. B44d 1/34

U.S. Cl. 117—49

11 Claims

Passing a current through the surface of copper and its alloys as a cathode while the surface is in contact with a solution containing chromate ions results in improved adhesion subsequently formed between the metal and organic materials.

3,632,390

PROCESS OF COATING METAL FLAKES WITH CALCIUM SILICATE

Carleton Richard Bradshaw, Central Islip; Hal-Curtis Felsher, Jericho, and Walter J. Hanau, Hicksville, all of N.Y., assignors to Claremont Polychemical Corporation, Roslyn Heights, Long Island, N.Y.

Original application July 16, 1969, Ser. No. 842,400, now

Patent No. 3,532,528, dated Oct. 6, 1970, which is a

continuation-in-part of application Ser. No. 760,078, Sept. 16,

1968, now abandoned, which is a continuation-in-part of

application Ser. No. 593,752, Nov. 14, 1966, now abandoned

, which is a continuation-in-part of application Ser. No.

415,197, Dec. 1, 1964, now abandoned, which is a

continuation-in-part of application Ser. No. 193,866, May 10,

1962, now abandoned. Divided and this application July 30,

1970, Ser. No. 59,739

Int. Cl. C23d 5/00

U.S. Cl. 117—53

3 Claims

Metal flakes, especially copper-based metal flakes of about 20 to 400 mesh or less, are rendered tarnish-resistant by a uniform coating of sodium silicate and/or a polyvalent metal silicate, such as calcium silicate. A sodium silicate coating is provided by boiling a mixture of flake, water and sodium silicate solution to degrease the flake, adding an organic carrier and a surfactant to form an emulsion of sodium silicate solution in the carrier having the flake suspended in the emulsion, evaporating off the water to form a paste, adding an organic solvent to form a suspension of paste in the solvent, adding dilute aqueous solution, such as sodium hydroxide or sodium carbonate to precipitate the coated metal flakes, decanting the liquid and drying the coated flakes. The flakes are desirably treated with an aqueous solution of a polyvalent metal salt, such as calcium acetate prior to drying. Alternatively, the initial degreasing step can be conducted with aqueous ammonia as an additional component, which permits a reduction of the amount of sodium silicate. Thereafter, an organic solvent such as toluene and a nonionic emulsifier is added, the aqueous phase is removed, water and sodium silicate solution are added to form a slurry, the organic solvent is distilled off, a surfactant such as alkylated glycine and aqueous calcium chloride are added to the aqueous suspension, the suspension is boiled, and water is removed to yield dry coated flake. The dried flakes may be further treated with additional stabilizing materials, such as vinyl stabilizers or chelating agents.

3,632,391

TREATMENT OF TEXTILE MATERIALS

Robert E. Whitfield, Pleasant Hill; Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, all of Calif., assignors to The United States of America as represented by the Secretary of Agriculture

Original application May 12, 1967, Ser. No. 655,695, now

Patent No. 3,440,002, which is a division of application Ser.

No. 371,150, May 28, 1964, now Patent No. 3,372,978.

Divided and this application Mar. 7, 1969, Ser. No. 805,379

Int. Cl. B44d 1/44

U.S. Cl. 117—62.2

28 Claims

Fibrous materials (e.g., wool, cotton, viscose, etc.) carrying a deposit of a preformed polymer containing functional groups, which is cross-linked in situ through reaction with a fixative containing functional groups complementary to those on the polymer. Typically, the functional groups on the polymer are carbonyl halide, haloformate, isocyanate, anhydride, or carbamyl halide groups. In such case, the functional groups on the fixative may be amino or hydroxyl groups. Alternatively, the polymer may contain amino or hydroxyl groups, in which case the fixative would contain carbonyl halide, haloformate, isocyanate, anhydride, or carbamyl groups. Various types of polymers may be employed including addition polymers and copolymers, and condensation polymers such as polyesters, polyamides, and polyethers. The novel products are made by processes which utilize a

phase boundary limited reaction. One embodiment thereof is to form the complementary agents (the preformed polymer and fixative) into separate solutions in mutually immiscible solvents, these solutions then being applied serially to the fibrous material. Alternatively, a solution of one of the agents in a volatile solvent is applied to the substrate, which is then dried to remove solvent, and the complementary agent is then applied in fluid form, e.g., as a vapor or dissolved in a solvent which is not necessarily immiscible with the first solvent.

3,632,392

METHOD FOR IMPROVING COATING CONCENTRICITY ON METALLIC-COATED STRANDS

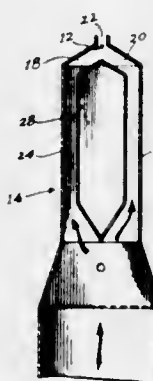
Marvin B. Pierson, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed Mar. 11, 1969, Ser. No. 806,221

Int. Cl. B44d 1/48, 1/44

U.S. Cl. 117—64 R

5 Claims



Fluid nozzle of inverted Y shape in cross section and method of use wherein coated strand is passed through the intersection of the arms and the vertical stem of the Y in a horizontal path of travel, and fluid under pressure is applied to the arms of the Y, the stem being vented to atmosphere.

3,632,393

COATED POLYOLEFIN ARTICLE

Wassily Poppe, and Habet M. Khelghatian, both of Delaware, Pa., assignors to Avlum Corporation, Philadelphia, Pa.

Filed May 19, 1969, Ser. No. 825,925

Int. Cl. B32b 27/08, 27/32

U.S. Cl. 117—72

7 Claims

A coating composition capable of forming a film on a polyolefin substrate is provided from a solution of (a) a cyclized rubber, and (b) at least one material selected from the group consisting of styrene polymers, chlorinated polyolefins and polyketone resins. The composition is useful as a primer for subsequently applied decorative or protective topcoats such as enamels and lacquers.

3,632,394

PAINTING MOIST PLASTER

Roger Garnier, Lyon, France, assignor to Rhone-Poulenc S.A., Paris, France

Filed June 26, 1969, Ser. No. 836,995

Claims priority, application France, June 28, 1968, 157171

Int. Cl. B44d 1/14, 1/20

U.S. Cl. 117—72

13 Claims

This invention provides a process for preventing blisters forming in water vapor-permeable paint applied to moist plaster using as undercoat a solution of a vinyl chloride copolymer.

3,632,395

ARTICLE HAVING LIGHT-RESISTANT SIMULATED ANODIZED ALUMINUM COATING

John J. Dyson, Janesville, Wis., assignor to The Parker Pen Company, Janesville, Wis.

Original application Feb. 1, 1968, Ser. No. 709,802, now Patent No. 3,538,041, which is a continuation of application

Ser. No. 435,040, Feb. 24, 1965, now abandoned. Divided

and this application Oct. 10, 1969, Ser. No. 870,774

Int. Cl. B44d 5/00; C08f 45/14; C08g 51/14

U.S. Cl. 117—72

2 Claims

An article having a light-resistant coating simulating anodized aluminum formed by coating a bright reflective surface with a liquid resinous composition containing translucent dyed aluminum hydrate lake particles in which only a portion of available hydrate sites are taken up by dye attachment, converting the composition to a tough, abrasion-resistant layer, coating the layer with a clear transparent liquid resinous vehicle containing an ultraviolet light absorber and converting the vehicle to a second tough, abrasion-resistant layer having the ultraviolet light absorber incorporated therein.

3,632,396

DRYER-ADDED FABRIC-SOFTENING COMPOSITIONS

Pablo O. Perez-Zamora, Greenhills, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 28, 1969, Ser. No. 819,965

Int. Cl. D06m 13/06, 15/00

U.S. Cl. 117—76 P

24 Claims

Fabric-softening compositions, useful for softening textile fabrics in a standard, automatic, clothes dryer, as well as in the rinse cycle of an automatic washer, consist essentially of a substrate having a substrate coating, which consists essentially of a substantially solid, waxy, cationic or nonionic material, and having a substantially solid outer coating comprising from 30 percent to 100 percent by weight of a fabric softener, wherein at least one of the coatings has a melting point equal to or less than about 170° F.

3,632,397

METHOD OF CONTROLLING WEEDS PRE-EMERGENTLY

Quentin F. Soper, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

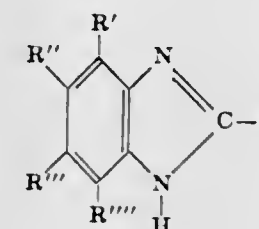
Filed Jan. 26, 1966, Ser. No. 523,016

Int. Cl. A01n 9/22

U.S. Cl. 71—92

6 Claims

1. A method of eliminating weeds from an area infested with weed seeds and growing weeds which comprises contacting said area with an effective amount of a benzimidazole represented by the formula



wherein R is a perfluoro C₁-C₃ alkyl group and R', R'', R''' and R'''' are the same or different members of the group consisting of hydrogen, halo, nitro, C₁-C₃ alkyl, C₁-C₃ alkoxy and trifluoromethyl.

3,632,398

PROCESS FOR THE TREATMENT OF INTERNAL SURFACES OF RECESSES

Dieter König, 1a, Haderunstrasse, 8 Munich 55, Germany

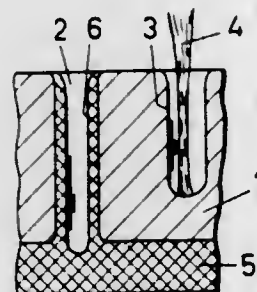
Filed June 7, 1968, Ser. No. 735,299

Claims priority, application Germany, June 9, 1967, ST 26993

Int. Cl. C23c 13/00

U.S. Cl. 117-93.3

7 Claims



Process for the treatment of the internal surfaces of recesses including slots, depressions, bores and the like of any required cross-sectional configuration in which the treatment is carried out by means of beam energy which is introduced into the recess.

3,632,399

RADIATION-CURED SILOXANE-MODIFIED-POLYESTER COATED ARTICLE

William J. Burlant, Detroit, and Ivan H. Tsou, Pontiac, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of application Ser. No. 479,445, Aug. 13, 1965, now Patent No. 3,437,512, Continuation-in-part of application Ser. No. 487,100, Aug. 13, 1965, now Patent No. 3,437,513. This application Oct. 17, 1968, Ser. No. 768,427

Int. Cl. B44d 1/50

U.S. Cl. 117-93.31

38 Claims

A film-forming, radiation-polymerizable, paint binder solution of vinyl monomers and an alpha-beta olefinically unsaturated, polysiloxane-modified polyester is applied as a liquid coating to an external surface of an article of manufacture and cured thereon with ionizing radiation. The resultant binder resin contains about 0.5 to about 5, preferably about 0.5 to about 3, alpha-beta olefinic unsaturation units per 1,000 units molecular weight. In one embodiment, the binder resin is formed by reacting a siloxane bearing at least two functional groups selected from hydroxy groups and hydrocarbonoxy groups with a polyhydric alcohol and subsequently reacting the siloxane-containing intermediate with a dicarboxylic acid which provides the resultant polymer with alpha-beta olefinic unsaturation and a second carboxylic acid that provides no additional alpha-beta olefinic unsaturation to the resulting polymer. In a second embodiment, the polyester is formed first by reacting the aforementioned polyhydric alcohol with the aforementioned carboxylic acids and subsequently reacting the resulting polymer with the siloxane.

3,632,400

SURFACE MODIFIED ELASTOMERS

William J. Burlant, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation of application Ser. No. 768,944, Aug. 20, 1968, Continuation of application Ser. No. 556,022, June 8, 1966.

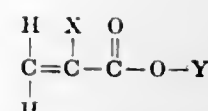
This application June 30, 1969, Ser. No. 863,394

Int. Cl. B44d 1/50

U.S. Cl. 117-93.31

9 Claims

An article of manufacture of unique surface properties is produced from an elastomer substrate and a compound represented by the formula



in which X represents a hydrogen atom or a methyl group and Y represents an organic group containing up to eight carbon atoms and at least one carbon-fluorine bond. A film comprising said compound is applied to an exterior surface of the elastomer substrate and polymerized thereon with a beam of electrons having average potential below about 300,000 volts, preferably below 260,000 volts.

3,632,401

PROCESS FOR OBTAINING GRANULAR SOLIDS BY THE DECOMPOSITION OF GASEOUS REACTANTS

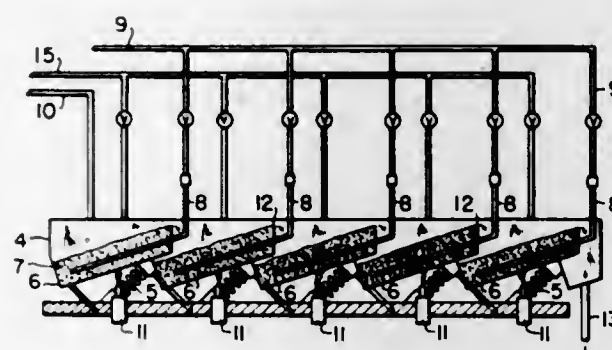
Joseph Sanlaville, Pierre-Benite, France, assignor to Ugine Kuhlmann, Paris, France

Filed Nov. 8, 1968, Ser. No. 774,354

Int. Cl. C03c 25/04; C23c 11/02

U.S. Cl. 117-100 B

10 Claims



A process and apparatus for preparing granular solid products by decomposition of a gaseous reactant to form a solid phase comprising, first preparing at least one bed of particulate solids including relatively small seed particles, the particles within said bed providing a surface on which a solid phase is deposited. The temperature within the vessel and bed are maintained appropriate to the decomposition reaction. Seed particles and the metal carbonyl compound are continuously introduced into the bed. The bed is vibrated so that individual grains move relative to adjacent grains with a slight amplitude and the bed, itself, is continuously turned as the individual grains move generally in a closed circuit. Gaseous byproducts are removed from the bed and granular solids are recovered therefrom.

3,632,402

THERMOPLASTIC MOLDING COMPOSITIONS ON THE BASIS OF SATURATED POLYESTERS

Klaus Weissemel, Kelkheim/Taunus, and Rudolf Kern, Mainz, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Apr. 18, 1969, Ser. No. 817,545

Claims priority, application Germany, Apr. 23, 1968, P 17 69 224.9

Int. Cl. B32b 27/06, 27/36

U.S. Cl. 117-100 C

12 Claims

Process for the manufacture of thermoplastic molding compositions on the basis of saturated linear polyesters wherein the polyester granules containing inert inorganic solids and polyfunctional epoxides are coated with a neutral or partially neutralized salt of a montan wax or a montan wax ester.

3,632,403

METHOD AND APPARATUS FOR CURTAIN COATING

Jack F. Greiller, Ruislip, England, assignor to Eastman Kodak Company, Rochester, N.Y.

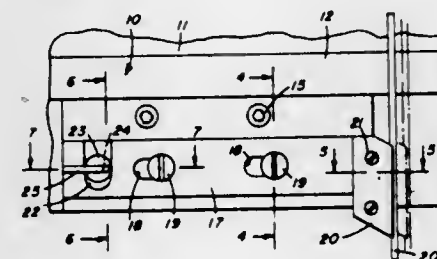
Filed Dec. 8, 1969, Ser. No. 883,185

Claims priority, application Great Britain, Mar. 26, 1969, 15,870/69

Int. Cl. B05b 13/02, 13/00

U.S. Cl. 117-105.3

6 Claims



In a method of coating a support with a liquid coating composition in which the coating composition is applied by impingement of a free-falling curtain of coating composition onto the surface of the moving support, formation of edge beads along the edges of the coating which are of greater thickness than the remainder of the coating is effectively avoided by use of laterally adjustable edge guides which are initially positioned so as to establish a stable free-falling curtain and then moved laterally to a position in which they are slightly further apart, whereby the coating assumes a uniform thickness. The method of this invention is useful in both single-layer and multiple-layer curtain coating and are especially advantageous in the manufacture of photographic film and photographic paper in view of the need for precisely uniform thickness over the entire coated area.

3,632,404

METHOD OF TREATING POLYSULFONE WITH ALCOHOL OR KETONE

Charles W. Desaulniers, Franklin, and Cheryl A. Ford, Dedham, both of Mass., assignors to Amicon Corporation, Lexington, Mass.

Filed Aug. 12, 1968, Ser. No. 751,718

Int. Cl. C23c 13/04

U.S. Cl. 117-106

4 Claims

A process for making a rewettable microporous membrane, advantageously a rewettable and highly anisotropic membrane, comprising the step of filling the inner surfaces of the micropores with the vapor or gas of a volatile water-miscible compound having low surface tension and viscosity; the compound is then deposited on the micropore surface by a condensing step. Methanol and like compounds are particularly advantageous compounds for use in forming the rewettable membrane.

3,632,405

CRYSTALS, IN PARTICULAR CRYSTAL WHISKERS AND OBJECTS COMPRISING SUCH CRYSTALS

Wilhelmus Franciscus Knippenberg; Gerrit Verspuil, both of Emmasingel, Eindhoven, and Johan Charles Marie Basart, Heeze, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,678

Claims priority, application Netherlands, Apr. 13, 1968, 6805300

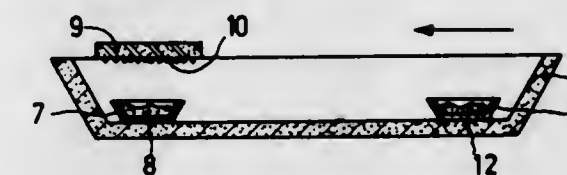
Int. Cl. C23c 11/00, 13/00

U.S. Cl. 117-106

11 Claims

A method of manufacturing filamentary crystals, i.e., whiskers, and controlling the growth thereof in which a substrate on which are provided particles of a metal powder is heated so that the metal particles melt and form molten

droplets while an atmosphere containing the substance forming the crystals is passed over the substrate. The substrate is dissolved in the metal droplets and precipitates growing a filament of whisker epitaxially. The thickness of the crystal is



then controlled by adjusting the partial pressure of the metal in the atmosphere which controls the size of the droplets. In some cases, a separate source of metal for controlling the partial pressure of the metal in the atmosphere is provided.

3,632,406

LOW-TEMPERATURE VAPOR DEPOSITS OF THICK FILM COATINGS

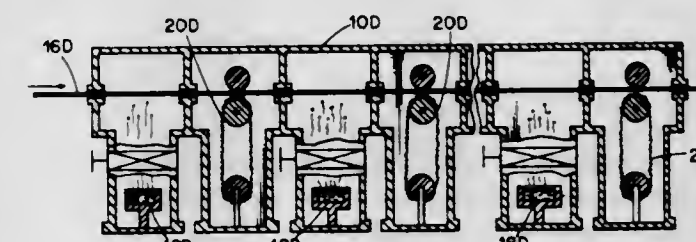
Philip J. Clough, Cape Elizabeth, Maine, and Steve Eisner, Schenectady, N.Y., assignors to Norton Company, Worcester, Mass.

Filed Jan. 20, 1970, Ser. No. 4,340

Int. Cl. C23c 13/00, 13/02, 13/04

U.S. Cl. 117-107.1

8 Claims



The application of metal coatings through vapor deposition is improved by activating the coating with an abrasive action during the deposition process. The resultant coatings have increased smoothness, ductility and high-density (low-porosity).

3,632,407

PROTECTIVE COATINGS BY CHROMIUM DIFFUSION OF METAL PARTS AND PROCESS

Karl Bungardt, Krefeld; Gottfried Becker, Dusseldorf; Gunter Lehnert, and Gustav Lennartz, both of Krefeld, all of Germany, assignors to Deutsche Edelstahlwerke Aktiengesellschaft, Krefeld, Germany

Filed Jan. 4, 1967, Ser. No. 607,148

Claims priority, application Germany, Jan. 5, 1966, D 49084

Int. Cl. C23c 11/04

U.S. Cl. 117-107.2 R

7 Claims

The invention relates to the preparation of a protective coating by diffusion of chromium and iron in combination into the surface of a metal base in which the surface is formed of nickel or an alloy of nickel.

3,632,408

RODENT-RESISTANT FELTED FIBROUS MATERIAL AND METHOD OF MAKING THE SAME

Immanuel Lichtenstein, Princeton, N.J., and Murray Wolf, Great Neck, N.Y., assignors to Structural Paper Company, Plainview, N.Y.

Filed Dec. 5, 1968, Ser. No. 781,631

Claims priority, application Great Britain, Feb. 20, 1968, 8,302/68

Int. Cl. B44d 1/06; D21h 1/10, 5/22

U.S. Cl. 117-113

8 Claims

Felted fibrous products such as paperboard and corrugated board are made resistant to gnawing by rodents by impregnating the product with ammonium alum or potassium alum. Ranges of amounts of impregnant and of conditions for impregnation procedure are set forth.

3,632,409

METHOD OF IMPREGNATING POROUS SUBSTRATES WITH TREATING LIQUIDS

Jackson H. Barnett, Jr., 84 North Crest, Chattanooga, Tenn.
Filed Nov. 17, 1969, Ser. No. 877,403
Int. Cl. B27k 3/08; B44d 1/06, 1/26

U.S. Cl. 117-113

6 Claims

Method for impregnating a porous substrate such as wood with a treating liquid wherein the substrate is immersed in a body of the treating liquid confined in a pressure vessel, the vessel is pressurized and the contents of the vessel are subjected to repetitive pressure pulses over a broad range of frequencies and of varying amplitude to increase the rate of impregnation of treating liquid into substrate.

3,632,410

PREPARATION OF CLEAN METAL SURFACES FOR DIFFUSION BONDING

Edward J. Vargo, Beachwood, Ohio, assignor to TRW Inc., Cleveland, Ohio

Filed Aug. 16, 1968, Ser. No. 753,084

Int. Cl. C23c 1/10

U.S. Cl. 117-114 R

5 Claims

The method of cleaning a metal surface preparatory to bonding two surfaces together which involves treating the surface with an amalgam of at least one alkali metal whereby the alkali metal serves to reduce any stable oxides present on the surface, permitting the surface to become thoroughly wetted by the mercury of the amalgam.

3,632,411

METHOD OF FINISHING GALVANIZED WIRE

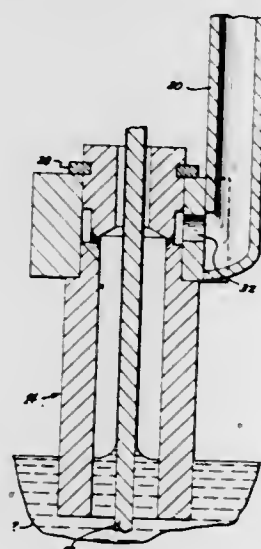
Marvin L. Stark, Lexington, Mo., assignor to Armco Steel Corporation, Middletown, Ohio

Filed Mar. 27, 1969, Ser. No. 810,982

Int. Cl. C23c 1/02

U.S. Cl. 117-114 A

4 Claims



Ferrous strand having a cleaned surface is immersed in coating bath of molten zinc having less than 0.25 percent lead and aluminum in the range of 0.04 to 0.15 percent, and withdrawing the strand therefrom in a nonoxidizing atmosphere without mechanically contacting the molten coating metal adhering to the strand.

The nonoxidizing atmosphere is maintained in a tube at a temperature in the range of 850 to 950° F. through which the strand is withdrawn from the bath with substantial clearance, the tube having one end submerged in the coating metal bath and being supplied with gas at low pressure to provide a nonoxidizing atmosphere therein.

3,632,412

ELECTRICAL TAPE

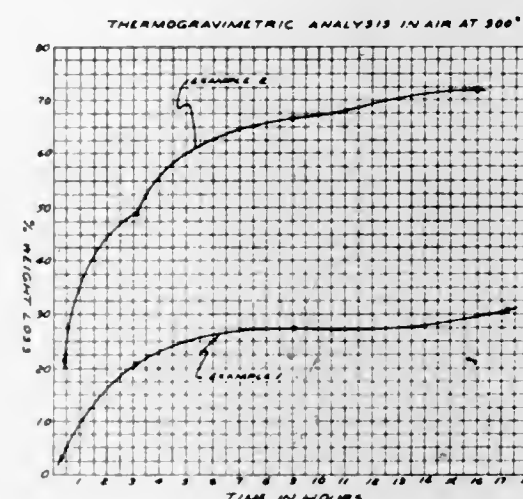
Robert B. Blance, East Longmeadow, and Donald M. Gardner, Springfield, both of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Apr. 2, 1969, Ser. No. 812,826

Int. Cl. C09j 7/02

U.S. Cl. 117-122 P

10 Claims



Disclosed herein are solvent resistant Class F electrical tapes which comprise a backing member coated with a pressure-sensitive adhesive composition which is the polymeric product of (A) an ester of acrylic or methacrylic acid containing from seven to 20 carbon atoms; (B) a lower alkyl ester of acrylic or methacrylic acid; and (C) a hydroxy-bearing monomer.

3,632,413

CLASS F ELECTRICAL TAPE

Robert B. Blance, East Longmeadow, and Donald M. Gardner, Springfield, both of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Apr. 2, 1969, Ser. No. 812,898

Int. Cl. C09j 7/02

U.S. Cl. 117-122 P

10 Claims

Disclosed herein are solvent-resistant Class F electrical tapes which comprise a backing member coated with a pressure-sensitive adhesive composition which is the polymeric product of butyl acrylate and a hydroxy-bearing monomer which is cured with a curing system comprising a metal alkoxide and an organic peroxide.

3,632,414

METHOD OF PREPARING FILMS AND COATINGS OF HETEROCYCLIC-AROMATIC POLYMERS

Fred E. Arnold, Dayton, and Richard L. Van Deusen, Xenia, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force

Filed June 26, 1969, Ser. No. 836,934

Int. Cl. B44d 1/36; C03c 17/06

U.S. Cl. 117-124 E

15 Claims

This invention comprises a method of preparing films and coatings of aromatic-heterocyclic ladder polymers. These polymers are insoluble in solvents from which films might be cast by the ordinary technique of coating a surface with a solution of a polymer and allowing the solvent to evaporate therefrom. Since the only solvents known for such ladder polymers are sulfuric acid and methane sulfonic acid, it is not possible to use the ordinary technique of laying film by the solvent evaporation process because of the high boiling points and high temperatures thereby required. Furthermore, the surface to be coated may be susceptible to attack by such

corrosive solvents. According to the present invention it has been found that films and coatings of the ladder polymers can be formed by using a fine dispersion of the ladder polymer in a nonsolvent, such as alcohol or an easily evaporated hydrocarbon. A relatively smooth, strong film can be prepared by collecting the particles from the dispersion either by filtration on a porous surface such as fritted glass or by drawing a metal surface through the dispersion and allowing the dispersion medium to evaporate from the wetted metal surface and thereby deposit the dispersed polymer particles thereon.

3,632,415

SYNTHETIC ORGANIC FIBER—ASBESTOS FIBER FABRIC AND ASPHALT IMPREGNATED PRODUCT

Marvin L. Franklin, and Duane W. Gagle, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Jan. 25, 1968, Ser. No. 700,386

Int. Cl. B32b 19/02; B01d 39/20

U.S. Cl. 117-126 AB

7 Claims

A mat or fabric is made of asbestos fiber incorporated with polyethylene, polypropylene, Nylon and/or polyvinylchloride staple, split film, fibers or other synthetic organic fiber or subdivided polymeric material or plastic. The composite product either alone or impregnated, as with an asphaltic material, is suited for use as insulation, construction material, molding, and the like.

3,632,416

FIBROUS TEXTILE MATERIALS IMPREGNATED WITH HYDROXYALKYL METHACRYLATE CASTING SYRUPS

Thomas H. Shepherd, and Francis E. Gould, both of Princeton, N.J., assignors to National Patent Development Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 654,044, July 5, 1967, which is a continuation-in-part of application Ser. No. 567,856, July 26, 1966, now Patent No. 3,520,949. This application Oct. 27, 1967, Ser. No. 678,521

Int. Cl. C09d 3/80; D06m 15/38

U.S. Cl. 117-135.5

8 Claims

A process for impregnating fiber and textile materials with hydrophilic polymers prepared by admixing in a solvent-free system in the presence of a free radical, vinyl polymerization catalyst and reacting a major amount of a water-soluble polymerizable monoester of an olefinic acid having at least one substituted functional group with a minor amount of a polymerizable diester of one of said olefinic acids having at least two esterifiable hydroxy groups, such as 2-hydroxy ethyl methacrylate or hydroxy propyl methacrylate. Suitable cross-linking agents include ethylene glycol dimethacrylate, 1,3-butylene dimethacrylate, 1,4-butylene dimethacrylate or other polyfunctional monomeric esters. The fiber and textile materials can be impregnated from liquid casting syrups, from alcoholic solution of the polymer, or from aqueous emulsion of the polymer. The impregnated polymer exhibits an elongation of about 5 percent or less in the dry state.

3,632,417

MICROPOROUS SYNTHETIC SHEET MATERIAL HAVING A FINISH OF A POLYESTER POLYURETHANE AND CELLULOSE ACETATE BUTYRATE

Wallace R. Brasen, Madison, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 1, 1969, Ser. No. 812,157

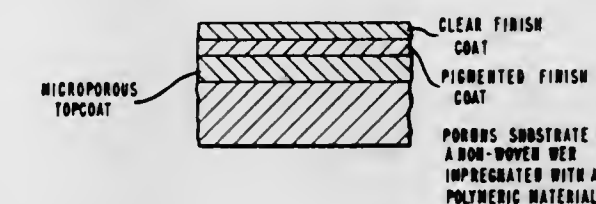
Int. Cl. C09d 5/00, 3/66; D01n 3/00

U.S. Cl. 117-135.5

7 Claims

A vapor permeable coriaceous synthetic microporous sheet material having a high-quality finish coat of polyurethane and cellulose acetate butyrate is the subject of this invention; the finish in adherence with the microporous coat-

ing of the sheet material is a polymer blend of a chain-extended polyester polyurethane and cellulose acetate butyrate



having a butyryl content of 10-60 percent by weight viscosity of about 1-20 poises.

3,632,418

POLYOLEFIN FIBERS IMPREGNATED WITH ASPHALTITE AND ASPHALT

Homer L. Draper, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Dec. 26, 1967, Ser. No. 693,064

Int. Cl. B32b 11/02

U.S. Cl. 117-138.8 E

3 Claims

A fabric, e.g., polypropylene fabric, is impregnated with a refined asphalt and an asphaltite such as Gilsonite, thus preparing a composite suitable for use as liner in a pond, as pavement surfacing, e.g., parking lot, driveway, play area surface, roofing or other covering or waterproofing material, or for molding to produce a molded body such as, e.g., construction blocks and structural forms.

The asphaltite raises the ring and ball softening point of a straight asphalt system reducing cold flow and bettering weathering properties. The asphaltite can be used in cut-backs and emulsions and applied to one or more fabrics which can be the same or different and which can be variously arranged.

3,632,419

METHOD FOR IMPARTING DURABLE SOIL-RESISTANT FINISH TO POLYAMIDE AND POLYESTER FABRICS AND THE TREATED FABRICS

Hajime Horie; Tadao Hirano; Hideo Okuyama, and Atumi Ishimoto, all of Fukui-shi, Japan, assignors to Fukui Seiren Kako Co., Ltd., Fukui-shi, Fukui-ken, Japan

Filed May 13, 1968, Ser. No. 728,843

Claims priority, application Japan, Nov. 15, 1967, 42/73550
Int. Cl. D06n 15/16; B32b 27/06

U.S. Cl. 117-138.8 F

7 Claims

A method of imparting a durable soil-resistant finish to synthetic fabrics selected from the group consisting of polyamide and polyester fabrics comprising padding the fabrics in a treating bath containing 2-10 percent by weight of a polymer hydrosol selected from the group consisting of polymethacrylic acid, polyvinyl alcohol and carboxymethyl cellulose in the form of colloidal dispersion, 0.1-4.0 percent by weight of precondensate resin of a member selected from the group consisting of cyclic ethylene-urea and melamine-formaldehyde resins, and acidic catalyst for these resins, squeezing the treated fabrics with a mangle at a pickup of 40-100 percent, drying the squeezed fabrics at 80°-110° C. and subjecting the fabrics to a high-temperature treatment at 140°-170°C. for 30-40 seconds; washing the resultant fabrics with an aqueous solution containing a detergent maintained at above 40° C., drying and finishing.

3,632,420

TEXTILE MATERIAL WITH IMPROVED SOIL RELEASE CHARACTERISTICS

Hans H. Kuhn, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Sept. 13, 1968, Ser. No. 759,758

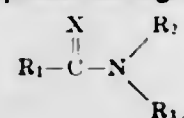
Int. Cl. D06m 15/16; B32k 27/06

U.S. Cl. 117-138.8 F

11 Claims

A textile material with improved soil release characteristics treated with a synthetic acid soil release polymer containing

at least about 10 percent by weight acid calculated as acrylic acid and an amide compound having the formula



wherein X is oxygen or sulfur, R₁ is hydrogen, amino, alkyl, aryl or a substitutive derivative of such groups, and R₂ and R₃ are hydrogen, alkyl, amido or a substitutive derivative thereof; the soil release polymer comprising between about 0.2% and 10% by weight of the textile material and the amide compound comprising between about 0.05% and 5% by weight of the textile material.

3,632,421

TEXTILE MATERIAL WITH SOIL RELEASE CHARACTERISTICS

Joe T. Boyd, Gaffney, S.C., and Emile Jacumin, Jr., Shelby, N.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Dec. 9, 1968, Ser. No. 782,460

Int. Cl. B44d 5/00; B32b 27/06

U.S. Cl. 117-138.8 F

12 Claims

A process for producing improved textile material with soil release characteristics which comprises applying thereto a soil release composition and a chelating agent, and the product produced by this process.

3,632,422

TEXTILE FABRIC HAVING SOIL RELEASE FINISH AND METHOD OF MAKING SAME

Allison Maggilo; Everett H. Hinton, Jr., and Ray S. Smith, all of Greensboro, N.C., assignors to Burlington Industries, Inc., Greensboro, N.C.

Continuation of application Ser. No. 733,332, May 31, 1968, now abandoned, and a continuation-in-part of 681,092, Nov. 7, 1967, now abandoned. This application Dec. 4, 1969, Ser. No. 882,320

Int. Cl. D06m 1/16

U.S. Cl. 117-138.8 F

19 Claims

The durability and hand of a soil release finish on a textile are improved by adding a plasticizer to it. The finish is a water insoluble but highly water swellable polymer, i.e., one which absorbs at least 550 percent by weight of water when immersed for 2 minutes in an aqueous detergent solution at 140° F.

3,632,423

PROCESS FOR GIVING SHAPE-FITTING PROPERTY ON A GARMENT KNITTED WITH FILAMENT YARNS

Masaki Kusuha, Tokyo, Japan, assignor to Wacom Ltd., Tokyo, Japan

Filed Sept. 3, 1969, Ser. No. 855,044

Claims priority, application Japan, Jan. 10, 1969, 42/1877

Int. Cl. D06m 15/66, 15/72

U.S. Cl. 117-139.4

10 Claims

A method and composition for imparting wash durable, shape-fitting properties to a filament yarn knitted garment, whereby a primer comprising a monomer or a prepolymer having the general formula R-Si-X₃, wherein R is a radical having a double bond and X is a silicon atom-bonding organic radical, and a polyorganosiloxane is applied to said garment.

3,632,424

BARRIER COATINGS

Paul R. Graham, Ballwin, and August F. Ottinger, St. Louis, both of Mo., assignors to Monsanto Company, Saint Louis, Mo.

Filed Apr. 3, 1968, Ser. No. 718,371

Int. Cl. B32b 27/10; D21h 1/40

U.S. Cl. 117-155 UA

12 Claims

This invention relates to the use of interpolymer latices of ethylene, vinyl chloride and acrylamide with or without small

amounts of other monomers, as free films and coatings for fibrous substrates.

3,632,425

POLYMER MODIFIED STARCH COMPOSITIONS

Paul R. Graham, Ballwin, and August F. Ottinger, St. Louis, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Original application May 13, 1968, Ser. No. 728,783, now abandoned. Divided and this application Nov. 24, 1969, Ser. No. 877,595

Int. Cl. D21h 1/40; B32b 27/10

U.S. Cl. 117-155 UA

10 Claims

Ethylene/vinyl chloride interpolymers are used as starch modifiers to provide flexible tough films for fibrous substrates.

3,632,426

METHOD OF INCREASING WAX ABSORPTION RATES OF POROUS PAPER PRODUCTS

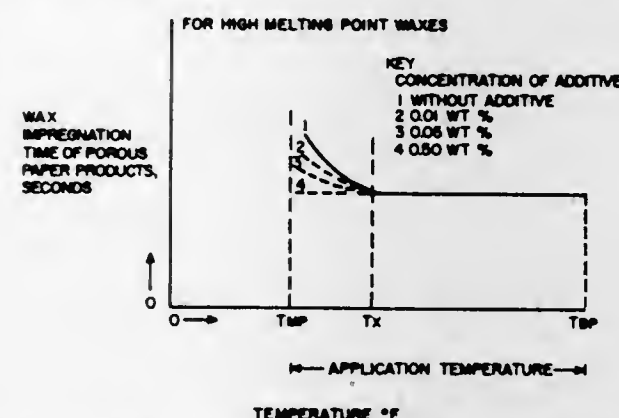
Edward M. Kohn, and Alexander D. Recchulte, both of Philadelphia, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Mar. 25, 1969, Ser. No. 810,122

Int. Cl. D21h 1/36; B44d 1/09

U.S. Cl. 117-158

8 Claims



The rate at which a porous paper product absorbs paraffin waxes having a melting point of at least 136° F. (AMP) at an impregnation temperature less than 17° F. greater than the melting point of said wax is substantially increased by the addition of a small amount of an ester or mixture of esters of a fatty acid and a polyhydric alcohol to the wax before application.

3,632,427

EPOXY RESIN AND IMIDAZOLE ALKYL ACID PHOSPHATE FIBER TREATMENT

Harold A. Green, Havertown, Pa., assignor to Air Products and Chemicals, Inc., Philadelphia, Pa.

Continuation-in-part of application Ser. No. 662,593, Aug. 23, 1967, now abandoned. This application May 15, 1970, Ser. No. 37,853

Int. Cl. C03c 23/02; C08g 30/14

U.S. Cl. 117-161 ZB

7 Claims

Epoxy resin composition useful in the impregnation of fibers, as castable and potting materials, as coatings or the like comprises as curing agent a salt of an imidazole and an alkyl acid phosphate which provides in association with the curable epoxy resin a readily thermally curable composition characterized by a very long "shelf life."

3,632,428

THERMALLY STABLE COATINGS

Hyman R. Lubowitz, Redondo Beach; Edgar R. Wilson, Glendale; John F. Jones, Torrance; Eugene A. Burns, Palos Verdes Peninsula, and Troy F. Braswell, Hawthorne, all of Calif., assignors to T R W Inc., Redondo Beach, Calif.

Filed Nov. 30, 1967, Ser. No. 686,802

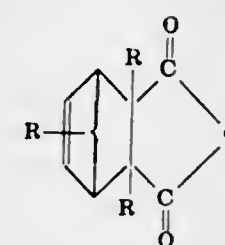
Int. Cl. B44d 1/02

U.S. Cl. 117-161 UN

8 Claims

This invention relates to a high-temperature coating com-

position and to the method of preparing same which comprises a polyimide prepolymer obtained by coreacting a polyfunctional amine, a polyfunctional anhydride and a monoanhydride characterized by the formula:



wherein R is selected from the group consisting of hydrogen and a lower alkyl radical. The polyimide prepolymers may be suspended in a liquid vehicle coated onto various substrates and cured by the application of heat in a conventional manner.

3,632,429

METHOD FOR MAKING METAL OXIDE FILM RESISTORS

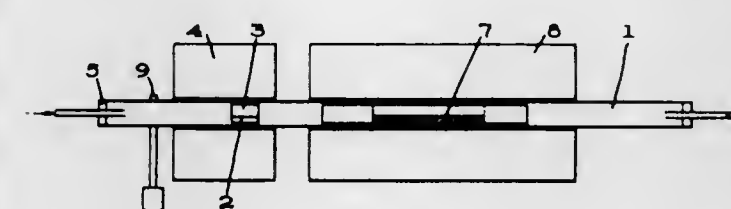
Teizo Maeda, and Koji Kudo, both of Moriguchi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of application Ser. No. 601,419, Dec. 13, 1966, now abandoned. This application June 30, 1970, Ser. No. 57,422

Int. Cl. C23c 11/00

U.S. Cl. 117-201

7 Claims



A method for making metal oxide film resistors comprising the steps of heating a solution of a mixture of stannic chloride (SnCl₄·nH₂O) and antimony chloride to a temperature of 100° to 250° C. in a uniform low-temperature zone maintained at said temperature, thereby generating vapors of said mixture, heating resistor substrate bodies to a temperature of 550° to 850° C. in a uniform high-temperature zone maintained at said last-named temperature, said zones being spaced from each other and being directly interconnected by an interposed temperature transition zone, flowing the vaporous mixture by means of carrier gas from said low-temperature zone to said high-temperature zone, whereby said substrate bodies are coated, at the surface thereof, with deposited metal oxide film consisting of antimony oxide doped tin oxide.

3,632,430

NONBLOCKING ELECTROLYTIC RECORDING MEDIUM

Arthur W. Sperling, Amityville, N.Y., assignor to Hogan Fax-Imile Corporation, Los Angeles, Calif.

Filed June 4, 1968, Ser. No. 734,194

Int. Cl. B44d 1/02

U.S. Cl. 117-201

9 Claims

A nonblocking electrolytic recording medium is disclosed. The medium includes a base sheet of absorbent paper impregnated at a level of at least 40 percent by weight of moisture with an electrolytically conducting marking solution. The solution contains an aqueous dispersible liquid silicone, preferably 0.005 to 2.0 grams per 100 milliliters of a polymethyl-siloxane having a viscosity at 25° C. between about 10 to about 100 centistokes.

3,632,431
METHOD OF CRYSTALLIZING A BINARY SEMICONDUCTOR COMPOUND

Elie Andre, and Jean-Marc Le Duc, both of Caen, France, assignors to U.S. Phillips Corporation, New York, N.Y.

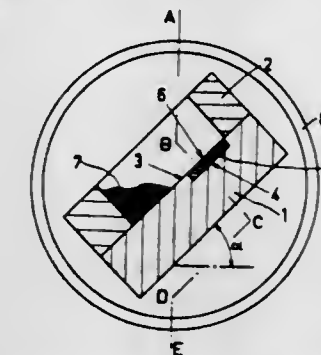
Filed Oct. 21, 1968, Ser. No. 769,319

Claims priority, application France, Oct. 20, 1967, 125280, 125281, Dec. 29, 1967, 134421, 134422

Int. Cl. H011 7/00, 7/38

U.S. Cl. 117-201

17 Claims



A method of crystallizing a binary semiconductor compound from a liquid solution of the compound in one of its components, e.g. gallium arsenide in gallium. A small quantity of an element of the same group of the periodic system of the elements as that component, but having a larger atomic radius, e.g. indium, is added to the solution. The binary compound can be epitaxially deposited on the surface of a semiconductor body.

Instead of gallium arsenide, indium arsenide may be crystallized using thallium as an addition. Moreover, a crystalline body can be obtained by drawing. The added component can be introduced in a vapor phase or through a porous wall. Crystallization may also take place by a zone melting process.

3,632,432

GLASS-COATED SEMICONDUCTOR

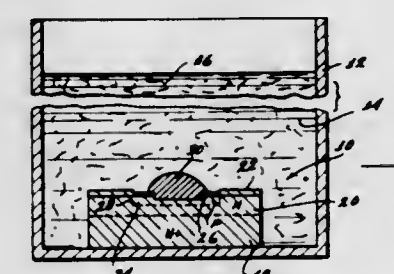
Jiri Sandera, Manhattan Beach, Calif., assignor to Continental Device Corporation, Hawthorne, Calif.

Filed May 21, 1969, Ser. No. 826,348

Int. Cl. H01b 1/04

U.S. Cl. 117-201

7 Claims



Improved glass compositions for overcoating the surface of a silicon semiconductor device that has at least one PN junction, at least a portion of such junction extending to the surface. The glass compositions impart significantly improved electrical properties to the devices, particularly with respect to polarization effects.

3,632,433

METHOD FOR PRODUCING A SEMICONDUCTOR DEVICE

Takashi Tokuyama, Hoya-shi, and Takaaki Mori, Kokubunji-shi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 26, 1968, Ser. No. 716,033

Claims priority, application Japan, Mar. 29, 1967, 42/19093

Apr. 26, 1967, 42/26325

Int. Cl. H011 1/10, 1/14

U.S. Cl. 117-212

13 Claims

A first insulating film of silicon dioxide is provided on the surface of a semiconductor device, and a second silicon diox-

ide layer containing uniformly a small amount of phosphorus is deposited from the vapor phase on said first insulating film, thereby realizing stable passivation of the electrical charac-



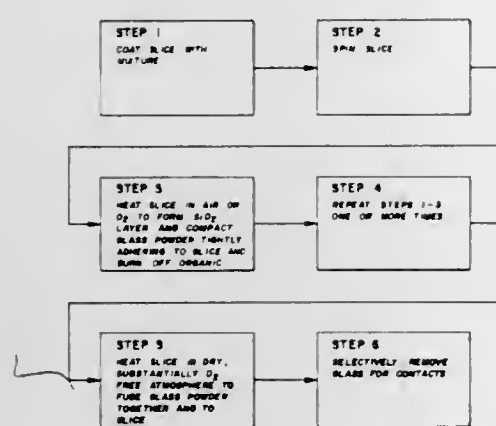
teristics of said semiconductor device. The waterproof property and accurate etching of said films are also accomplished.

3,632,434

PROCESS FOR GLASS PASSIVATING SILICON SEMICONDUCTOR JUNCTIONS

Jerald L. Hutson, P.O. Box 34235, Dallas, Tex.
Filed Jan. 21, 1969, Ser. No. 792,590
Int. Cl. B44d 1/18; H01l 1/10
U.S. Cl. 117-212

8 Claims



A process for glass passivating silicon semiconductor junctions comprises the steps of coating a slice of semiconductor material containing exposed rectifying junctions in a liquid mixture of powdered glass and an organic component, spinning the slice to remove excess mixture, but leave remaining on the slice a thin uniform film of the mixture, heating the slice in an oxygen atmosphere to form a very thin silicon dioxide layer on the surface of the slice while burning off the organic component to leave the glass in a highly compacted, dry powder form tightly adhering to the slice, and again heating the slice in a dry, substantially oxygen-free atmosphere at a temperature sufficient to fuse the glass powder together and to the slice.

3,632,435

PREPARATION OF SUBSTRATE FOR ELECTROLESS DEPOSITION

Lars Eriksson, Segeltorp, and Ali Godhan, Alvsjo, both of Sweden, assignors to AB Gylling & Co., Stockholm, Sweden
Continuation-in-part of application Ser. No. 746,246, July 22, 1968, now abandoned. This application June 23, 1969, Ser. No. 835,807
Claims priority, application Sweden, July 12, 1968, 9610/68
Int. Cl. B44d 5/00

U.S. Cl. 117-212

12 Claims

An improved process is provided for preparing a substrate to receive a metal coating (e.g. copper) over a selected area of its surface by electroless deposition. A substrate is provided with areas of divergent surface characteristics with respect to the retention of a colloidal material, and a coating of a colloidal material is applied to the same which is subsequently subjected to a destabilizing medium (i.e. a stripper) for a time sufficient to substantially remove the col-

loidal material from those areas in which no electroless deposition is desired. For example, the colloidal material may be (1) a colloidal stannous salt (e.g. stannous chloride), or (2) a colloidal noble metal applied from bath containing a stannous salt (e.g. stannous chloride) and a noble metal salt (e.g. palladium chloride). In (1) a noble metal salt is subsequently contacted with the colloidal coating of stannous salt and is reduced to a colloidal noble metal. The colloidal noble metal at selected areas of the surface of the substrate is catalytic to the deposition of the metal to be deposited electrolessly. Suitably destabilizing media for the removal of a portion of the colloidal material from the surface of the substrate include solutions of strong electrolytes (e.g. basic lead carbonate, ferric chloride, and aluminum sulfate). When the colloidal material is a colloidal noble metal applied from a bath containing both a stannous salt and a noble metal salt, the particularly preferred destabilizer is an organic compound which is capable of removing the noble metal (e.g. palladium). The present process is particularly suited for preparing a substrate, such as a printed circuit card, having through holes so that the walls of the holes as well as other predetermined areas may selectively receive a metal coating by electroless deposition.

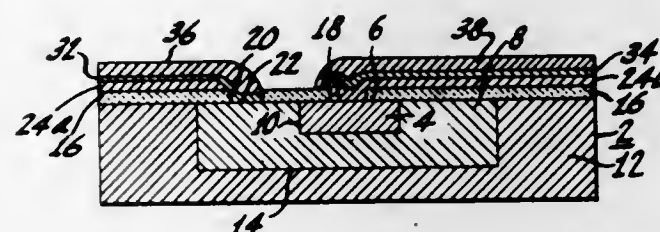
3,632,436

CONTACT SYSTEM FOR SEMICONDUCTOR DEVICES

Richard Denning, Springfield, N.J., assignor to RCA Corporation
Filed July 11, 1969, Ser. No. 841,053
Int. Cl. C23c 3/02; H01l 7/00

U.S. Cl. 117-212

3 Claims



A method of providing a silicon semiconductor device having an oxide passivation layer, with a nickel-lead (NiPb) contact system comprising: depositing either an epitaxial layer or a polycrystalline layer of silicon on top of the oxide layer in the desired contact pattern, depositing a thin film of nickel electrolessly on the silicon layer but not on the oxide, and depositing a layer of lead solder on the silicon layer but not on the oxide layer.

3,632,437

METHOD OF MAKING ELECTRICALLY CONDUCTIVE PAPER

Lyne S. Trimble, 4724 Arcola, North Hollywood, Calif.
Filed July 22, 1968, Ser. No. 746,299
Int. Cl. C23c 3/02; B44d 1/18

U.S. Cl. 117-213

4 Claims

Means for and method of making paper electrically conductive, wherein the paper is first impregnated throughout with tiny metal particles which have been dispersed in a water-soluble adhesive, after which the impregnated paper is treated with a dilute acid and the exposed metal surfaces displaced by treating with a soluble salt of a more noble metal to provide bridges of noble metal between the metal particles and thus create an electrically conductive path. By applying the metal particles throughout the paper, the resulting product will be completely conductive; but, if the metal particles are applied throughout the paper and then cleaned from the paper surfaces prior to the displacement reaction, the product will have transverse conductivity only. Moreover, if the paper is first presoftened and the treatment applied to one surface thereof, the product will be transver-

sely conductive as well as conductive upon the treated surface. Also, if the treatment is applied to dry paper at reduced temperatures, the product will have only surface conductivity.

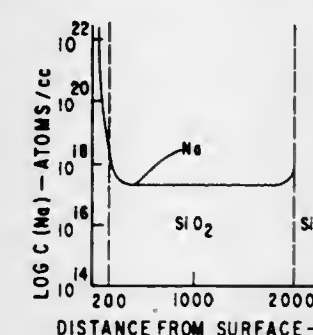
3,632,438

METHOD FOR INCREASING THE STABILITY OF SEMICONDUCTOR DEVICES

Harold G. Carlson, Richardson; Clyde R. Fuller, Plano, and George A. Brown, Richardson, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Sept. 29, 1967, Ser. No. 671,710
Int. Cl. C23c 13/04

U.S. Cl. 117-215

12 Claims



Disclosed is a method of forming an insulating layer having an unusually low concentration of contaminating impurities such as sodium, copper, and iron on the surface of a semiconductor substrate during device fabrication. After the insulating layer has been grown or deposited on the surface of the substrate, a thin surface portion of the layer is removed by etching to a depth sufficient to remove a major portion of the impurities present in the layer. In one embodiment a glass film is formed on the surface of the layer by a reaction between an impurity modifier and the layer during processing of the device, to cause the impurities to concentrate in the glass film, and the glass film is removed, removing a major portion of the impurity contamination present in the layer. As a precaution against further contamination, a layer of barrier material is formed on the insulating layer.

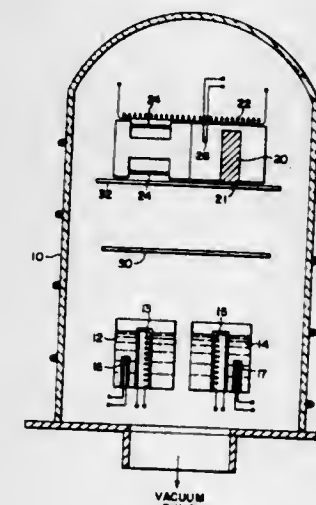
3,632,439

METHOD OF FORMING THIN INSULATING FILMS PARTICULARLY FOR PIEZOELECTRIC TRANSDUCER

John Deklerk, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation of application Ser. No. 505,714, Oct. 29, 1965, now abandoned. This application Apr. 25, 1969, Ser. No. 820,702
Int. Cl. B44d 1/18

U.S. Cl. 117-215

22 Claims



A film of an insulating compound is formed by evaporating the individual elements from separate sources while maintaining the substrate at a temperature in the range in which

neither element will deposit if evaporated alone. A baffle disposed between the sources and the substrate prevents other than vaporized material from reaching the substrate. The film is very pure, may be highly oriented when formed on a suitable substrate, and is particularly useful for its piezoelectric properties.

3,632,440

RESINOUS COMPOSITION FOR COATING ELECTRIC CONDUCTORS

Jerome A. Preston, Fort Wayne, Ind., assignor to Essex International, Inc.
Filed Jan. 13, 1969, Ser. No. 790,887
Int. Cl. B44d 1/42; H01b 3/46, 3/42

U.S. Cl. 117-218

3 Claims

A magnet wire characterized by an insulating resinous coating composition used as base coat and/or topcoat over a different base coating, said coatings having a low coefficient of friction. These coatings retain the ability to be overcoated with other coatings such as wire varnishes and enamel. The coatings, such as the reaction product of a polytrimellitimideimide film-forming resin and methyl tetradecyl polysiloxane, are applied in single or multiple coats from solutions over the wire or a base-coated wire, each coat being cured in an oven to cause the polymers to react or interact to produce smooth, hard, slippery surfaces.

3,632,441

COATED METAL CONDUCTORS

Norman Bilow, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Air Force
Filed Aug. 8, 1969, Ser. No. 856,237
Int. Cl. B44d 1/42; H01b 3/30

U.S. Cl. 117-218

3 Claims

Coated metal conductors are made by coating the conductor with a polyimide resin and prepolymers which are prepared by the reaction of a tetra ester of benzophenonetetracarboxylic acid (or anhydride) and a tetraamine. The prepolymers thus prepared may be dissolved in a solvent such as chloroform or benzene, sprayed onto the surface of a polyimide film, and cured to a tack-free but pressure-sealable fusible state by the application of heat. Polyimide films thus coated may then be placed together on their adhesive faces and sealed under heat and pressure. The adhesives of this invention are able to withstand the same high temperatures that the polyimide films can. Thus, the sealed films are useful in such applications as wire insulation and contour cable where temperatures of from 600°-800° F. are encountered.

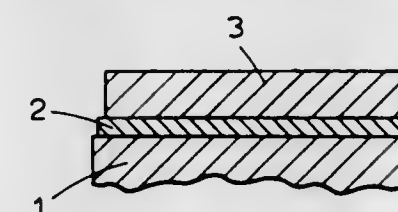
3,632,442

PHOTOCATHODES

Andrew Alfred Turnbull, London, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 22, 1968, Ser. No. 722,864
Claims priority, application Great Britain, Apr. 21, 1967, 18,486/67

U.S. Cl. 117-219

4 Claims



A method of manufacturing a photocathode for an electron tube whose active constituent is formed by a strongly P-conductive AIII-BV compound or mixed crystals of such compounds in which cesium is deposited on the surface of

the cathode until after having reached a maximum the photosensitivity drops to a value lying between 10 percent and 50 percent that of the maximum. Thereafter, the surface of the cesium is exposed to oxygen to form Cs_2O and these steps are repeated until an activating layer about 50–100 Å in thickness is formed.

3,632,443

METHOD OF MAKING POLYPROPYLENE ELECTRETS

Yoichi Kodera; Tomosaburo Kitamura, and Etsuro Sawaguchi, all of Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

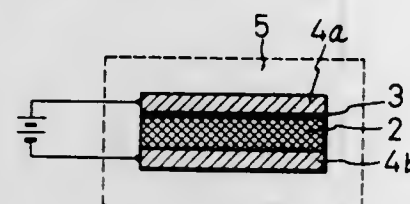
Filed Apr. 18, 1969, Ser. No. 817,348

Claims priority, application Japan, Apr. 27, 1968, 43/28366

Int. Cl. C23c 13/00

U.S. Cl. 117—227

4 Claims



An electret which comprises a polypropylene film having a high volume resistivity and having been permanently electrically polarized.

3,632,444

GRAPHITE ANODE TREATMENT

Morris P. Grotheer, Lewiston, and John A. Peterson, Niagara Falls, both of N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Dec. 31, 1968, Ser. No. 789,007

Int. Cl. B01k 3/08

U.S. Cl. 117—228

5 Claims

An iron impregnated graphite electrode is prepared by treating graphite with a liquid metal such as iron or a mixture of iron with carbon and/or silicon.

3,632,445

APPARATUS FOR EXTRACTING SOLUBLE SUBSTANCES FROM PLANT OR VEGETABLE PRODUCTS

Marcel Jean Charles Barre, Faches Thumesnil, France, assignor to Societe Sucrier De L'Atlantique (Engineering), Paris, France

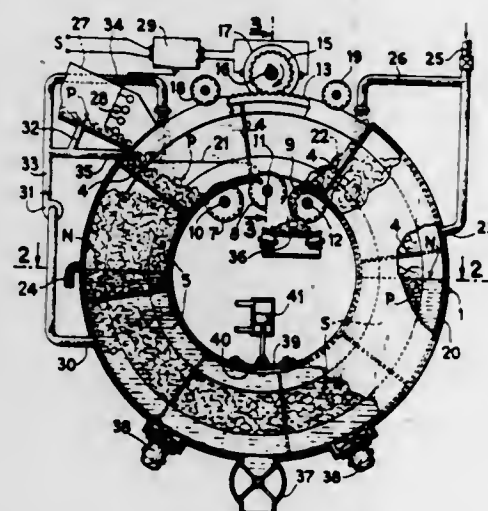
Filed Mar. 10, 1969, Ser. No. 805,528

Claims priority, application France, Mar. 26, 1968, 145338

Int. Cl. B01d 1/102; C13d 1/12

U.S. Cl. 127—3

43 Claims



Apparatus for extracting soluble substances from plant or vegetable products. The apparatus comprises an annular ele-

ment having a series of radial compartments open on the inner and outer peripheries of the annular element. The annular element is driven about a substantially horizontal axis and a fixed enclosure substantially marries up with at least the lower part of the annular element. The enclosure comprises on each side of a vertical plane containing the axis of rotation of the annular element an inlet for solvent liquid and an outlet for the extract from the product. A device continuously pours the products into the successive radial compartments.

3,632,446

CONTINUOUS INVERT SUGAR PROCESS

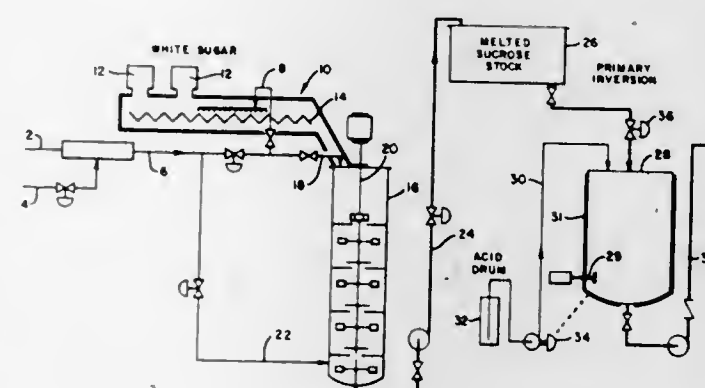
Richard N. Prince, Crockett, and Asa O. Maylott, Concord, both of Calif., assignors to California and Hawaiian Sugar Company

Filed Mar. 5, 1969, Ser. No. 804,628

Int. Cl. C13k 1/08, 3/00; C07c 47/18

U.S. Cl. 127—41

3 Claims



A syrup containing invert sugar and sucrose, preferably a 50–50 mixture, is made on a continuous basis by mixing an acid with a solution of sucrose, allowing partial inversion to take place in a first inversion zone, passing the partially inverted sugar syrup into a second inversion zone having an automatic level control wherein the optical rotation of the sugar syrup leaving the second zone is measured by a polarimeter and the flow of material from the first zone to the second zone is controlled, based on the polarimeter reading of the effluent from the second zone. After leaving the second zone, the solution is neutralized so that inversion does not proceed further.

3,632,447

METAL-TREATING PROCESS

Joachim Albrecht, Frankfurt am Main; Hans Hansen, Rendel B. Badrilbel; Dieter Oppen, Weiskirchen near Offenbach; Werner Rausch, Stierstadt/Taunus, and Peter Schiefer, Frankfurt am Main, all of Germany, assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed May 21, 1970, Ser. No. 39,523

Claims priority, application Germany, May 24, 1969, P 19 26

769.7

Int. Cl. C23g 1/08

U.S. Cl. 134—3

5 Claims

A method for treating steel, galvanized steel, zinc and aluminum sheet and strip with an HF-CrO_3 containing solution wherein the solution is applied so that no more than about 50 percent of the applied solution is returned to the treating bath and about 0.1–6 grams/square meter HF and about 0.06–3 grams/square meter CrO_3 are retained on the metal surface to give a pickling effect or metal removal of about 0.1 to 2 grams/square meter.

3,632,448

ALUMINUM-HALOGEN SECONDARY BATTERY METHOD WITH MOLTEN ELECTROLYTE

Morton Beltzer, New York, N.Y., assignor to Esso Research and Engineering Company

Filed July 29, 1968, Ser. No. 748,193

Int. Cl. H01m 29/04

U.S. Cl. 136—86 A

8 Claims

A secondary battery utilizing the aluminum-halogen couple having a fused salt electrolyte of aluminum halide and alkali metal halide, the halide ions corresponding to the halogen of the couple exhibits the advantages of high storage capacity and relatively low operating temperatures.

3,632,449

METHOD OF MAKING AND OPERATING A GAS-DEPOLARIZED CELL

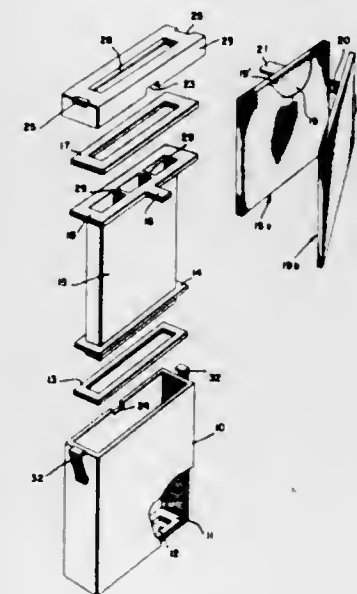
Michel N. Yardney, 336 Central Park W., New York, N.Y., and Nuri Kohen, Jackson Heights, N.Y., assignors to Michel N. Yardney, New York, N.Y.

Filed June 30, 1969, Ser. No. 837,652

Int. Cl. H01m 27/00

U.S. Cl. 136—86 A

2 Claims



A battery of the metal/gas-electrode type includes a gas-depolarizable cathode forming at least one pocket or passage open to the outside by way of a slot (or a pair of opposite slots) in the cell housing. The cathode is in fluidtight contact with the slotted housing and subdivides the interior of the housing into a gas passage or compartment and a surrounding electrolyte compartment. Anode plates are disposed in the electrolyte compartment and may be interconnected to form a unit detachable from the cathode upon withdrawal of the electrode assembly from the housing. For this purpose the housing may be split into separably interfitting parts. The depolarizing gas circulates through the interior of the housing by thermal convection.

3,632,450

SIDE ENTERING STORAGE BATTERY TERMINAL CONSTRUCTION

James P. Coffey, Hatboro, and William E. Veit, Ivyland, both of Pa., assignors to ESB Incorporated

Filed June 22, 1970, Ser. No. 47,986

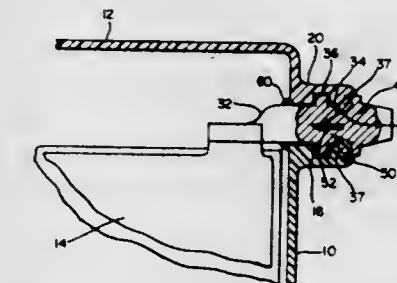
Int. Cl. H01m 5/00

U.S. Cl. 136—135 S

4 Claims

A side entering battery terminal construction is described wherein a portion of the battery terminal post is locked in a

pocket formed in the battery container. A terminal insert



penetrates the container wall and is friction welded to the end of the post.

3,632,451

THERMOELECTRIC DEVICE HAVING PARALLEL CIRCUITS INTERCONNECTED AT EQUAL POTENTIAL POINTS

Colin E. Abbott, Holyport, near Maidenhead, England, assignor to Mining & Chemical Products Limited

Filed Oct. 16, 1967, Ser. No. 675,475

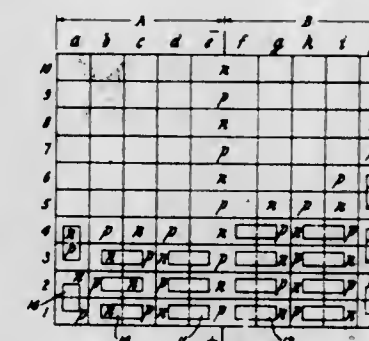
Claims priority, application Great Britain, Oct. 17, 1966,

46,228/66

Int. Cl. H01v 1/30, 1/32; G21h 1/10

U.S. Cl. 136—203

7 Claims



A thermoelectric device having two or more parallel circuits each comprising a number of thermoelectric couples connected in series and each couple comprising two dissimilar thermoelectric elements connected electrically in series. Preferably the parallel circuits are interconnected at points other than their ends which points would, if not connected, be at equal potential when the device is in use.

3,632,452

OXALATE CONVERSION COATING METHOD FOR STAINLESS STEEL

Yasunobu Matsushima, and Tamotsu Matsumura, both of Tokyo, Japan, assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Sept. 15, 1969, Ser. No. 858,139

Claims priority, application Japan, Sept. 17, 1968, 43/66591

Int. Cl. C23f 7/20

U.S. Cl. 148—6.14 A

6 Claims

Oxalate conversion coating method for stainless steel suitable for cold-working thereof which is characterized in that stannous salt is added into the treating solution consisting of principal agent of oxalic acid and/or oxalates, activating agents and oxidizing agents.

3,632,453

METHOD OF MANUFACTURING ALUMINUM-COATED FERROUS BASE ARTICLES

William C. Patterson, Turtle Creek, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Aug. 19, 1969, Ser. No. 851,474

Int. Cl. C23f 7/10

U.S. Cl. 148—6.15 R

11 Claims

A method of coating a ferrous base metal with aluminum including cleaning the surface of the ferrous article by means

of an aqueous solution of orthophosphoric acid having a concentration of about 5 to 85 percent. Subsequently, drying the surface to evaporate the water from said solution. Applying molten aluminum to the ferrous surface to establish a uniformly bonded aluminum coating by means of a layer of ferrous-aluminum intermetallic compound. The molten aluminum application being effected without any additional application of fluxing material to the ferrous surface after the cleaning operation.

3,632,454

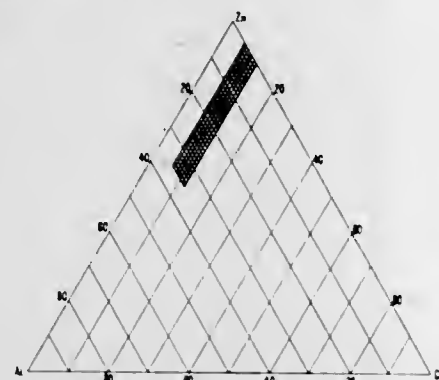
PROCESS FOR INDUCING SUPERPLASTICITY IN ZINC OR ZINC-ALUMINUM ALLOYS CONTAINING COPPER
James C. Marshall, and Terrence J. Stewart, both of Apalachin, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 20, 1970, Ser. No. 21,309

Int. Cl. C22f 1/16

U.S. Cl. 148—11.5 R

13 Claims



Process for imparting superplasticity to Zn or Zn-Al alloys containing 6–12 percent Cu by warm working an ingot of the metal until substantially the entire cross section has been worked and reduced to a thickness suitable for thermoforming. Stock so prepared can be thereafter formed with the usual superplastic deformation techniques, and resulting manufactures exhibit superior resistance to creep and corrosion and exhibit greater tensile strength.

3,632,455

DUCTILE ULTRAHIGH STRENGTH STEEL MAINLY CONSISTING OF QUENCHED AND TEMPERED STEEL AND A METHOD OF MANUFACTURING THE SAME
Hajime Nakamura, Tokyo-to, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan

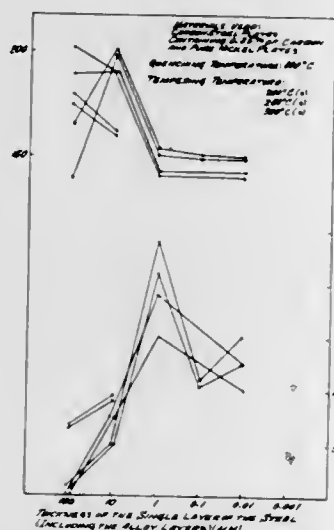
Filed June 2, 1969, Ser. No. 829,644

Claims priority, application Japan, June 5, 1968, 43/38445

Int. Cl. C21d 7/14

U.S. Cl. 148—12.4

4 Claims



Ductile ultrahigh strength steel composed of multiple layers formed by combining quenched and tempered steel

plates with nonferrous metal or nonferrous alloy plates whose modulus of elasticity is not higher than and whose percentage of elongation and rate of reduction of area are greater than those of the quenched and tempered steel and being characterized by extremely low diffusion of iron and carbon which are the principal components of the steel and the wetting phenomenon with the quenched and tempered steel, which steel product does not exhibit unstable fractures but retains suitable elongation and ductility and has a tensile strength of more than 180 kg./mm.².

3,632,456

METHOD FOR PRODUCING AN ELECTROMAGNETIC STEEL SHEET OF A THIN SHEET THICKNESS HAVING A HIGH-MAGNETIC INDUCTION

Akira Sakakura; Takaaki Yamamoto; Satoru Taguchi, and Kiyoshi Ueno, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Apr. 25, 1969, Ser. No. 819,426

Claims priority, application Japan, Apr. 27, 1968, 43/28342

Int. Cl. H01f 1/16

U.S. Cl. 148—111

4 Claims

A process for producing a very thin electromagnetic steel sheet having a high-magnetic induction by the steps of hot-rolling a steel ingot containing less than 0.085 percent C, 0 to 4 percent Si, 0.003 to 0.100 percent S and 0.010 to 0.065 percent acid-soluble Al, subjecting the hot-rolled steel sheet to an intermediate annealing and further to cold-rolls of two times.

3,632,457

STRAND-ANNEALING COMPOSITE METALS
Jerrold M. Alyea, Alton, Madison, Ill., assignor to Olin Corporation

Filed Aug. 2, 1968, Ser. No. 749,611

Int. Cl. C21d 1/26; B22b 15/18, 15/20

U.S. Cl. 148—127

2 Claims

A process for obtaining an integral composite metal article having a suitable grain size for mechanical deformation by strand annealing a cold-worked composite metal article having a plurality of dissimilar metal members integrally bonded together, and the article produced thereby.

3,632,458

SELF-EXTINGUISHING SOLID PROPELLANT FORMULATIONS

Harold E. Filter, Midland, and Don L. Stevens, Sanford, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 2, 1968, Ser. No. 726,091

Int. Cl. C06d 5/06

U.S. Cl. 149—19

8 Claims

A self-extinguishing solid propellant composition comprising a phosphorous-oxygen containing compound, a polymeric binder-fuel, an oxidizing agent, and a predetermined amount of particulate aluminum.

3,632,459

PROCESS FOR THE MANUFACTURE OF SLIDE BEARINGS, IN PARTICULAR COMPOUND BEARINGS

Richard Klauer, Wiesbaden-Erbenheim, Germany, assignor to Glyco-Metall-Werke Daelen & Loos GmbH, Wiesbaden-Schierstein, Germany

Continuation-in-part of application Ser. No. 571,376, July 21, 1966, now abandoned. This application Oct. 24, 1969, Ser. No. 871,419

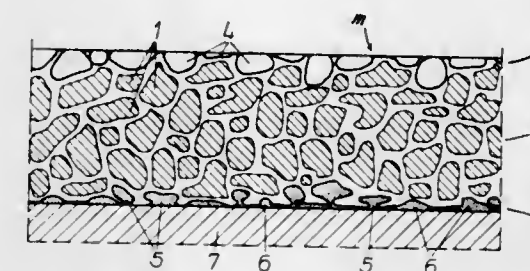
Int. Cl. B32b 31/20; C23f 1/00

U.S. Cl. 156—3

3 Claims

A sliding friction-type bearing, and a process for manufacturing the same by mixing metal and Teflon particles and

compressing the same into a block, peeling a foil from the block, etching out the metal from the surface of the foil, im-



pregnating one side of the foil with adhesive, and bonding the foil to a metal back under heat and pressure.

3,632,460

EPICYCLIC WEAVING OF FIBER DISCS

Jack Palfreyman, Tansley, nr. Matlock; Henry Edward Middleton, Derby, and Alan Anthony Baker, Mickleover, Derby, all of England, assignors to Rolls-Royce Limited, Derby, England

Filed June 7, 1968, Ser. No. 735,411

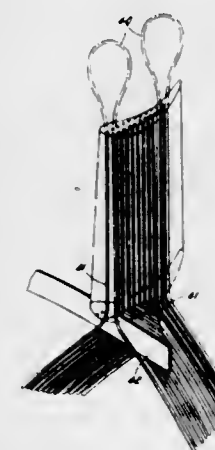
Claims priority, application Great Britain, June 24, 1967,

29,244/67

Int. Cl. B65h 54/64

U.S. Cl. 156—175

10 Claims



The present invention relates to the weaving of compressor or turbine discs from high-strength fiber materials. The discs are woven from a single continuous fiber or bundle of fibers which pass backwards and forwards between diametrically opposed points across the disc tangential to a central aperture. The fibers are woven in tension on a former using the epicyclic motion of a point on the circumference of a planet wheel in an epicyclic gear to generate the weaving pattern. The fiber is coated as it is woven to provide a resin or metal matrix to anchor the weave. By suitable radial extensions to the motion of the epicyclic generator integral blades and shrouds can be woven into the disc.

3,632,461

METHOD OF MAKING A LAMINATED CONTAINER WALL STRUCTURE

Herbert Gayner, Monroeville, Pa., and John N. Demsey, Jr., Oakland, Calif., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed May 16, 1969, Ser. No. 825,164

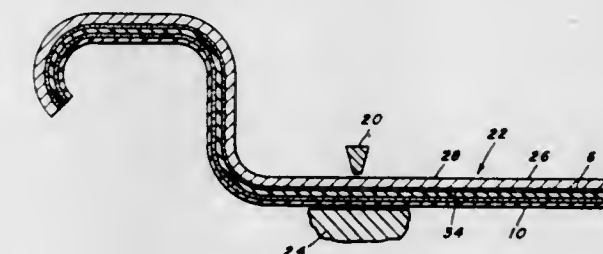
Int. Cl. B32b 31/20

U.S. Cl. 156—257

7 Claims

A method of manufacturing a laminated metal container wall having an integral opening device. Providing a metal

sheet, coating the sheet with an adhesive selected from the group consisting of epoxy, polyester and polyurethane and subsequently securing to the sheet by means of the adhesive a continuous layer of barrier material selected from the group consisting of low-density polyethylene, high-density polyethylene and cast polypropylene. Subsequently scoring said sheet to define a severable and/or removable sector and leaving residual metal along the score line of a thickness of about 0.002 to 0.006 inch. Effecting the scoring while preserving the integrity of the barrier by maintaining continuity of the layer of barrier material. Simultaneously with the scoring operation reducing the thickness of the barrier material in the regions underlying the scoring through compressibly established flow without penetrating entirely through the layer. This compressibly established flow serves



to reduce the shear resistance to severance of the barrier when the laminated container wall is opened. An outer protective material selected from the group consisting of a polyester, polyvinylidene chloride, polyvinyl chloride and medium- or high-density polyethylene may be continuously secured to the barrier material.

A laminated metal container wall made by the above method having a barrier material thickness of about 0.002 to 0.003 inch in the portion not underlying the score line and a reduced thickness in the portion underlying the score line. The barrier material having a continuous panel covering structure. An outer protective material selected from the medium- consisting of a polyester, polyvinylidene chloride, polyvinyl chloride and medium- or high-density polyethylene secured to the barrier material.

3,632,462

DICING OF SEMICONDUCTORS

Colin Arthur Barrington, Sutton Coldfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Feb. 7, 1969, Ser. No. 797,610

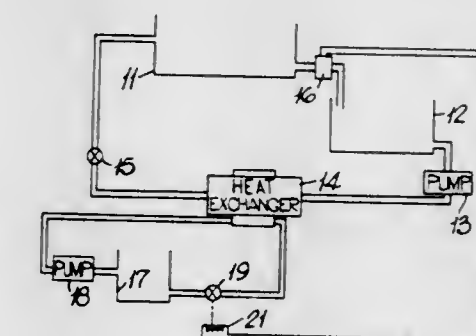
Claims priority, application Great Britain, Feb. 9, 1968,

6,462/68

Int. Cl. H01l 7/00

U.S. Cl. 156—345

4 Claims



In the manufacture of semiconductors by forming a large number of devices on one wafer, protecting the individual

devices by wax masks and then subjecting the wafer to an etching acid to separate the devices, apparatus is used for separating the wafers comprising a tray on which the wafer is placed. Means is provided for circulating an etching acid in a path including the tray, and in this path there is means for controlling the temperature of the acid.

3,632,463

APPARATUS FOR MAKING ELECTRIC RESISTANCE HEATING MATS

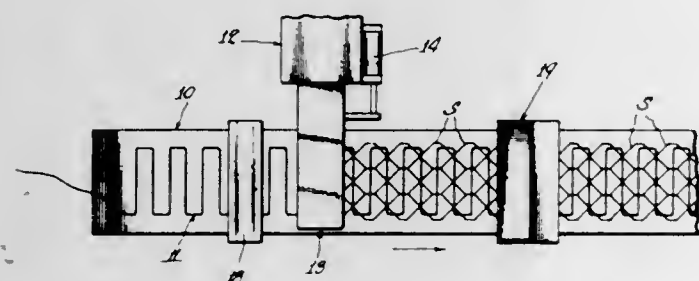
William McFarlane, Murfreesboro, Tenn., assignor to Emerson Electric Co.

Filed Aug. 23, 1967, Ser. No. 662,796

Int. Cl. B29j 5/08

U.S. Cl. 425-113

9 Claims



Apparatus for making an electric heating mat comprising a support for portions of electric resistor wire which are in laterally spaced relation, and an extrusion head above the support and from which a strand of plastic material is extruded downwardly toward the wire, the support and extrusion head being relatively movable so that the downwardly extruded strand is laid crosswise of and over the wire portions and adheres thereto at the places of crossing to thereby form a dielectric strand connection between the wire portions.

3,632,464

DECORATIVE BOW

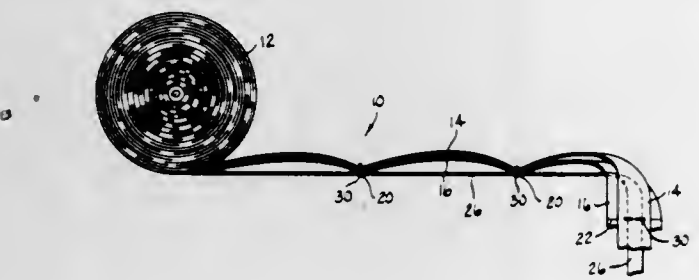
Raimonds Griks, Morton Grove, Ill., assignor to CPS Industries, Inc., Pittsburgh, Pa.

Continuation of application Ser. No. 607,708, Jan. 6, 1967, now abandoned. This application Mar. 26, 1970, Ser. No. 20,477

Int. Cl. D04d 7/10; B32b 3/02

U.S. Cl. 161-9

4 Claims



The disclosure describes three embodiments of a ribbon bow suitable for mass production use in decorating packages and other articles.

In the illustrated embodiments, the bow comprises one or more ribbons containing structural deformations such as transverse scored lines at spaced-apart intervals, a lace, and means for securing the lace to the ribbons so that the ribbons can be pulled up along the lace to form the bights of ribbon bows.

A number of alternative lacing structures, structural deformations and means for securing the lace to the ribbons are described.

3,632,465 LAMINATED PROTECTIVE COATING FOR METALLIC SURFACES

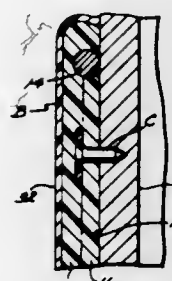
Derek D. Hardingham, c/o Suite 200 18582 Beach Blvd., Huntington Beach, Calif.

Filed Mar. 21, 1969, Ser. No. 809,165

Int. Cl. B32b 3/06, 7/08

U.S. Cl. 161-54

6 Claims



A laminated protective coating for a metallic surface subject to a deteriorating environment, which coating includes (a) a first resin-impregnated laminate applied to the surface while said resin is in a gellike state; (b) a plurality of spaced rigid studs that extend through said first laminate into said metal surface and serve to hold a plurality of flat rigid washers in abutting contact with the exterior surface of said first laminate to mechanically bond said laminate to said surface; and, (c) a second sheet laminate that is substantially inert to said deteriorating environment that is resin bonded to said first laminate to overlie the exterior surface thereof and the exterior surface of said washers.

3,632,466

STABILIZED LATEX COATING COMPOSITION CONTAINING AN ALKYL SULFIDE TERMINATED OLIGOMER

Charles R. Peaker, Naugatuck, Conn., assignor to Uniroyal, Inc.

Filed Oct. 19, 1966, Ser. No. 587,650

Int. Cl. C08h 13/08

U.S. Cl. 161-67

20 Claims

A stabilized latex coating composition containing a stabilizer, an inert filler and an alkyl sulfide terminated oligomer having an average molecular weight between about 200 and 5,000.

3,632,467

UNCURED POLYVINYL CHLORIDE PLASTISOL TAPE COATED WITH PVC PLASTISOL ADHESIVE LAYER

William D. Todd, Bay Village, and Thomas J. Doyle, Lorain, both of Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Continuation of application Ser. No. 595,597, Nov. 21, 1966, now abandoned. This application Apr. 23, 1970, Ser. No. 29,734

Int. Cl. C09j 7/02; B32b 27/06

U.S. Cl. 161-167

6 Claims

Vinyl plastisol compositions comprising composites of two different vinyl halide resin plastisols wherein there is an adhesive plastisol layer of a mixture of a vinyl halide resin, a liquid plasticizer therefor, a polyepoxide and an amine curing agent; and a plastisol layer of a mixture of a vinyl halide resin and a plasticizer therefor; in unitary adherent relation; are useful in bonding together diverse materials, for example, metal and vinyl surfaces, and glass and fabric surfaces.

3,632,468 HIGH-CRIMP, HIGH-STRENGTH RAYON FILAMENTS AND STAPLE FIBERS AND PROCESS FOR MAKING SAME

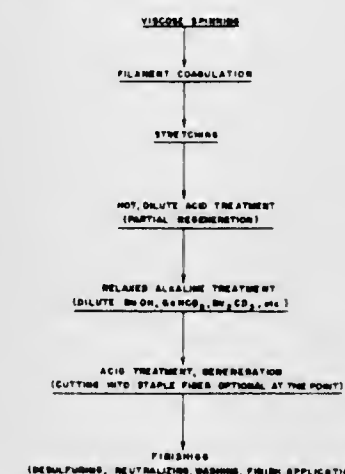
George C. Daul, Whippany, and Fabian P. Barch, Succasunna, both of N.J., assignors to Rayonier Incorporated, New York, N.Y.

Filed Apr. 9, 1968, Ser. No. 719,919

Int. Cl. D01f 3/28; D02g 1/00

U.S. Cl. 161-173

10 Claims



High-tenacity rayon filaments and staple fibers having an exceptionally high number of crimps per inch are produced by spinning a viscose spinning solution into a coagulating-type spin bath to obtain coagulated, incompletely regenerated viscose filaments, the coagulated viscose filaments withdrawn from the spin bath being stretched from about 120 to 280 percent in length while the filaments are still substantially soluble in dilute alkali solution, the filaments being treated with a hot acid bath while being stretched. The tension of the filaments is then relaxed about 20-60 percent while the filaments are less than 50 percent regenerated, and the thus relaxed partially regenerated filaments are treated with an alkaline solution having a pH of from about 7.5 to 10. Regeneration of the filaments, or of staple fibers prepared therefrom, is then completed without additional stretching, followed by conventional desulfurization and washing of the highly crimped filament or staple fiber product.

3,632,469

PROCESS FOR THE MANUFACTURE OF DISSOLVING GRADE PULP

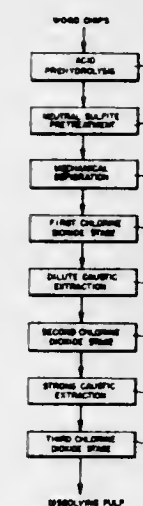
Harry D. Wilder, Richmond, Va., assignor to Ethyl Corporation, New York, N.Y.

Filed June 5, 1969, Ser. No. 830,709 The portion of the term of the patent subsequent to July 6, 1988, has been disclaimed.

Int. Cl. D21c 9/14

U.S. Cl. 162-25

16 Claims



A process for the production of a dissolving-grade pulp in high yield by removing lignin and hemicellulose from chips of

fibrous plants by refining the chips, delignifying the refined matter with chlorine dioxide, and removing the hemicellulose with acid prehydrolysis and strong caustic extraction.

3,632,470

REACTOR FUEL LEAK DETECTION

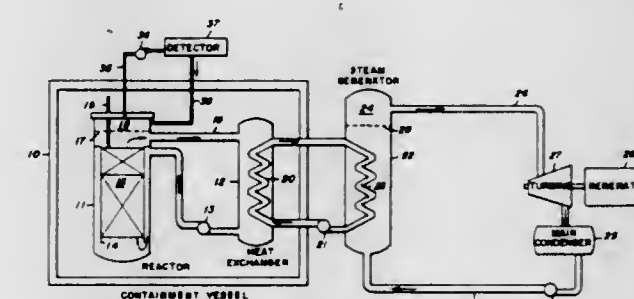
Bernard F. Rubin, Palo Alto; Charles L. Larson, Sunnyvale, and Leonard N. Grossman, Livermore, all of Calif., assignors to General Electric Company

Filed May 15, 1968, Ser. No. 729,317

Int. Cl. G21c 17/04, 3/16

U.S. Cl. 176-19

14 Claims



A method of detecting ruptured fuel element cladding in nuclear reactors which permit radioactive material to leak therefrom is disclosed. Varying proportions of two stable isotopes of an inert indicating gas are added to the inert filler gas in fuel elements. Each subassembly or group of fuel elements contains a specific individual combination of the gases. Mass spectrometric analysis of the reactor cover gas or off-gas will detect the indicating gas and determine the isotopic ratio thereof to indicate which subassembly contains a leaking fuel element.

3,632,471

RAPID SHUTDOWN SYSTEM FOR WATER-COOLED NUCLEAR REACTORS

Klaus Traube, Frankfurt am Main, and Heinz Acher, Friedberg, both of Germany, assignors to Licentia Patent-Verwaltungs GmbH, Frankfurt am Main, Germany

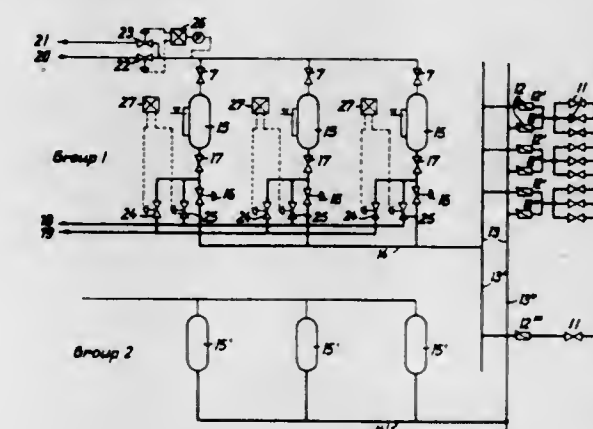
Filed Aug. 26, 1968, Ser. No. 755,237

Claims priority, application Germany, Aug. 25, 1967, L 57320

Int. Cl. G21c 7/16

U.S. Cl. 176-36

4 Claims



A rapid shutdown system for nuclear reactors of the type having a plurality of neutron-absorbing control rods. The system includes a plurality of hydraulic drives, each of which is connected to a separate control rod, a plurality of hydraulic fluid pressure tanks, each of which is partially filled with fluid and partially filled with a gas under pressure, and means connecting all of the tanks with all of the hydraulic drives through at least one one-way check valve.

3,632,472
SOLID NEUTRON-MODERATING CORE STRUCTURES FOR NUCLEAR REACTORS

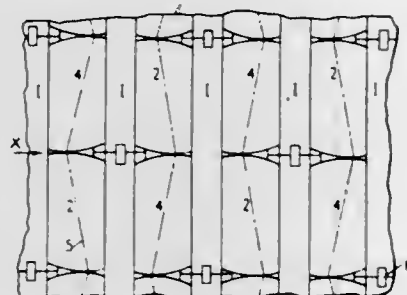
Donald Stanley Pettinger, Knutsford, England, assignor to The Nuclear Power Group Limited, Knutsford, England
Filed Mar. 12, 1968, Ser. No. 712,482

Claims priority, application Great Britain, Mar. 17, 1969, 12,537/67

Int. Cl. G21c 5/16

U.S. Cl. 176-84

6 Claims



A core structure for a nuclear reactor, comprising an assembly of blocks of neutron-moderating material arranged in vertical columns, wherein the opposed faces of adjacent blocks in at least some of the columns are so shaped that one opposed face can roll over the other and such that when the blocks are assembled in the column, the lines or areas of contact are displaced from a vertical plane or planes through the centers of gravity of the blocks of the column whereby overturning moments are exerted on the blocks causing them to lean in mutually supporting relationship on blocks in adjacent columns.

3,632,473
METHOD AND APPARATUS FOR PRESERVING HUMAN ORGANS EXTRACORPOREALLY

Folkert O. Belzer, Mill Valley, and Chester W. Truman, Daly City, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Continuation-in-part of application Ser. No. 727,762, May 9, 1968, now abandoned. This application Apr. 21, 1969, Ser. No. 825,099

Int. Cl. A61k 17/00

U.S. Cl. 195-1.7

15 Claims

A human organ is stored, between removal from one body and implantation in another, in an apparatus mounted on a wheeled cart. The apparatus has a pulsatile pump for pumping plasma, a heat exchanger connected to the outlet of the pump for cooling the plasma to about 4° to 8° C., and a perfusion chamber to which the cooled plasma is supplied. The perfusion chamber includes a support for the organ and means for connecting the organ to the pulsing flow of cold plasma. Venous effluent from the organ is collected and conducted by gravity to a membrane oxygenator, which returns oxygenated plasma to the pulsatile pump for recirculation through the organ.

3,632,474
PROCESS FOR PRODUCING IMIDAZOLE-GLYCEROL BY FERMENTATION

Sumio Kurihara; Kazumi Araki; Hiroyuki Ueda, and Masahiko Ikumo, all of Hofu-shi, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 28, 1969, Ser. No. 811,596

Claims priority, application Japan, Mar. 29, 1968, 43/20056

Int. Cl. C12d 13/00

U.S. Cl. 195-29

8 Claims

A process for producing imidazole-glycerol by fermentation including culturing a mutant strain of a micro-organism

belonging to the genus *Brevibacterium* or *Corynebacterium* capable of producing imidazole-glycerol in a medium containing a histidine-containing compound.

3,632,475
PROCESS FOR PREPARING LONG-CHAIN AND SHORT-CHAIN AMYLOSES FROM STARCHES

Kaname Sugimoto, Okayama-shi; Mikihiro Yoshida, Okayama, and Masashi Kurimoto, Okayama-shi, all of Japan, assignors to Hayashibara Company, Okayama-shi, Okayama, Japan

Filed Apr. 18, 1969, Ser. No. 817,560

Claims priority, application Japan, Apr. 30, 1968, 43/29243

Int. Cl. C12b 1/00

U.S. Cl. 195-31

13 Claims

The present invention makes it possible to separate short-chain-length amyloses and long-chain-length amyloses from starches by decomposing and cutting off the α -1,6-glucoside bonds of amylopectin contained in starches by means of an α -1,6-glucosidase to form short-chain-length amyloses differing in molecular weight from the naturally occurring amyloses and making use of the difference in molecular weight in those two sorts of amyloses.

3,632,476
METHOD OF PRODUCING CITRIC ACID BY FERMENTATION

John H. Fried, Waterford, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y.

Filed May 1, 1969, Ser. No. 821,120

Int. Cl. C12d 13/00

U.S. Cl. 195-37

7 Claims

A process for producing citric acid with certain *Candida* strains by aerobically fermenting an aqueous carbohydrate-containing nutrient medium in the presence of lead compounds.

3,632,477
ANTIBIOTIC PRODUCTION USING A STRAIN OF ASPERGILLUS CANDIDUS

Merlyn Richards, Dorking, and Jeffery Edward Munden, Horsham, both of England, assignors to Beecham Group Limited, Middlesex, England

Original application May 18, 1967, Ser. No. 639,286. Divided and this application Sept. 24, 1969, Ser. No. 870,977

Claims priority, application Great Britain, May 25, 1966, 23,329/66

Int. Cl. C12d 9/00

U.S. Cl. 195-81

2 Claims

The antibiotic 3'-chloro 5:2' dihydroxy 3:7:8-trimethoxy flavone is produced by growing a strain of *Aspergillus candidus* ATCC 20022 or ATCC 20023 or a mutant thereof under aerobic conditions in an aqueous nutrient until the nutrient solution exhibits substantial antibiotic activity and thereafter isolating the antibiotic with a hydrocarbon solvent. The antibiotic has bactericidal and fungicidal properties.

3,632,478
DISPOSABLE CULTURE ASSEMBLY

Aaron J. Fink, 614 Springer Terrace, Los Altos, Calif.

Continuation-in-part of application Ser. No. 579,581, Sept. 15, 1966, now abandoned. This application Nov. 25, 1968, Ser. No. 778,678

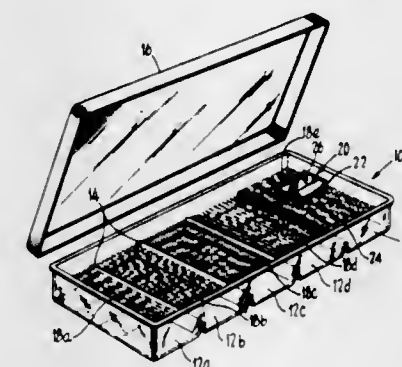
Int. Cl. C12k 1/06; C12b 1/16

U.S. Cl. 195-139

3 Claims

A disposable culture assembly incorporates a uniformly compartmented rectangular culture plate containing solid media, a probe device that affords an anaerobic bacterial analysis. Sterile test conditions are realized by providing a sealed container including a sterilized anaerobic probe

device, angled specimen spreader having one dimension coextensive with one dimension of each plate compartment, ties onto a gravity flow heat exchange surface thereby to vaporize the low-boiling solvent away from the high-boiling



and a dropper to achieve control of the amount of specimen to be applied to the surfaces of the media.

3,632,479
TREATMENT OF COAL TO PREVENT AGGLOMERATION

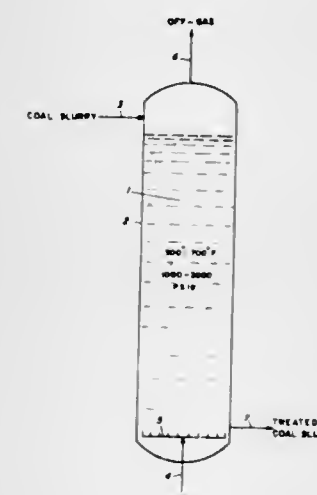
Bernard S. Lee, 6900 N. Kilpatrick Ave., Chicago, Ill., and Frank C. Schora, Jr., 586 West Old Plum Grove, Palatine, Ill.

Filed Aug. 25, 1969, Ser. No. 852,880

Int. Cl. C01b 57/06

U.S. Cl. 201-9

3 Claims



A liquid slurry of coal is treated with an oxygen-containing gas at elevated temperature and pressure to effect surface oxidation of the coal. The coal is thus rendered nonagglomerating and is suitable for utilization as feed in a high-pressure hydrogasification process.

3,632,480
VAPOR DEGREASING APPARATUS WITH FALLING FILM HEAT EXCHANGE SURFACE

Kenneth S. Surprenant, Midland, and Raymond T. Gerard, Bay City, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

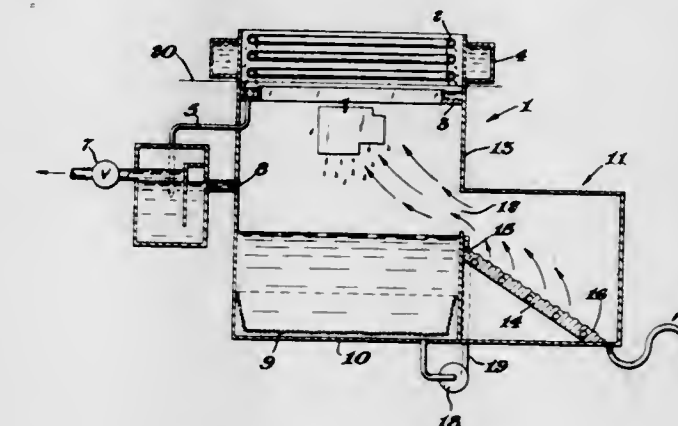
Original application July 1, 1968, Ser. No. 741,520, now abandoned. Divided and this application June 8, 1970, Ser. No. 56,999

Int. Cl. B01d 3/00

U.S. Cl. 202-169

2 Claims

A method and apparatus for continuously producing solvent vapors and simultaneously purifying the solvent by directing liquid solvent which contains high-boiling impuri-



impurities as the solvent flows across the heat exchange surface.

ERRATUM

For Class 203-11 see:
Patent No. 3,632,505

3,632,481
CRITICAL VELOCITY, UNINTERRUPTEDLY FLOWING BRINE IN MULTISTAGE DISTILLATION SYSTEM

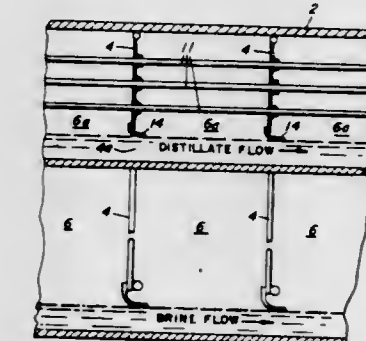
Roland P. Hammond, 879 W. Outer Drive, Oakridge, Tenn., and Roscoe Van Winkle, 3049 Kingston Pike, Knoxville, Tenn.

Filed Feb. 13, 1970, Ser. No. 11,224

Int. Cl. B01d 3/06

U.S. Cl. 203-11

9 Claims



A multistage flash system, having as many as 100 stages or more per atmosphere of pressure drop, wherein preheated sea water flows uninterruptedly through the series of stages at a substantially constant linear velocity at least equal to its critical velocity. Inexpensive sheet materials can be employed as the stage partitions. Each partition terminates above the flowing distilland, and a movable flap is connected to its bottom. The free end of each flap wipes or floats on the surface of the flowing distilland. Uninterrupted flow of collected distillate, from stage to stage, is provided in the same manner.

3,632,482
PROPYLENE OXIDE RECOVERY FROM PROPYLENE BY EXTRACTIVE DISTILLATION WITH AN ALCOHOL-KETONE-HYDROCARBON SOLVENT

Sadok E. Hoory, El Cerrito, and Stanley F. Newman, San Francisco, both of Calif., assignors to Shell Oil Company, New York, N.Y.

Filed Sept. 9, 1969, Ser. No. 856,296

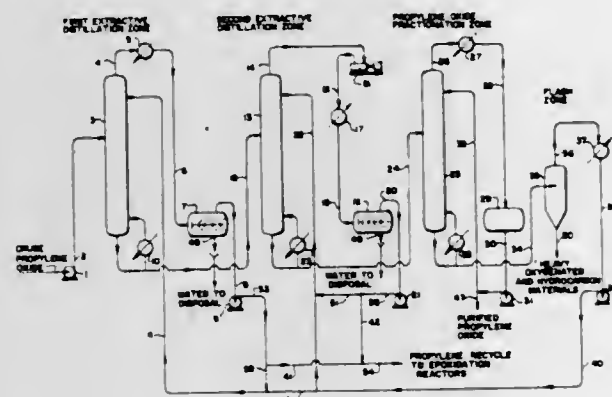
Int. Cl. B01d 3/34; C07d 1/04

U.S. Cl. 203-56

10 Claims

Propylene oxide and propylene are separately recovered from a crude propylene oxide, produced by catalytic epox-

idation of propylene with an organic hydroperoxide, and containing propylene oxide in admixture with propylene, water, and a hydrocarbon, an alcohol and/or a ketone corresponding to said organic hydroperoxide, by subjecting the crude propylene oxide to a two stage extractive distillation in the presence of a solvent mixture obtained from within the recovery system. In the first extractive distillation stage a portion only of the water and propylene is taken overhead under controlled conditions resulting in the willful retention of a substantial amount of propylene in the liquid bottoms. In



the second stage, bottoms from the first extractive distillation are extractively distilled, at a lower pressure, to recover the remaining propylene and water overhead. Liquid bottoms from the second extractive distillation stage are passed into a fractionating zone wherein substantially pure propylene oxide is separated overhead and a fraction comprising said hydrocarbon, alcohol and/or ketone corresponding to said organic hydroperoxide is separated and a portion thereof recycled to said extractive distillation stages to be used therein as said solvent mixture obtained within the system.

3,632,483

ELECTRODE SENSITIVE TO CHOLINE AND ITS ESTERS AND METHODS USING SAID ELECTRODE
George Baum, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed June 15, 1970, Ser. No. 46,315

Int. Cl. G01n 27/00, 27/30

U.S. Cl. 204-1 T

15 Claims

An electrode for measuring the concentration of cations of choline and its esters in an aqueous solution wherein the sensing portion is a liquid organic phase containing a substituted tetraphenylborate dissolved in a suitable organic solvent.

3,632,484

ELECTROLYTIC FACSIMILE-RECORDING PROCESS
Robert Doughty Richards, 56 Lincoln Ave., Florham Park, N.J.

Filed Jan. 27, 1970, Ser. No. 6,326

Int. Cl. B21h 1/20

U.S. Cl. 204-2

13 Claims

Process of electrolytic facsimile-recording employing a silver or silver-alloy anode and a recording medium comprising paper impregnated with an aqueous solution of a formaldehyde reducing agent, wherein the impregnant includes a substance which will render soluble silver salts normally present during electrolytic facsimile recording in an insoluble form. The solubilizing substance may be an alkali metal salt of thiosulfate, thiocyanate or cyanide or an excess quantity of sodium formaldehyde sulfoxylate.

3,632,485

METHOD OF MAKING AN ELECTRON DISCHARGE DEVICE GRID HAVING ENHANCED THERMAL CONDUCTIVITY AND REDUCED SECONDARY EMISSION CHARACTERISTICS

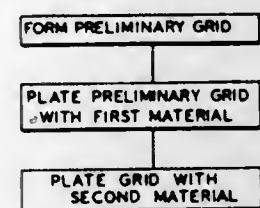
Donald R. Kerstetter, Emporium, Pa., assignor to Sylvania Electric Products, Inc.

Filed Apr. 23, 1970, Ser. No. 31,139

Int. Cl. C23b 7/00, 5/48

U.S. Cl. 204-16

6 Claims



Thermal conductivity is increased and secondary emission reduced by plating a preliminarily formed grid with copper and then overplating with gold or silver.

3,632,486

METHOD AND ARRANGEMENT FOR CONTINUOUS ETCHING AND ANODIZING OF ALUMINUM

Helmuth F. Herrmann, Cologne-Braunsfeld, and Rolando M. Dizon, Cologne, both of Germany, assignors to Metalloxyd Gesellschaft mit beschränkter Haftung, Cologne-Braunsfeld, Germany

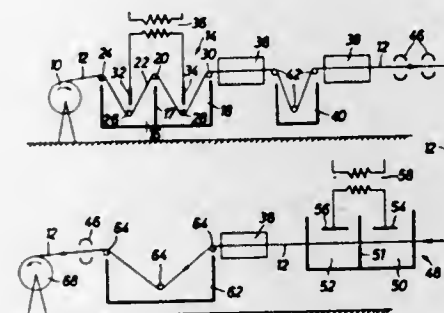
Filed Sept. 26, 1968, Ser. No. 762,806

Claims priority, application Germany, Oct. 17, 1967, P 16 21 115.7

Int. Cl. C23b 1/00, 3/00, 5/68; B01r 3/00

U.S. Cl. 204-33

15 Claims



Elongated aluminum bodies such as aluminum sheets, foils and the like, the term aluminum denoting not only pure aluminum but also aluminum alloys which lend themselves to electrolytic etching and anodizing, are continuously passed through two electrolytic cells to be etched in the first and anodized in the second cell, at least one of the two cells comprises two adjacent compartments each equipped with a stationary electrode and containing electrolyte. The other cell may be similarly constructed or may be a single compartment electrolytic cell including electrolyte and a stationary electrode wherein the elongated aluminum body passing therethrough forms the electrode of opposite polarity. Alternating current is applied to the double-compartment cell and, if one of the electrolytic cells is of the single-compartment type, directed current is applied thereto. The elongated aluminum body forms during its passage through the double-compartment cell a bipolar conductor having portions within the respective compartments of this cell. It is possible in this manner, i.e. by utilizing two cells at least one of which being a two-compartment cell, to carry out etching and anodizing in a single continuous pass of the elongated aluminum body.

3,632,487

METHOD OF PREPARING TINPLATE

Lewis Judson Brown, North Wales; Joseph Edmund Lippy, Jr., Norristown, both of Pa., and Herbert James Payne, Whiting, N.J., assignors to Penwalt Corporation, Philadelphia, Pa.

Filed Sept. 30, 1969, Ser. No. 862,460

Int. Cl. C23b 3/00, 5/52

U.S. Cl. 204-34

4 Claims

Electrolytically coated tinplate having defect-free surfaces is prepared by subjecting steel to hot-rolling pickling, cold-rolling to form strip, cleaning, rinsing in an aqueous medium containing a substance in minor concentration that remains on the steel strip and is capable of reacting with carbonaceous material during the batch annealing cycle, winding the strip into a tight coil, batch annealing, temper rolling, cleaning, pickling, and coating with tin by electrolytic means.

3,632,488

REDUCTION CELL CONTROL SYSTEM

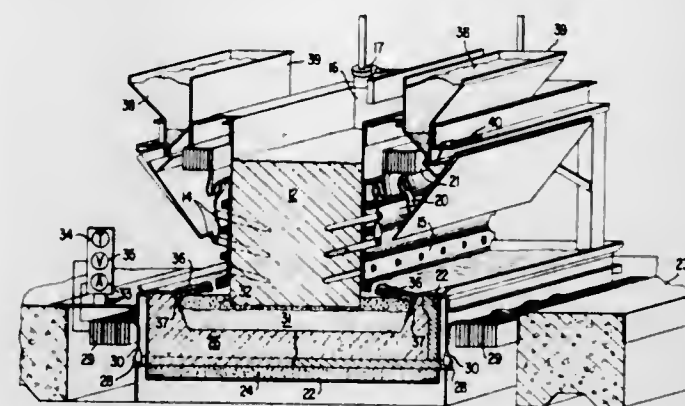
Harvey David Decker and James Edward McGraw, Corpus Christi, and Richard R. Barbour, Richardson, Tex., assignors to Reynolds Metals Company, Richmond, Va.

Filed Jan. 23, 1969, Ser. No. 793,280

Int. Cl. C22d 3/12; B01k 3/00

U.S. Cl. 204-67

25 Claims



A method of controlling an aluminum reduction cell is disclosed, in which the heat flow coefficient for the bath is determined and used with a desired bath temperature to calculate the bath's heat loss energy. Calculations are also made of the cell's power requirements for purposes other than heating the bath such as the energy required to reduce the cell's alumina. The sum of the bath heat loss and other energy requirements is divided by the cell's base amperage to determine a set voltage and the cell's anode is adjusted to keep the cell voltage within predetermined limits of the set voltage.

3,632,489

ELECTROCHEMICAL INTRODUCTION OF NITROGEN AND OXYGEN FUNCTIONS INTO OLEFINIC COMPOUNDS

Norman Louis Weinberg, 104 Rolling Wood Drive, Stamford, Conn. 06905, and Arthur Kentaro Hoffmann, 50 Summit Ridge Road, New Canaan, Conn. 06840

No Drawing. Filed Apr. 24, 1969, Ser. No. 819,117

Int. Cl. C07b 29/06, 9/00

U.S. Cl. 204-72

13 Claims

Method for producing vinyl and 1,2-addition products of olefinically unsaturated organic compounds by a reaction with a catalytic amount of a halogen in the presence of a nucleophilic agent, and regeneration of the halogen catalyst electrochemically.

3,632,490

METHOD OF ELECTROLYTIC DESCALING AND PICKLING

Loren C. Covington, Henderson, Nev., assignor to Titanium Metals Corporation of America, West Caldwell, N.J.

No Drawing. Filed Nov. 12, 1968, Ser. No. 775,120

Int. Cl. C23b 1/00

U.S. Cl. 204-141

7 Claims

Method of descaling and pickling titanium and titanium base alloy articles by immersing the article in a first electrolyte consisting of an aqueous solution of acid from the group consisting of phosphoric acid and sulphuric acid while passing electric current through electrodes immersed in the electrolyte as anodes and through the article as a cathode followed by immersing the article in a second electrolyte consisting essentially of a solution of 0.125 to 1 mole per liter of a compound selected from the group consisting of sulphuric acid, sodium sulphate, potassium sulphate and ammonium sulphate, up to 0.33 mole per liter of a soluble dichromate, and 0.5 to 1.5 moles per liter of hydrofluoric acid with the balance substantially water while passing electric current through electrodes immersed in the electrolyte as cathodes and through the article as an anode.

3,632,491

BIS-TRIAZINYLAMINOSTILBENE COMPOUNDS

Hyman William Zussman, Scarsdale, N.Y., and Heinrich Hausermann, Riehen, near Basel, Switzerland, assignors to Celgey Chemical Corporation, Greenburgh, N.Y.

No Drawing. Application Nov. 12, 1965, Ser. No. 507,583, now Patent No. 3,459,743, dated Aug. 5, 1969, which is a continuation-in-part of application Ser. No. 412,845, Nov. 20, 1964. Divided and this application Aug. 21, 1968, Ser. No. 777,521

Claims priority, application Switzerland, Nov. 24, 1964, 14,991/64

Int. Cl. C11d 3/28, 3/42

U.S. Cl. 252-524

1 Claim

Certain 4,4' - bis[4''-(2,6-dimethylmorpholino)-1'',3'',5''-triazinyl-(2'')-amino]-stilbene-2,2' - disulfonic acids are useful for the optical brightening of washing agents such as anionic and nonionic detergents and cellulose material as well as polyamide materials such as nylon. Representative compounds are 4,4'-bis[4''-(2,6-dimethylmorpholino)-6''-phenylamino - 1'',3'',5'' - triazinyl-(2'')-amino]-stilbene-2,2'-disulphonic acid and 4,4'-bis[4''-(2,6 - dimethylmorpholino)-6''-ethoxy-1'',3'',5''-triazinyl-(2'')-amino]-stilbene-2,2'-disulphonic acid.

3,632,492

PROCESS FOR THE MANUFACTURE OF 3-FORMYLRIFAMYCIN-SV

Hans Bickel, Binningen, and Wilhelm Kump, Therwil, Switzerland, assignors to Ciba Geigy Corporation, New York, N.Y.

No Drawing. Original application May 21, 1968, Ser. No. 730,911, now Patent No. 3,524,845, dated Aug. 18, 1970. Divided and this application May 4, 1970, Ser. No. 34,536

Claims priority, application Switzerland, May 29, 1967, 7,533/67

Int. Cl. B01j 1/10

U.S. Cl. 204-158 R

14 Claims

A new process for preparing 3-formylrifamycin-SV in high yield and smooth reaction is based on a finding that when rifamycin S derivatives having in 3-position a free or a substituted aminomethyl group are irradiated with ultraviolet light in a suitable solvent, tautomeric compounds are formed which readily hydrolyse to give 3-formylrifamycin. The said 3-aminomethyl-rifamycin S derivatives used as starting materials are obtained in pure form by a special process. These products were hitherto available only in form of their manganese salts; they have antibacterial activity and are useful as medicaments.

3,632,493

POLYMERIC PHENONE PHOTOSENSITIZERS AND BLENDS THEREOF WITH OTHER POLYMERS
Fulton Floyd Rogers, Jr., Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 23, 1969, Ser. No. 835,738
Int. Cl. B01j 1/10; C08f 29/12

U.S. Cl. 204—159.14

5 Claims

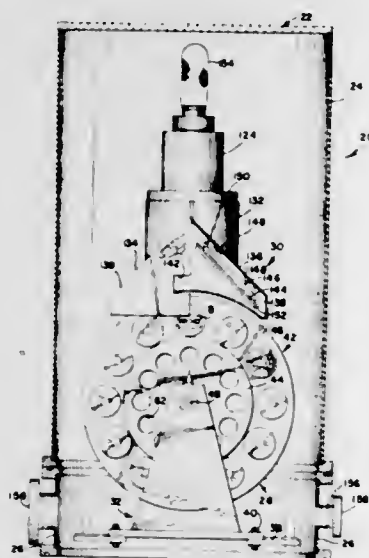
This invention relates to improved polymeric photosensitizers for crosslinking polymers, which photosensitizers include polymeric acryloxyalkoxy and methacryloxyalkoxy substituted phenones.

3,632,494

COATING METHOD AND APPARATUS
Lawrence F. Herte, Palo Alto, and Frank F. Kloss, San Francisco, Calif., George C. Lane, Milford, Conn., and James R. Skinner, Cupertino, Calif., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Nov. 6, 1967, Ser. No. 680,926
Int. Cl. C23c 15/00

U.S. Cl. 204—192

13 Claims



There is disclosed a method and an apparatus for applying a coating material, such as chromium to a substrate, such as a razor blade. The method preferably utilizes a drum unit having a plurality of driven hub assemblies, each of which supports carrier means for carrying a large number of razor blades and in which the hubs are driven, for example, by an epicyclic gear or chain mechanism, so as to expose desired portions of the blades, in a desired timed relation, to the coating material which caused to emanate from a fixed source. The source comprises a so-called sputtering module including a housing having, at the top part thereof, a pair of angled target plates from which the coating material is taken, and the bottom thereof, an opening past which the carriers are moved by the drum.

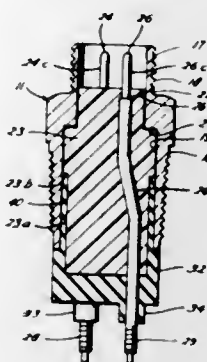
The coating material is removed from the target plates and deposited on the blades by a so-called "RF Sputtering" process. In this process, with the apparatus and materials in a very high vacuum, a high radio frequency (R.F.) is impressed across two electrode plates, each of which is disposed immediately behind the target plates. Thereafter, a normally inert gas such as argon is introduced into the area between the plates and ionized by bombardment with high velocity electrons. The resulting positive ions in the glow discharge are then accelerated and strike the target plates ejecting or "sputtering" substantially electrically neutral particles of coating material therefrom, which are then deposited on the exposed surfaces of the substrate and firmly adhere thereon to form a coating of extreme smoothness and adhesion.

3,632,495

CORROSION TEST PROBE ASSEMBLY
Frederick D. Watson and Weldon D. Mayse, Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.
Filed June 2, 1969, Ser. No. 829,614
Int. Cl. B01k 3/02

U.S. Cl. 204—195 C

8 Claims



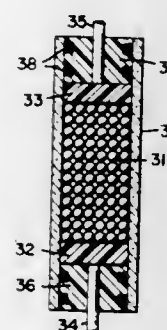
A corrosion test probe assembly formed of a base and metallic electrodes. The base includes a tubular metallic body with one end of polygonal configuration and the other end with a threaded exterior surface. A rigid insulator member resides in a passageway in engagement with an abutting shoulder in the body. Electrical conductors are integrally carried in the member and extend from one end into a sleeve on the body to form an external circuit connector and from the other end to receive by threaded interconnection metallic electrodes which can be immersed within a corrodant. A resilient elastomer molded onto the body and the member provides; a fluid-tight seal, enclosure of the exposed end of the member adjacent the metallic electrodes and cylindrical raised parts forming axial sealing surfaces encircling the conductors. Insulating fluid seals about the conductors are engaged axially in fluid-tightness between the raised sealing surfaces of the elastomer and the electrodes.

3,632,496

REAGENT GENERATOR
James A. Patterson, Los Altos, Raymond C. McMurray, Menlo Park, and Carol J. Schwarzott, San Jose, Calif., assignors to Sondell Research & Development Co., Palo Alto, Calif.
Filed Oct. 4, 1968, Ser. No. 765,226
Int. Cl. B01k 3/04; C22d 1/02

U.S. Cl. 204—249

10 Claims



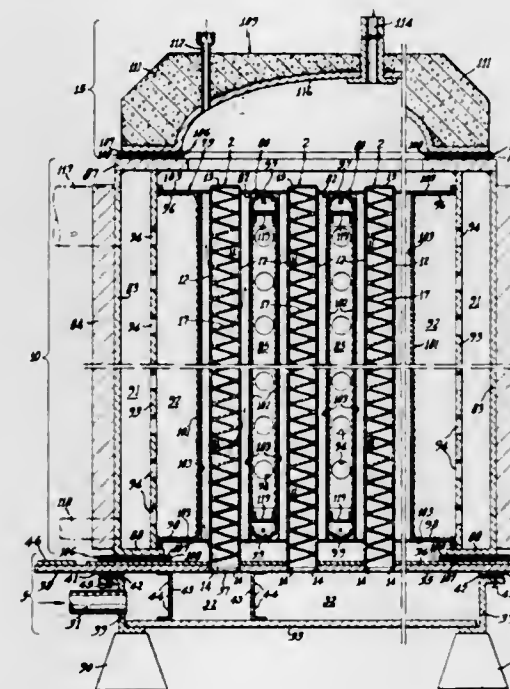
A reagent reactor is disclosed formed from an elongated housing having a channel therethrough including an inlet at one end for receiving a reagent and an outlet at the other end for discharging activated reagent. The channel is defined by surfaces of metallic material catalytically active for reducing ninhydrin to form activated reagent.

3,632,497

ELECTROCHEMICAL CELL
Joseph Adrien M. LeDuc, Short Hills, N.J., assignor to Pullman Incorporated, Chicago, Ill.
Division of application Ser. No. 559,271, June 21, 1966, now Patent No. 3,379,627, which is a continuation-in-part of applications Ser. No. 224,991, Sept. 20, 1962, now Patent No. 3,288,692, and Ser. No. 299,519, Aug. 2, 1963, now Patent No. 3,342,717. Divided and this application Nov. 22, 1967, Ser. No. 707,900
Int. Cl. B01k 3/04, 3/06; C23b 5/74

U.S. Cl. 204—263

7 Claims



An electrochemical cell having an outer cell casing and an inner cell chamber for containing aqueous electrolyte and within which there is at least one anodic electrode opposed by at least one cathodic electrode, said cell being further provided with inlet means for supplying an aqueous electrolyte medium to said inner cell chamber between the opposing anodic and cathodic electrodes, an anode assembly comprising in combination current distributing means disposed below said inner cell chamber and having thereon a layer of titanium into the inner cell chamber in opposing relationship to said cathodic electrode, said anodic electrode member comprising a reactive anodic surface in the form of a vertical blade formed of titanium and having an outer coating of platinum at least on that portion which opposes the cathodic electrode.

3,632,498

ELECTRODE AND COATING THEREFOR
Henri Bernard Beer, Deurne, Antwerp, Belgium, assignor to Chemnor Aktiengesellschaft, Vaduz, Liechtenstein
Filed Feb. 2, 1968, Ser. No. 702,695
Claims priority, application Great Britain, Feb. 10, 1967, 6,490/67

U.S. Cl. 204—290 F

15 Claims

An electrode for use in an electrolytic process having a conductive base of a material which at least on the outside is resistant to the electrolyte and the products of the electrolysis thereof, and a coating on the base which consists essentially of at least one oxide of a film-forming metal and a non-film-forming conductor, the two being in a mixed crystal form and covering at least 2% of the active surface of the base, and methods of making the electrode. The resulting electrode is especially useful in the electrolytic production of chlorine and alkali in mercury cells, and diaphragm cells, electrolytic production of

chlorates, hypochlorites, persulphates, and perborates, oxidation of organic compounds, fuel cells, desalination and purification of water, galvanic processes, and as an anode in cathodic protection systems, the electrode having a long life, a low overvoltage and catalytic properties.

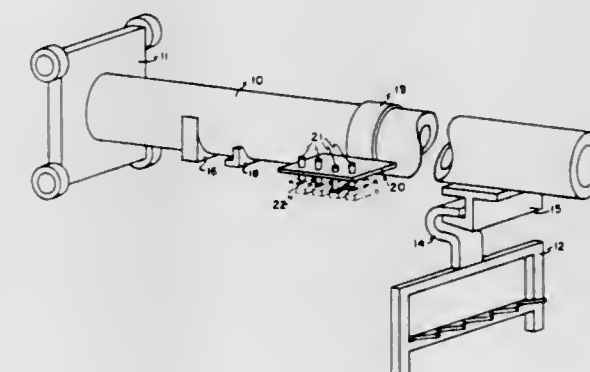
3,632,499

APPARATUS FOR VARYING ELECTROPLATING CURRENT

Hyman Chessin, Birmingham, Mich., assignor to M & T Chemicals Inc., New York, N.Y.
Filed Jan. 2, 1969, Ser. No. 788,367
Int. Cl. C23b 5/70

U.S. Cl. 204—297 R

5 Claims



In accordance with certain of its aspects, the apparatus of this invention provides for the electrodeposition of metals onto basis materials, with the basis materials, because of diversity in size and shape, exhibiting differing electrical current characteristics requiring various optimum currents, and having a supporting frame, at least one arm mounted on the supporting frame and extending laterally therefrom and a work-supporting rack mounted on the arm and extending downwardly therefrom into a treating vessel. A workpiece of particular size and shape is mounted on the work-supporting rack; a calibrated mechanical variator may be mounted on either the lateral arm or the work-supporting rack and is pre-set in accordance with the desired treating current for the particular workpiece being processed. An electrical signaler is established bias to said variator and includes a variable resistance the value of which is determined by the setting of the variator noted above. A variable current source is provided the output of which is determined by the value of the resistance of the electrical signaler. In addition, flow communication means conveys the desired treating current from the current source to the workpiece being processed so that the current passing through the work-supporting rack and the workpiece yields plating current density over the surface of the said workpiece.

3,632,500

HYDROCRACKING CATALYST COMPRISING A LAYERED CLAY-TYPE ALUMINOSILICATE COMPONENT, A GROUP VIII COMPONENT AND IRON, AND PROCESS USING SAID CATALYST

Sigmund M. Csicsery, Lafayette, and James R. Kittrell, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed July 18, 1969, Ser. No. 843,074

The portion of the term of the patent subsequent to Oct. 20, 1987, has been disclaimed

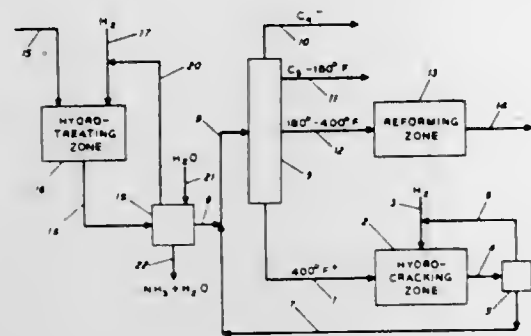
Int. Cl. C10g 11/02

U.S. Cl. 208—60

21 Claims

A hydrocracking catalyst comprising a layered clay-type crystalline aluminosilicate cracking component, 0.01 to 2.0 weight percent, based on said cracking component and

calculated as the metal, of a hydrogenating component selected from platinum and compounds thereof, palladium and compounds thereof, rhodium and compounds thereof, ruthenium and compounds thereof, iridium and



compounds thereof, and nickel and compounds thereof, and 0.01 to 5.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from the group consisting of iron and compounds thereof, and processes using said catalyst.

3,632,501

HYDROCRACKING CATALYST COMPRISING A LAYERED CLAY-TYPE CRYSTALLINE ALUMINOSILICATE COMPONENT, A GROUP VIII COMPONENT AND ZINC, AND PROCESS USING SAID CATALYST

James R. Kittrell, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

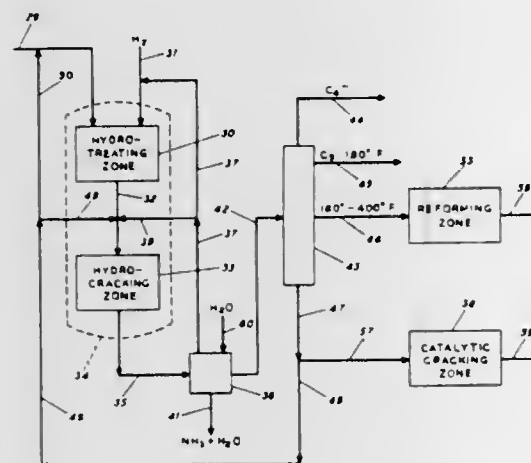
Filed Aug. 5, 1969, Ser. No. 847,541

The portion of the term of the patent subsequent to Oct. 20, 1987, has been disclaimed

Int. Cl. C10g 11/02

U.S. Cl. 208—60

21 Claims



A hydrocracking catalyst comprising a layered clay-type crystalline aluminosilicate cracking component, 0.01 to 2.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from platinum and compounds thereof, palladium and compounds thereof, rhodium and compounds thereof, ruthenium and compounds thereof, iridium and compounds thereof, and nickel and compounds thereof, and 0.01 to 5.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from the group consisting of zinc and compounds thereof, and processes using said catalyst.

3,632,502 HYDROCRACKING CATALYST COMPRISING A LAYERED CLAY-TYPE CRYSTALLINE ALUMINOSILICATE COMPONENT, A GROUP VIII COMPONENT AND A RARE EARTH COMPONENT, AND PROCESS USING SAID CATALYST

James R. Kittrell, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

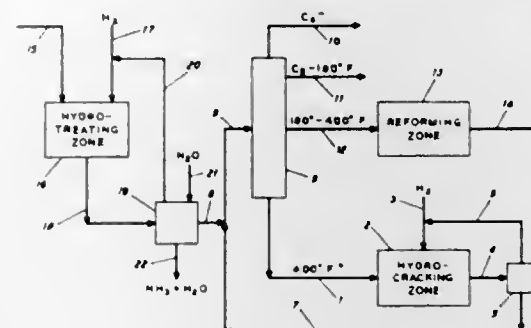
Filed Aug. 6, 1969, Ser. No. 847,932

The portion of the term of the patent subsequent to Oct. 20, 1987, has been disclaimed

Int. Cl. C10g 11/02

U.S. Cl. 208—60

21 Claims



A hydrocracking catalyst comprising a layered clay-type crystalline aluminosilicate cracking component, 0.01 to 2.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from platinum and compounds thereof, palladium and compounds thereof, rhodium and compounds thereof, ruthenium and compounds thereof, iridium and compounds thereof, and nickel and compounds thereof, 0.01 to 5.0 weight percent, based on said cracking component and calculated as the metal, of a component selected from the group consisting of rare earth metals and compounds thereof, and 0.0 to 2.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from manganese and compounds thereof and iron and compounds thereof, and processes using said catalyst.

3,632,503

CATALYTIC COMPOSITE OF PLATINUM, TIN AND GERMANIUM WITH CARRIER MATERIAL AND REFORMING THEREWITH

John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 10, 1969, Ser. No. 856,810

Int. Cl. C10g 35/08; B01j 11/08

U.S. Cl. 208—139

19 Claims

A catalytic composite comprising a combination of catalytically effective amounts of a platinum group component, a tin component and a germanium component with a porous carrier material is disclosed. The principal utility of this composite is in the conversion of hydrocarbons, particularly in the reforming of a gasoline fraction. A specific example of the disclosed catalytic composite is a combination of catalytically effective amounts of a platinum component, a tin component, a germanium component and a halogen component with an alumina carrier material.

3,632,504

GAS TREATING PROCESS

Clem A. Barrere, Jr., Houston, Tex., and Danny D. Caudle, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Sept. 8, 1969, Ser. No. 855,875

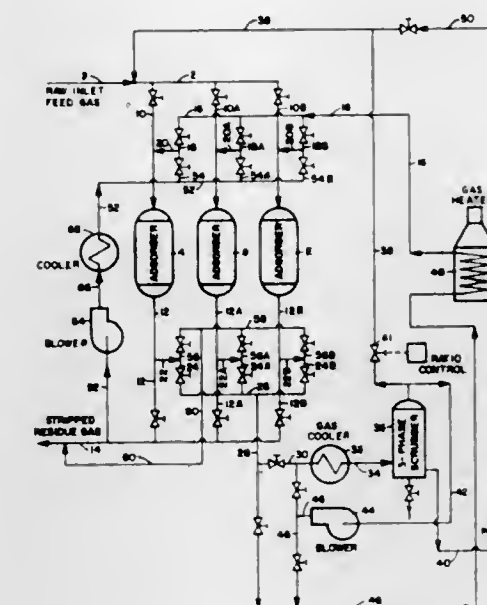
Int. Cl. C10g 25/00, 5/02

U.S. Cl. 208—310

6 Claims

Discloses a gas treating process utilizing two or three adsorber beds in which the inlet feed gas is enriched by

adding a stream of gas rich in the component it is desired to extract in the adsorber bed. Enrichment of the inlet feed gas in desired components increases the recovery of



those components in the product obtained when the adsorber bed is regenerated. One source of enrichment is the gas from a bed in a closed heating and regenerating circuit.

3,632,505

EVAPORATION-REVERSE OSMOSIS WATER DESALINATION SYSTEM

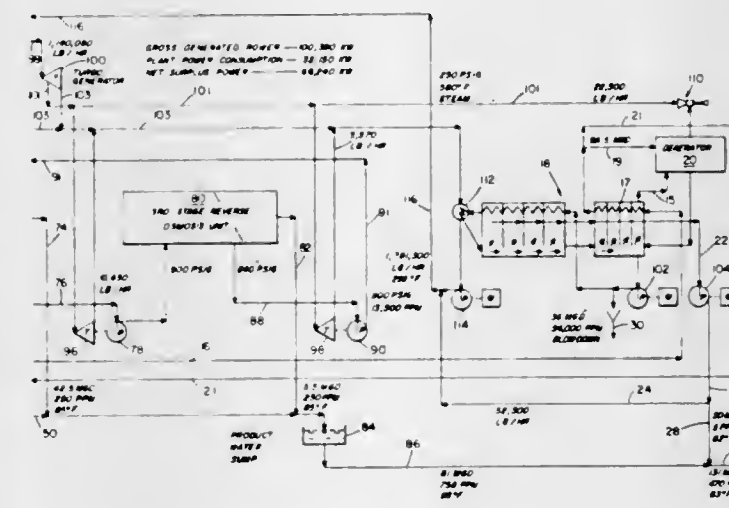
Hazen E. Nelson, West Acton, Mass., assignor to Stone & Webster Engineering Corporation, Boston, Mass.

Filed Sept. 17, 1969, Ser. No. 858,594

Int. Cl. B01d 3/06

U.S. Cl. 203—11

7 Claims



Desalination of saline water by evaporation of a portion of the water and passage of the remainder through a reverse osmosis unit after preheating in the evaporator's heat reject section, the product streams from the evaporator and reverse osmosis unit being combined. The pressure of the feed stream to the reverse osmosis unit is controlled by the pressure of the waste brine stream removed from the unit, and the volume of the feed stream to the unit is controlled by the volume of product stream from the unit to provide a combined product stream of constant salinity.

3,632,506

METHOD OF OPERATING AND REGENERATING ION EXCHANGE APPARATUS

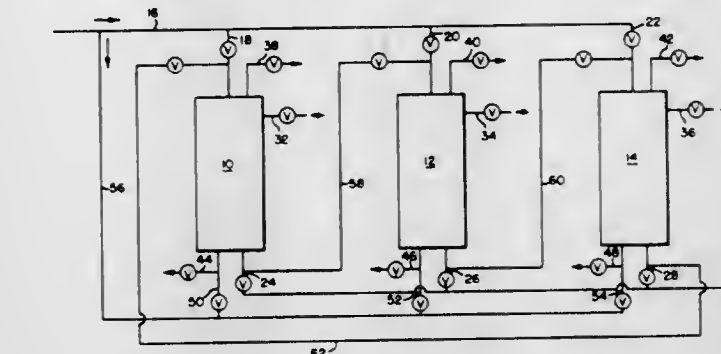
Ralph C. Adams, Midland Park, and John R. Anderson, Cranbury, N.J., assignors to Sybron Corporation, Rochester, N.Y.

Filed July 17, 1969, Ser. No. 842,449

Int. Cl. B01d 15/06

U.S. Cl. 210—34

2 Claims



A method of operating ion exchange apparatus in which three or more beds of ion exchange material are used in fixed bed operation so that at least one bed is in service at all times while the other beds are in various stages of regeneration. Fluid to service is continuous in that before the resin capacity of one bed is exhausted, the fluid being treated is directed to a freshly regenerated bed and then to service. During the regeneration stage, the partly spent regenerant and subsequent rinse from one regenerating bed is directed to an exhausted bed to utilize as completely as possible any excess regenerant in the spent regenerant and rinse fluid.

3,632,507

FLOCCULATION OF PARTICLES DISPERSED IN AQUEOUS MEDIA AND FLOCCULANTS USED THEREIN

Edward Witt, Dover, Del., assignor to Standard Brands Chemical Industries, Inc., Dover, Del.

No Drawing. Continuation-in-part of application Ser. No. 763,977, Sept. 30, 1968. This application June 30, 1970, Ser. No. 51,343

Int. Cl. C02b 1/20; C08d 3/06

U.S. Cl. 210—54

17 Claims

A process for treating a liquid dispersion of particles dispersed in an aqueous medium, e.g., waste waters, anionic polymeric latices and petroleum emulsions, to flocculate the particles, which comprises admixing the liquid dispersion with a cationic N-containing polymeric polyelectrolyte in sufficient amounts to flocculate the particles. The polymeric polyelectrolyte comprises a water soluble, polyquaternary ammonium salt containing quaternary nitrogen atoms within a polymeric backbone, e.g., the reaction product of N,N,N',N'-tetramethyl-2-hydroxy-1,3-propane diamine and beta, beta' dichlorodiethyl ether. The polymeric products obtained by this process exhibit improved physical properties, e.g., light, often white, color and greater Mooney Scorch stability as compared to polymers coagulated with other coagulants.

3,632,508

METHOD AND APPARATUS FOR DESILTING AND/OR DESALTING BODIES OF WATER

Barney Girden, 32 W. 76th St., New York, N.Y. 10023

Filed Jan. 21, 1970, Ser. No. 4,667

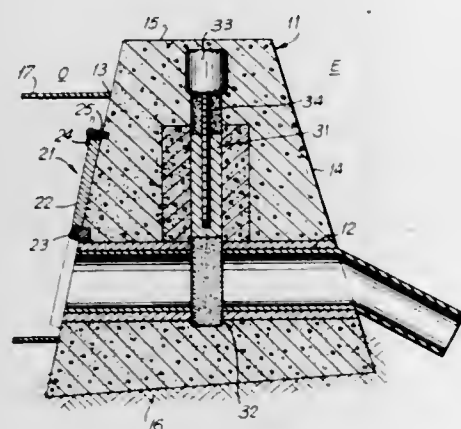
Int. Cl. B01d 21/00

U.S. Cl. 210—65

5 Claims

One or more dam-like structures are used to isolate an estuary or lagoon from the ocean in order to be able to control the flow of water between the ocean and the

estuary during changes in tide. The dam-like structure is provided with gates and valves for controlling one or more passages therethrough in order to control the flow of water between the ocean and the estuary in such pre-



determined manner so as to selectively de-silt the estuary, or de-salt the estuary by permitting the water in the estuary to be replaced by fresh water from the rivers feeding the estuary.

3,632,509

ELECTRIC CONTACT GREASE

Akira Inami, Hirakata-shi, Osaka-fu, Sankichi Shida, Nara-shi, and Mikio Haga, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

No Drawing. Filed Jan. 9, 1970, Ser. No. 1,893
Claims priority, application Japan, June 11, 1969,
44/47,059

Int. Cl. C10m 5/16, 5/18

U.S. Cl. 252—33.3

4 Claims

An improved contact grease is provided. The grease consists essentially of

- (a) a major amount of paraffinic mineral oil;
- (b) 10 to 20 percent by weight of, as a thickening agent, a mixture of metallic soaps, said mixture of metallic soaps consists essentially of
 - (i) 40 to 65 percent by weight of barium soap;
 - (ii) 25 to 40 percent by weight of lithium soap and
 - (iii) 10 to 20 percent by weight of aluminum soap; and
- (c) 7 to 15 percent by weight of at least one member selected from the group consisting of trichlorodiphenyl, tetrachlorodiphenyl, pentachlorodiphenyl, hexachlorodiphenyl, polychlorotriphenyl, pentachlorodiphenyl oxide, pentachlorophenyl benzoate, hexachlorodiphenyl methane, and pentachlorodiphenyl ketone.

3,632,510

MIXED ESTER-METAL SALTS AND LUBRICANTS AND FUELS CONTAINING THE SAME

William Monroe LeSuer, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Continuation-in-part of application Ser. No. 567,052, July 22, 1966, now Patent No. 3,522,179, which is a continuation-in-part of application Ser. No. 274,905, Apr. 23, 1963. This application Feb. 13, 1970, Ser. No. 11,335

Int. Cl. C101 1/18; C10m 1/26, 1/54

U.S. Cl. 252—35

26 Claims

Lubricating and fuel compositions comprising a major amount of a lubricating oil and a minor proportion of an ester derivative of a hydrocarbon-substituted succinic acid

wherein the hydrocarbon substituent contains at least about fifty aliphatic carbon atoms, the substituent being further characterized by having no more than about 5% olefinic linkages therein based on the total number of carbon-to-carbon covalent linkages in the substituent. The esters include the acidic esters, diesters, mixed ester-metal salts, and mixtures of these wherein the ester moiety is derived from monohydric and polyhydric alcohols, phenols, naphthols, and the like.

3,632,511

ACYLATED NITROGEN-CONTAINING COMPOSITIONS, PROCESSES FOR THEIR PREPARATION, AND LUBRICANTS AND FUELS CONTAINING THE SAME

Chien-Wei Liao, Beachwood, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Filed Nov. 10, 1969, Ser. No. 875,486
Int. Cl. C10m 1/20, 1/32; C101 1/22

U.S. Cl. 252—51.5 A

20 Claims

Polycarboxylic acid acylating agents are reacted with alkylene polyamines and the resulting reaction product is then contacted with specified polyhydric alcohols. The final products are useful as additives for lubricants and fuels.

3,632,512

METHOD OF PREPARING MAGNETICALLY RESPONSIVE CARRIER PARTICLES

Howard A. Miller, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 17, 1969, Ser. No. 799,966
Int. Cl. G03g 9/02

U.S. Cl. 252—62.1

2 Claims

Ferromagnetic carrier particles having uniform surface and triboelectric properties can be prepared by treatment of commercial iron powders in an aqueous acid solution, followed by removal of acid, rinsing and controlled drying to induce or exclude oxidation. The resultant particles can subsequently be overcoated with a thin, uniform, continuous film of a nonferrous material such as a metal or a resinous material. These carrier particles are useful for applying electroscopic toner material to electrostatic latent images.

3,632,513

CHEMICAL LAPPING OF YTTRIUM ALUMINUM

Frederick S. Kaveggia, South Laguna, Calif., assignor to North American Rockwell Corporation

No Drawing. Filed May 23, 1969, Ser. No. 828,110
Int. Cl. B44c 1/22; C09k 3/00

U.S. Cl. 252—79.4

6 Claims

The solution used to chemically lap a yttrium aluminum garnet crystal to produce a damage free optically flat surface comprises a reducing organic acid, a dicarboxylic acid capable of forming a complex with yttrium, and an acid capable of forming an aluminum salt.

3,632,514

SAWDUST MATERIAL WITH QUATERNARY AMMONIUM HALIDE ODOR-RETARDANT

Clarence J. Blocher, Wheaton, Ill., assignor to Frank Miller & Sons, Inc., Chicago, Ill.

No Drawing. Filed Apr. 10, 1969, Ser. No. 815,227
Int. Cl. C09k 3/22

U.S. Cl. 252—88

10 Claims

Sawdust materials having odor-retardant properties characterized in that the particles of sawdust carry a small, but effective, amount of a quaternary ammonium compound, or a mixture of such compounds.

3,632,515

HIGH TEMPERATURE BLEACHING OF ALIPHATIC SULFONATES

Samuel H. Sharman, Kensington, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed July 1, 1968, Ser. No. 741,657

Int. Cl. C11d 7/54

U.S. Cl. 252—95

9 Claims

Aliphatic sulfonate detergents can be effectively bleached by hypochlorite at elevated temperatures provided that the reaction is quenched.

3,632,516

SELF-HEATING LATHER

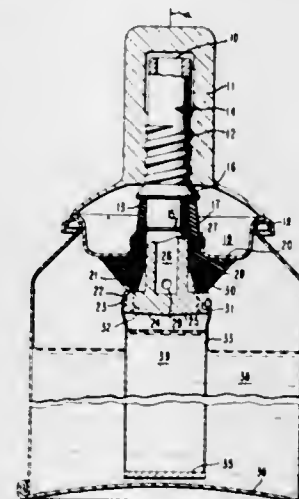
Joseph A. Antonelli, Riverton, N.J., and Herbert Boden, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 25, 1968, Ser. No. 762,531

Int. Cl. C11d 9/42; D06r 3/00

U.S. Cl. 252—96

4 Claims



A package for preparing and dispensing heated foam, which comprises a container having an outlet and a valve adapted to control the dispensing of foam from the outlet and having separately contained therein (a) hydrogen peroxide oxidant and (b) a reductant composition comprising a soap solution containing:

- (1) potassium thiosulfate and a catalytic amount of sodium tungstate, or
- (2) a mixture of potassium thiosulfate and potassium sulfite and a catalytic amount of sodium tungstate;

components (a) and (b) being present in amounts which when co-dispensed produce a heat generating redox reaction which imparts a warming effect upon the dispensed foam; said container having a volatile organic propellant therein in an amount sufficient to dispense said lather under pressure.

3,632,517

SYNERGISTIC TALLOW-BASED DETERGENT COMPOSITIONS

Alexander J. Stirton, 1519 E. Mount Pleasant Ave., Philadelphia, Pa. 19150, and Raymond G. Bistline, Jr., Philadelphia, Pa.; said Bistline assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Continuation of application Ser. No. 617,496, Feb. 21, 1967. This application Aug. 21, 1970, Ser. No. 66,075

Int. Cl. C11d 1/28, 1/37, 3/065

U.S. Cl. 252—109

9 Claims

Combinations of saturated or unsaturated tallow alcohol sulfates with the alkyl esters of α -sulfonated saturated tallow acids are better detergents than either of the components. This synergism persists in the presence of addi-

tional detergents, specifically disodium α -sulfotallowate and tallow soap. In addition the synergistic compositions are biodegradable.

3,632,518

STANNOUS SALT CORRECTIVE AGENT FOR DIAZOTYPE COPIES

Dieter Bohm, Niederwalluf, Rheingau, Germany, assignor to Keuffel & Esser Company, Hoboken, N.J.

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,889
Claims priority, application Germany, Dec. 27, 1967,
P 15 97 632.6

Int. Cl. G03c 11/12

U.S. Cl. 252—188

10 Claims

A corrective or eradicating agent for diazotype copy comprises a solution of a stannous salt reducing agent and a strong acid in an aqueous solvent mixture comprising an organic solvent at least partially miscible with water and a halogenated hydrocarbon solvent.

3,632,519

AQUEOUS SOLUTIONS OF ω -AMINOALKYL ALKYL SULFONES AS REGENERATIVE CO₂ ABSORBENTS

Paul R. Gustafson, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy

Filed Nov. 10, 1969, Ser. No. 875,001

Int. Cl. A611 9/08; B01d 47/02

U.S. Cl. 252—189

3 Claims

Aqueous solutions of ω -aminomethyl C₂-C₆ alkylsulfones are useful as absorber solutions for removing carbon dioxide in the purification of air in scrubber systems.

3,632,520

RADIOISOTOPE FUEL

Harold J. Garber, Pittsburgh, Pa., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Jan. 4, 1968, Ser. No. 695,782

Int. Cl. C09k 3/00

U.S. Cl. 252—301.1

2 Claims

A radioisotope fuel source whose gamma-ray emission is so low as to be harmless having reasonably constant power output over a long interval of about 50 years. The source includes at least a pair of isotopes such as Pu-238 and Pu-241. One isotope, Pu-238, has a decreasing thermal power output after the start of delivery of power and the other, Pu-241, has a low thermal power output at the start of delivery of power and an increasing thermal power output after the start of delivery of power; the increase in the second (Pu-241) compensating for the decrease of the first (Pu-238).

3,632,521

LUTETIUM NEODYMIUM DOPED YTTRIUM ALUMINUM GARNET

William W. Holloway, Jr., Sudbury, and Michael Kestigian, Stow, Mass., assignors to Sperry Rand Corporation

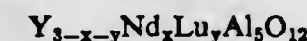
Filed Oct. 4, 1968, Ser. No. 765,222

Int. Cl. C09k 1/68; H01s 3/16

U.S. Cl. 252—301.4 R

3 Claims

A laser crystal material characterized by narrow band fluorescence and high efficiency at room temperatures. The material is described by the formula



wherein neodymium and lutetium are jointly substituted for yttrium in the garnet Y₃Al₅O₁₂, x being in the

range from about 0.015 to about 0.6 and y being in the range from about 0.006 to about 1.2. The neodymium and lutetium ions are larger and smaller, respectively, than the yttrium ion which they replace in the garnet lattice. The lutetium alleviates the size mismatch between the neodymium and yttrium ions to permit increased concentration of the neodymium active ion in the garnet without sacrifice of optical quality.

3,632,522

CALCIUM GALLATE COMPOSITION ACTIVATED BY MANGANESE AND METHOD OF PREPARATION

William A. McAllister, Convent Station, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 5, 1969, Ser. No. 855,490
Int. Cl. C09k 1/04, 1/68

U.S. Cl. 252—301.4 R 5 Claims

An improved luminescent composition of manganese activated calcium gallate, wherein up to about 25 atom percent of the gallium can be substituted for by aluminum. The composition is prepared by an improved method of preparation which comprises firing the raw mix constituents with at least one of the fluxes of the group consisting of cadmium bromide, cadmium chloride, sodium chloride, ammonium chloride, and aluminum sulfate. The prepared composition exhibits improved luminescent intensity, and maintenance of luminescent intensity.

3,632,523

CALCIUM-YTTRIUM SILICATE OXYAPATITE LASER MATERIALS

Richard H. Hopkins and George W. Roland, Monroeville, William D. Partlow, Blackridge, and Kenneth B. Steinbruegge, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 22, 1969, Ser. No. 859,672
Int. Cl. C09k 1/54

U.S. Cl. 252—301.4 F 7 Claims

A composition of matter which can be used as a laser crystal and which can be doped with sensitizer ions has the empirical chemical formula $\text{CaY}_{1-x}(\text{SiO}_4)_3\text{O}:\text{A}_x$ where A represents a lasing ion selected from Nd and Er and x has a value from .001 to 1.

3,632,524

ROSIN AMINE AND ACETYLENIC ALCOHOL CORROSION INHIBITING COMPOSITIONS

Thaddeus M. Muzyczko, Melrose Park, Samuel Shore, Roselle, and Jerome A. Martin, Chicago, Ill., assignors to The Richardson Company, Melrose Park, Ill.
No Drawing. Filed Mar. 21, 1968, Ser. No. 714,771
Int. Cl. C23f 11/04, 11/14

U.S. Cl. 252—392 7 Claims

Corrosion inhibiting compositions for use with aqueous systems and based on a combination of a rosin amine, ethoxylated rosin amine, octargyl alcohol, and propargyl alcohol. The compositions include both mixtures and reaction products thereof.

3,632,525

HYDROCARBON ISOMERIZATION CATALYST

Richard E. Rausch, Mundelein, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 807,910, Mar. 14, 1969. This application Apr. 25, 1969, Ser. No. 819,456

U.S. Cl. 252—442 4 Claims

Isomerizable hydrocarbons are isomerized using a catalytic composite comprising a combination of a platinum group component and a tin component with a porous carrier material. A catalytic composite comprising a plati-

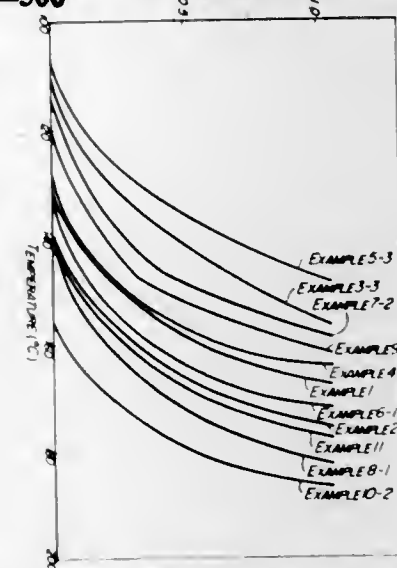
num group metallic component, a tin component and a Friedel-Crafts metal halide component combined with a refractory inorganic oxide is also disclosed.

3,632,526

HEAT-SENSITIVE HIGH MOLECULAR WEIGHT RESISTORS

Kazumasa Yamamoto, Toyonaka-shi, Hiroshi Moriga, Moriguchi-shi, Wataru Shimotsuna, Kitakawachi-gun, Osaka, and Toshio Shimizu, Daita-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed July 29, 1968, Ser. No. 748,381

Claims priority, application Japan, Aug. 3, 1967, 42/50,444, 42/50,445; June 24, 1968, 43/44,407
Int. Cl. H01b 1/00; C08d 9/08; C08f 3/60
U.S. Cl. 252—500 2 Claims



Heat-sensitive high molecular weight resistors (plastic thermistors) capable of providing electric conductivity due to charge transfer bonds which are comparable in moldability and flexibility to the plastics of general use and are electronic conductive. The resistors are best suitable as heat-sensitive resistors for controlling the temperatures of electric blankets, and are reduced in resistance value to $1/3-1/4$ per temperature variation of 10°C . Within the temperature range of -30° to $+120^\circ\text{C}$. They can withstand heat resistance test at 120°C . for 300 hours.

3,632,527

PHOTOCONDUCTIVE TITANIUM DIOXIDE COMPOSITION AND ITS METHOD OF PREPARATION

Marshall B. Alpert, Staten Island, N.Y., and John P. Preston, Bricktown, N.J., assignors to N L Industries, Inc., New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 664,105, Aug. 29, 1967. This application Jan. 8, 1970, Ser. No. 1,529

Int. Cl. H01c 7/06; H01b 1/08; C09r 3/00
U.S. Cl. 252—501 5 Claims



Euhedral titanium dioxide crystal composition in which the average individual crystal size is from 0.2 to 5.0 microns, said composition containing less than 0.1% P_2O_5 and containing less than 0.2% alkali metal oxide selected from the group consisting of Na_2O and K_2O , and possessing excellent photoconductive properties. The composition is made by a process wherein a titania hydrate is

neutralized with an ammoniacal agent, and treated with an alkali metal treating agent prior to calcining. The crystals may optionally be coated with Al_2O_3 , TiO_2 , PbO , SiO_2 , or ZnO .

3,632,528

LEAD-MODIFIED ZINC OXIDE VOLTAGE VARIABLE RESISTOR

Michio Matsuoka, Takeshi Masuyama, and Yoshio Iida, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

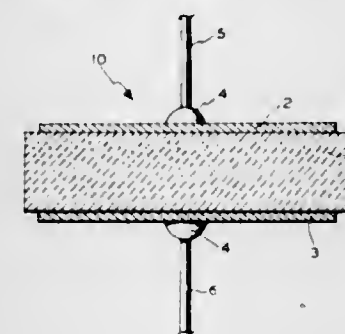
Filed Oct. 16, 1969, Ser. No. 866,821

Claims priority, application Japan, Oct. 22, 1968, 43/77,736

Int. Cl. H01b 1/06

U.S. Cl. 252—518

6 Claims



A voltage variable resistor ceramic composition consisting essentially of zinc oxide and, as an additive, lead oxide. The lead-modified zinc oxide voltage variable resistor has improved voltage non-linear properties due to the further addition of bismuth oxide, calcium oxide and cobalt oxide.

ERRATUM

For Class 252—152 see:
Patent No. 3,632,491

3,632,529

STRONTIUM-MODIFIED ZINC OXIDE VOLTAGE VARIABLE RESISTOR

Michio Matsuoka, Takeshi Masuyama, and Yoshio Iida, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

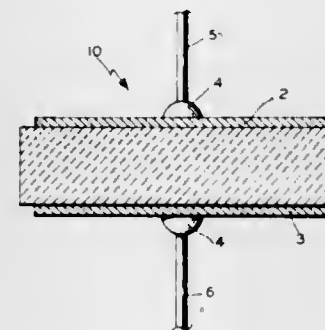
Filed Oct. 16, 1969, Ser. No. 866,819

Claims priority, application Japan, Oct. 22, 1968, 43/77,735

Int. Cl. H01b 1/06

U.S. Cl. 252—521

8 Claims



A voltage variable resistor ceramic composition consisting essentially of zinc oxide and, as an additive, stron-

tium oxide. The strontium-modified zinc oxide voltage variable resistor has improved voltage nonlinear properties due to the further addition of bismuth oxide, lead oxide, calcium oxide and cobalt oxide.

3,632,530

PROCESS FOR DECOMPOSITION OF A POLYURETHANE RESIN

Osamu Kinoshita, Tokyo, Japan, assignor to Yokohama Rubber Co., Ltd., Tokyo, Japan

No Drawing. Filed Feb. 29, 1968, Ser. No. 709,196

Claims priority, application Japan, Mar. 4, 1967, 42/13,470

Int. Cl. C08f 47/24

U.S. Cl. 260—2.3

7 Claims

An improved process for decomposition of a polyurethane resin in which polyurethane resin is heated in a glycol having from two to six carbon atoms and a valuable polyol compound and an amino compound which are capable of reuse for the formation of polyurethane resin and cross-linking agent for an epoxy resin and a reinforcing agent for polyurethane foam are recovered, further in which process, a tertiary amine being added to said glycol in order to decrease the decomposition temperature of said polyurethane resin.

3,632,531

POLYURETHANE FOAMS FROM AROMATIC POLYISOCYANATE AND METHYLOL RESIN

Donald J. Rush, Grandview, and Howard W. Christie, Kansas City, Mo., and Thomas J. Byerley, Shawnee Mission, Kans., assignors to Midwest Research Institute, Kansas City, Mo.

No Drawing. Filed Aug. 25, 1967, Ser. No. 663,249

Int. Cl. C08g 22/44

U.S. Cl. 260—2.5 AJ

8 Claims

Foamed polyurethane resins which are fire retardant and heat resistant, prepared from an aromatic polyisocyanate and a methanol resin which is the reaction product of a methanol resin former and an aldehyde. The foam is preferably post cured. The character of the methanol resin and the reaction parameters for preparing the methanol resin and the foam are so controlled as to provide fire retardant and heat resistant characteristics in the foamed products.

3,632,532

PRODUCTION OF EXPANDED ETHYLENE COPOLYMERS

Rudolf Gaeth and Helmut Pfannmueller, Limburgerhof, Pfalz, Fritz Stastny, Ludwigshafen (Rhine), Hans-George Trieschmann, Hambach, Hermann Tatzel, Ludwigshafen (Rhine), and Johann Zizisberger, Frankenthal, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 14, 1968, Ser. No. 752,455

Claims priority, application Germany, Aug. 16, 1967, P 16 69 713.5

Int. Cl. C08v 1/26

U.S. Cl. 260—2.5 R

10 Claims

Production of expanded materials by mixing copolymers of ethylene with polyisocyanates and expanding

agents under pressure and decompressing the homogeneous mixtures.

3,632,533

HEAT-SEALABLE POLYURETHANE FOAM
Joseph Winkler, Hazleton, Pa., assignor to Tenneco Chemicals, Inc., New York, N.Y.

No Drawing. Filed Oct. 31, 1967, Ser. No. 679,554
Int. Cl. C08g 22/44, 41/04

U.S. Cl. 260—2.5 AL 7 Claims
A heat-sealable polyurethane foam formed by reaction between the foam-forming ingredients, in the presence of selected plastisols is described.

3,632,534

HYDROPHILIC GELATIN LAYERS COMPRISING AS ADDITIVES LATICES CONTAINING FLUORO-ALKYL GROUPS

August Jean van Paesschen, Antwerp, and Jan Jozef Priem, Berchem, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed July 3, 1967, Ser. No. 650,577
Int. Cl. C08h 7/06; G03c 1/72

U.S. Cl. 260—8 4 Claims
Hydrophilic layers useful as a binding agent for light-sensitive silver-halide emulsions are described which comprise a hydrophilic colloid and at least one lattice having the same transparency in the wet and dry state characterized in that the refractive index of the dispersed polymer of the latex or of the mixture of the dispersed polymers of the latices is between 1.38 and 1.44, at least one of the latices being formed by emulsion homo-polymerization or co-polymerization of monomers containing fluoro-alkyl groups.

3,632,535

EMULSION POLYMERIZATION METHOD AND RESULTANT AQUEOUS LATEX

Robert E. Gramera, Golfview Hills, Hinsdale, and James P. Hicks, Galesburg, Ill., assignors to CPC International Inc., New York, N.Y.

No Drawing. Filed Sept. 20, 1967, Ser. No. 669,248
Int. Cl. C09j 3/06, 3/12; C08c 17/18

U.S. Cl. 260—17.4 16 Claims
Covers a vinyl acetate latex emulsion and its method of preparation. Particularly covers a method of polymerizing a vinyl acetate homopolymer or copolymer thereof in presence of oxidized starch which acts as a protective colloid thereby effecting emulsion stabilization during polymerization and thereafter. Resultant vinyl acetate emulsion latex containing oxidized starch protective colloid is also covered. The product is particularly useful as an adhesive in such applications as affixing backing pads to carpeting.

3,632,536

BLOCK COPOLYMERS PREPARED BY REACTING PREPOLYMERS CONTAINING TERMINAL ISOCYANATE GROUPS WITH AROMATIC OLIGAMIDES

Yoshio Iwakura and Keikichi Uno, Tokyo, Shigeru Kajiyama, Osaka-fu, Yoshihiro Kitada, Higashi-Osaka, Takao Kusushita, Tokyo, and Kunio Iijima, Hirakata, Japan, assignors to Matsushita Electric Works, Ltd.

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,063
Claims priority, application Japan, Aug. 24, 1967, 42/54,446

Int. Cl. C08g 20/00, 22/00, 51/48

U.S. Cl. 260—18 TN 12 Claims
Block polymer of (1) a prepolymer having terminal isocyanate groups obtained by reacting a difunctional compound having active hydrogen atoms and an average molecular weight of 500–20,000 with a diisocyanate compound and (2) an aromatic oligoamide having terminal amino groups, an average molecular weight of 300–5000 and a melting point not lower than 100° C., has high elastic performance over a wide range of temperature.

such performance being stable against temperature variation, and is useful in making fibers, films, etc., as coating material, adhesive material, etc., and as blend with other elastomer, etc. to improve properties of the latter. The block polymer is produced by reacting a difunctional compound having active hydrogen atoms and an average molecular weight of 500–20,000 with an excess of a diisocyanate compound to prepare a prepolymer having terminal isocyanate groups, and reacting the formed prepolymer with an aromatic oligoamide having terminal amino groups, an average molecular weight of 300–5000 and a melting point not lower than 100° C.

3,632,537

PHENOLIC RESIN COMPOSITIONS AND PROCESS
Teo Paleologo, Silvio Vargiu, and Silvestro Pezzoli, Milan, Italy, assignors to Società Italiana Resin S.p.A., Milan, Italy

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,309
Claims priority, application Italy, Apr. 29, 1967, 15,534/67

Int. Cl. C08g 51/72

U.S. Cl. 260—19 3 Claims
A process for preparing a phenol/aldehyde moulding-sand resin is provided in which the aldehyde, preferably formaldehyde, and the phenol, preferably phenol itself, are condensed in the presence of an acid catalyst having a dissociation constant exceeding about 1.7×10^{-5} until a resin having a phenol/aldehyde molar ratio of 1 to 0.9 to 1 to 0.4 and a melting point up to 80° C. is produced.

3,632,538

STABILIZER COMPOSITION CONTAINING MORE THAN 20% TIN AND RESIN COMPOSITIONS CONTAINING THE SAME

Otto S. Kauder, Jamaica, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y.

No Drawing. Filed May 3, 1967, Ser. No. 635,658
Int. Cl. C08f 45/62

U.S. Cl. 260—23 X 17 Claims
A polyvinyl chloride resin stabilizer is provided having a high concentration of tin, in the range from about 20 to about 35% by weight, and a high concentration of sulfur, within the range from about 10 to about 25% sulfur, comprising an organotin alpha- or beta-mercapto carboxylic acid ester and an organotin sulfide.

Polyvinyl chloride resin compositions are also provided containing these stabilizers.

3,632,539

WELDABLE METAL PRIMERS CONTAINING GRAPHITE

Atam P. Sahni, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,891
Int. Cl. C09d 5/10

U.S. Cl. 260—23 10 Claims
Disclosed herein is a weldable primer for metal surfaces. The coating is based upon a blend of graphite, a polyvinyl acetal and the esterification product of the reaction between a styrene-allyl alcohol copolymer and at least one unsaturated fatty acid containing 10–24 carbon atoms. The coating may also contain chromic acid to enhance corrosion resistance and may further contain such pigments as aluminum powder and iron oxide.

3,632,540

BLOCK POLYMER-WAX BLENDS

George Eugene Unmuth and Charles Howard Hopkins, Tulsa, Okla., assignors to Petrolite Corporation

No Drawing. Filed June 26, 1968, Ser. No. 753,819
Int. Cl. C09j 3/26

U.S. Cl. 260—27 13 Claims
A composition of matter capable of being used as a heat sealable, moisture proof, flexible, ductile, tough,

etc., coating, laminate, adhesive, etc. which comprises (1) block polymer, for example 2–35%; (2) wax, for example 96–15%; and (3) resin, for example 2–50%, by weight. These compositions are unique as compared to other wax formulations in that they are ductile and flexible at low viscosities which make them adaptable for use with equipment capable of employing only low viscosity solutions but at the same time obtaining superior results heretofore obtained only from high viscosity compositions.

These compositions are preferably prepared in a manner which minimizes oxidation by first blending the components at relatively low temperature, for example below about 200° F. such as at about 110°–180° F., and then completing the blending at relatively higher temperatures, for example above about 200° F., such as at about 250–300° F.

3,632,541

COMPOSITIONS AND PROCESSES FOR ACRYLONITRILE POLYMER SPINNING SOLUTIONS

James B. Peeso, Jr., Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Oct. 13, 1967, Ser. No. 675,077
Int. Cl. C08f 3/76, 15/02, 45/24

U.S. Cl. 260—29.6 AB 9 Claims
This invention relates to comminuted particles each comprising a polymer of acrylonitrile and a salt. The comminuted particles are prepared by first dispersing a polymer of acrylonitrile in an aqueous salt solution containing less than the critical concentration of salt. The dispersion is comminuted into finely divided droplets which are dried to leave the comminuted particles. Aqueous solutions of acrylonitrile polymers are prepared by mixing the comminuted particles with aqueous salt solutions or water to produce a polymer solution containing at least the critical concentration of salt.

3,632,542

FILM FORMING COPOLYMERS OF ETHYLENE, VINYL CHLORIDE AND A VINYL ESTER AND THEIR PRODUCTION

David Brian Fox, Epsom, and Francis Paul Gintz, London, England, assignors to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,252
Claims priority, application Great Britain, May 5, 1967, 20,905/67

Int. Cl. C08f 15/30, 29/04, 45/24

U.S. Cl. 260—29.6 T 6 Claims
Aqueous dispersions of copolymers which are capable of drying to form films having good resistance to hydrolysis by aqueous alkali. The copolymers are formed from ethylene, vinyl chloride and a vinyl ester of an organic acid, e.g. vinyl acetate, and contain 5–25% ethylene units, 10–35% vinyl chloride units and 40–85% vinyl ester units.

3,632,543

PROCESS FOR PRODUCING A VINYLIDENE CHLORIDE CONTAINING ACRYLONITRILE POLYMER SOLUTION

Iyohiko Nakanome, Kenji Takeya, and Hiroshi Suzuki, Saidaiji, Japan, assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 2, 1969, Ser. No. 821,489
Claims priority, application Japan, May 28, 1968, 43/36,610

Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 AN 5 Claims
A monomer solution containing a mixture of at least 65% acrylonitrile, 5% to 35% vinylidene chloride, and

up to 15% of at least one ethylenically unsaturated monomer copolymerizable therewith in a solvent medium containing 44% to 50% of a soluble thiocyanate salt, 40% to 46% water and 4% to 16% of at least one of a selected group of organic compounds, a process for forming a solution polymer by polymerization of the monomer solution, and a spinning solution for preparing fire-resistant acrylic fibers based on the solution polymer.

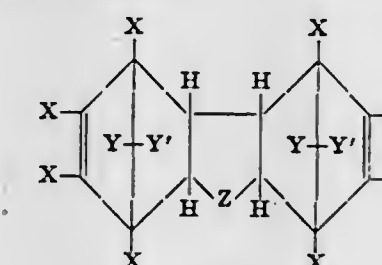
3,632,544

SELF-EXTINGUISHING POLYMERIC COMPOSITIONS

Nicodemus E. Boyer, Parkersburg, W. Va., assignor to Borg-Warner Corporation, Chicago, Ill.

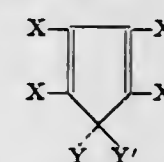
No Drawing. Filed May 7, 1970, Ser. No. 35,582
Int. Cl. C08f 45/46; C08g 51/46

U.S. Cl. 260—30.4 R 6 Claims
Novel thermoplastic blends that are self-extinguishing by virtue of having incorporated therein a heterocyclic adduct containing two norbornene rings. The compound has the general formula



Formula I

wherein X is a halogen group; Y and Y' are selected from the group consisting of hydrogen, halogen (preferably chlorine, bromine, or fluorine), lower (1–4C) alkyl, alkoxy, halogen substituted alkyl and substituted alkoxy radicals and Z is selected from the group consisting of sulfur and oxygen. The heterocyclic adduct compound lends flame retardant characteristics to the thermoplastic composition. The furan adducts may be prepared by reacting one mole of furan with two moles of a halogenated cyclopentadiene of the formula



Formula II

wherein each X is chlorine, fluorine or bromine and Y and Y' are each selected from the group consisting of hydrogen, halogen (preferably chlorine, bromine, or fluorine), lower (1–4C) alkyl, alkoxy and halogen-substituted alkyl and substituted alkoxy radicals. Analogous compounds may be prepared by reacting thiophene with a compound of the general Formula II.

3,632,545

THIXOTROPIC AGENTS FOR LIQUID RESIN SYSTEMS

Charles F. Ferraro, Trenton, N.J., assignor to FMC Corporation, Philadelphia, Pa.

No Drawing. Filed May 13, 1969, Ser. No. 824,302
Int. Cl. C08f 45/50; C08g 51/50

U.S. Cl. 260—30.6 R 6 Claims
Pseudoplastic characteristics of organic liquid resin systems containing polymerizable resins, such as solutions of unsaturated polyester resins and polyvinyl plastisols, are improved by incorporating in the liquid resin systems a premixed blend of microcrystalline mineral silicates as thixotropic agents and a polar liquid.

3,632,546

COATING COMPOSITIONS OF CARBOXYLIC ACID-CONTAINING TERPOLYMERS STABILIZED WITH ALUMINUM ALKOXIDE COMPOUNDS

Ching Yun Huang, Minoo-shi, and Masahiro Shimoi, Sakai-shi, Japan, assignors to Japan Gas Chemical Co. Inc., Tokyo, Japan
No Drawing. Filed Sept. 13, 1968, Ser. No. 759,802
Claims priority, application Japan, Sept. 23, 1967, 42/61,130

Int. Cl. C08c 11/36; C08f 15/62, 17/00

U.S. Cl. 260—31.2

2 Claims

Coating compositions are produced by adding to a non-aqueous solution of linear copolymer having carboxyl groups in the molecule thereof a non-aqueous solution of aluminum alkoxide complex containing 0.5–2.5 equivalents of the alkoxide group per equivalent of carboxyl group of said copolymer and 0.3–5 moles of tautomeric compound per mole of said aluminum alkoxide complex as a stabilizing solvent. Addition of a small proportion of lower aliphatic alcohol enhances stabilization. These compositions harden on air-drying at an ordinary temperature. They are useful inter alia as varnish, as enamel for steel plate, etc.

3,632,547

TEXTILE ADHESIVE AND METHOD OF USE

Benjamin T. Kajjoka, San Rafael, Calif., assignor to Synergistic Industries, Inc., San Rafael, Calif.
No Drawing. Filed July 2, 1969, Ser. No. 838,684

Int. Cl. C08f 45/36

U.S. Cl. 260—31.2 R

3 Claims

Adhesive composition for temporarily adhering textile materials such as nylon stockings to the human skin, the composition being a solution containing an organic polymer, a plasticizer and a solvent.

3,632,548

AROMATIC POLYAMIDE-HYDRAZIDES

Jack Preston, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo.
Filed May 2, 1968, Ser. No. 726,648

Int. Cl. C08g 20/20

U.S. Cl. 260—32.6 N

5 Claims

Aromatic polyamide-hydrazides containing carbon-amide and hydrazide linkages separated by aromatic nuclei are described with methods of preparation. These polymers are useful in the preparation of fibers, filaments, films and other products for textile and general industrial end uses.

3,632,549

PROCESS FOR THE PREPARATION OF COMPOSITIONS OF SYNTHETIC DIENE POLYMERS HAVING IMPROVED GREEN STRENGTH AND PROCESSABILITY

Gerardus E. La Helj and Gerrit J. van Amerongen, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed May 6, 1968, Ser. No. 727,055

Claims priority, application Great Britain, June 16, 1967, 27,817/67
Int. Cl. C08f 45/44

U.S. Cl. 260—32.6

2 Claims

Both the processability and the green strength of compositions comprising synthetic carboxylic group-free diene solutions rubbers (e.g., lithium-catalyzed polyisoprene, SBR or cobalt-catalyzed polybutadiene) and reinforcing fillers are improved by using as promoter minor amounts of organic nitrogen compounds having at least one NH_2 group, more than 10 carbon atoms, at least one straight chain containing at least 8 carbon atoms and a molecular weight of less than 15,000.

3,632,550

METHOD OF PROTECTING RUBBER FROM DEGRADATION WITH 4-[p-(SUBSTITUTED AMINO)PHENYL] MORPHOLINES

John J. D'Amico, Dunbar, W. Va., and Sidney T. Webster, Columbus, Ohio, assignors to Monsanto Company, St. Louis, Mo.

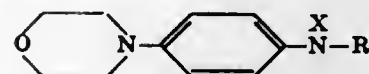
No Drawing. Original application Aug. 27, 1965, Ser. No. 483,294, now Patent No. 3,392,170, dated July 9, 1968. Divided and this application Sept. 20, 1967, Ser. No. 678,135

Int. Cl. C08f 45/60

U.S. Cl. 260—45.8 NZ

4 Claims

A compound of the formula



where X is NO and R is alkyl of 3–12 carbon atoms or cycloalkyl of 5–12 carbon atoms has special significance for protecting diene rubber from ozone degradation.

3,632,551

LIGHT STABILIZATION OF SYNTHETIC RESINS

Toshio Seki, Osaka-shi, Japan, assignor to Nitto Kasei Co., Ltd., Osaka, Japan
No Drawing. Filed May 9, 1967, Ser. No. 637,057
Claims priority, application Japan, May 9, 1966, 41/28,892

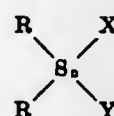
Int. Cl. C08f 45/62; C08g 51/62

U.S. Cl. 260—45.75 K

7 Claims

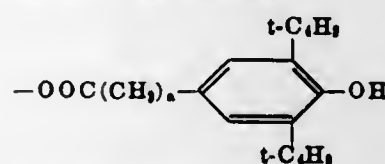
This invention relates to the method for stabilizing synthetic resins against the deteriorating effects of heat and light and comprises incorporating into said resin an inhibiting amount of a compound having the following formula

(I)



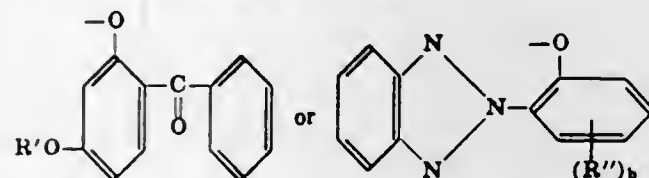
wherein:

- (1) R is selected from the group consisting of alkyl of from 1 to 8 carbon atoms, aryl, and benzyl,
- (2) X is a residue of the formula



in which a is an integer of from 0 to 2, inclusive, and,

- (3) Y is a residue of the formula



in which R' and R'' are alkyl of from 1 to 8 carbon atoms, and b is an integer of from 0 to 2, inclusive.

3,632,552

THERMALLY STABLE POLY(BETA-LACTONE) POLYMERS

Jacoba P. E. Smid, Servaas van der Ven, Hendrik van der Vliet, and Eduard M. A. A. J. van Acker, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,767
Int. Cl. C01g 51/58

U.S. Cl. 260—45.7 S

8 Claims

Antigassing agents (desactivators) which prevent "un-zipping" of poly(beta-lactones) comprise (1) alpha- or beta-aryl- or allyl-substituted alkyl halides, (2) complexes

of a boron halide and a phosphine, (3) arenediazonium salts of complex fluoro acids, (4) tropylium salts, (5) ammonia salts and (6) dihydrocarbyl sulfides.

3,632,553

STABILIZING POLYMERS WITH 2,2'-METHYLENE-BIS(6-ALKYL OR CYCLOALKYL)-3,4-XYLENOLS

Charles Gene Summers, Scott Depot, and Evan Johnson Young, St. Albans, W. Va., assignors to Monsanto Company, St. Louis, Mo.

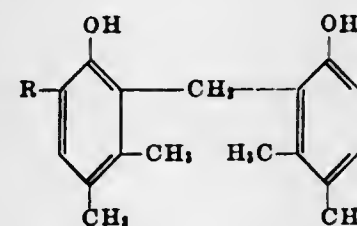
No Drawing. Filed Aug. 21, 1968, Ser. No. 754,476

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95

7 Claims

Polymers are stabilized against deterioration by the addition of a small amount of a compound represented by the formula



wherein R is alkyl or cycloalkyl.

3,632,554

PROCESS FOR PREPARING HEAT RESISTING POLYIMIDES

Takashi Kubota, Ohtsu-shi, Japan, assignor to Toray Industries Inc., Tokyo, Japan

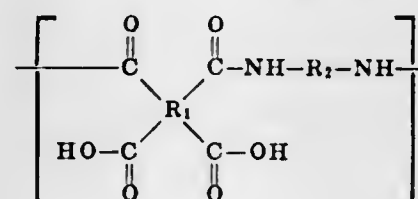
No Drawing. Filed May 29, 1968, Ser. No. 732,837
Claims priority, application Japan, May 29, 1967, 42/33,632; Oct. 21, 1967, 42/67,522; Oct. 26, 1967, 42/68,548

Int. Cl. C08g 20/32

U.S. Cl. 260—47 CP

4 Claims

A process for preparing heat resisting polyimides which comprises heating an oligoamide-acid composition at a temperature above 200° C. Said oligoamide-acid composition has terminal amino groups and terminal carboxyl groups in a numerical ratio in the range of from about 0.90 to about 1.25, and an inherent viscosity within the range from about 0.05 to about 0.65 and a recurrent structural unit represented by the general formula:



wherein R_1 is a tetravalent aromatic radical, and R_2 is a divalent aromatic radical. Various specific methods of preparing the oligoamide-acid composition are disclosed in the specification. Typically, the oligoamide acid is prepared by mixing an oligomer (I), which is preferably obtained by the reaction of from about 3–60% mole excess of diamine with tetracarboxylic acid dianhydride in an organic solvent, with an oligomer (II), which is preferably obtained by the reaction of from about 3–60% mol excess of tetracarboxylic acid dianhydride with a diamine, followed by a ring opening reaction of the terminal acid anhydride group of the resulting oligomer with a compound such as water, an alcohol or a thioalcohol. Specific proportions of oligomer (I) to (II) are disclosed in the specification.

If desired, the diamine above may be partially replaced by a triamine, a tetraamine or mixtures thereof. The diamine must still be present in amounts of at least 40 mole percent.

A process for preparing polyimide-shaped articles is also disclosed which comprises coating a substrate with an oligoamide-acid composition, and heating to a temperature above 200° C. Certain very specific properties of the polyimide coated article are recited in the specification.

3,632,555

PREPARATION OF EPOXYLATED PHENOLIC RESINS BY REACTING POLYMERS FROM ARALKYL ETHERS AND PHENOLS WITH EPIHALOHYDRIN

Glyn I. Harris and Alfred G. Edwards, Glamorgan, Wales, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England

No Drawing. Filed July 22, 1968, Ser. No. 746,283
Claims priority, application Great Britain, July 21, 1967, 33,701/67

Int. Cl. C08g 30/12

U.S. Cl. 260—47 EA

12 Claims

Epoxyolated phenolic resins are prepared by reacting in the presence of a hydrogen halide acceptor (1) a polymer formed by the reaction of an aralkyl ether and a phenolic compound, or both a phenolic compound and a compound containing aromatic nuclei, and (2) an epihalohydrin. The resins may be cured by reaction with an epoxy curing agent or converted to surface coating materials by reaction with a fatty acid.

3,632,556

TREATMENT OF TEXTILES WITH AZIRIDINE-MODIFIED POLYURETHANES

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Oct. 13, 1967, Ser. No. 675,038, now Patent No. 3,542,505, dated Nov. 24, 1970. Divided and this application Jan. 21, 1970, Ser. No. 8,111

Int. Cl. C08g 22/16, 45/22

U.S. Cl. 260—75 NH

2 Claims

Polyurethanes containing isocyanate groups are reacted with alkylene imines to prepare aziridine-modified polyurethanes useful for application to textile materials to improve their properties, e.g., to impart shrink resistance and durable press qualities. Typical example: A polyether polyurethane containing free NCO groups is reacted with ethylene imine to yield an aziridine-modified polymer which is formed into an emulsion and applied to a textile material. The treated textile may be directly cured or the curing operation may be delayed until the fabric is manufactured into a finished garment, the latter system being preferred to attain permanent creases.

3,632,557

VULCANIZABLE SILICON TERMINATED POLYURETHANE POLYMERS

George L. Brode, Bridgewater, and Louis B. Conte, Jr., Newark, N.J., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 623,532, Mar. 16, 1967. This application Sept. 18, 1968, Ser. No. 760,660

Int. Cl. C08g 22/32, 22/04

U.S. Cl. 260—77.5 TB

28 Claims

A room temperature curable silicon terminated organic polymer comprising an isocyanate terminated polyurethane prepolymer containing at least two urethane linkages per polymer molecule, wherein the isocyanate ter-

minal groups have been reacted with an organosilicon compound to terminate, that is cap or endblock said polymers with organosilicon groups.

3,632,558

PRODUCTION OF SPINNABLE POLYAMIDES EXHIBITING A HIGH REGULARITY AND A HIGH DYEABILITY BY ACIDIC DYESTUFFS

Francesco Siclari, Cesano Maderno, Pierluigi Perazzoni, Palazzolo Milanese, and Piergiorgio Silvestroni, Cesano Maderno, Italy, assignors to Snia Viscosa Società Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

No Drawing. Filed July 23, 1968, Ser. No. 746,743
Claims priority, application Italy, Aug. 8, 1967, 19,335/67

Int. Cl. C08g 20/20

U.S. Cl. 260—78 R

10 Claims

A method is disclosed for improving the dyeability of polyamide fibres by acidic dyes, said method comprising as an essential step the adoption of a nitrogenous compound, which can be broadly defined as belonging to the class of betaines or betaine-like compounds. Many examples are given, which show the criticality of the selection of the substituents in the general formula



or $(R_1, R_2, R_3)-N-R_4-COO-$, where the substituents indicated by the R's can be selected within a wide, but nevertheless strictly defined range.

3,632,559

CATIONICALLY ACTIVE, WATER SOLUBLE POLYAMIDES

Max Matter, Basel, and Rolf Oberholzer, Riehen, Basel-Stadt, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

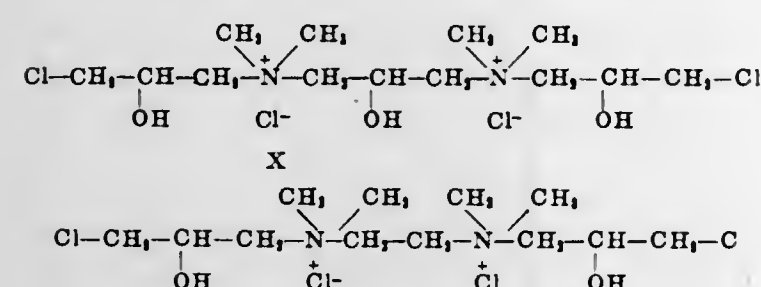
No Drawing. Filed Sept. 30, 1968, Ser. No. 763,978
Claims priority, application Switzerland, Sept. 28, 1967, 13,569/67

Int. Cl. C08g 20/38

U.S. Cl. 260—78 SC

1 Claim

Novel cationically active, water soluble polyamides obtained by the alkylation with a bifunctional alkylation agent until the alkylation agent is used up, of a reaction product resulting from the reaction of a dicarboxylic acid or a functional derivative thereof with a polyalkylenepolyamine are produced, exemplified alkylation agents having the formula



exemplified reaction products of a dicarboxylic acid with a polyalkylenepolyamine being the reaction products of diethylenetriamine with adipic acid, of diethylenetriamine and triethylenetetramine with adipic acid, of bis-(3-aminopropyl)-amine with adipic acid and N,N'-bis-[3-aminopropyl]-1,4-diamino-butane with adipic acid dimethyl ester; the use of these exemplified cationically active, water soluble polyamides as drainage aids, retention agents and flotation agents in connection with relatively thick paper or cardboard manufacture is also exemplified.

POLY (1,3,4-OXADIAZOLES) AND THEIR SYNTHESIS

You-Ling Fan, East Brunswick, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Jan. 29, 1969, Ser. No. 795,076
Int. Cl. C07d 85/54

U.S. Cl. 260—78.4 R

5 Claims

Normally solid poly(1,3,4-oxadiazoles) can be prepared by the cyclodehydration of N,N'-bis(isomaleimide). polyhydrazides. These products are characterized by their thermal stability and high melting points.

3,632,561

MALEIC ANHYDRIDE ALKYL VINYL ETHER COPOLYMER

Alexander Ramsay Maund Gibb, Troon, and Brian Benjamin Darlow, Stevenston, Scotland, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed June 8, 1967, Ser. No. 644,487
Claims priority, application Great Britain, July 8, 1966, 30,819/66

Int. Cl. C08f 15/02

U.S. Cl. 260—78.5 BB

14 Claims

Maleic anhydride/alkyl vinyl ether copolymers of high molecular weight are prepared by reacting the two components in the presence of a free-radical-generating agent.

3,632,562

PROCESS FOR POLYMERIZING AND COPOLYMERIZING VINYL CHLORIDE IN AQUEOUS EMULSIONS

Gerhard Beler, Joseph Heckmaier, and Johann Bauer, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany

No Drawing. Filed July 7, 1967, Ser. No. 651,666
Claims priority, application Germany, July 8, 1966, W 41,973

Int. Cl. C08f 1/13, 3/30

U.S. Cl. 260—78.5 BB

2 Claims

This invention relates to polymerizing and copolymerizing vinyl chloride in aqueous emulsions, and it has for its object to provide a novel and improved process for this purpose.

In particular, the invention concerns the making of pastable polymerizates of vinyl chloride or of pastable copolymerizates containing at least 80 weight percent of polyvinyl chloride, i.e. of vinyl chloride polymerizates or vinyl chloride copolymerizates which can be dispersed in softeners, perhaps using at the same time organic thinners which either do not dissolve or swell the polymerizates at all or only a little, forming pastes or platisols or organosols, by polymerizing or copolymerizing the vinyl chloride in an aqueous emulsion, i.e. by the polymerization or copolymerization of vinyl chloride which is dispersed in water by means of emulsifiers.

3,632,563

ESSENTIALLY CIS RUBBERY POLYISOPRENE AND METHOD FOR MAKING SAME

Lynn B. Wakefield, Akron, Ohio, and Frederick C. Foster, Verona, N.J., assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of applications Ser. No. 530,396, Aug. 24, 1955, and Ser. No. 605,438, Aug. 21, 1956. This application June 4, 1962, Ser. No. 199,603

Int. Cl. C08d 1/20, 3/10

U.S. Cl. 260—94.2

19 Claims

Essentially cis rubbery polyisoprene is produced by polymerizing isoprene in the presence of lithium-containing or Ziegler catalysts.

3,632,564

PROCESS FOR INHIBITING POPCORN POLYMER FORMATION

Harry Elmer Albert and Paul Gordon Haines, Lafayette Hill, Pa. (both of 900 1st Ave., King of Prussia, Pa. 19406)

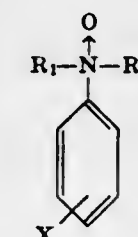
No Drawing. Original application Nov. 7, 1967, Ser. No. 681,093. Divided and this application July 8, 1970, Ser. No. 61,006

Int. Cl. C08d 5/00, 3/04, 3/06

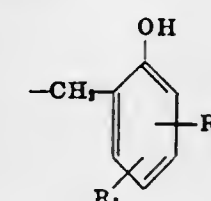
U.S. Cl. 260—94.7 N

7 Claims

Process of retarding the formation of popcorn polymers by use of an aromatic amine oxide of structure



where R₁ is lower alkyl, hydroxy substituted lower alkyl, or a group of structure



where R₂ is hydrogen or lower alkyl, and R₃ is a tertiary alkyl group, X is hydrogen, halogen, nitro, or lower alkyl, and with the proviso that the total number of carbon atoms in the R₁ groups be at least four.

3,632,565

WATER-INSOLUBLE ARYL-AZO ARYL DYESTUFFS CONTAINING A THIENYL OR FURYL CARBOXAMIDO GROUP

Hans-Joerg Angliker and Richard Peter, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland

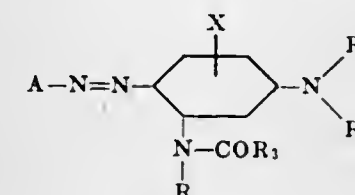
No Drawing. Filed Sept. 4, 1968, Ser. No. 757,478
Claims priority, application Switzerland, Sept. 7, 1967, 12,524/67

Int. Cl. C09b 29/08; D06p 1/08

U.S. Cl. 260—152

8 Claims

Water insoluble azo dyestuffs of the formula



in which A represents the radical of a diazo component, R represents an alkyl group having at most 4 carbon atoms, or a hydrogen atom, R₁ represents a hydrogen atom or an alkyl group that may be substituted, R₂ represents an alkyl group that may be substituted, R₃ represents a five-membered heterocyclic radical which must be substituted when it represents a furan ring, and X represents a hydrogen atom or an alkyl, alkoxy, aryloxy or arylmercapto group are useful for dyeing polyester fibers orange to violet shades of excellent fastness to light and sublimation.

3,632,566

SULFUR-CONTAINING COMPOSITIONS

Lester E. Coleman, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Division of application Ser. No. 784,172, Dec. 16, 1968, now Patent No. 3,498,915, which is a continuation-in-part of application Ser. No. 657,520, Aug. 1, 1967, which in turn is a continuation-in-part of application Ser. No. 602,600, Dec. 19, 1966. Divided and this application July 14, 1969, Ser. No. 842,083

Int. Cl. C07g 17/00

U.S. Cl. 260—125

11 Claims

Sulfur-containing compositions characterized by the presence of at least one cycloaliphatic group with at least two nuclear carbon atoms of one cycloaliphatic group or two nuclear carbon atoms of different cycloaliphatic groups joined through a divalent sulfur linkage. The sulfur linkage contains at least two sulfur atoms. Sulfurized Diels Alder adducts are illustrative of the compositions disclosed. These sulfur-containing compositions are particularly useful as extreme pressure and antiwear additives in various lubricating oils.

3,632,567

ALKALI METAL SALTS OF 3-CYANO-1-[5'-CHLORO-2'-(4"-CHLOROPHENOXY)-PHENYL]-TRIAZENE AND PROCESS FOR THEIR PREPARATION

Hasso Hertel, Offenbach am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

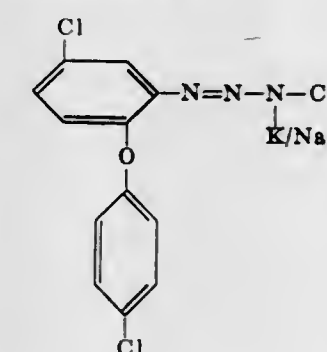
No Drawing. Filed June 24, 1968, Ser. No. 739,195
Claims priority, application Germany, June 23, 1967, F 52,771

Int. Cl. C07c 115/00

U.S. Cl. 260—140

4 Claims

A compound of the formula



and a process for preparing.

3,632,568

MONAZO DYES AND THEIR METAL COMPLEXES

Reinhard Neler, Basel, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

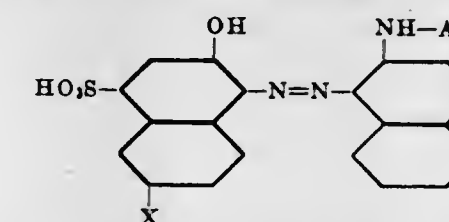
No Drawing. Filed Mar. 4, 1968, Ser. No. 709,878
Claims priority, application Switzerland, Mar. 8, 1967, 3,479/67

Int. Cl. C09d 45/20; D06p 1/02

U.S. Cl. 260—145

16 Claims

Monoazo dyes, their metal complexes and their metal mixed complexes with other metallizable dyes, which in the metal free form have the formula



where X stands for a hydrogen atom or the nitro group and A for an aryl radical which may bear further substituents.

3,632,569

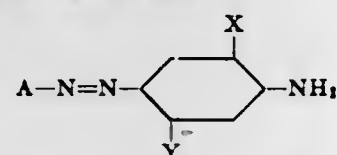
MONAZO DYESTUFFS CONTAINING A META-ACYLAMINO-PARA-AMINO ANILINE GROUP

Klaus Artz, Muttentz, Switzerland, Nalin Binduprasad Desai, Goregaon, Bombay, India, and Hans Wilhelm Liechti, Oberwil, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed June 4, 1968, Ser. No. 734,247
Claims priority, application Switzerland, June 7, 1967, 8,066/67

Int. Cl. C09b 29/08, 29/26; D06p 1/08
U.S. Cl. 260—205 7 Claims

Azo dyestuffs of the formula



in which A represents the residue of an aromatic diazo component, X represents hydrogen, alkyl or alkoxy and Y represents an amino group bearing an acyl residue of a monovalent sulphonic acid, an acyl residue of a carbonic acid semi-ester or a carbamic acid. The dyes are suitable for dyeing fibres such as polyester and cellulose and have good fastness to light and sublimation.

3,632,570

POLYSACCHARIDE PROCESS

James W. Gill, Heritage Park, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Sept. 19, 1968, Ser. No. 761,005

Int. Cl. C12b 1/00

U.S. Cl. 260—209 R 5 Claims

Process of producing a complex polysaccharide in a carbohydrate aqueous media with the microorganism *Arthrobacter stabilis* nov. spec. NRRL B-3225.

3,632,571

FLUORO ALCOHOL/POLYISOCYANATE ADDUCTS CONTAINING AZIRIDINYL GROUPS

Dilip Kumar Ray-Chaudhuri, Somerset, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

Filed Aug. 9, 1967, Ser. No. 659,410

Int. Cl. C07d 23/08; C09d 5/00

U.S. Cl. 260—239 E 1 Claim

Fluoro-aziridine compounds comprising the products resulting from the reaction of an alkenimine with an intermediate isocyanate adduct comprising the reaction product of a fluoro alcohol and a polyisocyanate reagent. The resulting fluoro-aziridine compounds impart both water and oil repellency to a wide variety of substrates.

3,632,572

11-AMINO-6-MORPHANTHRIDONES

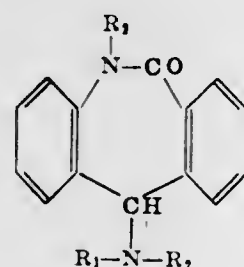
Gordon Northrop Walker, Morristown, N.J., assignor to Ciba Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 622,407, Mar. 13, 1967, now Patent No. 3,504,088, which is a continuation-in-part of application Ser. No. 598,979, Dec. 5, 1966. This application Sept. 18, 1967, Ser. No. 668,704

Int. Cl. C07d 41/00

U.S. Cl. 260—239.3 T 24 Claims

11-amino-5,6-dihydro-6-morphanthridones, e.g. those of the formula



R₁=H, alkyl, alkenyl or free, esterified or etherified hydroxyalkyl

R₂=aza-, oxa- or thia-alkyl, -aralkyl or -cycloalkyl-alkyl

R₁+R₂=aza-, oxa- or thia-alkylene or -aralkylene

R₃=H or alkyl

acyl derivatives, iminoethers, salts and quaternaries thereof, inhibit gastric secretion.

3,632,573

METHOD FOR PRODUCING BENZODIAZEPINE DERIVATIVES

Hisao Yamamoto and Shigeo Inaba, Nishinomiya-shi, Tadashi Okamoto, Ashiya-shi, Toshiyuki Hirohashi, Kobe, Kikuo Ishizumi, Minoo-shi, Michihiro Yamamoto, Takarazuka-shi, Isamu Maruyama, Minoo-shi, Kazuo Mori, Kobe, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

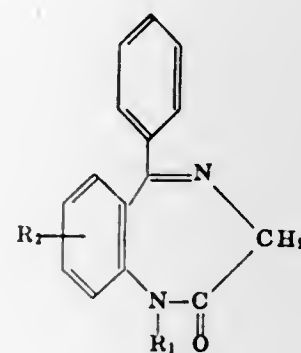
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,140

Claims priority, application Japan, Oct. 9, 1967, 42/65,102, 42/65,104; Oct. 18, 1967, 42/67,354; Nov. 2, 1967, 42/70,794, 42/70,798; Nov. 6, 1967, 42/71,598; Nov. 8, 1967, 42/72,078; Dec. 9, 1967, 42/79,166; Dec. 15, 1967, 42/80,514; Dec. 21, 1967, 42/82,273

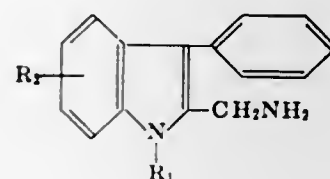
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 25 Claims

Benzodiazepine derivatives, which are known as tranquilizers, represented by the formula:



wherein R₁ is a cycloalkylmethyl such as cyclopropylmethyl and R₂ is hydrogen or a halogen, are produced by reacting a novel 2-aminomethylindole derivative represented by the formula:



wherein R₁ and R₂ have the same meanings as defined above, with an oxidizing agent. The said 2-aminomethylindole derivative is produced, for example, by reacting a diazonium salt of an aniline derivative with alkyl α-benzylacetate to yield a 2-alkoxycarbonyl-3-phenylindole derivative, cycloalkylmethylating the resultant 2-alkoxycarbonyl-3-phenylindole derivative to yield a corresponding 1-cycloalkylmethyl α-alkoxycarbonyl-3-phenylindole derivative, converting the 2-substituent of an alkoxycarbonyl group to an amido group and then reducing the resultant product to yield the said 2-aminomethylindole derivative.

3,632,574

PROCESS FOR PRODUCING BENZODIAZEPINE DERIVATIVES

Hisao Yamamoto and Shigeo Inaba, Nishinomiya-shi, Tadashi Okamoto, Ashiya-shi, Toshiyuki Hirohashi, Kobe, Kikuo Ishizumi, Minoo-shi, Michihiro Yamamoto, Takarazuka-shi, Isamu Maruyama, Minoo-shi, Kazuo Mori, Kobe, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

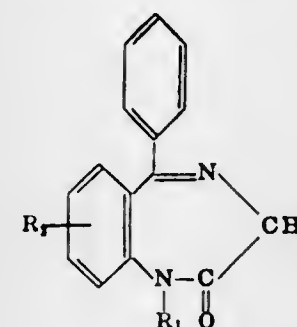
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,195

Claims priority, application Japan, Sept. 22, 1967, 42/60,932, 42/60,952; Sept. 27, 1967, 42/62,424, 42/62,425, 42/62,426, 42/62,427, 42/62,428, 42/62,429, 42/62,430; Nov. 2, 1967, 42/70,796; Dec. 9, 1967, 42/79,166; Dec. 15, 1967, 42/80,514; Dec. 21, 1967, 42/82,273; Jan. 10, 1968, 43/1,501

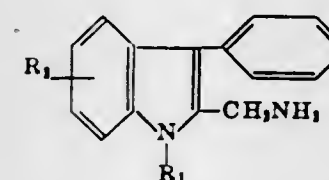
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 51 Claims

Benzodiazepine derivatives, which are known as tranquilizers, of the formula,



wherein R₁ is hydrogen or an alkyl such as methyl and propyl and R₂ is hydrogen or a halogen, are produced by reacting a novel 2-aminomethylindole derivative of the formula,



wherein R₁ and R₂ have the same meanings as defined above, with an oxidizing agent.

The said 2-aminomethylindole derivative is produced, for example, by reacting a diazonium salt of an aniline derivative with an alkyl 2-benzylacetate to yield a 2-alkoxycarbonyl-3-phenylindole derivative, converting the 2-substituent of an alkoxycarbonyl group to an amido group after or without alkylating the 2-alkoxycarbonyl-3-phenylindole derivative to a corresponding N-alkylated derivative, and then reducing the resultant product to yield the said 2-aminomethylindole derivative.

3,632,575

PROCESS FOR THE PRODUCTION OF LACTAMS

Manfred Mansmann, Krefeld-Bockum, Hans Zirngibl, Duisburg, and Otto Immel, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 31, 1968, Ser. No. 748,963

Claims priority, application Germany, Aug. 9, 1967, F 53,186

Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 1 Claim

Improvement in the process for the catalytic rearrangement of cyclic ketoximes to lactams using a boron oxide catalyst, the catalyst being regenerated by adding an orthoboric acid alkylester while being in the fluidised state at temperatures of from 200–800° C.

3,632,576

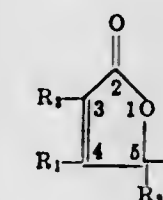
STERIOD BUTENOLIDES

Hans-Gunter Lehmann, Berlin, Germany, assignor to Schering AG, Berlin and Bergkamen, Germany
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,847

Int. Cl. C07c 173/00

U.S. Cl. 260—239.57 42 Claims

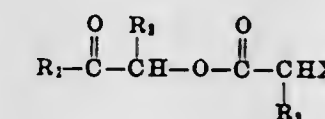
A process for making steroid butenolides of the general formula



(I)

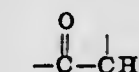
wherein (a) R₁ is a steroid residue and R₂ is hydrogen or (b) R₁ and R₂ together with the adjoining carbon atoms 4 and 5 of the butenolide ring are a steroid residue, and wherein R₃ is hydrogen or a lower alkyl group, in which process.

α-Halogenoacylates of primary or secondary steroid α-ketols are treated with triphenylphosphine or trialkylphosphite to obtain α-ketolacylates of the general formula

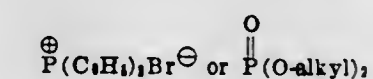


(II)

wherein R₁ and R₂ have the meaning given above at (a) or wherein R₁ and R₂ together with the



group form a steroid residue and wherein R₃ has the meaning given above, and wherein X is



The α-ketolacylates are then reacted with a base in a solvent that is inert towards the components of the reaction. An example of the ketolacylate is triphenyl-(3β-benzoyloxy-20-oxo-Δ⁴-pregnene-21-yl-oxycarbonylmethyl)-phosphonium bromide.

The products of the invention are valuable as intermediates to form cardenolides such as digitoxigenone.

3,632,577

5-NITROFURYL DERIVATIVES

William Hoyle, Bramhall, and Gordon Peter Roberts, Altrincham, England, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,242

Int. Cl. C07d 85/38

U.S. Cl. 260—240 A 6-Claims

5-nitro-2-furfurylideneamino-oxazolidinones are useful antimicrobial agents; compositions containing these compounds and methods for the treatment of microbial infections, particularly urinary tract infections, and for the protection of organic material susceptible to microbial attack, employing these compounds; an illustrative embodiment is 5-(2-formyloxyethoxymethyl)-3-(5-nitro-2-furfurylideneamino)-2-oxazolidinone.

3,632,578

CLEAVAGE OF ACYLAMIDOCEPHALOSPORINS AND ACYLAMIDOPENICILLINS

Robert R. Chauvette, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Sept. 9, 1968, Ser. No. 758,600
Int. Cl. C07d 99/16, 99/24

U.S. Cl. 260—243 C

13 Claims

The acyl group is removed from 7-acylamidocephalosporins and 6-acylamidopenicillins by treating with phosphorus pentasulfide to obtain the thioamide, converting the thioamide to an imino intermediate, and hydrolyzing the imino intermediate to the corresponding free amine.

3,632,579

THIETANO[3,2-a]INDAN-1,1-DIOXIDES

Milton Wolf, Chester, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Dec. 12, 1968, Ser. No. 783,421

Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

3 Claims

2a-amino- or nitrogen-containing heterocyclic-thietano-[3,2-a]indan-1,1-dioxides are prepared having pharmacological activity.

3,632,580

MORPHINE-3-(N-SUBSTITUTED-CARBAMOYL METHYL)ETHERS

Don Pierre Rene Lucien Giudicelli, Fontenay-sous-Bois, and Henry Najer, Paris, France, assignors to Les Laboratoires Dausse, Paris, France

No Drawing. Filed May 17, 1968, Ser. No. 729,923

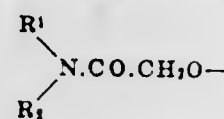
Claims priority, application France, May 26, 1967, 108,086

Int. Cl. C07d 87/40

U.S. Cl. 260—247.5

5 Claims

The invention provides new derivatives of morphine of low toxicity and analgesic effect but pronounced antitussive effect in which the 3-position hydroxyl group has been replaced by a group of formula:



where R^1 and R^2 are hydrogen, lower alkyl, or together form a heterocyclic ring, not both being hydrogen.

3,632,581

SCHIFF BASES OF QUINOXALINE-2-CARBOXALDEHYDES AND THEIR REDUCTION PRODUCTS

John R. Potoski, Rosemont, and Meier E. Freed, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Oct. 8, 1968, Ser. No. 765,975

Int. Cl. C07d 51/78

U.S. Cl. 260—247.5 R

26 Claims

This invention concerns Schiff bases of quinoxaline-2-carboxaldehydes and the reduction products thereof which are pharmacologically active as central nervous system depressants.

3,632,582

PROCESS FOR PREPARING NITRO-P-PHENYLENE DIAMINES

Milos S. Bil, Forest Hills, N.Y., assignor to Clairol Incorporated, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 683,758, Nov. 2, 1967. This application Apr. 8, 1968, Ser. No. 719,682

Int. Cl. C07d 87/38, 87/40

U.S. Cl. 260—247.5 R

22 Claims

Describes a process for preparing nitro-p-phenylenediamines by reacting 4-fluoro-3-nitro-anilines with ammonia or a primary or secondary amine.

3,632,583

2,2-DIALKYL-4,6-DIAMINO-1,2-DIHYDRO-1,3,5-TRIAZINES

Patrick Mamalis, Reigate, Surrey, England, assignor to Vitamins Limited, London, England

No Drawing. Filed June 10, 1969, Ser. No. 831,996

Claims priority, application Great Britain, July 4, 1968, 31,970/68

Int. Cl. C07d 55/20

U.S. Cl. 260—249.9

8 Claims

1-(nitrobenzyloxy)-2,2-dialkyl-4,6-diamino-1,2-dihydro-1,3,5-triazines and their salts have antiparasitic activity against Plasmodium. The compounds are prepared through treatment of a 4,6-diamino-1,2-dihydro-2,2-dialkyl-1,3,5-triazine with a nitrobenzyl halide. A typical embodiment is 4,6-diamino-1,2-dihydro-2,2-dimethyl-1-(3-nitrobenzyloxy)-1,3,5-triazine hydrochloride.

3,632,584

PYRIMIDINE DERIVATIVES

Klaus Gutsche, Berlin, Germany, and Mahmud Muftic, Cornavin-Geneva, Switzerland, assignors to Schering A.G., Berlin, Germany

No Drawing. Filed June 24, 1968, Ser. No. 739,171

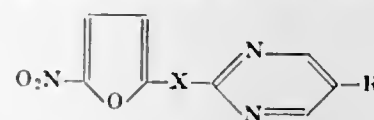
Claims priority, application Germany, June 23, 1967, Sch 40,920

Int. Cl. C07d 51/36

U.S. Cl. 260—251

15 Claims

For combatting bacteria, and trichomonads such as *Trichomonas vaginalis*, drugs of the following formula:



wherein

R represents substituted and unsubstituted aliphatic, aryl or aralkyl residues;

X represents $-\text{CH}=\text{CY}-$, and

Y represents hydrogen, lower alkyl, aryl or aralkyl.

3,632,585

ALKALOID SALTS OF 6-PHOSPHOGLUCONIC ACID

Aurelio Filippo Notarianni, Milan, Italy, assignor to SPA-Societa Prodotti Antibiotici S.p.A., Milan, Italy

No Drawing. Filed June 5, 1967, Ser. No. 643,409

Int. Cl. C07d 57/64

U.S. Cl. 260—253

9 Claims

Salts and alkaloids of 6-phosphogluconic acid having increased cardiac and uterine activity are provided herein. Specific alkaloids embraced by the present invention included the Rauwolfia alkaloids, xanthine, alkaloids, Leysin bean alkaloids, opium alkaloids, chincona alkaloids and Ephedra alkaloids.

3,632,586

SULFUR DIOXIDE ADDITION PRODUCT

Karl Brack, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

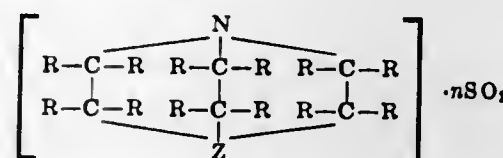
No Drawing. Filed Jan. 29, 1968, Ser. No. 703,847

Int. Cl. C07d 51/70

U.S. Cl. 260—268 S

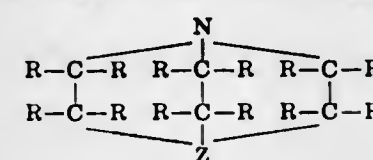
3 Claims

Disclosed is a sulfur dioxide addition product having the formula:



wherein Z is selected from the group consisting of the N and R—C radicals, each R is independently selected from the group consisting of the hydrogen and C_1-C_8

alkyl radicals n is 1 when Z is the R—C radical and n is 1–2 when Z is the N radical. This addition product is made by contacting a compound having the formula:



with sulfur dioxide under substantially anhydrous conditions and preferably in an inert liquid in which the compound is substantially soluble and the addition product is substantially insoluble.

3,632,587

PIPERAZINO METHYL ISATINYLIDINE 3 ACETATES

John Hollowood, Henley-on-Thames, England, assignor to John Wyeth & Brother Limited, Taplow, Maidenhead, Berkshire, England

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,296

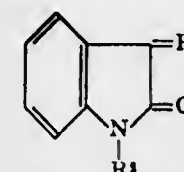
Claims priority, application Great Britain, Aug. 16, 1967, 37,597/67

Int. Cl. C07d 51/70

U.S. Cl. 260—268 PH

2 Claims

Isatin derivatives having the formula



wherein R^1 is ethylenedioxy or a divalent radical of an aliphatic ester and R^2 is an aminoalkyl or acyl radical or a radical of the formula



where R^3 is hydrogen or an aminomethyl radical are effective hypotensive agents; additionally, many of these also possess useful anti-inflammatory activity.

3,632,588

OXIDATION OF DIHYDROQUINACRIDONE

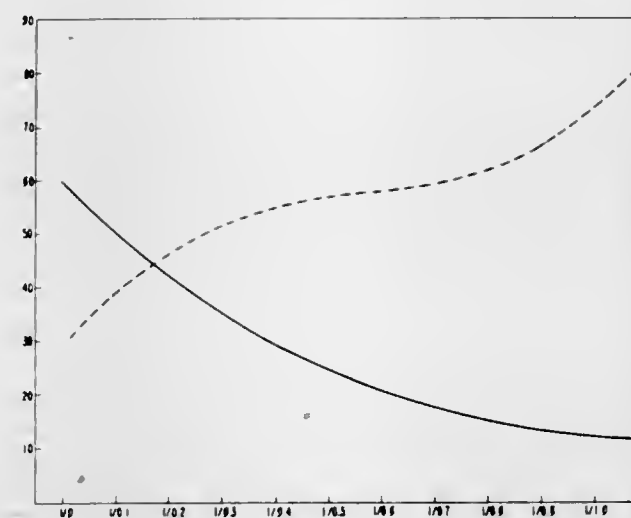
Felix Frederick Ehrich, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 669,933, Sept. 22, 1967. This application July 20, 1970, Ser. No. 55,643

Int. Cl. C07d 37/00

U.S. Cl. 260—279

5 Claims



Alkaline oxidation of dihydroquinacridone (DQA) by such oxidants as sodium m-nitrobenzene sulfonate

(SNBS) in the presence of a compound of which sodium metanilate (SMA) is illustrative to increase the yield of quinacridonequinone (QAQ).

3,632,589

DISPERSE DYES OF THE NAPHTHOYLENE-BENZIMIDAZOLE SERIES

Curt Mueller, Basel, and Ulrich Zirnigbl, Binningen, Basel-Land, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed Jan. 11, 1968, Ser. No. 697,004

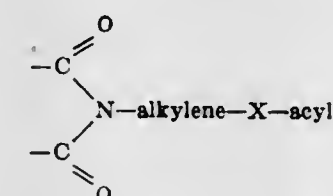
Claims priority, application Switzerland, Jan. 20, 1967, 875/67

Int. Cl. C07d 49/30

U.S. Cl. 260—282

6 Claims

Disperse dyes of the naphthoylene-benzimidazole series, having in their molecular structure a group of the formula



wherein X is an oxygen atom or a tertiary amino group, when used for the coloration of hydrophobic fully synthetic or semi-synthetic fibres, display good fastness to light, wet and temperature treating.

3,632,590

ESTERS DERIVED FROM 5-NITRO QUINALDINE

Eugene L. Lerol, Bievres, France, assignor to Societe d'Etudes de Produits Chimiques, Issy-les-Moulineaux, France

No Drawing. Filed July 22, 1968, Ser. No. 746,300

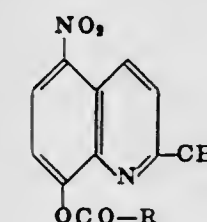
Claims priority, application Great Britain, Aug. 14, 1967, 37,267/67

Int. Cl. C07d 33/48

U.S. Cl. 260—287 R

1 Claim

Novel nitro quinaldine esters, having biological and therapeutic properties and low toxicity, having the general formula



wherein R is a straight or branched chain, substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, aralkyl or heterocyclic radical. They can be made by reacting 5-nitro quinaldine with an acid chloride.

3,632,591

1,2,3,4,5,6-HEXAHYDRO-3-(CYCLOALIPHATIC OR CYCLOALIPHATIC ALKYL)-6,11-DIMETHYL-2,6-METHANO-3-BENZAZOCINES

Noel F. Albertson, East Greenbush, and Sydney Archer, Bethlehem, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed July 19, 1968, Ser. No. 745,992

Int. Cl. C07d 39/00

U.S. Cl. 260—293.54

12 Claims

1,2,3,4,5,6-hexahydro-3-(Y^1)-8-(Y^2)-6,11-dimethyl-2,6-methano-3-benzazocines wherein Y^1 is 2- or 3-cyclo-

pentenyl, lower alkyl-(2 or 3 - cyclopentenyl), cyclopentenylmethyl, (lower alkyl - cyclopentenyl)methyl, cyclopentyl, or lower alkyl-cyclopentyl, which are antagonists of strong analgesics, are obtained by introducing the Y¹ group into the corresponding 3-(H) compounds.

3,632,592

CERTAIN SUBSTITUTED THIENO[2,3-c]4,5,6,7-TETRAHYDRO PYRIDINES

Michio Nakanishi, Oita, and Toshihiro Kobayakawa and Tetsuya Tahara, Fukuoka, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Higashi-ku, Osaka, Japan

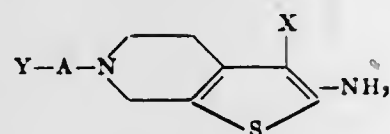
No Drawing. Filed Jan. 30, 1970, Ser. No. 8,098
Claims priority, application Japan, Feb. 3, 1969, 44/7,973; May 22, 1969, 44/40,033; June 11, 1969, 44/45,923

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 C

5 Claims

Thienopyridine derivatives of the formula



wherein X is cyano, carbamoyl or alkoxycarbonyl (wherein the alkoxy group has 1-4 carbon atoms), Y is cyano or carbamoyl, and A is $\text{—CH}_2\text{—CH(OH)—CH}_2\text{—}$ or alkylene of 1-4 carbon atoms, and pharmaceutically acceptable acid addition salts thereof. The above compounds are useful as blood sugar lowering agents.

3,632,593

CERTAIN N-SUBSTITUTED AROMATIC AMIDINES

Jean Albert Gautier, Marcel Mlocque, and Claude Fauran, Paris, and Albert Yves Le Cloarec, Saint-Maur, France, assignors to Dilalande S.A., Courbevoie, Hauts-de-Seine, France

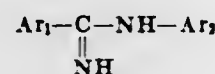
No Drawing. Filed July 9, 1968, Ser. No. 743,332
Claims priority, application Great Britain, July 14, 1967, 32,426/67

Int. Cl. C07d 31/42

U.S. Cl. 260—296 R

2 Claims

N-substituted aromatic amidines having the formula



in which Ar₁ is an unsubstituted phenyl radical or a phenyl radical substituted by a halogen atom, a methoxy radical or a trifluoromethyl radical; an unsubstituted or substituted naphthyl radical or a pyridyl radical; and

Ar₂ is an unsubstituted phenyl radical or a phenyl radical substituted by one or more halogen atoms, e.g., Cl, Br or F, by a trifluoromethyl radical, by alkyl radicals having 1 to 4 carbon atoms, or by one or more ether oxide group O—R, where R = —CH_3 , $\text{—C}_2\text{H}_5$ or $\text{—C}_3\text{H}_7$; an unsubstituted or substituted naphthyl radical or a heterocyclic radical, such as a pyridyl radical.

A process for obtaining the amidines comprises reacting an aromatic amine with an aromatic nitrile using an alkaline amide as a condensation agent and by carrying out the reaction in liquid ammonia.

The amidines have therapeutic activity as analgesics, as analgesics, anti-inflammatory agents, neurosedative or psychoanaleptic agents, antipyretic agents, anti-hypertensive agents and hypotensive agents.

3,632,594

NEW N-SUBSTITUTED DI-AMIDINES DERIVED FROM AROMATIC DIAMINES AND A PROCESS FOR THEIR PREPARATION

Jean Albert Gautier, Marcel Mlocque, and Claude Fauran, Paris, and Albert Yves Le Cloarec, Saint-Maur, France, assignors to Deland S.A., Courbevoie, Hauts-de-Seine, France

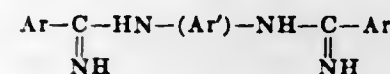
No Drawing. Filed July 11, 1968, Ser. No. 743,957
Claims priority, application Great Britain, July 14, 1967, 32,427/67

Int. Cl. C07c 123/00

U.S. Cl. 260—296 R

7 Claims

N-substituted diamidines of the formula



in which Ar is an unsubstituted phenyl radical or a phenyl radical substituted by one or more halogen atoms, by an alkyl radical having one to four carbon atoms, or by one or more ether-oxide groups of the formula O—R in which R = —CH_3 , $\text{—C}_2\text{H}_5$ or $\text{—C}_3\text{H}_7$; an unsubstituted or substituted naphthyl radical or a heterocyclic radical such as a pyridine radical, and Ar' is an unsubstituted phenyl radical, the two —NH radicals between which the phenyl radical is situated may be attached to the phenyl radical in the 1-2, 1-3 or 1-4 positions, and which phenyl radical may be substituted by a halogen atom or a methoxy radical, the respective positions of these substituents being capable of being as above; or a naphthyl radical, the two —NH radicals between which the naphthyl radical is situated, preferably being attached to the naphthyl radical in the 1-5 position.

3,632,595

COMPOUND, 2 - BENZYL - 10-(1-CYCLOHEXYL-ETHYL)-5,5-DIMETHYL - 8 - HYDROXY-1,2,3,4-TETRAHYDRO - 5H - [1]-BENZOPYRANO[3,4-d]PYRIDINE

Harry G. Pars, 42 Winthrop Road, Lexington, Mass. 02173, and Felix E. Granchelli, 120 Spring St., Arlington, Mass. 02174

No Drawing. Application Mar. 17, 1969, Ser. No. 807,951, now Patent No. 3,535,327, which is a continuation-in-part of application Ser. No. 490,687, Sept. 27, 1965. Divided and this application June 12, 1970, Ser. No. 7,437

Int. Cl. C07d 31/28

U.S. Cl. 260—297 H

1 Claim

New 8-alkyl- (and 8-cycloalkyl-lower-alkyl-) 10-hydroxy-5-oxo - 1,2,3,4 - tetrahydro-5H - [1] - benzopyrano [3,4-d]pyridines and 10-alkyl- (and 10-cycloalkyl-lower-alkyl-) 8-hydroxy-5-oxo-1,2,3,4-tetrahydro-5H-[1]benzopyrano[3,4-d]pyridines useful as intermediates for preparing 8-alkyl- (and 8-cycloalkyl - lower - alkyl-) 5,5-dilower - alkyl-10-hydroxy-1,2,3,4-tetrahydro-5H-[1]benzopyrano[3,4-d]pyridines and 10-alkyl- (and 10-cycloalkyl-lower-alkyl-) 5,5 - di-lower-alkyl-8-hydroxy-1,2,3,4-tetrahydro-5H-[1]benzopyrano[3,4-d]pyridines are prepared by reaction of a 4-carbo-lower-alkoxy-3-piperidone with a 5-alkylresorcinol (or a 5-cycloalkyl-lower-alkylresorcinol).

3,632,596

ALUMINUM CHLORHYDROXY ALLANTOIN: PROPYLENE GLYCOL COMPLEX

Sebastian B. Mecca, Abington, Pa., assignor to Schuylkill Chemical Company, Philadelphia, Pa.

No Drawing. Filed Aug. 18, 1967, Ser. No. 661,518

Int. Cl. C07f 5/06

U.S. Cl. 260—299

6 Claims

An alcohol-soluble aluminum chlorhydroxy allantoin: propylene glycol complex is provided by reacting allantoin with a propylene glycol complex of aluminum chlorhydroxide.

3,632,597

INSECTICIDAL 5-PHOSPHORYLACETAMIDO- AND 5 - PHOSPHONYLACETAMIDO SUBSTITUTED-1,2,4 THIADIAZOLES

Edmund J. Gaughan, Kensington, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Jan. 2, 1970, Ser. No. 431

Int. Cl. C07d 91/00

U.S. Cl. 260—306.8 D

9 Claims

Novel 5-phosphorylacetamido and 5-phosphonyl-acetamido-3-alkyl thio or alkyl - 1,2,4 - thiadiazoles are disclosed. The 5-dithiophosphorylacetamido derivatives, such as 5-(O,O-diethylthiophosphoryl acetamido)-3-methylthio-2,3,4-thiadiazole, are preferred. The compounds are useful as insecticides and are effective against a variety of insects when applied as indicated.

3,632,598

O,O-DIALKYL PHOSPHORODITHIOATE AND PHOSPHOROTHIOATE ESTERS OF OXAZOLIDINE-2,4-DIONE DERIVATIVES AS SYSTEMIC INSECTICIDES

Joel D. Jamison, Westminister, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

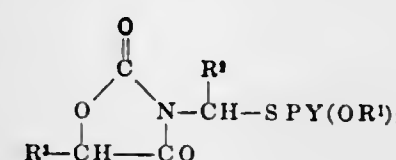
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,813

Int. Cl. A01n 9/36; C07f 9/16

U.S. Cl. 260—307 B

7 Claims

Compounds of the formula



in which Y is O or S, R¹ is CH₃ or C₂H₅, R² and R³ are H or CH₃, and insecticidal dispersible concentrates containing 10-50% of said compound and 50-90% of a dispersing agent have systemic insecticidal activity against the two-spotted mite.

3,632,599

SUBSTITUTED 1,2,4-OXADIAZOLIDINE-3,5-DIONES

Albrecht Zachecke, Bad Dürkheim, and Adolf Fischer, Mutterstadt, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,919
Claims priority, application Germany, Apr. 28, 1967, P 16 95 502.5; Jan. 31, 1968, P 16 70 312.1

Int. Cl. C07d 85/52

U.S. Cl. 260—307

2 Claims

Substituted 1,2,4 - oxadiazolidine - 3,5 - diones and a method of controlling unwanted plants with said compounds without injuring the crop plants.

3,632,600

DERIVATIVES OF ALIPHATIC-HYDROCARBYL SUBSTITUTED HETEROCYCLIC NITROGEN COMPOUNDS

Peter Reginald Morris, Hartley, near Dartford, England, assignor to Esso Research and Engineering Company

No Drawing. Filed May 31, 1968, Ser. No. 733,311

Int. Cl. C07d 55/04

U.S. Cl. 260—308 B

10 Claims

Heterocyclic compounds that are effective detergents and antioxidants for lubricant and fuel compositions have

a 5-membered ring having one to three hetero nitrogen atoms, there being attached to a carbon atom or to a nitrogen atom of said heterocyclic ring a hydrocarbyl group, preferably alkyl or alkenyl, having about 20 to 150 carbon atoms. There is also attached to a carbon atom of the heterocyclic ring, or to a carbon atom of a benzene ring that includes carbon atoms of the heterocyclic ring, a group ZSO₂—, ZSO₂—, ZS—, or ZO—, where Z is amino or metal. The hydrocarbyl group can be obtained from the polymer of a C₂ to C₆ olefin hydrocarbon such as polyisobutylene. Specific examples include calcium polyisobutenyl pyrrole sulfonate and calcium N-polyisobutenyl benztriazole sulfonate.

3,632,601

ALKYL-1-MERCAPTO SUBSTITUTED-2-BENZIMIDAZOLE-CARBAMATES

Hein L. Kloppe, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

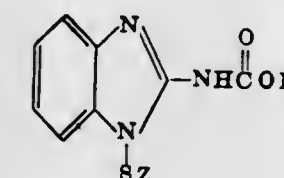
No Drawing. Application Mar. 20, 1968, Ser. No. 714,462, now Patent No. 3,541,213, which is a continuation-in-part of application Ser. No. 629,900, Apr. 11, 1967, which in turn is a continuation-in-part of application Ser. No. 548,034, May 6, 1966. Divided and this application June 20, 1970, Ser. No. 56,645

Int. Cl. C07d 49/38

U.S. Cl. 260—309.2

6 Claims

Alkyl-1-mercapto substituted - 2 - benzimidazolecarbamates of the formula below are useful as mite ovicides and fungicides.



where R is methyl, ethyl, isopropyl as sec-butyl; and Z is alkyl of 1 through 3 carbon atoms, benzyl or derivatives thereof as defined hereinafter.

An exemplary species of this general class is the compound:

methyl - 1 - (trichloromethylthio) - 2 - benzimidazolecarbamate.

3,632,602

2-(2-ARYLHYDRAZINO)-2-IMIDAZOLINES

Max Wilhelm, Allschwil, Switzerland, assignor to Ciba Corporation, New York, N.Y.

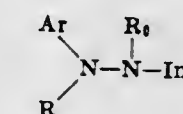
No Drawing. Filed Sept. 19, 1967, Ser. No. 668,959
Claims priority, application Switzerland, Sept. 23, 1966, 13,739/66; Aug. 16, 1967, 11,488/67

Int. Cl. C07d 49/34

U.S. Cl. 260—309.6

5 Claims

Compounds of the formula



Ar=aryl radical

R=hydrocarbon radical of aliphatic character

Im=optionally substituted 2-imidazolin-2-yl radical

R₀=hydrogen or hydrocarbon radical of aliphatic character for example: 2-(N²-methyl-N²-phenylhydrazino)-2-imidazoline and its salts.

Use: antihypertensives and vasoconstrictors.

3,632,603

PROCESS FOR THE PREPARATION OF N₂-DICHLOROPHOSPHORYL-CREATININE

Pierre Marie Joseph Obellianne, Paris, France, assignor to Uguine Kuhlmann, Paris, France

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,265

Claims priority, application France, July 6, 1967, 113,273

Int. Cl. C07d 49/30

U.S. Cl. 260—309.7

3 Claims

Process for the preparation of N₂-dichlorophosphoryl-creatinine which comprises treating pulverulent creatinine at the boil with 10 to 100 times its weight of phosphorus oxychloride.

3,632,604

2-SUBSTITUTED-4-PHENYL AND SUBSTITUTED PHENYL-1-PYRROLINES

Marcel K. Eberle, Madison, and William J. Houlihan, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Apr. 9, 1970, Ser. No. 27,145

Int. Cl. C07d 27/14

U.S. Cl. 260—326.9

8 Claims

2-substituted-4-phenyl and substituted phenyl-1-pyrrolines, e.g., 4-(p-chlorophenyl)-2-(3-dimethylamino-propylamino)-1-pyrroline dihydrochloride are prepared by treating a 2-alkoxy-4-phenyl or substituted phenyl-1-pyrroline with a substituted diamine. The compounds are useful as tranquilizers.

3,632,605

PYRROLINE DERIVATIVES

Francois Debarre, Antony, and Gilbert Poiget, Thiais, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed July 13, 1967, Ser. No. 653,006

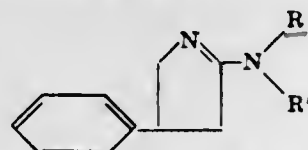
Claims priority, application France, July 21, 1966, 70,348; May 26, 1967, 108,081

Int. Cl. C07d 27/14

U.S. Cl. 260—326.5

7 Claims

Pyrroline derivatives of the formula:



wherein R and R' are the same or different and each represents a hydrogen atom or an alkyl group containing 1 to 5 carbon atoms (preferably methyl), and the benzene ring is unsubstituted or carries one or more substituents selected from halogen atoms, alkyl and alkoxy groups containing 1 to 5 carbon atoms, and hydroxy, nitro and amino groups, and their acid addition salts, possess pharmacodynamic properties. They act on the central nervous system, and are especially useful as anti-depressants; furthermore, they show a hypertensive effect.

3,632,606

FLUORINATED ORGANIC CYCLIC PEROXIDES AND PROCESS THEREFOR

Richard L. Talbott and Phillip G. Thompson, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 397,669, Sept. 14, 1964. This application May 20, 1968, Ser. No. 730,598

Int. Cl. C07d 11/00

U.S. Cl. 260—338

5 Claims

The specification discloses highly fluorinated compounds each containing a 3 to 16 membered ring which includes a carbon-bonded peroxide group. These compounds are prepared by fluorinating a compound having 2 oxygen atoms bonded to carbon to effect ring closure to form the peroxide-containing ring. The compounds of the invention are useful as oxidants and as polymerization initiators.

3,632,607

PROCESS FOR PURIFYING KALAFUNGIN

Heinz F. Meyer, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed July 10, 1968, Ser. No. 743,594

Int. Cl. C07d 5/06

U.S. Cl. 260—343.6

8 Claims

Process for purifying an impure preparation of kalafungin which comprises hydrolyzing the kalafungin in the impure preparation and forming a kalamycin salt, acidifying and back-extracting the kalamycinic acid from the reaction mixture with an organic solvent, and lactonizing kalamycinic acid to kalafungin. Kalafungin, also known as kalamycin, is disclosed in U.S. Pat. 3,300,382 as a useful antibiotic.

3,632,608

METHODS FOR PREPARING ESTERS AND AMIDES OF TRIMELLITIC ANHYDRIDE AND PRODUCTS THEREFROM

Fred F. Holub, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Original application May 15, 1967, Ser. No. 638,636, now Patent No. 3,435,002, dated Mar. 25, 1969. Divided and this application July 1, 1968, Ser. No. 741,310

Int. Cl. C07d 5/46

U.S. Cl. 260—346.3

4 Claims

Esters or amides of trimellitic anhydride can be prepared by reacting the latter directly with either a polyol or a disubstituted amine at elevated temperatures and by a rearrangement reaction involving the elimination of water to obtain the ester or amide polyanhydride. Polyamide acid resins and polyimides can be prepared from such compositions.

3,632,609

METHOD FOR THE PREPARATION OF (CIS-1,2-EPOXYPROPYL) PHOSPHONIC ACID AND DERIVATIVES THEREOF

Raymond A. Firestone, Fanwood, and Edward J. Glamkowski, Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed May 15, 1968, Ser. No. 729,467

Int. Cl. C07f 9/38, 9/40

U.S. Cl. 260—348 R

11 Claims

A method for the preparation of (cis-1,2-epoxypropyl) phosphonic acid and its salts and ester derivatives which comprises treating a (1-haloethoxy methylphosphine acid or a salt or ester thereof with a metallic hydride, with an alkali metal amide or with an organo-metallic reagent capable of effecting epoxide-type ring closure. The (cis-1,2-epoxypropyl)phosphonic acid product thus obtained and its salts are antibiotics which have utility as antibacterials in inhibiting the growth of gram-positive and gram-negative pathogenic bacteria.

3,632,610

PROCESS FOR THE PRODUCTION OF 5-NITRO-1,4-DIHYDROXY-ANTHRAQUINONE

Reinold Schmitz, Blecher Uber Bergisch-Gladbach, Heinrich Leister, Cologne-Stammheim, and Hans-Samuel Bien, Burscheid, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 2, 1967, Ser. No. 672,026

Claims priority, application Germany, Oct. 6, 1966, F 50,370

Int. Cl. C07b 1/10; C07c 79/36

U.S. Cl. 260—351

4 Claims

5-nitro-1,4-dihydroxy-anthraquinone is produced by nitrating 1-hydroxy-10-chloroanthraquinone (4,9) in an inorganic acid solvent and hydrolyzing the resultant 1-hydroxy-5-(or 8)-nitro-10-chloro-anthraquinone (4,9).

3,632,611

ANTHRAQUINONE DYES CONTAINING A REACTIVE CARBAMYL METHYL GROUP

Hirohito Kenmochi, Toyonaka-shi, Seiji Hotta, Minoo-shi, and Takashi Akamatsu, Ashiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,981

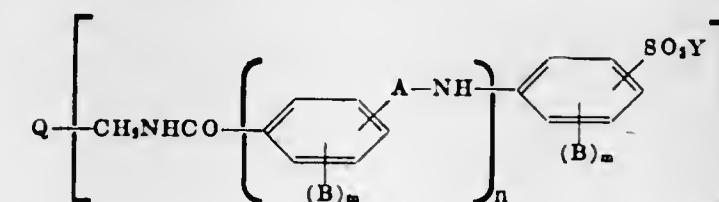
Claims priority, application Japan, Oct. 12, 1966, 41/67,325; Oct. 14, 1966, 41/67,670; Oct. 18, 1966, 41/68,751; Nov. 11, 1966, 41/74,331; Feb. 10, 1967, 42/8,689; Feb. 13, 1967, 42/9,379; May 16, 1967, 42/31,388

Int. Cl. C09b 62/70, 62/72; D06p 1/38

U.S. Cl. 260—372

9 Claims

A reactive dye having a carbamylmethyl as a reactive group and represented by the formula,



wherein:

A is —SO₂— or —CO—;

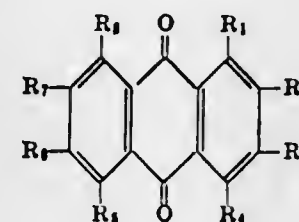
B is methyl, methoxy or chlorine;

Y is β-sulfoethyl or vinyl;

m and n are 0 or 1;

O is 1 or 2; and

Q is an anthraquinone residue having the formula:



wherein:

R₁ is hydroxy, amino or a substituted amino;R₂ and R₃ are hydrogen, bromine, methyl, sulfamyl, sulfo, phenoxy or 4-sulfamylphenoxy;R₄ is hydroxy, methyl-substituted phenyl, methyl and sulfamyl-substituted phenyl, amino or a substituted amino;R₅ and R₆ are hydrogen, hydroxy or sulfo; andR₇ and R₈ are hydrogen, chlorine or sulfo,

the above substituted aminos being a C₁₋₃ alkylamino, (α-C₁₋₃-alkyl-γ-phenyl or -4-sulfamylphenyl) propylamino, cyclohexylamino, 2-benzylcyclohexylamino, 1,2,3,4-tetrahydronaphthylamino, or a substituted phenylamino where the substituent is methyl, ethoxy, sulfamyl, methyl and sulfamyl, N-phenylsulfamyl, sulfo or methyl- or chloro-substituted phenoxy; the carbamylmethyl being attached to the aryl carbon atom of said phenyl group or the nitrogen atom of said sulfamyl group.

3,632,612

ANTHRAQUINONE DYESTUFFS

John Lindley Leng, Manchester, and Cyril Eric Vellins, Gatley, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Sept. 27, 1967, Ser. No. 671,134

Claims priority, application Great Britain, Sept. 28, 1966, 43,379/66

Int. Cl. C09b 1/54, 1/56

U.S. Cl. 260—380

5 Claims

Anthraquinones substituted in the 1 position by an amino or alkylamino group, in the 4 position by a hydroxy, ether, thioether, amino or substituted amino group

and in the 2 position by a phenoxy or phenylthio group carrying a primary, a secondary or tertiary amino group are prepared from the corresponding anthraquinones substituted in the 2 position by a halogen or sulphonic acid group by reaction with the appropriate phenol or thiophenol, and are converted into their quaternary salts by alkylating agents. The products, before or after quaternisation, are useful for the coloration of polymeric materials.

3,632,613

ADDITIVES FOR LUBRICATING COMPOSITIONS

John Scotchford Elliott, Eric Descamp Edwards, and Gerald John Joseph Jayne, London, England, assignors to Castrol Limited, London, England

No Drawing. Original application Jan. 7, 1966, Ser. No. 519,008, now Patent No. 3,367,864, dated Feb. 6, 1968. Divided and this application Aug. 25, 1967, Ser. No. 663,215

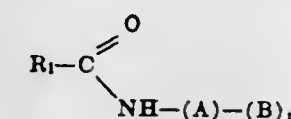
Claims priority, application Great Britain, Jan. 8, 1965, 1,000/65

Int. Cl. C07c 143/90; C11d 1/28

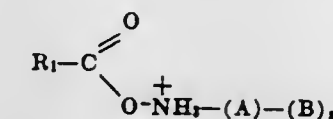
U.S. Cl. 260—401

3 Claims

The invention provides a novel oil-soluble compound, particularly suitable as an additive for lubricating compositions, selected from the group consisting



and



wherein R₁ is selected from the group consisting of alkyl and alkenyl radicals containing at least 12 carbon atoms; A is an amino hydrocarbon or amino hydroxy hydrocarbon radical containing from 1 to 6 amino groups; n of —(B)_n is an integer of from 1 to 6, B is a radical having the formula —(CRR)_m—SO₃H where m is 3 or 4, said radical being attached through the carbon atom to a nitrogen atom of A, and wherein R is selected from the group consisting of a hydrogen atom and a hydrocarbon group having not more than 10 carbon atoms, provided however that any two substituents of R on adjoining carbon atoms may together form a cyclic system, and the internal salts of the foregoing compounds.

3,632,614

PROCESS FOR THE SELECTIVE HYDROGENATION OF CONJUGATED DOUBLE BONDS

Michael Calk, Abuza, Haifa, Israel, and Edwin N. Frankel, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed July 25, 1968, Ser. No. 747,472

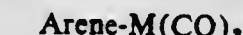
Claims priority, application Israel, Aug. 20, 1967, 28,529

Int. Cl. C11c 3/12

U.S. Cl. 260—409

3 Claims

The present invention concerns a process for the selective hydrogenation of conjugated double bonds in aliphatic and cycloaliphatic (hereinafter for short "aliphatic") polyene compounds in the presence of a catalyst corresponding to the formula



wherein M stands for Cr, Mo or W. The term "polyene" is meant to include also diene.

3,632,615 CONTINUOUS RENDERING OF FAT-CONTAINING MATERIAL

Gene C. Mason, Piqua, Ohio, assignor to The French Oil Mill Machinery Company, Piqua, Ohio
Filed Mar. 11, 1968, Ser. No. 712,265
Int. Cl. C11b 1/12

U.S. Cl. 260—412.6 4 Claims

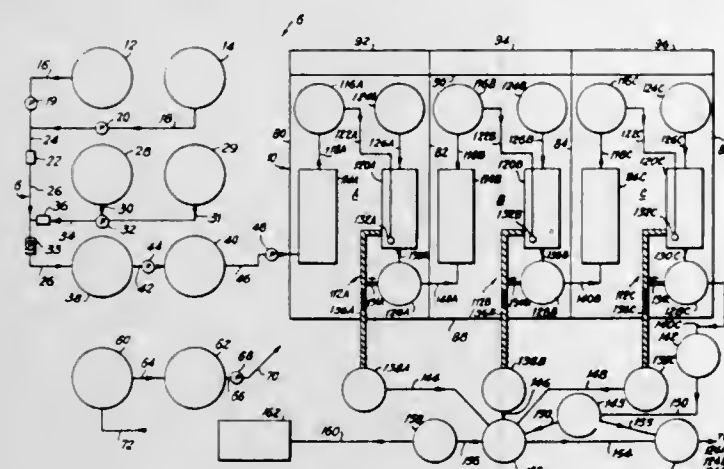
This process relates to continuous rendering of fat-containing material by passing the material in succession through a series of cookers in such a manner that the material can be pumped from one cooker to another by maintaining the material in fluid form and by maintaining the material in the cooker at a desired level. The cooked material is then passed through other apparatus and finally discharged in the form of liquid fat and solids including crackling cake. This replaces the batch cookers commonly used in rendering plants.

3,632,616 APPARATUS AND PROCESS FOR THE SELECTIVE FRACTIONATION OF FATTY MATERIALS INTO USEFUL FRACTIONS THEREOF

Richard Kassabian, 122 Edgewater Road, Cliffside Park, N.J. 07010

Filed Apr. 24, 1968, Ser. No. 729,489
Int. Cl. C11b 3/00

U.S. Cl. 260—428.5 12 Claims



Apparatus and process are provided for the selective fractionation of fatty materials into useful fractions thereof. Means are included to mix the fatty materials with a solvent blend, in which one of the solvents functions primarily as a diluent, to form a miscella which is then successively subjected to successively lower fractionation temperatures to selectively fractionate for removal the desired, useful fatty material fractions.

3,632,617 ORGANO-VANADIUM COMPOUND

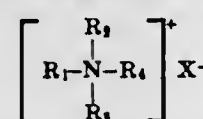
Yoshiaki Suzuki and Masayoshi Tsuboi, Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 1, 1968, Ser. No. 702,398
Claims priority, application Japan, Feb. 1, 1967, 42/6,516

Int. Cl. C07f 9/00; G03g 9/02

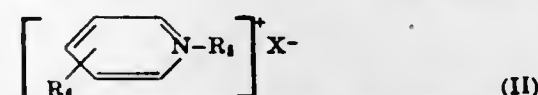
U.S. Cl. 260—429 1 Claim

An organo-vanadium compound prepared by the reaction of a member selected from the group consisting of a compound represented by the general Formula I



wherein R_1 represents a member selected from the group consisting of a monovalent hydrocarbon group having 6–21 carbon atoms and a derivative thereof; R_2 , R_3 , and

R_4 , which may be the same or different, each represents a member selected from the group consisting of a hydrogen atom and a hydrocarbon group; and X^- represents an anion, and a compound represented by the general Formula II



wherein R_5 represents a member selected from the group consisting of a monovalent alkyl group having 1–12 carbon atoms, a phenyl group, a benzyl group, COOR_6 , and $-\text{CH}_2-\text{NHCOR}_6$; R_6 represents a member selected from the group consisting of an alkyl group having 1–12 carbon atoms and a halogen atom; and X^- represents an anion, with a compound represented by the general Formula III



wherein M represents a member selected from the group consisting of ammonium and a metal providing monovalent cation; a and b each represents an integer; and n is a number of 0–18.

3,632,618 SCHIFF'S BASES DERIVED FROM CYCLANIC AMINES, AND METHOD FOR USING SAME AS AGRICULTURAL PESTICIDES

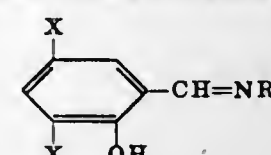
Henri Pacheco, Bron, and Lucien Cronenberger, Daniel Pillon, and Jean Thiollere, Lyon, France, assignors to PEPRO-Société pour le Développement et le Vente de Spécialités Chimiques

No Drawing. Filed May 21, 1968, Ser. No. 730,910
Claims priority, application France, May 26, 1967, 48,714

Int. Cl. C07c 119/00

U.S. Cl. 260—429.9 19 Claims

New Schiff's bases having the general formula



wherein X is halogen, and R is a cycloaliphatic or tetrahydronaphthyl radical, which may be substituted by one or more radicals such as OH , halogen, alkyl, halogenated alkyl; and the salts and metal chelates thereof; and their use as fungicides for agricultural use.

3,632,619 ALKYL-SUBSTITUTED DISILOXANES

Eugene D. Groenhof, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 25, 1970, Ser. No. 14,183
Int. Cl. C07f 7/08

U.S. Cl. 260—448.2 R 4 Claims

Novel disiloxanes of the formula



in which R is an alkyl radical of from 14 to 30 carbon atoms and R' is a methyl or phenyl radical, have utility as lubricants and release agents.

3,632,620 PREPARATION OF ISOCYANATES FROM CARBODIIMIDES

Ehrenfried H. Kober, Hamden, and Wilhelm J. Schnabel, Branford, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Filed June 26, 1968, Ser. No. 740,064
Int. Cl. C07c 119/04

U.S. Cl. 260—453 P 4 Claims

Organic carbodiimides are reacted with carbon monoxide and/or carbon dioxide in the presence of a catalyst at an elevated pressure and elevated temperature to produce

organic isocyanates. The catalyst is preferably at least one metal or compound of a metal found in Groups 1b, 11b, IIIb, IVa, IVb, Va, VIa, VIb, IIIa, VIIa, VIII, and in the Lanthanide series of the Periodic Table.

3,632,621 NOVEL OXIMECARBAMATES

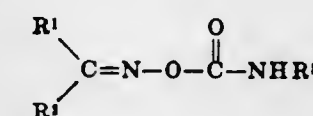
Roger Williams Addor, Pennington, and Frank Albert Wagner, Jr., Hopewell, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Jan. 30, 1968, Ser. No. 701,572

Int. Cl. C07c 131/00

U.S. Cl. 260—453 R 7 Claims

New compounds of the formula:



wherein R^1 is either lower-alkylthio, ar(lower-alkyl)thio, arylthio or lower-alkenylthio; R^2 is R^1 or chloro; and R^3 is lower-alkyl. The compounds are useful as nematocides, insecticides and acaricides.

3,632,622 POLYHALOALKYLPOLYTHIOALKYL SULFITE ESTERS

Joseph E. Moore, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Application Oct. 20, 1966, Ser. No. 588,009, now Patent No. 3,519,672, which is a continuation-in-part of application Ser. No. 414,876, Nov. 30, 1964. Divided and this application Apr. 1, 1969, Ser. No. 834,187

Int. Cl. C07c 137/00

U.S. Cl. 260—456 R 5 Claims

Esters and ethers of the formula



where R' represents a polyhaloalkyl group having 1 to 2 carbon atoms and 3 to 5 halogens of atomic number 17 to 35, at least one of said halogens being bonded to the alpha carbon atoms, X is alkylene of 1 to 4 carbon atoms and m is an integer varying from 2 to 3, and R is an organic radical which forms an ester or ether with the remainder of the molecule. Typical R groups are hydrocarbyl, phosphoro, carbonyl, oxycarbonyl, sulfate and sulfonate groups. These esters and ethers are useful as fungicides.

3,632,623 (β -CARBAMYL- β -HYDROXYETHYL)-ALKYLAMMONIUM SALTS

Friedrich Becke, Heidelberg, Friedrich Fuchs, Ludwigshafen, Reinhold Kohlaupt, Frankenthal, and Bruno Sander and Josef Thewis, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 18, 1968, Ser. No. 776,794
Claims priority, application Germany, Nov. 21, 1967, P 16 43 698.9

Int. Cl. C07c 141/06

U.S. Cl. 260—459 5 Claims

New (β -carbamoyl- β -hydroxyethyl)-alkylammonium salts having a long chain alkyl radical and their production by reaction of primary or secondary long chain alkylamines with glycidamide followed by further reaction of the resultant intermediates with acids or quaternizing agents. These salts are valuable fat-liquoring auxiliaries for leather, have the ability of increasing the absorptivity of paper, are useful as ore flotation agents, and are effective wetting agents for fibrous materials.

3,632,624 DIALKYL CARBONATE PREPARATION

John E. Anderson, Clyde E. Parish, and George H. Ross, Houston, Tex., assignors to The Signal Companies, Inc.

No Drawing. Continuation-in-part of application Ser. No. 592,749, Nov. 8, 1966, now Patent No. 3,502,706, which is a continuation-in-part of abandoned application Ser. No. 372,409, June 3, 1964. This application Dec. 11, 1967, Ser. No. 689,247

Int. Cl. C07c 69/00

U.S. Cl. 260—463 8 Claims

Dialkyl carbonates are prepared by a new process comprising mixing together carbonyl sulfide, an amine and an alkanol and oxidizing the resulting mixture.

3,632,625 METHOD OF PRODUCING KETONITRILES

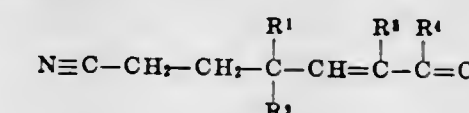
Helmut aus der Funten, Butttergasse, 5215 Mondorf, Germany; Hermann Richtzenhain, Post Marialinden, 5066 Schwellenbach, Germany; and Moustafa El-Chahawi, 35 Zundorfer weg, 5211 Lulsdorf, Germany

No Drawing. Filed July 1, 1968, Ser. No. 743,583
Claims priority, application Germany, June 30, 1967, D 53,487

Int. Cl. C07c 121/46, 121/52, 121/34

U.S. Cl. 260—464 12 Claims

Catalytic hydrogenation of unsaturated ketonitriles of the formula:



wherein R^1 and R^2 are 1 to 4 carbon atom alkyl groups; R^3 is hydrogen or a 1 to 4 carbon atom alkyl group; and R^4 is an aryl group or a 1 to 4 carbon atom alkyl group or R^3 , R^4 and their attached carbon atoms may be a 4 to 5 carbon ring; at temperatures of about -20 to $+70^\circ\text{C}$. in the presence of a reduced noble metal of the platinum group.

3,632,626 PROCESS FOR REMOVING INHIBITORS FROM ALKENYL MONOMERS

John Schneller III, Metairie, and Teruko L. Todd, Kenner, La., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed June 17, 1968, Ser. No. 737,360
Int. Cl. C07c 69/54, 121/32

U.S. Cl. 260—465.9 R 10 Claims

A process is provided for removal of phenolic polymerization inhibitors from alkenyl monomers. The process includes first contacting the monomer with a highly porous, strongly basic, quaternary ammonium anion exchange resin in the salt form to remove a major portion of the inhibitor, and subsequently contacting the monomer with a highly porous, weakly basic, tertiary amine anion exchange resin in the hydroxide form to produce a monomer product substantially free of the inhibitor.

3,632,627 GLYCERIDE DERIVATIVES OF PROSTAGLANDINS

Maxwell Gordon, Philadelphia, Pa., and Jerry A. Weisbach, Cherry Hill, N.J., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,832
Int. Cl. C07c 69/74

U.S. Cl. 260—468 R 4 Claims

The half life of prostaglandins in the blood is prolonged by administering the prostaglandin as a glyceride or phos-

phatide derivative. The glyceride and phosphatide derivatives of prostaglandins are prepared (1) by reacting a glycerol or glycerophosphoric acid compound with a prostenoic acid which has hydroxy groups protected and then removing the hydroxy-protecting groups or (2) biosynthetically by reacting a prostenoic acid with a glycerol or glycerophosphoric acid compound.

3,632,628

SULFONAMIDOALKYL AMINO ACIDS

John T. Suh, Mequon, Wis., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed Apr. 15, 1968, Ser. No. 721,195
Int. Cl. C07c 143/74

U.S. Cl. 260—470 7 Claims
The compounds are sulfonamidoalkyl amino acids useful as chelating agents and as pharmaceutical agents for the treatment of chronic hypotension. Compounds disclosed include p-methanesulfonamidophenylalanine and m-methanesulfonamidophenylalanine.

3,632,629

ALKYL ESTERS OF 4-SUBSTITUTED PHENOXYISOBUTYRIC ACID

Gerard Bulteau, Paris, France, assignor to Société d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France
No Drawing. Filed Sept. 19, 1968, Ser. No. 760,973
Claims priority, application France, Nov. 22, 1967, 133,439
Int. Cl. C07c 69/76

U.S. Cl. 260—470 5 Claims
Alkyl esters of 4-substituted phenoxyisobutyric acid which are useful in the treatment of hypocholesterolemia in mammals and as preventives of biliary lithiasis in mammals.

3,632,630

DIESTERS OF AROMATIC DIHYDROXY CARBONYL COMPOUNDS AND BRANCHED CHAIN FATTY ACIDS CONTAINING A QUATERNARY CARBON ATOM

Tai S. Chao, Homewood, Ill., and Manley Kjonas, Hammond, Ind., assignors to Atlantic Richfield Company
No Drawing. Filed Aug. 17, 1967, Ser. No. 661,237
Int. Cl. C07c 69/28

U.S. Cl. 260—479 8 Claims
Esters of certain branched chain fatty acids containing a quaternary carbon atom and certain dihydroxy aromatic carbonyl compounds (e.g., benzophenones, naphthophenones) are employed as base fluids or blending stock in lubricants. Lubricants containing these esters possess suitable viscosity characteristics and greater thermal and oxidative stability which are of special value in lubricating engines which are subject to high temperatures.

3,632,631

STERICALLY HINDERED BISPHENYL CARBAMATES

William E. Wright, Farmington, Mich., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Sept. 8, 1967, Ser. No. 666,463
Int. Cl. C07c 125/06

U.S. Cl. 260—479 5 Claims
Bisphenyl carbamates in which the carbamate radical is sterically hindered are useful as pesticides and antioxidants. Examples are 4,4'-methylenebis(2,6-di-tert-butylphenyl methylcarbamate) and 4,4'-thiobis(6-tert-butyl-2,6-di-tert-butylphenyl methylcarbamate).

3,632,632

CARBOXY-TERMINATED POLYESTER RESINS

Martin Hauser and George Sidney Sprague, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed June 29, 1967, Ser. No. 651,100
Int. Cl. C07c 69/50

U.S. Cl. 260—485 G 2 Claims
New carboxy-terminated polyester resins composed of a saturated dicarboxylic acid, a saturated diol and 2-methyl-1,2,3-propanetricarboxylic acid and their use as binders in rocket propellant and explosive compositions are disclosed.

3,632,633

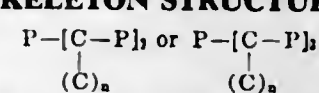
PROCESS FOR PREPARING ACYLOXY-CYCLOALKENES

James J. Louvar, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 16, 1968, Ser. No. 760,070
Int. Cl. C07c 69/14, 69/44, 69/62

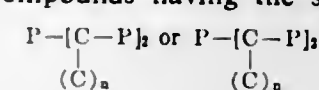
U.S. Cl. 260—497 R 10 Claims
Acyloxycycloalkenic compounds are prepared by contacting a mixture of a carboxylic acid and a cycloalkene compound with an activated crystalline aluminosilicate at reaction conditions to form the desired product.

3,632,634

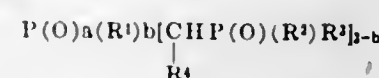
PHOSPHORUS COMPOUNDS HAVING THE SKELETON STRUCTURE

Ludwig Maier, Tiergartenstrasse 17, Kilchberg, Zurich, Switzerland
No Drawing. Filed Aug. 16, 1968, Ser. No. 753,056
Int. Cl. C07f 9/30, 9/50

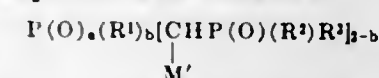
U.S. Cl. 260—502,4 P 1 Claim
Phosphorus compounds having the skeleton structure



of the formula



where a and b are 0 or 1, and process for making by reacting a compound of the formula



with an organic halide of the formula R^4X . The present compounds are useful as complexing agents, surfactants, plasticizers, hydraulic fluids, corrosion inhibitors, stabilizers for peroxides and hydroperoxides, additives to electrolytic baths, heat transfer agents, lubricants, oil additives, and gasoline additives to detergents.

3,632,635

AROMATIC DINITRILE CONVERSION PROCESS

Charles N. Winnick, Teaneck, N.J., and Joseph Pugach, Bronx, N.Y., assignors to Halcon International, Inc.

Filed Sept. 1, 1966, Ser. No. 578,959
Int. Cl. C07c 63/26

U.S. Cl. 260—515 P 7 Claims
Aromatic dinitriles are converted to the corresponding diacids by a process which comprises hydrolyzing the dinitrile in the presence of an alkali metal bicarbonate, removing the ammonia and carbon dioxide from the hydrolyzate, reacting the disalt-containing hydrolyzate with carbon dioxide to form a precipitate of the alkali metal monosalt of the diacid and a mother liquor containing the diacid salts and alkali metal bicarbonate, separating the precipitate from the mother liquor, recycling the mother liquor to the hydrolysis steps, disproportionating the

precipitate to form free diacid and alkali metal disalt of the diacid, separating the diacid from the disalt, recycling the disalt, and recovering the diacid.

3,632,636

N-ARYL-OMEGA-AMINOACIDS

Peter H. L. Wei, Upper Darby, and Stanley C. Bell, Penn Valley, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed June 11, 1968, Ser. No. 735,979
Int. Cl. C07c 101/44

U.S. Cl. 260—517 3 Claims
The disclosure is directed to N-aryl-omega-aminoacids and a method for their preparation. The compounds have central nervous system activity as depressants.

3,632,637

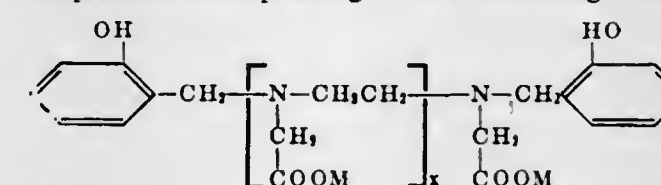
HYDROXYARYL-CONTAINING AMINOCARBOXYLIC CHELATING AGENTS

Arthur E. Martell, 1211 Orr St.,

College Station, Tex. 77840

No Drawing. Filed Feb. 13, 1968, Ser. No. 705,005
Int. Cl. C07c 101/72; C07l 15/02, 7/22

U.S. Cl. 260—519 1 Claim
Compounds corresponding to the following formula:



where

$x=0, 1, 2$

$M=H^+, Na^+, K^+, NH_4^+$

in synthesized from an ortho hydroxy benzyl halide and an amino acetic acid compound.

3,632,638

PRODUCTION OF LOWER ALIPHATIC ACIDS FROM OLEFINS

Daniel Hyman, Greenwich, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Feb. 18, 1969, Ser. No. 800,250
Int. Cl. C07c 53/22

U.S. Cl. 260—533 A 5 Claims
For high pressure reaction of an olefin such as propylene with carbon monoxide and water to produce a carboxylic acid such as isobutyric acid, a suitable catalyst comprises a substantial proportion of hydroxyalkane sulfonic acid and its sulfuric acid ester which are products of sulfonation of the olefin used in the carboxylic acid synthesis. In most embodiments the catalyst will also contain some sulfuric acid. The catalyst is readily recovered from carboxylic acid product by vacuum distillation and can be recycled directly to the high pressure reaction zone.

3,632,639

PROCESS FOR THE CRYSTALLIZATION OF OPTICALLY ACTIVE GLUTAMIC ACID

Yoshitsugu Tominaga, Takahisa Ogasawara, Hidemaro Tatemichi, and Hiroo Ito, Aichi, Japan, assignors to Toa Gosei Chemical Industry Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1968, Ser. No. 779,928
Claims priority, application Japan, Nov. 29, 1967, 42/76,124; Jan. 26, 1968, 43/4,303; Mar. 19, 1968, 43/17,535; June 22, 1968, 43/42,901

Int. Cl. C07c 101/22

U.S. Cl. 260—534 G 23 Claims
Crystallizing β -form optically active glutamic acid from an aqueous racemic glutamic acid solution in which α -form racemic glutamic acid, which is a racemic mixture of α -form optically active glutamic acids, is present as the dispersed amount.

3,632,640

NITRIC ACID REMOVAL FROM ORGANIC ACIDS

John C. Mayfield, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 30, 1967, Ser. No. 664,308
Int. Cl. C07c 59/04

U.S. Cl. 260—535 R 7 Claims
A method for removing nitric acid from organic acids, alone or in combination, which comprises adding a soluble alkaline earth metal compound to the acid mixture, and then removing the precipitated nitrate salt.

3,632,641

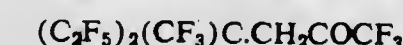
PROCESS FOR MAKING PERFLUOROALKYL-ACETIC ACID

Harold Crosbie Fielding, Northwich, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Jan. 19, 1968, Ser. No. 699,049
Claims priority, application Great Britain, Jan. 23, 1967, 3,361/67

Int. Cl. C07c 49/06, 29/00, 53/18

U.S. Cl. 260—539 R 1 Claim
Oligomers of tetrafluoroethylene (C_2F_4) $_n$ where n is 4 to 6 react at 25°–100° C. with aqueous solutions of sodium or potassium hydroxides to give novel oxygen-containing derivatives in which the oxygen is located in hydroxyl, carbonyl or carboxyl groups. With 5–15% by weight solutions of the hydroxides the tetramer yields a tertiary alcohol; the pentamer yields the ketone



and hexamer yields a mixture of the ketone



and the ketene (C_2F_5) $_2$ (CF_3)C.C(CO).CF(CF $_3$)(C_2F_5). With 30–60% solutions the pentamer yields the acid (C_2F_5) $_2$ (CF_3)C.CH $_2$ COOH. These oligomer derivatives are intermediates for making surfactants and oleophobic compounds for application to textiles and leather.

3,632,642

PRODUCTION OF ARYLSULFONYL CHLORIDES

Jacob Rosin, Maplewood, and Frank S. Ang, Kearney, N.J., assignors to Chris-Craft Industries, Inc.

Filed Oct. 7, 1968, Ser. No. 765,486
Int. Cl. C07c 143/70

U.S. Cl. 260—543 R 6 Claims
Arylsulfonyl chlorides may be produced in almost quantitative yields by the chlorination of an arylsulfonic acid with chlorosulfonic acid in the presence of certain halogenated hydrocarbon solvents (i) which are inert to chlorosulfonic acid and sulfuric acid, (ii) which are substantially non-solvents for and immiscible with sulfuric acid, (iii) which are solvents for the resultant arylsulfonyl chloride, and (iv) which are very limited solvents for the arylsulfonic acid and for chlorosulfonic acid. The process improvement in this reaction is accomplished, *firstly*, by completely extracting the arylsulfonyl chloride from the chlorination reaction mixture in the organic solvent while maintaining a low concentration of arylsulfonyl chloride in the solvent, thereby displacing the equilibrium of the chlorination reaction toward formation of the arylsulfonyl chloride and minimizing the coextraction of arylsulfonic acid and chlorosulfonic acid; and *secondly*, by codistilling substantially all of the halogenated hydrocarbon solvent and chlorosulfonic acid from the resultant extraction mixture, leaving a residue comprising the sulfonyl chloride. The process is described in detail with respect to the production of p-chlorobenzenesulfonyl chloride, which is an intermediate in the manufacture of bis-(p-chlorophenyl) sulfone which, in turn, is the commercially important monomer used for many thermoplastic polysulfone polymers.

3,632,643

PREPARATION OF ACYL FLUORIDES BY CARBONYLATION OF AROMATIC HALIDES IN THE PRESENCE OF AN ALKALI METAL FLUORIDE AND A RUTHENIUM, RHODIUM- OR PALLADIUM-CONTAINING CATALYST

William W. Prichard, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 26, 1967, Ser. No. 648,988
Int. Cl. C07c 51/58

U.S. Cl. 260—544 A 11 Claims

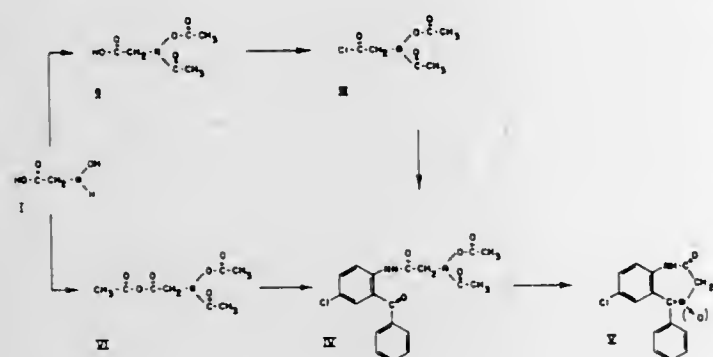
Aromatic halides react with carbon monoxide and alkali metal fluorides in the presence of ruthenium, rhodium and palladium metals or their halides to yield acyl fluorides. Inorganic Lewis acids can be added to improve the conversion.

3,632,644

2-(N-ACETYL-N-ACETOXYAMINO) ACETYL CHLORIDE

Ronald J. McCaully, Malvern, and Stanley C. Bell, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y.
Division of application Ser. No. 468,030, June 29, 1965. Continuation-in-part of application Ser. No. 395,807, Sept. 11, 1964. This application Oct. 14, 1969, Ser. No. 870,918
Int. Cl. C07c 101/04, 53/14

U.S. Cl. 260—544 Y 1 Claim



1. 2-(N-acetyl-N-acetoxyamino)acetyl chloride.

3,632,645

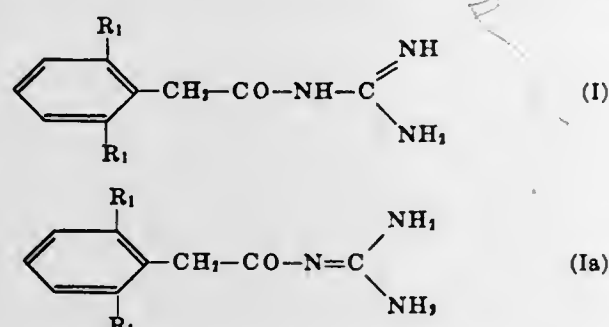
SUBSTITUTED PHENYLACETYL DERIVATIVES OF GUANIDINE, O-ALKYLISOUREAS, S-ALKYLISOUREAS, AND P-NITROBENZYLISOUREAS

John Bernard Bream, Redbourn, Herts, and Claude W. Picard, Welwyn Garden City, Herts, England, assignors to Dr. A. Wander S.A., Berne, Switzerland
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,806
Claims priority, application Switzerland, Sept. 26, 1967, 13,461/67

Int. Cl. C07c 103/30

U.S. Cl. 260—558 5 Claims

The invention provides acetyl-guanidine derivatives of formula:



in which R₁ is a chlorine atom, or methyl radical.

The acetyl-guanidine derivatives are useful as antihypertensives.

3,632,646

SUCCINAMIDES

Howard A. Hageman, Southbury, Arthur H. Gevirtz, New Haven, and Bogislav von Schmeling, Hamden, Conn., assignors to Unifroyal, Inc., New York, N.Y.
No Drawing. Filed May 25, 1967, Ser. No. 641,161
Int. Cl. C07c 103/32

U.S. Cl. 260—559 7 Claims

The invention comprises succinamide derivatives which are useful as plant growth regulants.

3,632,647

PROCESSES FOR PREPARING AND/OR PURIFYING CHLORTETRACYCLINE HYDROCHLORIDE AND CHLORTETRACYCLINE NEUTRAL BASE

Sheldon B. Greenbaum, Livingston, and Richard Griffith, Red Bank, N.J., and Howard C. Klein, Brooklyn, N.Y., assignors to Diamond Shamrock Corporation, Cleveland, Ohio
No Drawing. Filed June 17, 1968, Ser. No. 737,372
Int. Cl. C07c 127/00

U.S. Cl. 260—559 AT 3 Claims

Chlortetracycline hydrochloride and chlortetracycline neutral base are prepared and/or purified by (1) dissolving chlortetracycline hydrochloride in an aqueous urea, thiourea or water soluble alkyl urea solution or (2) by dissolving chlortetracycline neutral base in an aqueous solution of urea, thiourea or water soluble alkyl urea and hydrochloric acid to obtain an aqueous chlortetracycline hydrochloride-urea, thiourea or water soluble alkyl urea solution which can then be clarified to remove color or any insoluble impurities. The aqueous solution is then treated (a) with hydrochloric acid and sodium chloride to precipitate chlortetracycline hydrochloride or (b) with a water soluble basic material to precipitate chlortetracycline neutral base or (c) water can be volatilized from the solution to obtain a water soluble solid chlortetracycline hydrochloride composition.

3,632,648

CONTINUOUS PRODUCTION OF DIAMINO-DICYCLO-HEXYLALKANES

Hubert Corr, Ott-Alfred Grosskinsky, Norbert Loesch, and Kurt Pilch, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed June 4, 1968, Ser. No. 734,237
Claims priority, application Germany, June 10, 1967, P 16 18 174.1

Int. Cl. C07c 85/14

U.S. Cl. 260—563 D 11 Claims

A process for the continuous production of diaminodicyclohexylalkanes by contacting diaminodiphenylalkanes with hydrogen at elevated temperature and superatmospheric pressure in the presence of hydrogenation catalysts containing cobalt, wherein the improvement consists in carrying out the reaction at a temperature of more than 180° C. and a pressure of more than 50 atmospheres in the presence of a hydrogenation catalyst containing cobalt whose copper content is less than 0.5% by weight with reference to cobalt and maintaining a water content of less than 0.4% by weight in the reaction mixture. Diaminodicyclohexylalkanes are suitable as hardeners for epoxy resins and for the production of polyamides.

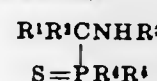
3,632,649

NITROGEN-CONTAINING TERTIARY PHOSPHINE SULFIDES

Ludwig Maier, Zurich, Switzerland, assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 18, 1967, Ser. No. 668,699
Int. Cl. C07c 91/16

U.S. Cl. 260—570.5 1 Claim

Compounds of the formula



where R¹, R² and R³ are organic groups which occur in Schiff bases and R¹ and R² can also be hydrogen atoms, R⁴ and R⁵ are organic groups or members of heterocyclic groups which occur in secondary phosphine sulfides and a process for making the compounds by reacting a secondary phosphine sulfide with a Schiff base.

The compounds are useful as lubricants and bactericides, and may be exemplified by (α-ethylimino)-benzyl-diphenylphosphine sulfide, (α-allylimino)-p-nitrobenzyl-diphenylphosphine sulfide and (α-allylimino)-3,4-dichlorobenzyl-di-n-butylphosphine sulfide.

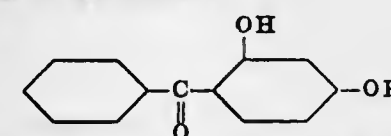
3,632,650

ALKYLATION OF DIHYDROXYBENZOPHENONE

Ingenuin Hechenbleikner, Cincinnati, John F. Hussar, Loveland, and Robert E. Bremer, Cincinnati, Ohio, assignors to Carlisle Chemical Works, Inc., Reading, Ohio
No Drawing. Filed Jan. 25, 1968, Ser. No. 700,368
Int. Cl. C07c 49/82

U.S. Cl. 260—591 12 Claims

Compounds of the formula



are prepared by reacting a compound having the formula RCl with 2,4-dihydroxybenzophenone in the presence of alkali and an iodide. R can be alkyl, alkenyl or aralkyl. Preferably, the reaction is carried out in the presence of a solvent.

3,632,651

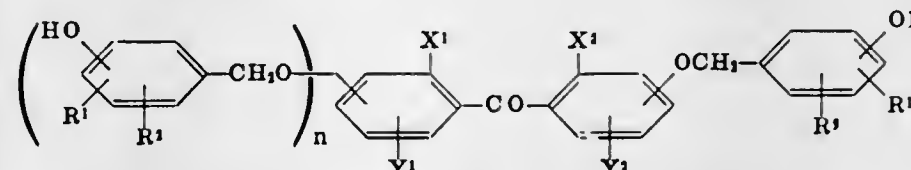
NOVEL ULTRAVIOLET ABSORBERS

Hideo Seki and Mitsuaki Funada, Sonohigashi-cho, Toyonaka, and Kunio Ota, Miyano-cho, Takatsuki, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan
No Drawing. Filed Sept. 4, 1968, Ser. No. 757,474
Claims priority, application Japan, Sept. 28, 1967, 42/62,795

Int. Cl. C07c 49/82

U.S. Cl. 260—591 8 Claims

Compounds of the formula



wherein R¹ is methyl or alkyl with 2 to 4 carbon atoms or aralkyl with 7 to 10 carbon atoms, the α-carbon atom of the alkyl and aralkyl being secondary or tertiary and R¹ being in the ortho position to —OH, R² is alkyl with 1 to 4 carbon atoms or aralkyl with 7 to 10 carbon atoms or a hydrogen atom, each of X¹ and X² is hydroxyl or a hydrogen atom, at least one of X¹ and X² being hydroxyl, each of Y¹ and Y² is a hydrogen atom, alkyl with 1 to 4 carbon atoms, alkoxy with 1 to 8 carbon atoms, or a halogen atom, and n is 0 to 1, are valuable ultraviolet absorbers and antioxidants having many uses but being particularly suitable for the protection of polymeric materials.

3,632,652

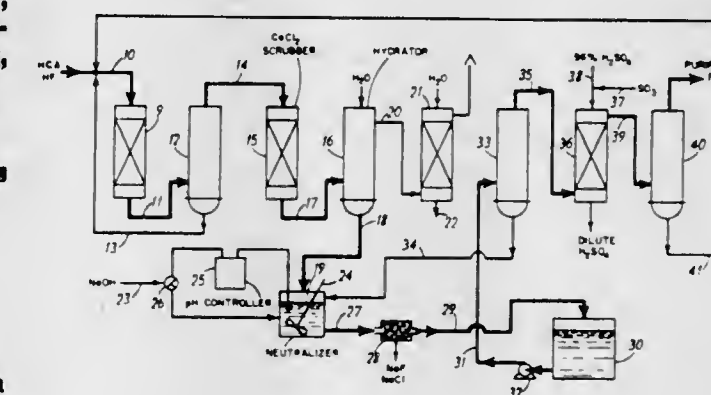
PURIFICATION OF PERHALOACETONES

Arthur S. Chu, Morristown, and Joseph H. F. Loozen, Morris Plains, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
Filed Mar. 14, 1968, Ser. No. 713,129
Int. Cl. C07c 49/16

U.S. Cl. 260—593 H 29 Claims

Halogen acid impurities are removed from perhaloacetone mixtures by hydrating the perhaloacetone mix-

tures and neutralizing the hydrated mixtures with a neutralizing agent of the formula MOH, wherein M is a member selected from the group consisting of an alkali metal and an alkaline earth metal under controlled conditions such that the pH of the mixture during the neutralization step is maintained between certain critical limits. The preferred neutralizing agent is NaOH. The subject neutralizing agents effect removal of halogen acids to high specification standards without causing substantial decomposition of the perhaloacetones. Gross amounts of halogen acids as well as organic impurities are removed from the perhaloacetone masses during the



hydration step. The neutralization step removes residual amounts of halogen acid impurities to high specification standards. Anhydrous perhaloacetone product can be recovered from the hydrated mixture by dehydration with a suitable dehydrating agent such as H₂SO₄. In an optional embodiment HF impurities can first be converted to HCl impurities by treatment of the perhaloacetone mass with CaCl₂. Neutralization is then effected on hydrated masses in which the halogen acid impurities are essentially HCl.

3,632,653

ETHANO-ANTHRACENES

Paul Schmidt, Therwil, Max Wilhelm, Allschwil, and Kurt Eichenberger, Therwil, Switzerland, assignors to Ciba Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 541,979, Apr. 12, 1966, now Patent No. 3,399,201, which is a continuation-in-part of application Ser. No. 404,904, Oct. 19, 1964, which in turn is a continuation-in-part of applications Ser. No. 151,198, Nov. 9, 1961, and Ser. No. 512,201, Dec. 7, 1965. This application Sept. 26, 1967, Ser. No. 670,752

Claims priority, application Switzerland, Nov. 29, 1960, 13,359/60; Oct. 10, 1961, 11,710/61; Nov. 1, 1963, 13,434/63; Dec. 23, 1964, 16,637/64; Nov. 24 1965, 16,177/65; Dec. 10, 1965, 17,086/65
Int. Cl. C07c 47/52

U.S. Cl. 260—599 3 Claims

9-formyl-9:10-dihydro-9:10-ethano-(1:2)-anthracenes are valuable intermediates for the preparation of 9-R-methyl-9:10-dihydro-9:10-ethano-(1:2)-anthracenes, wherein R is a substituted or unsubstituted amino group, as well as of their quaternary ammonium derivatives and salts, which compounds, especially the amines and their therapeutically acceptable salts; display

an inhibitory action on the central nervous system characterized by an antagonism towards psychomotoric substances such, for example, as mescaline, and inhibit the transmission of spinal reflexes and can therefore be used as tranquilizers.

3,632,654

CYCLOALIPHATIC MERCAPTANS

Thomas Vincent Van Auken, Charleston, W. Va., and George Lewis Brode, Summerville, N.J., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,597

Int. Cl. C07c 149/26, 153/07

U.S. Cl. 260—609 D 10 Claims
Cycloaliphatic dimercaptans such as tricyclo[5.2.1.0^{2,6}]decane dithiol, which are useful as hardeners for epoxy resins and to cycloaliphatic monomercaptans, such as tricyclo[5.2.1.0^{2,6}]dec-3-ene thiol, which are useful as reactive diluents for epoxy resins. These mercaptans are produced by hydrolyzing thio carboxylates to the corresponding mercaptan derivative.

3,632,655

PROCESS FOR PREPARING PARA FORMALDEHYDE

Teo Paleologo and Jacob Ackermann, Milan, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy
No Drawing. Filed July 9, 1968, Ser. No. 743,273
Claims priority, application Italy, July 17, 1967, 18,473/67

Int. Cl. C07c 47/10

U.S. Cl. 260—615.5 3 Claims
A process for the preparation of particulate soluble paraformaldehyde is provided in which particulate material is formed from solution and cured in the presence adsorbed on the particle surfaces of a catalyst comprising at least one basic organic compound of a pK_b between 2 and 6, optionally in admixture with at least one other such compound of a pK_b between 6 and 12.

3,632,656

CRYSTALLIZATION OF MANNITOL

Altan A. Unver, Tarsus, Turkey, assignor to Atlas Chemical Industries, Inc., Wilmington, Del.
No Drawing. Filed Apr. 13, 1967, Ser. No. 630,536
Int. Cl. C07c 31/26, 29/24

U.S. Cl. 260—635 R 2 Claims
The recovery of mannitol from aqueous solutions of mannitol and sorbitol is improved by separating the mannitol in the form of plate crystals, grown by seeding the said solution, at a temperature below the saturation temperature for mannitol, with mannitol crystals in plate form. Mannitol crystals in plate form are obtained by feeding an aqueous solution containing dissolved mannitol and sorbitol into a vessel containing a slurry of mannitol crystals in an aqueous solution of mannitol and sorbitol, while maintaining the slurry at a temperature below the saturation temperature of the feed solution with respect to mannitol, and withdrawing total mixture from the vessel at the same rate as the feed solution is added, the said rate being such as to establish an average holding time of from 2 to 15 hours in the vessel, and continuing the addition of feed solution and withdrawal of total mixture until the suspended mannitol crystals are in the form of plates.

3,632,657

CRYSTALLINE PROPYLENE GLYCOL

William L. Howard, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed June 22, 1967, Ser. No. 647,926
Int. Cl. C07c 31/20, 29/24

U.S. Cl. 260—635 R 7 Claims
Propylene glycol can be crystallized by seeding the glycol or a solution thereof with crystalline propylene gly-

col, thus effecting a purification of the glycol. While the racemic glycol cannot be crystallized without seeding, the enantiomorphs can be crystallized separately without seeding, thus providing seed crystals.

3,632,658

LITHIATED ORGANIC COMPOUNDS AND THEIR PRODUCTION

Adel F. Halasa, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Continuation-in-part of application Ser. No. 685,339, Nov. 24, 1967. This application Aug. 16, 1968, Ser. No. 753,061

Int. Cl. C07I 1/02, 1/04, 7/08

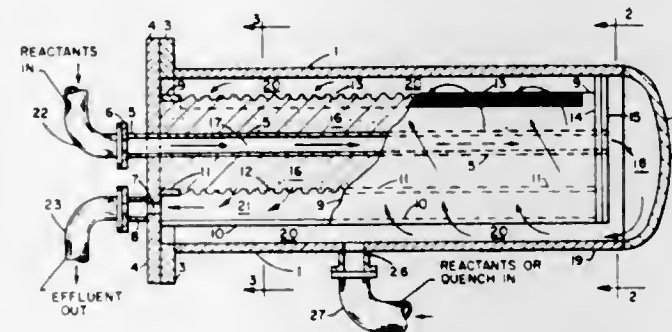
U.S. Cl. 260—665 14 Claims
Aromatic hydrocarbons (benzene, naphthalene, anthracene, indene, fluorene, biphenyl, etc.) are metalated with an alkali metal compound (preferably hydrocarbon lithium) in the presence of a promoter (preferably N,N,N',N'-tetra-methylethylenediamine or an alkali metal alkoxide) at an elevated temperature. Aromatic compounds metalated with alkali metals and containing at least two alkali metal atoms are new.

3,632,659

FLUID-SOLIDS CONTACTING

Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed June 18, 1969, Ser. No. 834,286
Int. Cl. C07c 3/00, 3/50

U.S. Cl. 260—671 22 Claims



Method and apparatus for contacting a feed fluid in a fluid-solids contacting zone. The apparatus comprises an internal chamber containing a fixed bed of particulated contact solids, confined within an external chamber in a manner sufficient to provide an annular space between the walls of the two chambers. Feed fluid is passed into a conduit means axially disposed within the fixed bed and the internal chamber. The feed fluid then passes from the conduit means into the annular space, wherein it flows circumferentially around the internal chamber before entering the fixed bed. The feed fluid passes through the fixed bed transversely to the axis thereof and an effluent fluid is recovered. The method and apparatus have broad application to exothermic and endothermic catalytic reactions since the apparatus affords a means of heat transfer between the feed fluid and the fixed bed before the fluid enters the bed. Specific application is in aromatic alkylation and olefinic oligomerization reactions over a solid phosphoric acid catalyst.

3,632,660

PURIFICATION OF DETERGENT ALKYLATES

David W. Marshall, Pasadena, Tex., and George C. Feighner, Franklin Lakes, N.J., assignors to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed Aug. 9, 1968, Ser. No. 751,387
Int. Cl. C07c 7/00, 3/50

U.S. Cl. 260—674 A 6 Claims
Hydrocarbon compounds having the general formula C_nH_{2n-8} , where n is an integer from about 10 to 24, are

selectively removed from detergent alkylates by treating the detergent alkylate with at least 20 percent oleum or SO_3 so as to convert C_nH_{2n-8} hydrocarbon compounds to their acid derivatives. The acid derivatives can then be separated from the detergent alkylate.

3,632,661

DEHYDROGENATING NORMAL PARAFFINS WITH IMPROVED CATALYST

Edwin A. Matzner, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 23, 1969, Ser. No. 860,418

Int. Cl. C07c 5/18, 11/02

U.S. Cl. 260—683.3 4 Claims

Detergent type alkylaryl sulfonates are prepared by separating normal paraffins from a petroleum fraction, dehydrogenating the normal paraffins to form mono-olefins, reacting the mono-olefins with a monocyclic aryl compound such as benzene and sulfonating the resulting alkylarylhydrocarbons. Novel dehydrogenation catalysts comprising iron, or oxides or alloys thereof and one or more noble metals of the platinum or palladium families deposited upon low acidity alumina are employed for the dehydrogenation of n-paraffins. The procedure using such novel catalysts results in improved conversions and the production of a purer product.

3,632,662

DEHYDROGENATION PROCESS

David R. Dyroff, Creve Coeur, and Dennis A. Ruest, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Mar. 26, 1970, Ser. No. 23,053

Int. Cl. C07c 5/20

U.S. Cl. 260—683.3 5 Claims

In catalytic dehydrogenation of paraffins, catalyst activity is maintained relatively constant within a desired range by utilizing a hydrogen sulfide poisoned catalyst of platinum or palladium and a Group I-B metal and gradually removing poison from the catalyst during the dehydrogenation reaction.

3,632,663

PRODUCTION OF HEXENES

John Grebbell, Send, near Woking, Kuldar Heljula, Twickenham, and David Eric Martin, Camberley, England, assignors to The British Petroleum Company Limited, London, England

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,603

Claims priority, application Great Britain, Apr. 21, 1967, 18,396/67, 18,398/67; May 15, 1967, 22,321/67, Patent 1,163,092

Int. Cl. C07c 3/20

U.S. Cl. 260—683.15 E 35 Claims

Hexenes are produced from a feedstock comprising ethylene, a n-butene and isobutene in the presence of a catalyst prepared by dispersing elemental sodium or lithium on an anhydrous potassium compound. The catalyst is activated by contacting with an olefin containing at least 3 carbon atoms per molecule or mixture of olefins. Subsequently the mixture of ethylene, a n-butene and i-butene is codimerised in contact with the activated catalyst. Where activation is effected by a mixture of olefins the mixture is different from the feedstock to be codimerised.

3,632,664

CYCLOOCTENE CRACKATE TREATING PROCESS

Charles V. Goebel, Jr., Wyomissing, Pa., and Louis L. Ferstandig, Hackensack, N.J., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Application May 16, 1967, Ser. No. 651,064, which is a continuation of application Ser. No. 358,079, Apr. 7, 1964. Divided and this application Apr. 24, 1970, Ser. No. 31,792

Int. Cl. C07c 7/00

U.S. Cl. 260—681.5 R 5 Claims

Method for rendering cyclooctene heart-cut crackate suitable for use in free-radical catalyzed addition reactions by treating the crackate with a minor amount of sulfuric acid having a concentration in the range 88–97% sulfuric acid for a period less than about 5 minutes.

3,632,665

HARDENABLE REACTION PRODUCTS BASED ON TRIGLYCIDYL ISOCYANURATE

Zissis Aggias, Hilden, Rhineland, Germany, assignor to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

No Drawing. Filed Sept. 10, 1968, Ser. No. 758,665
Claims priority, application Germany, Sept. 30, 1967, H 64,043

Int. Cl. C08g 30/14, 3/00, 45/12

U.S. Cl. 260—830 5 Claims

The present invention relates to a resinous reaction product based on triglycidyl isocyanurate which comprises a reaction product of a reaction effected at temperatures above the melting point, of crystalline triglycidyl isocyanurate having an epoxide oxygen content of at least 14% with (a) an organic compound containing more than one isocyanate group in the molecule and free of other epoxide reacting substituents, in such a ratio that from about 1 to 15 parts by weight of isocyanate groups in said organic compound are allotted to 100 parts by weight of said crystalline triglycidyl isocyanurate and (b) a compound capable of forming polyadducts with epoxide compounds and free of isocyanate groups in such a ratio that the said reaction product contains from about 4% to 11% by weight of epoxide oxygen. The said resinous reaction product is soluble in the customary organic solvents and when admixed with customary epoxide resin hardeners, is heat hardenable. It is useful in the preparation of laminated molded plastics, lacquers, casting resins and adhesives.

3,632,666

POLYETHER-POLYAMIDE BLOCK COPOLYMERS CONTAINING POLYAMIDE, POLYESTER OR POLYAMIDE-POLYESTER OR POLYAMIDE-POLYESTER BLOCK COPOLYMERIC SYNTHETIC RESINS AND IONIC COMPOUNDS

Kaoru Okazaki, Yoichi Shimokawa, Asaharu Nakagawa, and Kenji Sugii, Nagoya, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 679,169, Oct. 30, 1967. This application Mar. 6, 1970, Ser. No. 17,299

Int. Cl. C08g 41/04

U.S. Cl. 260—857 3 Claims

Frictionally chargeable property of a synthetic resin composition consisting of a polyether-polyamide block copolymer blended with ether synthetic resins is remarkably improved by coexistence of ionic functional groups in very small amounts which is achieved by addition of an organic electrolyte. This synthetic resin composition is

used for the preparation of fiber, film and shaped articles, and it is especially useful as one component of a composite fiber.

3,632,667

UNSATURATED POLYESTER RESIN MOLDING POWDER

Meivin E. Baum, Monroeville, Pa., assignor to Koppers Company, Inc.

Continuation-in-part of abandoned application Ser. No. 700,311, Dec. 23, 1967. This application May 8, 1970, Ser. No. 35,738

Int. Cl. C08f 21/00, 21/02

U.S. Cl. 260—861 5 Claims

An unsaturated polyester resin which is a solid capable of being ground into a free flowing powder at room temperature comprises a mixture of an α , β -ethylenically unsaturated monomer and a condensation polymer formed by esterifying a dicarboxylic acid, at least a portion of which contains ethylenic unsaturation, with a dihydric alcohol wherein at least a portion of the dihydric alcohol comprises 1,3-di(2-hydroxyethoxy)benzene or 1,4-di(2-hydroxyethoxy)benzene.

3,632,668

UNSATURATED POLYESTER COMPOSITIONS THICKENED BY A DI-SUBSTITUTED UREA

Layton F. Kinney, 905-D W. North Ave., Villa Park, Ill. 60181, and Roy J. Betty, 8239 S. Troy, Chicago, Ill. 60652

No Drawing. Filed Feb. 20, 1968, Ser. No. 706,791

Int. Cl. C08f 21/02

U.S. Cl. 260—864 6 Claims

Thickened polyester compositions comprising unsaturated polyester and unsaturated monomer obtained by the in situ reaction of a long chain amine and polyisocyanate to form urea. Such compositions are useful to produce high build coatings as in the production of boats and similar large structures of cured polyesters.

3,632,669

PARTICULATE POLYMERS OF CYCLIC ESTERS

Robert Dean Lundberg, Somerville, N.J., and Frank Paul Del Giudice, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,310

Int. Cl. C08g 49/04; C08f 29/50

U.S. Cl. 260—874 12 Claims

Particulate linear polymers of cyclic esters which are in a discrete, free-flowing, non-agglomerative form which are readily dispersible in various acyclic hydrocarbons. Such particulate polymers are produced by subjecting a mixture comprising cyclic ester monomer, interfacial agent, catalyst, and inert organic vehicle to cyclic ester polymerization conditions.

3,632,670

PROCESS FOR MODIFYING POLYMERS

Yoshisato Fujisaki, Tokyo, Itsuho Aishima, Nobeoka, Miyazaki, Hisaya Sakurai, Kawasaki, Kanagawa, Atsushi Kitaoka, Asahi-machi, Miyazaki, and Hironobu Kawasaki and Minoru Oshima, Nobeoka, Miyazaki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed July 25, 1967, Ser. No. 655,742

Claims priority, application Japan, Aug. 5, 1966, 41/51,474

Int. Cl. C08f 15/00

U.S. Cl. 260—875 1 Claim

Process for modifying polymers which comprises reacting mono-olefin polymer with polymerizable monomer by heating them in the presence of tetravalent organotin compound.

3,632,671

ADHESIVE COMPOSITION

Junji Furukawa and Shinzo Yamashita, Kyoto, Kunihiko Ikkaku and Norio Kitahara, Kobe, Shozo Maeda, Nishinomiya-shi, and Shigeru Tajima, Ashiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, and Sakai Chemical Industry Co., Ltd., Kobe, Japan

No Drawing. Filed May 22, 1967, Ser. No. 640,325

Claims priority, application Japan, Oct. 19, 1965, 40/64,021; May 26, 1966, 41/33,926, 41/33,927

Int. Cl. C09j

U.S. Cl. 260—876 10 Claims

The present disclosure is directed to adhesive compositions containing a halogenated lowly unsaturated rubber. In particular, it has been found that adhesive compositions containing as a main component a halogenated lowly unsaturated rubber having a halogen content of 13 to 50 percent by weight produced by reacting a halogen or halogens with a terpolymer consisting of ethylene, a higher α -olefin than ethylene and a non-conjugated diolefin, a mixed polymerize produced by polymerizing unsaturated compounds with said halogenated lowly unsaturated rubber, a mixture consisting of said halogenated lowly unsaturated rubber and said mixed polymerize or a mixture consisting of said halogenated lowly unsaturated rubber and a mixed polymerize produced by polymerizing unsaturated compounds with said terpolymers are effective in producing a bond between compounded rubbers or between a compounded rubber and a metal, natural fiber, regenerated fiber, synthetic fiber or the like.

3,632,672

CRYSTAL CLEAR MOULDING COMPOSITIONS OF HIGH IMPACT STRENGTH COMPRISING MIXTURES OF POLYVINYL CHLORIDE WITH GRAFT COPOLYMERS OF VINYL CHLORIDE ON ELASTOMERS AND PROCESS FOR THEIR MANUFACTURE

Gerhard Kuhne and Jurgen Kuhl, Burghausen (Salzach), and Hans Huber, Burgkirchen (Alz), Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 3, 1968, Ser. No. 757,093

Claims priority, application Germany, Sept. 2, 1967, F 53,396

Int. Cl. C08f 29/24, 41/12

U.S. Cl. 260—876 R 10 Claims

Crystal clear moulding compositions of high impact strength comprising (A) a graft copolymer of vinyl chloride and an elastomer consisting of at most 90% by weight of butadiene or another conjugated diolefin and at least 10% by weight of comonomers part of which are comonomers whose homopolymers have higher refractive indices than polyvinyl chloride while the other part is monomers that improve the compatibility of the elastomer with vinyl chloride, and (B) a suspension or mass polyvinyl chloride or a corresponding copolymer, and a process for their manufacture. Crystal clear moulding compositions of high impact strength comprising mixtures of polyvinyl chloride with graft copolymers of vinyl chloride on elastomers and process for their manufacture.

3,632,673

GRAFT COPOLYMERS AND SUSPENSION PROCESS FOR THE MANUFACTURE THEREOF

William J. Heilman, Allison Park, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Feb. 20, 1968, Ser. No. 706,779

Int. Cl. C08f 19/04, 33/08, 45/24

U.S. Cl. 260—876 R 15 Claims

Polystyrenes are grafted onto poly(alpha olefins) by polymerizing a solution of the poly(alpha olefin) and benzoyl peroxide catalyst in a polymerizable styrene monomer while suspended in an aqueous medium.

3,632,674

BLEND OF ETHYLENE POLYMER, CRYSTALLINE POLYPROPYLENE POLYMER AND CRYSTALLINE ETHYLENE-PROPYLENE BLOCK COPOLYMER

Itsuo Aishima, 13-3 Tairamachi 2-chome, Meguro-ku Tokyo, Japan; and Hisaya Sakurai, Atsushi Kitaoka, and Yoshihiko Katayama, all of 181 Kami Kotanaka, Kawasaki-shi, Japan

Filed Oct. 25, 1968, Ser. No. 770,546

Claims priority, application Japan, Nov. 2, 1967, 42/70,256

Int. Cl. C08f 29/12

U.S. Cl. 260—876 B 9 Claims

The present novel polymer composition comprises (A) 50 to 95% by weight of ethylene polymer having a density of at least 0.94 or statistical copolymer of ethylene containing not more than 10% by weight of α -olefin, or a mixture thereof, (B) 2 to 40% by weight of highly oriented crystalline polypropylene containing at least 80% by weight of boiling-heptane insolubles or statistical copolymer of polypropylene containing not more than 10% by weight of α -olefin, or a mixture thereof, and (C) 3 to 40% by weight of block copolymer of ethylene and propylene, and has a good flow characteristic and good processability. The product obtained from the present composition is excellent in both impact strength and rigidity and has highly balanced physical properties. As a result, shaped articles, films, etc. can be readily produced at low costs from the present composition.

3,632,675

PREPARATION OF IMPACT RESISTANT STYRENE POLYMERS

Rosalina S. Foglesong and Harold Jabloner, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed May 28, 1969, Ser. No. 828,765

Int. Cl. C08f 41/12, 19/04

U.S. Cl. 260—876 R 2 Claims

Polystyrene and copolymers of styrene with vinyl monomers such as acrylonitrile are improved with respect to their impact strength by incorporation therein of small particles of an ethylene- α -olefin copolymer having grafted to their surfaces a monomer which is compatible with the styrene polymer. The copolymer is preferably a partially crystalline copolymer of ethylene and propylene.

3,632,676

POLYMER COMPOSITIONS

Joseph Michael Schmitt, Ridgefield, and Charles William Deeley, Fairfield, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed June 5, 1969, Ser. No. 830,878

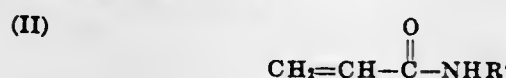
Int. Cl. C08f 41/12, 19/10

U.S. Cl. 260—876 R 9 Claims

Molding compositions comprising (A) a hard, resinous terpolymer comprising (1) from about 67–72 parts of methyl methacrylate, (2) 18–22 parts of styrene and (3) 8–12 parts of a monomer having the formula



wherein R is CN, CONH₂ or CONHR', or a monomer having the formula



wherein R' is an alkyl group of 3–8 carbon atoms attached to the nitrogen atom via a secondary or tertiary carbon

atom, and (B) polybutadiene grafted with (a) from about 67–80 parts of methyl methacrylate, (b) 17–21 parts of styrene and (c) 1–13 parts of acrylonitrile or (3), above, the ratio of polybutadiene to monomer in (B) ranging from about 2:1 to about 3:1, respectively, the amount of (B) in said composition ranging from about 5% to about 30% expressed as polybutadiene exclusive of grafted monomers and the amount of (A) being such as to total 100% with the content of grafted polybutadiene, are disclosed.

3,632,677

COMPOSITION FOR THE PRODUCTION OF DENTAL CROWNS AND INDUSTRIAL OBJECTS

Eugene J. Petner, Philadelphia, Pa., Erwin Baumann, Principality of Liechtenstein, Germany, and John A. Cornell, Philadelphia, Pa., assignors to Williams Gold Refining Co. Inc., Buffalo, N.Y.

Original application Mar. 11, 1966, Ser. No. 533,687, now Patent No. 3,471,596, dated Oct. 7, 1969. Divided and this application May 8, 1967, Ser. No. 637,319

Int. Cl. C08f 15/00

U.S. Cl. 260—878 R 5 Claims

Impact resistant, tough, long-wearing mixed synthetic resin compositions consisting essentially of non-volatile acrylate and methacrylate esters, such as trimethylol propane triacrylate or trimethacrylate, pentaerythritol triacrylate or trimethacrylate, pentaerythritol tetramethacrylate and mixtures thereof, polymerized in the presence of finely divided flexible resins, such as butadiene synthetic rubbers, cellulose esters and ethers, vinyl acetate-ethylene copolymer and mixtures thereof, and further thickened with polymerized methylmethacrylate beads, the composition adapted for use as a liquid casting resin having long shelf life.

3,632,678

POLYPROPYLENE ACRYLIC MONOMER COPOLYMERS

Raymond J. Ehrig, Barrington, Ill., and Samuel Liebman, Silver Spring, Md., assignors to Dart Industries Inc.

No Drawing. Filed June 8, 1967, Ser. No. 645,857

Int. Cl. C08f 15/00, 1/28

U.S. Cl. 260—878 R 10 Claims

Production of copolymers of propylene and an acrylic monomer comprising:

(A) forming a solid crystalline polypropylene in a hydrocarbon solvent, and

(B) adding an acrylic monomer such as butyl acrylate and an alkyl lithium catalyst.

These copolymers are readily dyeable.

3,632,679

COMPOSITE POLYMERIC MATERIALS

Elmer J. De Witt, Cuyahoga Falls, and Eugene J. Sehm, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Oct. 5, 1967, Ser. No. 672,982

Int. Cl. C08f 15/00

U.S. Cl. 260—878 R 5 Claims

Composite, macro-granular polymeric materials are disclosed in which the individual particles consist of a continuous matrix of a vinyl chloride resin in which is uniformly dispersed latex-derived particles of a rubbery, essentially completely gelled polymer of an alkyl acrylate. Such materials are prepared by polymerization in aqueous suspension of a monomeric material containing vinyl chloride starting in the presence of a slurry of crumbs or a latex of the acrylate polymer yielding directly an aqueous slurry of the granular product. The products are useful

as rigid structural resins and also as impact-improvers and processing aids in rigid blends with other vinyl chloride resins and after-chlorinated polyvinyl chlorides.

3,632,680

CROSS-LINKED POLYOLEFIN COMPOSITIONS
George H. Hunt, West Newton, and Jonathan R. Learn, Hingham, Mass., assignors to Simplex Wire and Cable Company

No Drawing. Filed Mar. 20, 1968, Ser. No. 714,461
Int. Cl. C08f 45/60

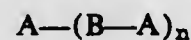
U.S. Cl. 260—878 2 Claims
A composition is disclosed comprising 100 parts of a polyolefin base material, e.g., polyethylene, 0.2 to 20 parts of divinyl benzene, 1 to 10 parts of an organic peroxide cross-linking agent, e.g., dicumyl peroxide or other mono- or polyfunctional saturated or unsaturated organic peroxide, and 0.1 to 10 parts of a high voltage stabilizing additive.

3,632,681

BLOCK COPOLYMERS COMPRISING AN N-PHENYL MALEIMIDE AND EITHER A DI-OLEFIN OR CYCLIC OXIDE
George A. Pope, Erdington, Birmingham, and George Vaughan and Paul I. Wilson, Sutton Coldfield, England, assignors to The Dunlop Company Limited, London, England

Filed May 4, 1967, Ser. No. 636,123
Claims priority, application Great Britain, May 13, 1966, 21,238/66

Int. Cl. C08d 3/06; C08f 25/00, 17/00
U.S. Cl. 260—879 12 Claims
A block copolymer having the general formula



in which A represents a crystalline polymer block having a melting point above 100° C. and the total amount of polymer block A is from 3 percent to 30 percent by weight of the block copolymer and in which B represents an amorphous polymer block having a glass transition temperature not greater than 15° C. and has a viscosity average molecular weight of 10,000 to 600,000 and n is an integer of from 1 to 5.

3,632,682

METHOD OF PREPARING BLOCK POLYMERS
Jules Darcy, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada
No Drawing. Filed May 18, 1967, Ser. No. 639,275
Claims priority, application Canada, June 23, 1966, 963,667

Int. Cl. C08f 15/04, 27/00 7 Claims
U.S. Cl. 260—879 R
Block copolymers, for example of general form polystyrene-polybutadiene-polystyrene, are prepared by forming a two-block copolymer by a stepwise addition process using an anionic initiator, and adding a halogen to the two-block copolymer before deactivation, to effect coupling.

3,632,683

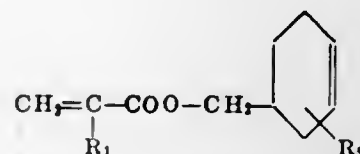
SYNTHETIC RESIN CONTAINING VINYLPIRIDINE
Carmen M. Cusano, Poughkeepsie, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed June 26, 1968, Ser. No. 740,083
Int. Cl. C08f 15/04, 1/13, 7/12 4 Claims
A synthetic resin of improved impact strength consisting of a graft copolymer of crosslinked polybutadiene, acrylo-

nitrile, styrene and vinylpyridine having a component weight ratio of acrylonitrile to polybutadiene to styrene to vinylpyridine of between about 25:10:60:5 and 25:30:25:20, said polybutadiene component having an average particle size between about 400 and 1500 Å. and a gel content between about 60 and 90 wt. percent.

3,632,684

GRAFT COPOLYMER WITH A BACKBONE CONTAINING TETRAHYDROBENZYL ACRYLATE
Pierre Tellier and Edouard Grimaud, Oullins, France, assignors to Ugine Kuhlmann, Paris, France
No Drawing. Filed Mar. 21, 1969, Ser. No. 809,399
Claims priority, application France, Aug. 21, 1968, 163,589

Int. Cl. C08f 15/40 12 Claims
U.S. Cl. 260—881
A graft copolymer is produced by forming an interpolymeric chain to serve as the backbone of the graft copolymer, this chain being an interpolymer of two successively emulsion-polymerized groups of monomers of which the first, constituting 40 to 95 parts of 100 parts by weight of the interpolymer, includes 70% to 99.99% by weight of at least one acrylic acid ester of a C₁-C₈ aliphatic alcohol and 0.01% to 2% by weight of at least one compound containing two copolymerizable double bonds and, optionally, 0% to 29.99% by weight of one or more copolymerizable monomers; and the second, constituting 5 to 60 parts of 100 parts by weight of the interpolymer, includes 50% to 98% by weight of at least one acrylic acid ester of a C₁-C₈ aliphatic alcohol, 2% to 30% by weight of at least one cycloalkenyl ester having the following formula:



wherein R₁ and R₂ each is a hydrogen atom or a methyl group and, optionally, 0% to 2% by weight of the mentioned twice-double-bonded copolymerizable compound and 0% to 30% by weight of the mentioned copolymerizable monomers. Thereafter, side polymeric chains are grafted on by polymerizing the interpolymeric chain in emulsion with either (a) 70 to 100 parts by weight of methyl methacrylate and, optionally, 0 to 30 parts by weight of at least one copolymerizable monomer or (b) 60 to 100 parts of a vinyl aromatic compound and, optionally, 0 to 40 parts of a copolymerizable ethylenic nitrile and 0 to 30 parts of the mentioned copolymerizable monomers, the interpolymeric chain constituting 10% to 85% of the weight of the graft copolymer.

3,632,685

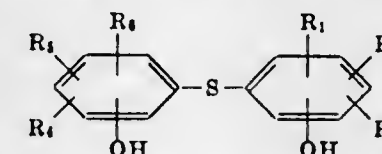
RESINS AND MEMBRANES POSSESSING IONIC CONDUCTIVITY COMPRISING REACTION PRODUCTS OF DISULTONES AND POLYMERS CONTAINING TERTIARY AMINO GROUPS
Guy Bourat, Bourg-la-Reine, France, assignor to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Apr. 11, 1969, Ser. No. 815,505
Claims priority, application France, Apr. 12, 1968, 147,991

Int. Cl. C08f 7/12, 19/02, 15/06 15 Claims
U.S. Cl. 260—884
Resins possessing ionic conductivity and useful in fuel piles and electrical accumulators are made by reacting polymers containing tertiary amino groups with polysulfones.

3,632,686

STABILIZED FORMALDEHYDE POLYMERS CONTAINING POLYVINYL PYRROLIDONE AND THIOPHENOLS
Jacob Ackermann, Gaudenzio Bianchi, and Pierino Radici, Milan, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy
No Drawing. Filed Feb. 18, 1969, Ser. No. 800,273
Claims priority, application Italy, Mar. 7, 1968, 828,449/68

Int. Cl. C08f 33/08, 41/12 8 Claims
U.S. Cl. 260—895
A polymeric composition, consisting essentially of (a) a member selected from the group consisting of a formaldehyde polymer and a formaldehyde copolymer, which contains (CH₂O)_n units in the macromolecule thereof; (b) at least one thiobisphenol compound selected from the group consisting of thiobisphenols of the formula:

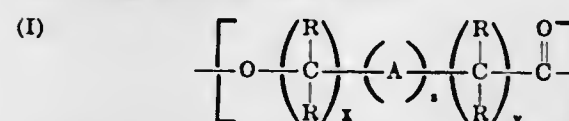


wherein R₁, R₂, R₃, R₄, R₅ and R₆ are selected from the group consisting of hydrogen, methyl, ethyl, isopropyl and tert-butyl; and (c) polyvinyl pyrrolidone, said thiobisphenol and said polyvinyl pyrrolidone being stabilizers for the formaldehyde polymer or formaldehyde copolymer, the total amount of stabilizers (b) and (c) ranging from 0.01 to 5.0% by weight with respect to the formaldehyde polymer or formaldehyde copolymer, and the weight ratio of the thiobisphenol (b) to the polyvinyl pyrrolidone (c) being 0.1:1 to 3.5:1.

3,632,687

CRYSTALLINE POLYMER ALLOYS COMPRISING A POLYMER FROM A CYCLIC ESTER AND AN ALKENE POLYMER
Earl Richard Walter and Joseph Victor Koleske, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Apr. 1, 1969, Ser. No. 812,430
Int. Cl. C08f 29/12

U.S. Cl. 260—896 18 Claims
Crystalline polymer blends containing crystalline alkene polymers and crystalline cyclic ester polymers containing recurring units of the formula



wherein each R, individually, is selected from the class consisting of hydrogen, alkyl, halo, and alkoxy; A is the oxy group; x is an integer from 1 to 4; y is an integer from 1 to 4; z is an integer of zero or one; with the proviso that (a) the sum of $x+y+z$ is at least 4 and not greater than 7, and (b) the total number of R variables which are substituents other than hydrogen does not exceed 3, with or without recurring units of the formula



wherein each R' is selected from the class consisting of, individually, hydrogen, alkyl, cycloalkyl, aryl and chloroalkyl, and, together with the ethylene moiety of the oxyethylene chain of Unit II, a saturated cycloaliphatic hydrocarbon ring having from 4 to 8 carbon atoms.

These novel crystalline blends are useful in the production of fibers, films, wire and cable coating, molding materials and the like, having unique properties such as, dyeability, stress crack resistance, low haze, high gloss and/or high light transmission.

3,632,688

PROCESS OF REINFORCEMENT OF POLYVINYL CHLORIDE
Jean LeGros, Montmorency, and Michel Juillard, Orsay, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France
Filed Aug. 23, 1968, Ser. No. 754,894
Claims priority, application France, Aug. 29, 1967, 119,291

Int. Cl. C08f 29/24 2 Claims
U.S. Cl. 260—899
Resins having a polyvinyl chloride base reinforced with up to 5% by weight of a propylene oxide polymer, preferably having a high viscosity and of a rubbery type.

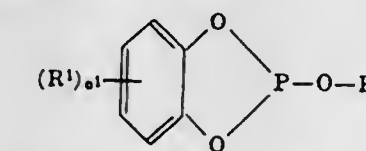
3,632,689

ARYLENE PHOSPHINITES
Ludwig Maier, Zurich, Switzerland, assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 20, 1967, Ser. No. 684,490
Claims priority, application Switzerland, Dec. 13, 1966, 17,943/66

Int. Cl. C07f 9/46; C07d 105/02 6 Claims
U.S. Cl. 260—930
Arylene phosphinites of the formula R(OPR')₂ where R is an arylene group, R' is an alkyl group linked by carbon to the phosphorus and n is an integer of 2 to 10, and a process for making by reacting compounds of the formulas R(OH)_n and R'PNR''₂ to split off ammonia or an amine. The arylene phosphinites are useful as hydraulic fluids, heat transfer agents and lubricants.

3,632,690

SUBSTITUTED 4,5-BENZO-1,3,2-DIOXA-PHOSPHOLANE
James L. Dever, Lewiston, and James J. Hodan, Williamsville, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Filed Aug. 31, 1967, Ser. No. 664,603
Int. Cl. C07d 105/04; C08f 45/58 5 Claims
U.S. Cl. 260—937
Compounds of the formula:



in which R² is selected from the group consisting of aryl and substituted aryl, in which R¹ is selected from the group consisting of alkyl, substituted alkyl, aryl, and substituted aryl, for example, and in which n^1 is from 0 to 4. Where n^1 is more than 1, the multiple substituents may be either the same or different. Compounds of this invention are useful as stabilizers against degradation of polymers such as polypropylene, polyethylene, various copolymers thereof, and the like. Additionally, a compound of this type is suitable for use as an intermediate in the synthesis of more complicated compounds.

3,632,691

DIOXYPHOSPHINYL METHYLIDES AND DIOXYPHOSPHINYL METHYLENES
Burton G. Christensen, Scotch Plains, and Raymond A. Firestone, Fanwood, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed May 15, 1968, Ser. No. 729,464
Int. Cl. C07f 9/40; A01n 91/36 9 Claims
U.S. Cl. 260—932
Disclosed are (dioxyposphinyl)methylides and their corresponding methylene precursors; these compounds are substituted at the methylene and methylene carbon atoms respectively by a phosphinyl moiety or by a sulfonium,

sulfoxonium, phosphonium or ammonium cation. The said (dioxyporphinyl)methylides are last-stage intermediates which react directly with acetaldehyde to afford the corresponding esters of (cis-1,2-epoxypropyl)phosphonic acid; which esters may be converted to their anti-biotically active salt and ester derivatives.

3,632,692

ORGANOPHOSPHORUS ANHYDRIDES

Juan G. Morales, Modesto, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed July 21, 1967, Ser. No. 654,973

Int. Cl. C07f 9/02; A01n 9/36

U.S. Cl. 260—933

3 Claims

Enol phosphate anhydrides that can be reacted with alcohols to produce enol phosphates active as insecticides and/or anthelmintics.

3,632,693

1-ALKYL-2-ALKOXYIMINO-2-ALKOXYETHYL PHOSPHONATES

Sidney B. Richter, Chicago, and Ephraim H. Kaplan, Skokie, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

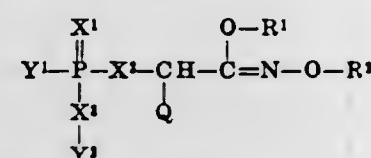
No Drawing. Filed Oct. 7, 1968, Ser. No. 765,657

Int. Cl. A01n 9/36; C07f 9/38

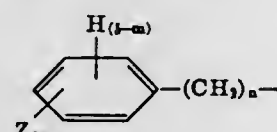
U.S. Cl. 260—944

6 Claims

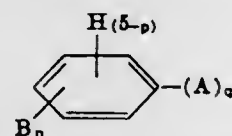
Compounds of the formula



wherein Y¹ and Y² are independently selected from the group consisting of alkyl, alkenyl and



wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, m is an integer from 0 to 5, and n is an integer from 0 to 3; Q is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio and



wherein B is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, p is an integer from 0 to 5, A is selected from the group consisting of oxygen, sulfur, alkylene, alkyleneoxy and alkyleneithio, and q is an integer from 0 to 1; X¹, X² and X³ are independently selected from the group consisting of oxygen and sulfur; and R¹ and R² are alkyl. This invention also discloses insecticidal and acaricidal compositions comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to insects and acarids, a compound of the above description; and further a method of destroying insects and acarids which comprises applying to said insects and acarids an aforesaid insecticidal and acaricidal composition.

3,632,694
PROCESS FOR THE PRODUCTION OF DIMETHYL 1-METHYL-2-(METHYLCARBAMOYL) VINYL PHOSPHATE

David L. Pearson, Aurora, and Bernard G. Fehring, Peetz, Colo., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,229

Int. Cl. A01n 9/36; C07f 9/08

U.S. Cl. 260—969

4 Claims

In the production of dimethyl 1-methyl-2-(methylcarbamoyle)vinyl phosphate by reaction of 2-chloro-N-methylacetamide with trimethyl phosphite, selective conversion of trimethyl phosphite to the vinyl phosphate is increased and trimethyl phosphite consumption is decreased when a weak base is present in the reaction mixture.

3,632,695

MAKING A COMBINED LENS AND REFLECTOR
George E. Howell, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Amherstburg, Ontario, Canada

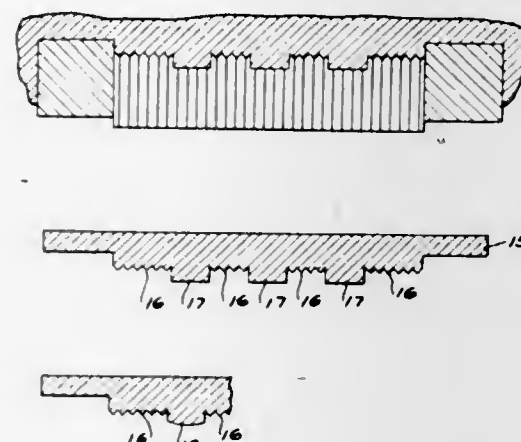
Original application June 14, 1968, Ser. No. 737,152.

Divided and this application Mar. 5, 1970, Ser. No. 26,456

Int. Cl. C23b 7/06, 7/08, 5/12

U.S. Cl. 264—1

6 Claims



A method of making a combined lens and reflector which comprises assembling a plurality of pins with shaped ends in a bundle, removing portions of the shaped ends of the pins at the areas where lenses are to be formed, forming a mold by electrodepositing metal on the areas of shaped ends and removing portions, thereafter machining the optical or lens surfaces into the portions of the electroformed mold corresponding to the removed portions of the master, and finally shaping a mass of plastic material onto the formed surface of the electroformed mold.

3,632,696

METHOD FOR MAKING INTEGRAL OPHTHALMIC LENS

Donald C. Jones, Southbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 28, 1969, Ser. No. 811,336

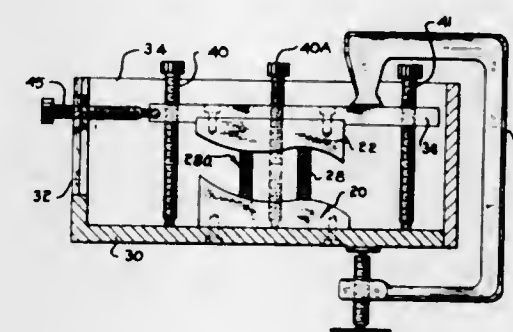
Int. Cl. B29d 11/00

U.S. Cl. 264—1

5 Claims

A method of making an integral ophthalmic lens includes prepositioning a pair of mold dies, having facing optical surfaces of plano base compound curves and arranged for positioning relative to one another, and placing a flexible gasket between the two dies forming a cavity, said gasket covering less than a total area of the dies, injecting liquified material into the cavity and treating said

material to harden it to form thereby a lens. The lens so produced has any prescriptive power desired within a



specific range and is relatively thin throughout its lateral extent.

3,632,697

PRODUCTION OF DISPERSION HARDENED COPPER SHEET FROM METAL POWDERS BY ROLL COMPACTING

Walter L. Finlay, New York, N.Y., and Harbhajan S. Nayar, Maynard, and Donald A. Hay, Medfield, Mass., assignors to Copper Range Company, New York, N.Y.

Filed Sept. 5, 1967, Ser. No. 665,332

Int. Cl. G21c 21/10

U.S. Cl. 264—5

16 Claims

Dispersoid strengthened copper metals characterized by a copper matrix and a refractory dispersoid are produced by roll compacting particles characterized by certain spatial and metallurgical relationships. The spatial considerations are characterized by practicable relationships in copper particles between surface area and overall dimensions. The metallurgical relationships are characterized by critical limits of dimensions and spacing of dispersoid subparticles or components thereof on or in the copper matrix particles either before or after roll compacting.

3,632,698

DENSE MAGNESITE FURNACE HEARTHS HAVING A SUPERFICIAL DOLOMITE-CONTAINING LAYER AND METHOD

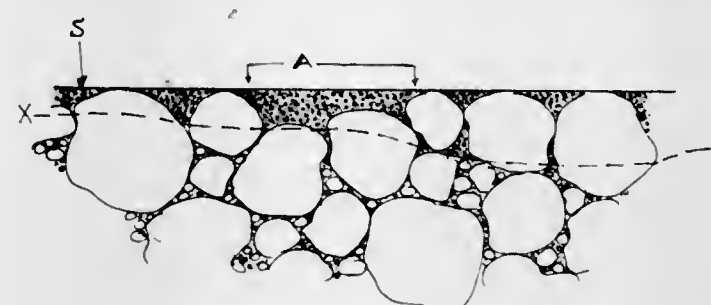
Giovanni Crespi, Via Tranquillo Cremona 29, Milan, Italy

Continuation-in-part of application Ser. No. 584,994, Oct. 7, 1966. This application Nov. 25, 1969, Ser. No. 879,740

Int. Cl. C04b 35/04, 35/06; C21c 5/44

U.S. Cl. 264—30

8 Claims



A process for the preparation of refractory masses, particularly for use in linings and hearths of metallurgical furnaces in which large monolithic pieces of magnesite material are consolidated with pulverent material. The pulverent material at the surface of the mass and extending for a short distance therebelow is so chosen as to induce the formation of a ceramized surface layer when the furnace is brought to operating temperature and contains at least 50% dolomite.

3,632,699

WET-SPINNING OF POLYACRYLONITRILE

Donald L. Wilson and Graham J. Brealey, Coventry, England, assignors to Courtaulds Limited, London, England

No Drawing. Filed May 27, 1970, Ser. No. 41,046
Claims priority, application Great Britain, June 6, 1969, 28,654/69

Int. Cl. D01f 3/08

U.S. Cl. 264—38

3 Claims

A process for spinning polyacrylonitrile filaments which comprises dosing a solution of polyacrylonitrile in sodium thiocyanate solution with a solution containing barium thiocyanate in an amount less than the stoichiometric equivalent of the ionic sulphate content of the polyacrylonitrile solution, thereby precipitating barium sulphate crystals, and extruding the dosed solution into an aqueous coagulant, forming filaments containing the barium sulphate crystals. The crystals of barium sulphate formed are of such small size that they easily pass through the holes of a spinnerette.

3,632,700

CAPSULE PRODUCTION APPARATUS AND METHOD

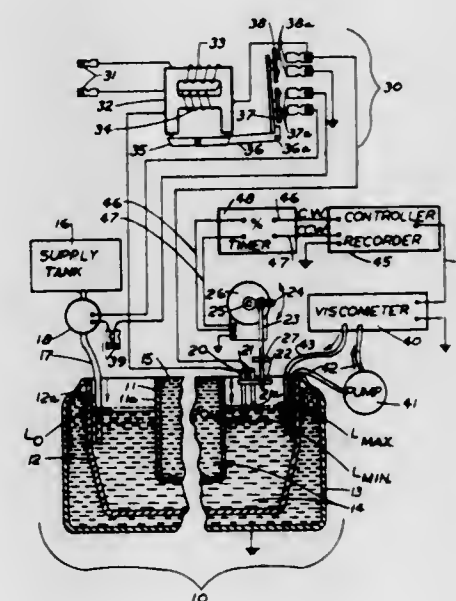
Harold J. Oglevee and Bobby R. Clement, Greenwood, S.C., assignors to Parke, Davis & Company, Detroit, Mich.

Filed Mar. 23, 1970, Ser. No. 21,942

Int. Cl. B29c 13/04

U.S. Cl. 264—40

10 Claims



A quality control apparatus is provided for a capsule production machine to monitor the liquid gel solution of the mold pin dipping apparatus by automatic means involving continuous adjustment in response to viscosity measurement thereby obtaining improved results such as closer control of the wall thickness of the capsules produced.

3,632,701

CONDITIONING OF TIRES TO IMPROVE UNIFORMITY

James J. Devitt, Rudy D. Henson, and Thomas E. Powell, Mayfield, Ky., assignors to The General Tire & Rubber Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 874,686, Nov. 6, 1969. This application Aug. 6, 1970, Ser. No. 61,818

Int. Cl. B29c 25/00

U.S. Cl. 264—40

12 Claims

The dynamic radial force variations generated in a cured pneumatic passenger or truck tire are often suffi-

ciently great that they adversely affect the riding characteristics of the tire. In a large percentage of tires, the excessive radial force variations can be reduced by heating all or part of a tire while supported vertically and positioned so that the area of maximum force is located in the top quadrant of the tire. The tire is preferably heated to a temperature of between 150° to 280° F. for a period of time that is sufficient to reduce the force but not otherwise degrade the tire. Typically a time of 60 minutes or less at an inflation pressure of 0 to 50 p.s.i. is adequate. A suitable source such as a pot heater, rubber kiln, or infrared heat may be used for heating. The invention is applicable to nearly all types of tires including radial, belted bias and bias tires containing rayon, nylon or polyester cords.

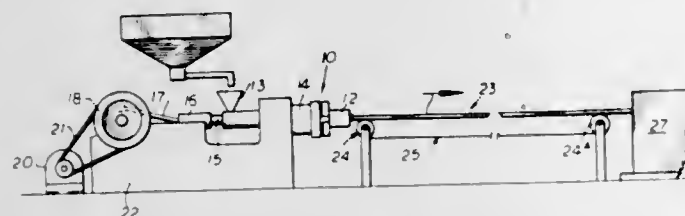
3,632,702

METHOD FOR FORMING A THICK THERMOPLASTIC SLAB

Guy E. Carrow, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Nov. 22, 1968, Ser. No. 778,124
Int. Cl. B29c 17/14, 25/00; B29f 3/00

U.S. Cl. 264—40

3 Claims



A method for forming a thick thermoplastic slab is provided wherein the slab is extruded at a predetermined speed of at least 6" per minute and the slab extrudate temperature, when discharged from the extrusion die, is at least approximately 300° F. The slab extrudate, upon being discharged, is supported in a substantially horizontal plane and, while so supported, is conveyed away from the extrusion die at approximately the same speed as the speed of discharge of the extrudate from the die.

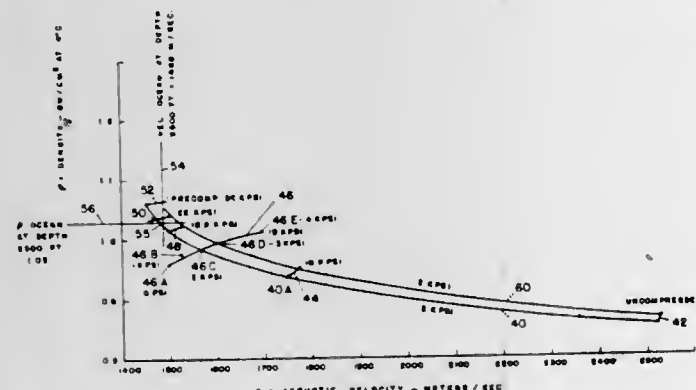
3,632,703

STRUCTURAL MATERIAL WITH CONTROLLED GAS ENTRAPMENT

Shelby F. Sullivan, Arcadia; Harper John Whitehouse, Hacienda Heights, and Richard D. Fritz, West Covina, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Mar. 27, 1969, Ser. No. 811,069
Int. Cl. B29d 27/00; B29g 7/02

U.S. Cl. 264—40

10 Claims



A structural material with controlled gas-entrapment resulting in an aggregate, mechanically rigid, material having a predetermined density and acoustic velocity of

propagation, that is, having a predetermined acoustic impedance, for use, for example, as an "acoustic window" in torpedo transducers. The material is in part defined by the process required to make it. A dispersion of capsules, for example, in the form of glass microspheres, containing either a vacuum or a gas, is interspersed into a curable resin base, forming a resin-capsule matrix. After the resin capsule matrix is stabilized, that is, partially cured, it is subjected to precompression in the range of 5,000 to 30,000 p.s.i. depending upon the predetermined proportion of the glass microspheres that it is desired to crush, which pressure results in a predetermined density of, and causes a predetermined amount of gas or air or voids, to be entrapped within the resin-capsule matrix, thus resulting in an aggregate material with a predetermined impedance.

3,632,704

METHOD FOR MODIFYING ELECTRICALLY NON-CONDUCTIVE SURFACES FOR ELECTROLESS PLATING

Miguel Coll-Palagos, Rye, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Dec. 4, 1967, Ser. No. 687,494
Int. Cl. B44d 1/092

U.S. Cl. 264—49

7 Claims

Electrically non-conductive organopolymeric surfaces are prepared for electroless plating by including in the organopolymeric surface an extractable filler and extracting the filler from the surface prior to plating. Improved adhesion between the electrolessly deposited metal plate and the surface is effected.

3,632,705

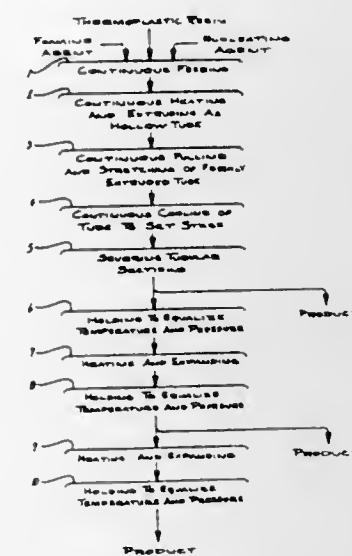
METHOD FOR MANUFACTURING FREE FLOW PACKING MATERIALS OF LOW BULK DENSITY

Alexander G. Makowski, Wilmington, Del., assignor to Free-Flow Packaging Corporation, Redwood City, Calif.
Continuation-in-part of abandoned application Ser. No. 765,083, Oct. 4, 1968. This application June 4, 1970, Ser. No. 43,527

Int. Cl. B29d 23/04, 27/02

U.S. Cl. 264—51

13 Claims



A method for the manufacture of free-flow packing materials in the form of relatively stiff crushable cylinders of foamed expanded plastic involving the heating and extruding of the plastic to form hollow cylindrical tubes of foamed plastic simultaneously with pulling on the extruded tubes to elongate the same and to longitudinally orient the void spaces and gas pockets in the walls of the tube, cutting the extruded elongate tubes to form individ-

ual cylinders, and thereafter heating and gradually expanding the individual cylindrical units to achieve a substantially greater expansion of the tube walls in a radial direction than in a longitudinal direction, as respects the axis of the cylinders. The expansion may be carried out in successive stages.

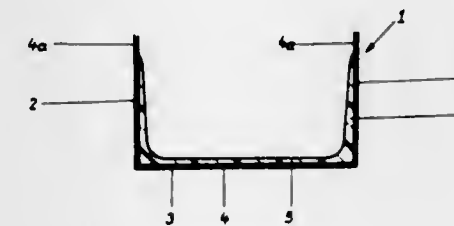
3,632,706

METHOD OF PRODUCING RECTANGULAR CROSS-SECTIONAL-POLYURETHANE FOAM MATERIAL

Gerhard Müller, Memmingen, Germany, assignor to Metzeler AG, Munich, Germany
Filed Aug. 20, 1968, Ser. No. 826,030
Claims priority, application Germany, Aug. 22, 1967, P 17 04 847.4
Int. Cl. B29d 27/04

U.S. Cl. 264—51

9 Claims



A slab of rectangular cross-sectional outline is obtained by feeding several streams of free-rising foam into a confining path defined by a travelling bottom liner of release paper and two lateral liners of release paper. A first stream is admitted onto the bottom liner and additional streams are admitted against the inner sides of the lateral liners. The three streams form a U-shaped mass which is advanced through a foaming zone where the material of the mass foams and forms a flat-top slab.

The points of admission of lateral streams can be in registry with, upstream or downstream of the point of admission of the bottom stream, and the points where the lateral streams are admitted can be located at, below or above the level of the top surface of the slab.

3,632,707

MOLDED FLEXIBLE POLYURETHANE FOAM

Doris Marvin Rice, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Sept. 19, 1969, Ser. No. 859,584

Int. Cl. B29d 27/00; B29h 7/20; C08g 22/36

U.S. Cl. 264—54

5 Claims

Molded one shot polyether urethane flexible foams are now possible without employing a high temperature curing step by utilizing a formulation based on polymeric isocyanates and catalyzed by a mixed catalyst made up of trimethylaminoethylpiperazine and dimethylaminoethanol.

3,632,708

USE OF EXPANDED ANISOTROPIC GRAPHITE AS MULTI-CAVITY MOLD FOR HOT PRESSING

Victor Mandorf, Jr., Olmsted Falls, and Robert G. Fenish, Parma, Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,691

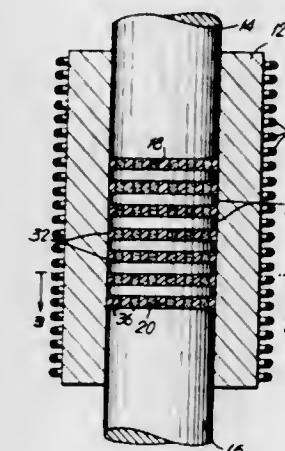
Int. Cl. B28b 7/16, 21/82; B22f 3/14

U.S. Cl. 264—58

10 Claims

A method for economically producing dense, refractory articles in large quantities by hot-pressing tech-

niques is provided. A compressible retainer is provided with a plurality of cavities which are filled with a refractory material and the assembly is then subjected to a simultaneous temperature and pressure such as in a single ram mold. The pressure is applied until a desirable density is achieved in the refractory material and as many articles are produced in one pressing as there are cavities.



The anisotropic expanded graphite used as the compressible mold mode is compressible in the direction in which pressure is being applied but is not compressible in the transverse direction and therefore effectively restrains lateral dimensions of the pressed sample to essentially its initial dimensions. Other compressible mold materials are disclosed, however, they do not have the essential anisotropic compression properties of the anisotropic expanded graphite.

3,632,709

MAKING ALUMINA FIBERS FROM A MIXTURE OF ALUMINA SOL AND HEXAMETHYLENE-TETRAMINE

John C. Hayes, Palatine, and Jay E. Sobel, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,605

Int. Cl. C04b 35/10, 31/04

U.S. Cl. 264—63

4 Claims

A method of preparing flexible, refractory inorganic fibers. A refractory inorganic oxide sol, e.g., an alumina sol, is admixed with a soluble organic amine, suitably hexamethylenetetramine, and drawn into fibers. The fibers are thereafter calcined at 300–1000° C. to produce porous flexible fibers of high surface area.

The hexamethylenetetramine has the effect of inhibiting crystal growth of the gamma-alumina during the fiber calcining step.

3,632,710

USE OF ALUMINA ALONE OR WITH SILICA AS SINTERING AID FOR BORON CARBIDE

Paul F. Jahn, Chelmsford, Mass., assignor to Avco Corporation, Cincinnati, Ohio

No Drawing. Filed Mar. 14, 1969, Ser. No. 807,415

Int. Cl. C04b 35/56, 35/64

U.S. Cl. 264—65

5 Claims

The invention discloses a method of forming shaped articles from boron carbide which involves cold molding a powder mixture of boron carbide and from 3/4 to 6% alumina and, when the boron carbide contains free carbon, up to 3% of a silica source therein to a preform having a green density of at least 50% of the theoretical density of boron carbide. The preform is then sintered at a temperature in excess of about 2100° C. To prevent

warpage of the preform during sintering a pressure not to exceed 10 p.s.i. can be applied during sintering. Shrinkage of the preform during the sintering treatment creates a final shaped article having a density in excess of about 90% of theoretical density.

3,632,711

PROCESS FOR COMBING THE OPPOSITE SIDES OF A SANDWICH-LIKE TUBULAR POLYMERIC SHEET

Ole-Bendt Rasmussen, Topstykke 7, DK-3460, Birkerød, Denmark

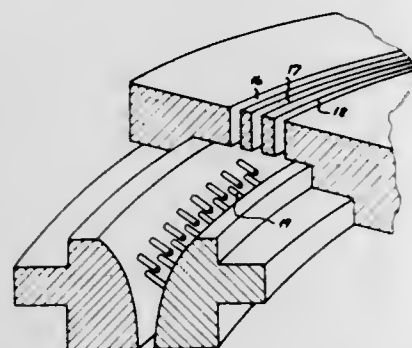
Filed Apr. 7, 1969, Ser. No. 813,954

Claims priority, application Denmark, Apr. 9, 1968, 1,563/68; Apr. 10, 1968, 1,614/68; June 11, 1968, 2,719/68; Sept. 18, 1968, 4,478/68

Int. Cl. B29d 7/02

U.S. Cl. 264—70

18 Claims



Method for combing the opposite sides of a tubular fluid sandwich-like sheet comprising interspersed layers of two different extrudable materials, at least one of which is a polymer, with relatively rotating generally opposed arrays of combing teeth, while the sheet is passing through an annular extrusion chamber.

3,632,712

METHOD FOR CURING OF PNEUMATIC TIRES

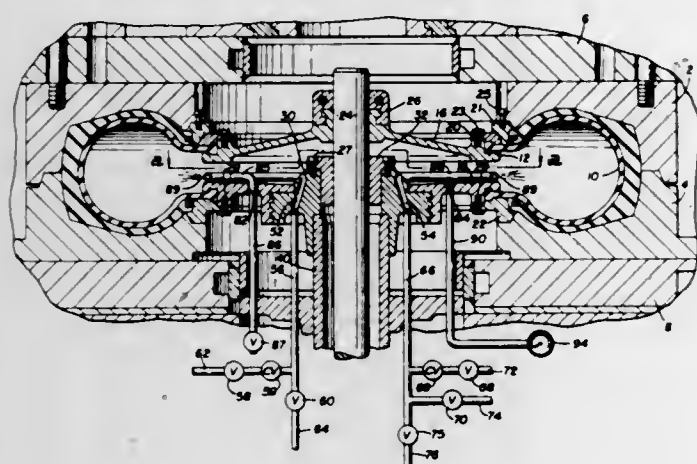
David L. Miller, Edwardsport, Ind., assignor to The General Tire & Rubber Company

Filed Apr. 10, 1969, Ser. No. 815,126

Int. Cl. B29h 5/02

U.S. Cl. 264—94

4 Claims



Pneumatic tires utilizing nylon cords to reinforce the tire carcass are placed in a conventional tire curing mold and are cured at elevated temperatures and pressures followed by cooling in the mold with water at ambient temperature while maintained at substantially the same pressure. By partially cooling the tire in the mold, the tensile strength of the nylon cords is preserved and the

tread life is prolonged. During cooling the water is added concomitantly with the steam and at a fixed volume ratio therewith, to maintain sufficient pressure within the mold thereby preventing retraction of the tire from the mold. The process which provides more uniform cooling is also applicable to tires containing cords made from textiles other than nylon.

3,632,713

BLOW MOLDING ORIENTED ARTICLES USING ELONGATED OVAL PLUG

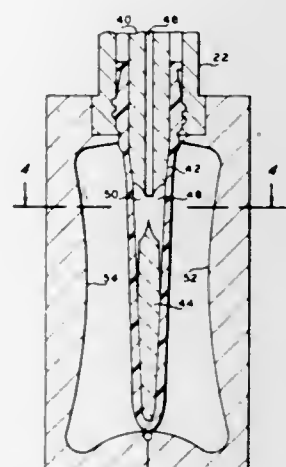
Charles L. Seefuth, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Nov. 26, 1969, Ser. No. 879,993

Int. Cl. B29c 17/07

U.S. Cl. 264—99

9 Claims



An elongated oval plug is forced into a tubular parison to contact and preferentially cool the portions of the parison which will undergo the greatest amount of stretching when the parison is expanded.

3,632,714

METHOD FOR MAKING NET-LIKE STRUCTURES

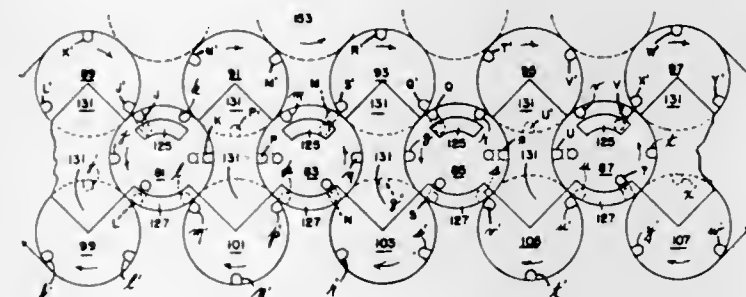
Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 702,048, Jan. 31, 1968, now Patent No. 3,518,720. This application Jan. 13, 1970, Ser. No. 2,494

Int. Cl. D01d 5/20; D02g 1/20

U.S. Cl. 264—103

9 Claims



Method of making net-like structures in which two series of extruded spaced streams are moved in opposite directions along separate serpentine paths which periodically intersect with each other, with the extruded streams being set either before or after they have contacted each other.

3,632,715

SURFACE TREATMENT OF ORGANIC POLYMERS

William G. Gowdy, Cherry Hill, N.J., and Joseph W. Kell, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

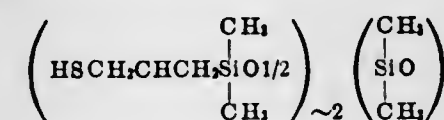
No Drawing. Division of application Ser. No. 770,121, Oct. 23, 1968, now Patent No. 3,535,145, which is a division of application Ser. No. 507,549, Nov. 12, 1965, now Patent No. 3,453,248, which is a continuation-in-part of application Ser. No. 452,921, May 3, 1965, which in turn is a continuation-in-part of application Ser. No. 405,570, Oct. 21, 1964. This application Mar. 16, 1970, Ser. No. 24,454

Int. Cl. B29g 5/00; B23b 27/00; B44d 1/09

U.S. Cl. 264—136

6 Claims

The surface characteristics of vinylic polymers are altered by the application of an organosilicon compound containing at least one HSR'Si- moiety, where R' is a divalent hydrocarbon radical free of aliphatic unsaturation, followed by application of energy. Alternatively, the organosilicon compound can be added to the molten vinylic polymer and this composition is further processed, for example, by extruding into fibers. Exemplary is an acrylonitrile butadiene styrene surface which has been treated with



which exhibits improved lubricity.

3,632,716

MANUFACTURE OF WEBS HAVING SELECTED ORIENTED PORTIONS

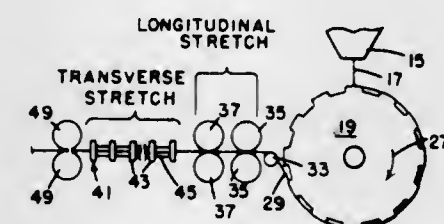
Theodore H. Fairbanks, West Chester, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Dec. 17, 1968, Ser. No. 784,383

Int. Cl. B29c 25/00; B29d 7/22, 7/24

U.S. Cl. 264—145

3 Claims



Manufacture of a thermoplastic polymeric web or film having a predetermined pattern of molecularly oriented portions wherein an extruded flat unbroken web or film is partially cooled to provide selected areas cooled at more rapid rate than the regions adjacent thereto, and immediately after such cooling stretching the web or film along biaxial directions while the selected areas and the regions adjacent thereto are still held at such different temperatures.

3,632,717

METHOD OF MAKING CONTAINERS AND LIDS THEREFOR

Guy M. Showalter, Kent, Ohio, Harry C. Schroeder, 1625 Graham Road, Stow, Ohio 44224, and Kermit Gause, Boulder, Colo.; said Showalter and Gause assignors to said Schroeder

Filed Aug. 29, 1969, Ser. No. 854,233

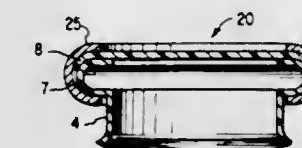
Int. Cl. B28c 1/20; B29c 5/04

U.S. Cl. 264—152

5 Claims

The manufacture of a container having a lid is contemplated by the process of centrifugal casting of a closed receptacle having in one surface, an area designed to provide an opening into the interior thereof. This area

is defined by a projection area which stands out from the remaining side or wall, the projecting surface in the form of a flat surface disposed generally parallel but spaced away from the remaining wall or container surface by means of a boundary wall disposed generally



perpendicular to both the container wall and the flat projecting area, said wall being found so that by cutting and removing certain portions of the latter, the flat portion can define a cover for the opening to permit filling and closure of the container and subsequent removal of the product so introduced by removal of the closure.

3,632,718

PROCESS FOR MAKING CRIMPED RAYON

John H. Bethune and Clement A. Tarzi, Hawkesbury, Ontario, Canada, and Michael R. Bolton and Joseph R. Rainville, Monroe, N.Y., assignors to Canadian International Paper Company, Montreal, Quebec, Canada

No Drawing. Filed July 30, 1970, Ser. No. 59,738

Int. Cl. D01f 3/12

U.S. Cl. 264—168

6 Claims

The production of rayon having a high crimp frequency is achieved by adding 2,4-bis-(N-dimethylaminomethyl)-6-methylphenol to viscose and employing conditions normally used in the production of high wet modulus staple.

3,632,719

PROCESS AND APPARATUS FOR MELT-SPINNING OF POLYAMIDE

Tetsuo Nozawa, Mihara, Japan, assignor to Teijin Limited, Osaka, Japan

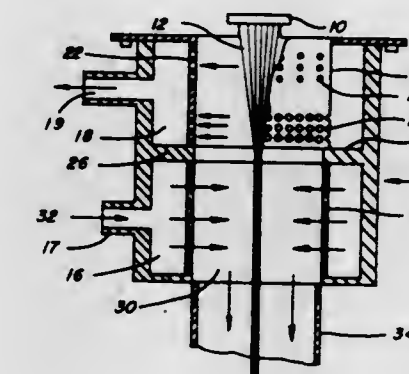
Filed Mar. 9, 1970, Ser. No. 17,679

Claims priority, application Japan, Mar. 8, 1969, 44/17,746

Int. Cl. B28b 3/20; D01d 13/00

U.S. Cl. 264—176 F

10 Claims



Low molecular material such as monomers and oligomers are removed from the vicinity of a spinneret positioned within an improved chamber for extrusion of filaments by withdrawing a smaller amount of air from near the face of the spinneret to achieve removal of low molecular substances in large quantity, provide a quiescent area in the vicinity of the spinneret surface, and maintain the atmosphere in the vicinity of the spinneret surface at an elevated temperature.

3,632,720

METHOD OF FABRICATING CABLES

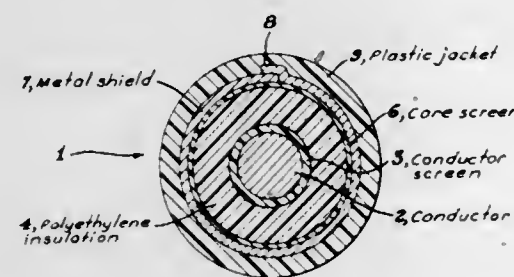
Raymond C. Mildner, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 3, 1969, Ser. No. 803,857

Int. Cl. B29c 25/00; B29f 3/10; C08f 45/08

U.S. Cl. 264—174

2 Claims



A cable having an improved core screen of conductive polymer material on the core of the cable is produced by passing a cable having a layer of insulation as the core through a bath containing a latex of conductive polymer material such as a blend of a copolymer of ethylene and acrylic acid and carbon black to deposit the blend on the cable core. A strip of metal is then wrapped or otherwise formed around the core screen to provide a protective metal shield. An outer jacket of plastic can then be extruded over the protective metal shield.

3,632,721

PROCESS FOR IMPROVEMENT ON VISCOSE RAYON FILAMENTS

Takashi Asaeda, Kuse-gun, Japan, assignor to Tachikawa Research Institute, Higashiyama-ku, Kyoto, Japan

No Drawing. Original application Oct. 22, 1965, Ser. No. 502,564. Divided and this application Jan. 31, 1969, Ser. No. 795,680

Claims priority, application Japan, Nov. 2, 1964, 39/61,841

Int. Cl. D01f 3/12

U.S. Cl. 264—196

1 Claim

The application discloses a process for producing highly polymerized viscose rayon filaments having high loop and knot tenacity. Fibers of high viscosity are spun into a low acid concentration bath and before fixing in a hot acid bath are stretched in a separate bath having a temperature of less than 30° C. and an acid concentration of at least 1.4 in pH value. As a first modification a second, separate bath is employed after stretching, the bath being substantially neutral and having a temperature of from 10° to 40° C. As still a third modification of the novel process a third separate bath is employed and this bath has a temperature of from 30° to 80° C. and a pH of 8 to 10.5.

3,632,722

RAYON PROCESS

Takashi Asaeda, Kuse-gun, Japan, assignor to Tachikawa Research Institute, Higashiyama-ku, Kyoto, Japan

No Drawing. Original application Oct. 22, 1965, Ser. No. 502,564. Divided and this application Jan. 31, 1969, Ser. No. 795,681

Claims priority, application Japan, Nov. 2, 1964, 39/61,841

Int. Cl. D01f 3/12

U.S. Cl. 264—196

1 Claim

The application discloses a process for producing highly polymerized viscose rayon filaments having high loop and knot tenacity. Fibers of high viscosity are spun into a low acid concentration bath and before fixing in a hot acid bath are stretched either in air or in a separate bath. After stretching the fibers are introduced into a

separate bath which is substantially neutral and has a temperature of from 10° to 40° C. As a modification, a second separate bath is employed into which the fibers are introduced after the first mentioned separate bath and his bath has a temperature of from 30° to 80° C. and has a pH of 8 to 10.5.

3,632,723

VISCOSE RAYON PROCESS

Takashi Asaeda, Kuse-gun, Japan, assignor to Tachikawa Research Institute, Higashiyama-ku, Kyoto, Japan

No Drawing. Original application Oct. 22, 1965, Ser. No. 502,564. Divided and this application Jan. 31, 1969, Ser. No. 795,682

Claims priority, application Japan, Nov. 2, 1964, 39/61,841

Int. Cl. D01f 3/12

U.S. Cl. 264—196

2 Claims

The application discloses a process for producing highly polymerized viscose rayon filaments having high loop and knot tenacity. Fibers of high viscosity are spun into a low acid concentration bath and before fixing in a hot acid bath are stretched either in air or in a separate bath. After stretching the fibers are introduced into a separate bath which has a temperature of from 30 to 80° C. and a pH of 8 to 10.5. As a modification, stretching occurs in a bath having a temperature of less than 30° C. and an acid concentration of at least 1.4 in terms of pH value.

3,632,724

METHOD FOR PRODUCING A PRE-STRESSED CONCRETE STRUCTURE

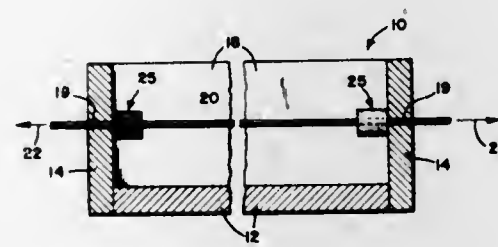
Charles E. Hilgeman, Jr., Centerville, Ohio, assignor to The Dayton Sure-Grip and Company, Miamisburg, Ohio

Filed Apr. 28, 1969, Ser. No. 819,657

Int. Cl. B28b 7/34, 23/04

U.S. Cl. 264—228

2 Claims



A core member having a tubular body of foam material is mounted on a concrete reinforcing tendon adjacent the bulkhead of a mold. In one embodiment, the body is formed of flexible polyurethane foam and has a longitudinal extending slit which provides for flexing the body to mount it on the tendon. After the concrete has cured and the bulkhead has been removed, a torch is directed at the foam body to cut the tendon at a point recessed below the surface of the concrete with minimal hazards of flying cement particles.

3,632,725

METHOD OF FACING MASONRY BLOCKS

James F. Jones, Baltimore, Md., assignor to The Burns & Russell Company of Baltimore City, Baltimore, Md.

Filed Feb. 4, 1970, Ser. No. 8,450

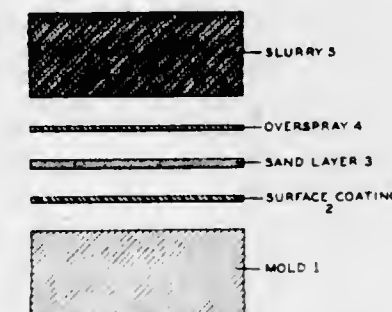
Int. Cl. B28b 1/16

U.S. Cl. 264—256

9 Claims

A method for facing a masonry building block consisting of adding consecutively to an appropriate mold a thin coating of surface material comprising a thickened mixture of an ethylenically unsaturated polyester resin

and a polymerizable monomer, an approximately single-grain layer of sand, a second thin coating of surface material, a slurry comprising an ethylenically unsaturated polyester resin and a polymerizable vinyl monomer into



which has been incorporated a major proportion by weight of sand, and a masonry block; and simultaneously curing the facing resins while the above materials are thus assembled.

3,632,726

APPARATUS FOR AND METHOD OF MAKING DIMENSIONALLY STABLE, FLAT PLASTIC FILM AND THE FILM MADE THEREBY

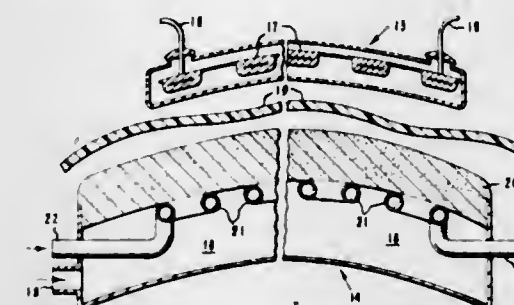
Kenneth L. Knox and Charles N. Jolliffe, Circleville, Ohio, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 14, 1969, Ser. No. 815,742

Int. Cl. B29c 25/00

U.S. Cl. 264—230

3 Claims



Method of improving the dimensional stability of a web of plastic film while maintaining or improving its flatness including the steps of moving the web under low tension continuously past a heat source and a heat sink which are positioned across from each other on opposite sides of the web; supporting the web out of contact with the heat source and the heat sink by buoying the web away from the surface of the heat sink with a layer of gas extending across the width of the web; and, heating the web to a predetermined stabilizing temperature while thus supported thereby to improve the dimensional stability of the web of plastic film.

Apparatus is provided for performing the above method. Polyethylene terephthalate film made by this method will exhibit a shrinkage of not more than 0.1% when heated to a temperature of 105° C. for a period of 30 minutes.

3,632,727

POLYURETHANE SUEDE EMBOSING

Kenneth Norcross, Heysham, England, assignor to Nairn-Williamson Limited, Lune Mills, Lancaster, England

Continuation-in-part of application Ser. No. 631,680, Apr. 18, 1967. This application July 3, 1969, Ser. No. 838,801

Claims priority, application Great Britain, Apr. 20, 1966, 17,296/66

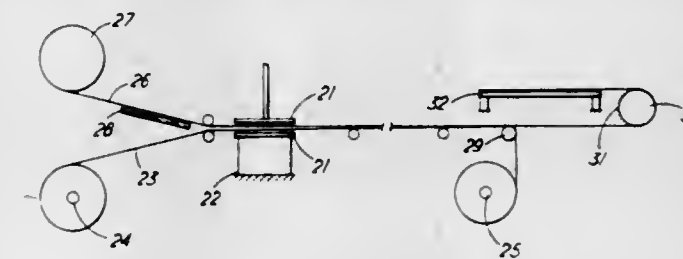
Int. Cl. B29c 1/02

U.S. Cl. 264—232

9 Claims

A process for producing a suede pattern in relief on the surface of a polyurethane sheet material which com-

prises contacting a silicone elastomer mold surface bearing a negative suede pattern and a sheet material presenting a thermoplastic polyurethane surface to the mold, heating the mold and sheet material to a temperature at which the polyurethane surface is flowable and subject-



ing the assembly to a pressure within the range 40–400 p.s.i.g. for 120–6 seconds at this temperature, cooling the mold and sheet material and maintaining them in contact until the polyurethane ceases to be flowable under the prevailing temperature and pressure, and stripping the polyurethane sheet material from the mold.

3,632,728

SIMULTANEOUS BIAxIAL DRAWING PROCESS FOR POLYAMIDE FILMS

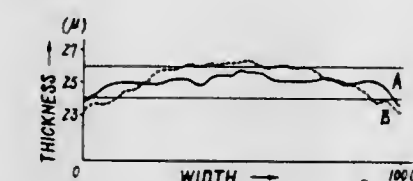
Mutsuo Kuga, Kyoto-shi, and Takeshi Mashimo, Teruo Arai, and Yoshihiko Yano, Kyoto-fu, Japan, assignors to Nippon Rayon Kabushiki Kaisha (Nippon Rayon Co., Ltd.), Kyoto-fu, Japan

Filed Dec. 31, 1968, Ser. No. 788,263

Int. Cl. B29d 7/24

U.S. Cl. 264—289

3 Claims



Process for improving the uniformity of biaxially drawn polyamide film by maximizing the transverse to longitudinal draw magnifications during the first 40% of simultaneous biaxial stretching.

3,632,729

METHOD OF INJECTION MOLDING WITH THERMOSETTING RESINS

Friedrich Bernd Biefeldt, Pappenheim, Germany, assignor to Eckert & Ziegler G.m.b.H., Weissenburg, Germany

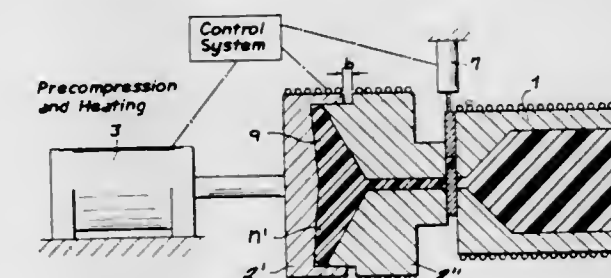
Filed Aug. 21, 1969, Ser. No. 852,025

Claims priority, application Germany, Aug. 21, 1968, P 17 79 504.9

Int. Cl. B29f 1/100; B29g 3/00

U.S. Cl. 264—294

3 Claims



A thermosetting resin is injected into a partially open separable mold having a mold cavity. This mold is then partially closed to precompress the resin and is heated

to soften it. After a predetermined amount of time, the mold is fully closed to compress the mass of resin and to force it into every portion of the cavity. A telescoping mold and a valve between the mold and the injection head are used to prevent the mass from escaping during compression.

3,632,730

METHOD OF MAKING A FLUME

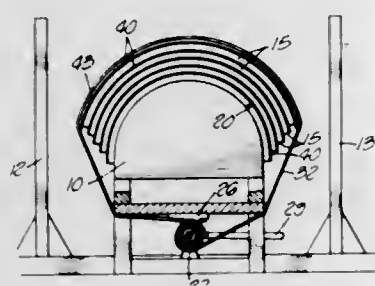
James E. Cotton, Honolulu, Hawaii, assignor of a fractional part interest to Richard J. Dimit, Los Angeles, Calif.

Filed Apr. 7, 1969, Ser. No. 813,882

Int. Cl. B29d 9/00

U.S. Cl. 264—295

10 Claims



Method of making a water flume of lightweight, thin, flexible ferro cement comprising a plurality of flumes molded to shape from superimposed layers of fresh cement reinforced with flexible mesh and employing one layer as the mold form for the adjacent layer. By this technique, the flumes are molded in interested sets of complementally shaped, semi-tubular structures. One or more rows of closely spaced, normally closed outlets are provided along the flume bottom and these outlets can be unplugged separately or in groups to regulate the location and amount of flow released from the flume. The flume sections are formed flat, one on top of the other, using flexible film separators following which the layered mass is folded against the opposite side of a rigid, semi-tubular form and held until the cement sets. The outlet holes are formed through the interested mass and the finished product is carried to the field, inverted, and assembled end to end in overlapping relation.

3,632,731

METHOD OF PREVENTING VOIDS IN A MOLDED ARTICLE

Benjamin D. Lewis, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 7, 1969, Ser. No. 848,261

Int. Cl. B29f 1/00

U.S. Cl. 264—296

4 Claims



A method of eliminating voids in the sprue area of a molded article by reducing the cross-sectional area of the sprue adjacent the molded article.

3,632,732

METHOD FOR FORMING SOCKETS

Gerhard Osterhagen, Driesch, and Friedhelm Krebsbach and Waldemar Wissinger, Siegburg, Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

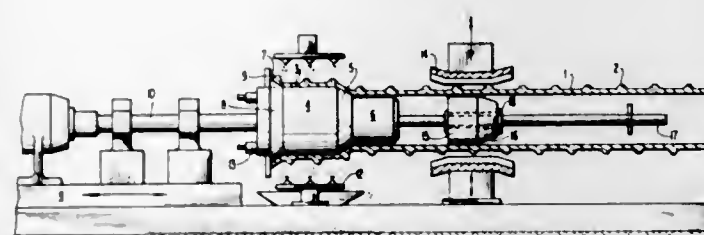
Filed Oct. 21, 1969, Ser. No. 868,180

Claims priority, application Germany, Nov. 9, 1968, P 18 08 110.2

Int. Cl. B29d 1/00; B29c 17/00

U.S. Cl. 264—312

6 Claims



A process for forming, at the end of a pipe fabricated from a synthetic resin material, a socket having external ribs, beads, or the like, extending in cross-sectional planes or helically, which comprises the insertion of a temperature-controlled mandrel in the end of an initially-heated pipe, simultaneously imparting a rotary motion to the mandrel as it is axially advanced and, upon cooling of the pipe end, withdrawal of the mandrel with further rotary motion thereof.

3,632,733

HEAT TREATING TWO-PLY BIAXIALLY ORIENTED FILMS

Masahide Yazawa, Tokyo, Japan, assignor to Kabushiki Kaisha Kobunshi Kako Kenkyujo, Tokyo, Japan

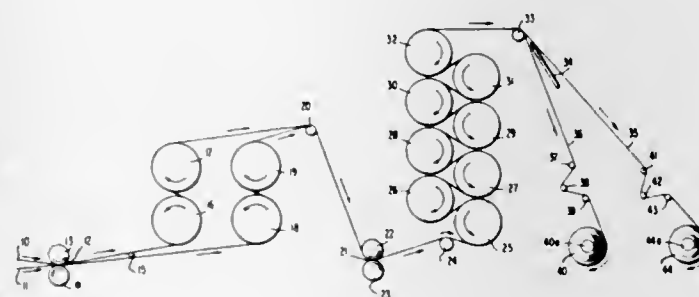
Filed Mar. 5, 1969, Ser. No. 804,541

Claims priority, application Japan, Mar. 5, 1968, 43/14,218

Int. Cl. B29c 25/00

U.S. Cl. 264—342

6 Claims



Heat treatment of biaxially oriented film comprising overlapping two plies of film leaving a thin air layer between them and passing the composite over and under heating cylinders of generally increasing temperature and decreasing speeds while blowing cooling air on the surface of the composite not in contact with the cylinder. By using two plies of film, one serves as a back-up sheet while the other is being directly heated. The transverse contraction during processing is minimized and low residual shrinkage is achieved.

3,632,734

REDUCTION OF SPRINGBACK IN PARTICLE-BOARD BY RESIN TREATMENT OF GREEN PARTICLES

John G. Haygreen, Roseville, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.

No Drawing. Filed July 28, 1969, Ser. No. 845,507

Int. Cl. B29j 5/02

U.S. Cl. 264—122

5 Claims

A method for reducing springback (irreversible swelling) in particle-board made from wood particles by using green wood particles (instead of dried particles), applying an impregnating heat settable (phenol formaldehyde) resin to the green particles, then drying under conditions which will not cure the resin, applying a bonding heat settable (phenol formaldehyde) resin and heating under pressure to compress the board and cure the resins. Springback is materially reduced. The board has greater strength retention and greater stiffness. It is less hygroscopic.

3,632,735

METHOD OF STABILIZING FOWL RED BLOOD CELLS FOR USE IN HEMATOLOGY CONTROL COMPOSITIONS

Donald A. Kita, Jackson Heights, N.Y., assignor to Chas. Pfizer & Co., Inc., New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 589,987, Oct. 7, 1966, which is a continuation-in-part of abandoned application Ser. No. 506,219, Nov. 3, 1965. This application Mar. 11, 1970, Ser. No. 18,726

Int. Cl. G01n 1/00, 33/16

U.S. Cl. 424—3

8 Claims

A novel method for stabilizing red blood cells for hematology counting purposes such as red blood cell and white blood cell counting and useful compositions containing such treated cells.

3,632,736

METHOD FOR THE X-RAY VISUALIZATION OF BODY CAVITIES AND A PREPARATION FOR CARRYING OUT THE METHOD

Björn G.-A. Ingelman, Uppsala, Sweden, assignor to Pharmacia AB, Uppsala, Sweden

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,282

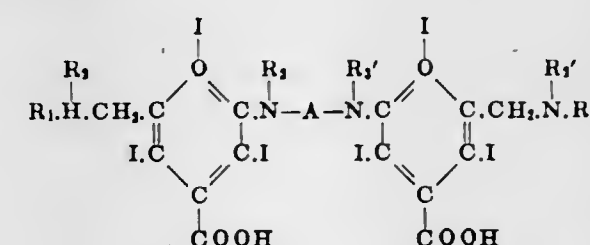
Claims priority, application Sweden, Dec. 28, 1967, 17,896/67

Int. Cl. A61k 27/08

U.S. Cl. 424—5

24 Claims

Compositions which comprise at least one iodine compound of the formula:



wherein R_1 and R_1' are each hydrogen or a lower alkyl having no more than 5 carbon atoms, R_2 ; R_2' ; R_3 ; and R_3' are each lower acyl having no more than 5 carbon atoms, and A is an alkylene group substituted by 1 or more substituents of the formula $-\text{O}-\text{R}_4$, wherein R_4 is hydrogen or lower alkyl or acyl having no more than 5 carbon atoms; the alkylene group containing 3 to 20 carbon atoms and being optionally broken by one or more oxygen bridges, or a physiologically acceptable salt thereof. Such compositions are useful as X-ray contrast compositions and are administered to the body of the test object for the X-ray visualization of the body cavity.

3,632,737

METHOD FOR THE X-RAY VISUALIZATION OF BODY CAVITIES AND A PREPARATION FOR CARRYING OUT THE METHOD

Björn G.-A. Ingelman, Uppsala, Sweden, assignor to Pharmacia AB, Uppsala, Sweden

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,224

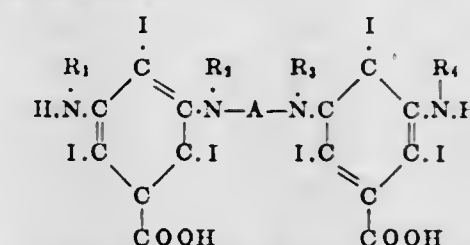
Claims priority, application Sweden, Dec. 28, 1967, 17,898/67

Int. Cl. A61k 27/08

U.S. Cl. 424—5

24 Claims

Compositions which comprise at least one iodine compound of the formula:



wherein R_1 — R_4 are each lower acyl having no more than 5 carbon atoms and wherein A is an alkylene group substituted by at least 1 substituent of the formula $-\text{O}-\text{R}$, wherein R is either hydrogen, or a lower alkyl or acyl having no more than 5 carbon atoms, the alkylene group containing 3–20 carbon atoms, and being optionally broken by one or more oxygen bridges or a physiologically acceptable salt thereof. These compositions are useful as X-ray contrast compositions and are administered to the body of the test object for the X-ray visualization of the body cavities.

3,632,738

METHOD FOR THE X-RAY VISUALIZATION OF BODY CAVITIES AND A PREPARATION FOR CARRYING OUT THE METHOD

Björn G.-A. Ingelman, Uppsala, Sweden, assignor to Pharmacia AB, Uppsala, Sweden

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,214

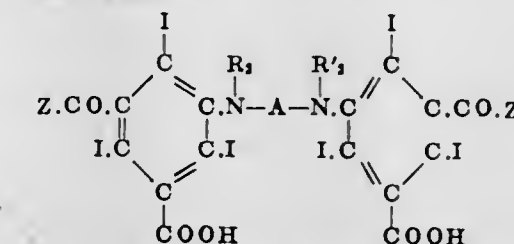
Claims priority, application Sweden, Dec. 28, 1967, 17,897/67

Int. Cl. A61k 27/08

U.S. Cl. 424—5

24 Claims

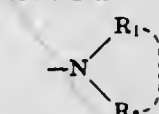
Compositions which comprise at least one iodine compound of the formula:



wherein Z and Z' are each either amino groups of the formula



wherein R_1 and R_2 are each hydrogen or a lower alkyl having no more than 5 carbon atoms; or Z and Z' are each amino groups of the formula



wherein R_1 and R_2 are linked together into a heterocyclic ring system; and R_3 and R_3' are each a lower acyl having no more than 5 carbon atoms; and wherein A is an alkylene group substituted by at least one substituent of the formula $-\text{O}-\text{R}_4$, wherein R_4 is either hydrogen; lower alkyl; or lower acyl having no more than 5 carbon atoms, the alkylene group containing 3–20 carbon atoms, and being optionally broken by one or more oxygen bridges, or a physiologically acceptable salt thereof. Such compositions are useful as X-ray contrast compositions and are administered to the body of the test object for the X-ray visualization of the body cavity.

3,632,739

SOLID SUSTAINED RELEASE PHARMACEUTICAL PREPARATION

Saul S. Kornblum, Springfield, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,987
Int. Cl. A61k 27/12

U.S. Cl. 424—19

4 Claims

A sustained release pharmaceutical tablet, prepared by dissolving the medicament and a retardant agent in a solvent, forming a slurry of the solution and a carrier, spray drying the slurry and tableting the resultant free flowing powder.

3,632,740

TOPICAL DEVICE FOR THE THERAPEUTIC MANAGEMENT OF DERMATOLOGICAL LESIONS WITH STEROIDSRaymond C. V. Robinson, Baltimore, Md., and Gavin Hildick-Smith, Princeton, and Thomas Swindlehurst, Jr., Metuchen, N.J., assignors to Johnson & Johnson
No Drawing. Continuation-in-part of application Ser. No. 345,584, Feb. 18, 1964. This application June 13, 1968, Ser. No. 736,564

Int. Cl. A61l 15/00, 15/03, 15/06

U.S. Cl. 424—28

20 Claims

The period of effectiveness of corticosteroids for topical treatment of inflammatory cutaneous lesions, as shown by their anti-inflammatory effect, is substantially enhanced by having the corticosteroid dispersed through a pressure-sensitive adhesive which is adhered to the area to be treated in the form of a thin film. Pressure-sensitive adhesives vary in their effectiveness, acrylic pressure-sensitive adhesives being the most effective in increasing the period of effectiveness of the corticosteroid. In practice a therapeutic device is employed comprising a flexible backing containing a coating of pressure-sensitive adhesive containing an effective amount of corticosteroid dispersed therethrough. This device is applied to the area to be treated with the coating of pressure-sensitive adhesive contacting the area.

3,632,741

DIETHYLAMINOETHYL DEXTRAN AS AN ADJUVANT FOR VACCINES FOR ACTIVE IMMUNIZATIONGunter Wittmann, Kurt Bauer, and Manfred Mussgay, Tuebingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 8, 1970, Ser. No. 35,917
Claims priority, application Germany, May 13, 1969, P 19 24 304.0

Int. Cl. C12k 5/00, 11/00

U.S. Cl. 424—89

8 Claims

Diethylaminoethyl dextran is used as an adjuvant for vaccines for active immunization to provide a new vaccine wherein a considerable raising of the immunity is achieved in the subjects vaccinated.

3,632,742

METHODS FOR INCREASING THE RESORPTION OF MEDICAMENTS

Theodor Eckert, 44 Munster, Birkenweg 45, and Roland Seldel, 44 Munster, Konigstrasse 44, both of Munster, Germany

No Drawing. Filed Mar. 5, 1970, Ser. No. 16,974
Claims priority, application Germany, Mar. 5, 1969, P 19 11 279.9

Int. Cl. A61j 3/08

U.S. Cl. 424—37

9 Claims

The resorption of medicaments in the alimentary tract is increased by mixing it with xanthine derivatives.

3,632,743

BUCCAL AND NASAL MUCOUS-ADMINISTERABLE PREPARATIONS HAVING AN ADRENOCORTICOTROPIC ACTIVITY

Leo Geller, Basel, Robert Deguillaume, Flueh, and Pierre Antoine Desaulles, Muttentz, Switzerland, assignors to Ciba Corporation, New York, N.Y.

No Drawing. Filed July 3, 1968, Ser. No. 742,174
Claims priority, application Switzerland, July 10, 1967, 9,774/67

Int. Cl. A61k 9/00, 17/06

U.S. Cl. 424—45

8 Claims

Pharmaceutical preparations of adrenocorticotropically active peptides which are suitable for resorption through the mucous membranes of the mouth or nose.

3,632,744

OIL AND WATER REPELLENT COSMETIC POWDER

Duane Owen Paulsen, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 17, 1969, Ser. No. 886,015
Int. Cl. A61k 7/02

U.S. Cl. 424—69

6 Claims

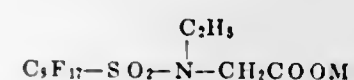
An oil and water repellent cosmetic powder comprising a powder substrate having thereon a composition selected from the group consisting of

(a) A polyfluoroalkylphosphate salt having the formula



where n is an integer of from 1 to 16, m is an integer of from 4 to 14, and C_m and C_n together contain a straight chain of at least 8 carbon atoms; y is a number of average value from 1.0 to 2.5 and M is a water solubilizing cation from the group including H, alkali metal, and ammonium or substituted ammonium,

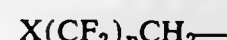
(b)



wherein M is an alkali metal, ammonium or substituted ammonium,

(c) A copolymer derived from the following monomers in the weight percent range shown

75% to 98% by weight of units derived from monomers of structure $RfCH_2CH_2O_2CCH=CH_2$ wherein Rf is a perfluoroalkyl group of from four to fourteen carbons; 25% to 2% by weight of units derived from monomers selected from the group consisting of

(1) $ROCH=CH_2$ wherein R is selected from

X being F or H and n one or two, and $(CF_2)_2CH_2$, and

(2) $R'OCF=CF_2$ wherein R' is selected from R , as defined above, and $F(CF_2)_m-$, m being from one to three; and

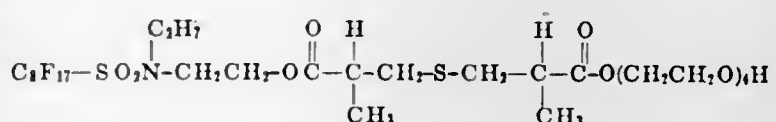
0% to 5% by weight of units derived from monomers selected from the class consisting of

(1) $CH_2=CR^2CONHR^3OH$ and(2) $CH_2=CR^2CO_2R^4OH$

(3) $CH_2=CR^2CO_2R^5$ wherein R^2 is H or CH_3 , R^3 is an alkylene group of from one to about four carbons, R^4 is an alkylene group of from two to about four carbons and R^5 is epoxyalkyl of at least three carbons; or

(4) Mixtures of the above.

(d) The compound



and

(e) A copolymer derived from the following monomers in the amounts shown

192 parts $F(CF_2)_nCH_2CH_2O_2CC(CH_3)=CH_2$ where $n=6, 8$ and 10 in the weight ratio 3:2:1 and also containing trace amounts of $n=12$ and 14

48 parts of n -butyl methacrylate and
12 parts glycidyl methacrylate.

3,632,745

CONCENTRATION AND PURIFICATION OF INFLUENZA VIRUSES

Kostadin Apostolov, 183-193 Euston Road, London NW. 1, England

No Drawing. Filed Feb. 9, 1968, Ser. No. 704,216

Claims priority, application Great Britain, Feb. 21, 1967, 8,232/67

Int. Cl. A61k 27/00

U.S. Cl. 424—89

11 Claims

Viruses of the influenza group are concentrated and purified by dialysing a suspension of the virus against water containing a bivalent metallic cation concentration of from about 0.003 to about 0.12 M until the virus forms a precipitate and then separating the fraction containing the virus. The dialysis can be followed by electrical conductivity or chloride content measurements of the suspension.

3,632,746

DRIED STABLE ANTI-TUMOR PREPARATIONS AND PROCESS FOR PREPARING THE SAME

Toyoo Kono and Sakae Wada, Ageo-shi, Motoharu Shiba, Omiya-shi, and Takashi Matsuno, Akihiro Yamamoto, Haruki Ogawa, Hiroshi Okazaki, Shigeo Suzuki, and Takao Noto, Tokyo, Japan, assignors to Chugai Selyaku Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,710

Claims priority, application Japan, Aug. 30, 1967, 42/55,178, 42/55,179

Int. Cl. A61k 27/00

U.S. Cl. 424—93

2 Claims

Anti-tumor preparations containing the cells of hemolytic streptococci having anti-tumor activity. The preparations are prepared by adding saccharides or amino acids to cell suspensions of hemolytic streptococci having anti-tumor activity, and then drying the resulting mixture.

3,632,747

BACTERIAL FLY-LARVA-KILLING AGENT

Satohiro Ibuki and Nobuo Fujiyoshi, Saitama-ken, Japan, assignors to Juro Morita, Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 613,115, Feb. 1, 1967. This application Aug. 20, 1968, Ser. No. 753,874

Int. Cl. A01n 15/00

U.S. Cl. 424—93

7 Claims

The present bacterial fly larva-killing agent comprises spores of *Bacillus moritai* ATCC 21282 as an active ingredient and has a positive toxic effect only on fly larvae and is quite non-toxic to humans, cattle, fish and silk-worm.

The sufficiently effective spore concentration of the fly larva-killing agent is 10^9 to 10^{10} spores per gram of the

agent, and the agent can be used directly or in combination with a filler, emulsifier, or oleaginous liquid.

3,632,748

METHOD FOR IMPROVING WEIGHT GAINS AND REDUCING GROSS LESIONS IN CHICKENS EXPOSED TO MAREK'S DISEASE

Richard E. Bowen, Brandywine Township, Hancock County, and Walter J. Kleinschmidt, Lawrence Township, Marion County, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed June 6, 1969, Ser. No. 831,229

Int. Cl. A61k 21/00

U.S. Cl. 424—115

6 Claims

Methods for improving weight gains and reducing processing plant condemnations in chickens exposed to Marek's disease comprising administration of statolon to chicks or chick embryos.

3,632,749

TRIENINE AND A PROCESS FOR MAKING THE SAME

Adorjan Aszalos, Kendall Park, Robert S. Robison, North Brunswick, Felix Pansy, Jamesburg, and Bernard Berk, Westfield, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

Filed Apr. 29, 1968, Ser. No. 724,818

Int. Cl. A61k 21/00

U.S. Cl. 424—118

2 Claims

An antibiotic selected from the group consisting of trienine and salts thereof, said trienine being an amorphous, light-yellow material having the following average elemental analysis: C, 54.75; H, 7.99; N, 1.17; a minimum molecular weight of about 1400; a melting point in the range of 163–165° C.; a decomposition point of 180° C.; which is soluble in methanol, pyridine, and dimethylformamide; and which possesses an infrared absorption spectrum and an ultraviolet absorption spectrum as shown in FIGS. 1 and 2, respectively. Trienine is useful as an antifungal and antimicrobial agent.

3,632,750

MEGALOMICIN AND METHODS FOR PRODUCTION THEREOF

Marvin J. Weinstein, East Brunswick, George M. Luedemann, Glen Ridge, Gerald H. Wagman, East Brunswick, and Joseph A. Marquez, Montclair, N.J., assignors to Schering Corporation, Bloomfield, N.J.

Continuation-in-part of application Ser. No. 707,100, Feb. 21, 1968, which is a continuation-in-part of application Ser. No. 641,522, May 26, 1967. This application Sept. 4, 1969, Ser. No. 855,424

Int. Cl. A61k 21/00

U.S. Cl. 424—120

17 Claims

A new antibiotic complex identified as Antibiotic W847 Complex (or Antibiotic W847 or megalomicin), composed of at least four major antibiotic components is produced by the cultivation under submerged aerobic conditions of *Micromonospora megalomicea*, a hitherto undescribed species of the genus *Micromonospora* of the order Actinomycetales. The individual components are isolated by solvent extraction and chromatography and are characterized by their respective chemical and biological properties.

3,632,751

METHOD OF REMOVING ODOR FROM NYSTATIN
James Ling Chen, East Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed Mar. 13, 1969, Ser. No. 807,102
Int. Cl. A61k 21/00

U.S. Cl. 424-123

5 Claims

The musty odor which frequently remains after the production of the antibiotic nystatin is removed by treating the substance with sulfur dioxide or a metal sulfite.

3,632,752

CERTAIN DI AND TRIODOBENZOIC ACIDS AS GROWTH PROMOTANTS

James H. Ware, Lake Bluff, Ill., assignor to International Minerals & Chemical Corporation
No Drawing. Filed Aug. 5, 1966, Ser. No. 570,431
Int. Cl. A61k 21/00, 27/00

U.S. Cl. 424-177

10 Claims

Compounds of 2,3,5-triiodobenzoic acid and 2,5-diiodobenzoic acid increase the growth of poultry, ruminants and swine when administered in the amount of about 0.0001 to 0.1% by weight of the daily feed consumption of the animal.

3,632,753

METHOD OF TREATING BACTERIAL INFECTIONS
Elton S. Cook and Kinji Tanaka, Cincinnati, Ohio, assignors to Stanley Drug Products, Inc., Portland, Oreg.
No Drawing. Continuation-in-part of abandoned application Ser. No. 697,002, Jan. 11, 1968. This application Dec. 4, 1969, Ser. No. 882,266
Int. Cl. A61k 27/00

U.S. Cl. 424-177

4 Claims

An antibacterial amount of certain dipeptides of histidine is administered to mammals in need of an antimicrobial effective in protecting against cocci and bacilli.

3,632,754

USE OF CHITIN FOR PROMOTING WOUND HEALING

Leslie L. Balassa, Blooming Grove, N.Y., assignor to Lescardien Ltd., Goshen, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 619,007, Feb. 27, 1967. This application Feb. 12, 1968, Ser. No. 704,538
Int. Cl. A61k 17/00

U.S. Cl. 424-180

6 Claims

Wound healing compositions and the process of healing wounds with such compositions are described, the compositions containing chitin, partially depolymerized chitin or a chitin derivative.

3,632,755

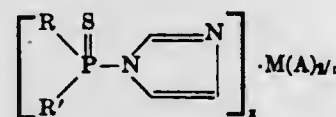
METAL SALT COMPLEXES OF IMIDAZOLYL-PHOSPHONOTHIOATES

Cleve A. Goring and Robert L. Noveroske, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed June 13, 1968, Ser. No. 738,724
Int. Cl. A01n 9/20, 9/36

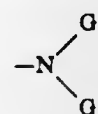
U.S. Cl. 424-200

18 Claims

The present invention is directed to metal salt complexes of imidazolylphosphonothioates (alternatively named imidazolylphosphine sulfides), which complexes have the following formula



The present invention is also directed to methods employing and compositions comprising such complexes for the control of microorganisms, notably bacteria and fungi. In the above formula, R represents morpholino, piperidino, pyrrolidin-1-yl, 1,2,3,6-tetrahydro-1-pyridyl, imidazol-1-yl, pyrazol-1-yl, 1,2,3-triazol-1-yl, 1,2,4-triazol-1-yl, or radical of the formula



wherein G represents alkyl and G' represents phenyl, benzyl, phenethyl, furfuryl, tetrahydrofurfuryl, 4-pyridylmethyl or alkyl such that G and G' taken together contain from 2 to 13 carbon atoms, inclusive; R' represents R, diallylamino, loweralkyl, cyclohexyl, phenyl, styryl, naphthyl, alkoxy, phenoxy or naphthoxy; M represents a divalent transition metal ion such as cadmium, cobalt, copper, iron, manganese or zinc; A represents a phyto-logically acceptable anion of valence n and x is an integer having the value of 1 to 4, inclusive.

3,632,756

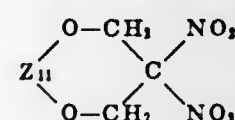
METHOD OF CONTROLLING FUNGUS

Marvin H. Gold, Sacramento, and Henry J. Marcus, West Covina, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.
No Drawing. Application May 20, 1965, Ser. No. 487,942, now Patent No. 3,513,243, which is a division of application Ser. No. 326,286, Nov. 26, 1963, now Patent No. 3,359,334. Divided and this application Aug. 28, 1969, Ser. No. 853,929
Int. Cl. A01n 9/36, 9/00

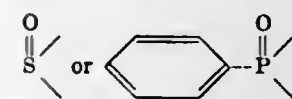
U.S. Cl. 424-209

3 Claims

A process for controlling the growth of fungus comprising treating the fungus with a compound of the formula:



wherein Z₁₁ is selected from the group consisting of:



3,632,757

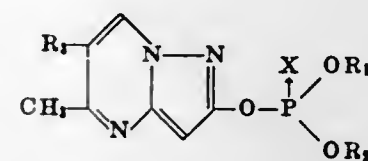
PESTICIDAL COMPOSITIONS AND METHODS CONTAINING 2-(O,O-DIALKYL-PHOSPHORYL)-6-CARBALKOXY OR CARBALKENOXY-PYRAZOLO-PYRIMIDINES

Otto Scherer, Bad Soden, Taunus, and Hilmar Mildemberger, Kalkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Application Aug. 17, 1966, Ser. No. 572,878, which is a continuation-in-part of application Ser. No. 527,519, Feb. 15, 1966. Divided and this application Oct. 13, 1969, Ser. No. 871,004
Claims priority, application Germany, Feb. 20, 1965, F 45,303, F 45,304
Int. Cl. A01n 9/36; A61k 13/00

U.S. Cl. 424-200

10 Claims

A composition containing, as the active ingredient, a compound of the formula



in which R₁ and R₂ are alkyl of 1 to 4 carbon atoms, R₃ represents a carbalkoxy of up to 13 carbon atoms or carballyloxy, and X stands for oxygen or sulfur, is effective against plant-sucking and plant-eating insects, Acarida such as spider mites and ticks in all stages of development including their eggs, as well as against nematodes and phytopathogenous fungi.

3,632,758

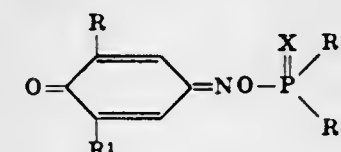
INSECTICIDAL OXIMES

Richard D. Partos and Walter A. Darlington, Brentwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Mar. 11, 1970, Ser. No. 18,748
Int. Cl. A01n 9/36, 17/10; C07c 131/08

U.S. Cl. 424-211

15 Claims

Insecticidal oximes of the formula



in which X is oxygen or sulfur, R, R¹, R² and R³ are alkyl or alkoxy having from 1 to 5 carbon atoms and are like or unlike.

3,632,759

INSECTICIDAL COMPOSITIONS AND METHOD OF MAKING SAME

Richard A. Jameston, Excelsior, and James C. Mickus, Bloomington, Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.
No Drawing. Filed May 16, 1969, Ser. No. 825,418
Int. Cl. A01n 9/20

U.S. Cl. 424-300

8 Claims

A dispersion of a powdered insecticide in an aqueous sugar syrup stabilized against fermentation, separation and agglomeration by addition of an acid to adjust the pH of the dispersion to within the range of between about 3 and about 4.

3,632,760

TREATMENT OF INFLAMMATION

Tsung-Ying Shen, Gordon L. Walford, and Bruce E. Witzel, Westfield, and Howard Jones, Matawan, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed June 25, 1969, Ser. No. 836,623
Int. Cl. A61u 27/00

U.S. Cl. 424-230

2 Claims

New substituted salicylic acids and non-toxic pharmaceutically acceptable salts, esters, and amides derived therefrom. The substituted salicylic acids described herein are useful as anti-inflammatory compounds. Also included herein are methods of preparing said salicylic acid compounds, pharmaceutical compositions having said salicylic acid compounds as an active ingredient and methods of treating inflammation by administering these particular compositions to patients.

3,632,761

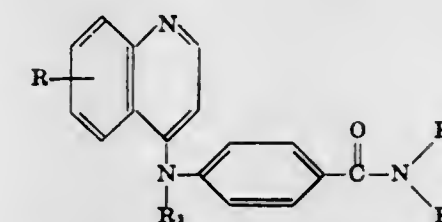
METHOD OF OBTAINING ANTIHYPERTENSIVE AND ANTIANXIETY EFFECTS

Boyd E. Graham and William Veldkamp, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Aug. 8, 1969, Ser. No. 848,707
Int. Cl. A61k 27/00

U.S. Cl. 424-248

2 Claims

The invention provides pharmaceutical dosage unit consisting essentially of an effective amount for anti-hypertensive and anti-anxiety effects in mammals, for example, humans and valuable warm-blooded animals such dogs, cats and other domestic animals, of the free base



and acid addition salt forms of a compound of the formula

where in R is hydrogen, alkyl having 1 to 4 carbon atoms, inclusive halogen, or alkoxy having 1 to 4 carbon atoms, inclusive; R₁ is hydrogen or alkyl having 1 to 4 carbon atoms, inclusive; R₂ is hydrogen or alkyl having 1 to 4 carbon atoms, inclusive; R₃ and R₄ when taken together with —N< is saturated heterocyclic amino radical selected from the group consisting of unsubstituted and mono-alkyl and polyalkyl substituted pyrrolidino, piperidino, hexamethylenimino, morpholino, piperazino, and 4-benzylpiperazino; and R₅ is hydrogen or alkyl having 1 to 4 carbon atoms, inclusive. Methods of administration are also provided.

3,632,762

COMPOSITION AND METHOD FOR TREATING MALARIA

Patrick Mamalis, "Robins Ruff" 7 Wraylands Drive, Reigate, Surrey, England
No Drawing. Original application June 10, 1969, Ser. No. 831,996. Divided and this application Dec. 22, 1969, Ser. No. 889,861
Claims priority, application Great Britain, July 4, 1968, 31,970/68
Int. Cl. A61k 27/00

U.S. Cl. 424-249

10 Claims

This invention relates to pharmaceutical composition containing triazine compounds for the treatment of malaria.

3,632,763

4-AMINOFURO[2,3-d]PYRIMIDINES AS SMOOTH MUSCLE RELAXANTS

Hans-Jürgen E. Hess, Groton, and Timothy H. Cronin, Niantic, Conn., assignors to Pfizer Inc., New York, N.Y.
No Drawing. Original application Jan. 5, 1968, Ser. No. 695,868. Divided and this application Mar. 23, 1970, Ser. No. 22,053
Int. Cl. A61k 27/00

U.S. Cl. 424-251

12 Claims

4-aminofuro[2,3-d]pyrimidines relax smooth muscle and inhibit cyclic 3',5'-nucleotide phosphodiesterase activity. The compounds are synthesized by condensing α-halo-ketone or aldehyde with dimethyl malonate, reacting the ethylene ketal malonamide thereof with alkanolic acid ester, cyclizing with acid to obtain the furo[2,3-d]pyrimidine-4-one, then obtaining a 4-amino derivative through the 4-chloro intermediate. The 5,6-alkylene compounds are prepared by condensing α-hydroxy cyclic ketone with malononitrile and cyclizing with alkanolic acid amide.

3,632,764

ALKYL-HYDROXAMIC ACIDS AND SALTS THEREOF AS ANTI-FUNGAL AGENTS

Reginald L. Wakeman, Philadelphia, Pa., and Edward Griffin Shay, Belle Mead, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 375,356, June 15, 1964. This application Dec. 15, 1969, Ser. No. 885,372
Int. Cl. A01n 9/38

U.S. Cl. 424-291

3 Claims

The use of alkyl-hydroxamic acids or their salts in the treatment of surfaces such as fabric, skin, hides, wood, metal, and plastic for the purpose of providing an anti-

fungus finish to the surfaces. These compounds are prepared by the reaction of the corresponding carboxylic ester with hydroxylamine.

3,632,765

TREATMENT OF SHOCK

Spencer M. Fossel, Bernardsville, N.J., assignor to Unimed, Inc., Morristown, N.J.
No Drawing. Filed July 18, 1969, Ser. No. 843,194
Int. Cl. A61k 27/00

U.S. Cl. 424-263

7 Claims

The treatment of shock (hemorrhagic shock, endotoxin shock, cardiogenic shock, surgical shock or toxic shock) by administering to a patient after the onset of the symptoms of such shock and prior to the shock becoming irreversible of an effective amount of beta-(2-pyridyl-lower alkyl)-amine or beta-(4-pyridyl-lower alkyl)-amine.

3,632,766

PHARMACEUTICAL PREPARATIONS CONTAINING SUBSTITUTED PHENYL CARBAMIC ACID ESTERS OF CYCLIC AMINO ALCOHOLS

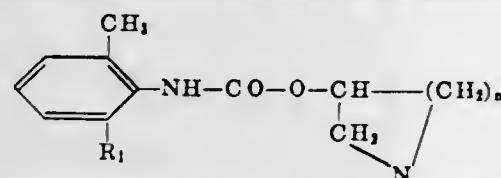
Johan Richard Dahlbom, Sodertalje, and John Lars Gunnar Nilsson, Skarholmen, Sweden, assignors to Aktiebolaget Astra, Sodertalje, Sweden
No Drawing. Original application Feb. 28, 1968, Ser. No. 708,758, now Patent No. 3,544,579, dated Dec. 1, 1970. Divided and this application Aug. 17, 1970, Ser. No. 64,616

Claims priority, application Sweden, Mar. 9, 1967, 3,307/67
Int. Cl. A61k 27/00

U.S. Cl. 424-267

5 Claims

Pharmaceutical preparations containing carbamates which are substituted phenylcarbamic acid esters of N-alkyl-substituted cyclic amino alcohols of the general formula:



These preparations exhibit local anesthetic effects.

3,632,767

TREATMENT OF DEPRESSION WITH 4-SUBSTITUTED PIPERIDINES

Allan P. Gray, Bedford Village, and Donald E. Helmetier, Brewster, N.Y., and Morton E. Goldberg, Glen Rock, N.J., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,536
Int. Cl. A61k 27/00

U.S. Cl. 424-267

2 Claims

4-Substituted-piperidines such as 4-benzylpiperidine are used as antidepressants in mammals.

3,632,768

THERAPEUTIC COMPOSITION AND METHOD FOR TREATING INFECTIONS WITH ACTINOSPECTACIN

Malcolm E. Bergy, Kalamazoo, and Clarence De Boer, Kalamazoo Township, Kalamazoo County, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Continuation of application Ser. No. 611,586, Jan. 25, 1967, which is a continuation-in-part of application Ser. No. 507,241, Nov. 10, 1965, which in turn is a continuation-in-part of application Ser. No. 847,091, Oct. 19, 1959. This application Oct. 2, 1969, Ser. No. 863,336
Int. Cl. A61k 27/00

U.S. Cl. 424-278

9 Claims

Actinospectacin (spectinomycin) prepared in unit dosage form in combination with pharmaceutical carriers and the process of treating humans and animals for bacterial infections, parasitic worms and PPLO infections.

3,632,769

INSECTICIDAL COMPOSITION CONTAINING A TRIORGANOTIN DERIVATIVE OF A CYCLIC COMPOUND

John P. Pellegrini, Jr., Pittsburgh, and Ilgvars J. Spilners, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Original application Feb. 9, 1968, Ser. No. 704,248, now Patent No. 3,519,666, dated July 7, 1970. Divided and this application Nov. 28, 1969, Ser. No. 880,889

Int. Cl. A01n 9/00

U.S. Cl. 424-288

9 Claims

Insecticidal compositions comprise novel triorganotin derivatives of cyclic olefins and hydrocarbyl-substituted cyclic olefins. The compounds are prepared by the addition of a triorganotin hydride to a cyclic olefin. Preferred compounds are obtained by the addition of a triaryltin hydride to cyclopentadiene, cyclohexadiene, cyclooctadiene, indene, acenaphthylene and their C₁ to C₄ alkyl-substituted derivatives. Examples include triphenyltin cyclopentene, triphenyltin methylcyclopentene, triphenyltin cyclohexene, triphenyltin cyclooctene, triphenyltin indane and triphenyltin acenaphthene.

3,632,770

CONTROL OF PHYTOPATHOGENIC FUNGI AND BACTERIA BY TETRABUTYLDICHLOROSTAN-NOXANE

Glentworth Lamb, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Mar. 20, 1969, Ser. No. 809,013
Int. Cl. A01n 9/24, 9/30

U.S. Cl. 424-288

5 Claims

A method for the control of bacteria and fungi is given whereby an effective amount of tetrabutylchlorostan-oxane is applied to said materials.

3,632,771

METHOD AND COMPOSITION FOR COMBATING FUNGICIDAL INFECTIONS

Hendrik Dolman and Albert Tempel, van Houtenlaan, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 661,797, Aug. 21, 1967. This application Apr. 24, 1970, Ser. No. 31,761

Claims priority, application Netherlands, Aug. 19, 1966, 6611689

Int. Cl. A61j 3/04

U.S. Cl. 424-302

8 Claims

Composition and method of treating fungus skin infections with aromatic sulfonyl or sulfoxyl alkylene-rhodanides. An example is 2,4,5-trichlorophenyl rhodane methyl sulfone.

3,632,772

METHOD OF CONTROLLING FUNGUS

Marvin H. Gold, Sacramento, and Henry J. Marcus, West Covina, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

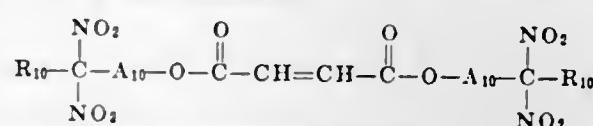
No Drawing. Application May 20, 1965, Ser. No. 487,942, now Patent No. 3,513,243, which is a division of application Ser. No. 326,286, Nov. 26, 1963, now Patent No. 3,359,334. Divided and this application Aug. 28, 1969, Ser. No. 853,928

Int. Cl. A01n 9/24

U.S. Cl. 424-313

2 Claims

A process for controlling the growth of fungus comprising treating the fungus with an effective amount of a compound of the formula:



wherein A₁₀ is lower alkylene and R₁₀ is an alkyl group of from 2 to 6 carbon atoms.

3,632,773

METHOD OF CONTROLLING FUNGUS

Marvin H. Gold, Sacramento, and Henry J. Marcus, West Covina, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

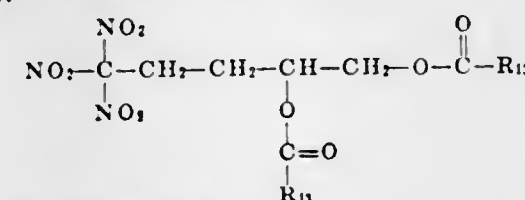
No Drawing. Application May 20, 1965, Ser. No. 487,942, now Patent No. 3,513,243, dated Dec. 19, 1967, which is a division of application Ser. No. 326,286, Nov. 26, 1963. Divided and this application Aug. 28, 1969, Ser. No. 853,927

Int. Cl. A01n 9/24

U.S. Cl. 424-313

2 Claims

A process for controlling the growth of fungus comprising treating the fungus with a compound of the formula:



wherein R₁₁ is lower alkyl.

3,632,774

METHOD OF TREATING RHEUMATOID ARTHRITIS WITH HISTIDINE

Donald A. Gerber, 330 Lenox Road, Apt. 3M, Brooklyn, N.Y. 11226

No Drawing. Filed Mar. 30, 1970, Ser. No. 23,993
Int. Cl. A61k 27/00

U.S. Cl. 424-319

5 Claims

The administration of the amino acid histidine or non-toxic salts of that acid is useful in the alleviation of symptoms and effects related to rheumatoid arthritis.

3,632,775

METHOD FOR THE TREATMENT OF GASTEROPHILUS INTESTINALIS

George E. Brightenback, Stanton, and Elbert E. Harris, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Apr. 20, 1970, Ser. No. 30,310
Int. Cl. A61k 27/00

U.S. Cl. 424-322

3 Claims

Method for treating *Gasterophilus intestinalis*, or common bot in horses, which comprises administering cyclohexane or a cyclohexane generating complex to a host suffering with said disease.

3,632,776

β,β'-DIACETOXY DIETHYL SELENIDE USEFUL AS A MITICIDE

Danford H. Olson, Littleton, Colo. (R.R. 3, Edwardsville, Ill. 62025)

No Drawing. Original application Nov. 29, 1965, Ser. No. 510,399. Divided and this application Sept. 20, 1968, Ser. No. 819,500

Int. Cl. A01n 9/24

U.S. Cl. 424-311

3 Claims

The present disclosure teaches the use of β,β'-diacetoxy diethyl selenide as a miticide.

3,632,777

NITRO-TRIFLUOROMETHYLBENZAMIDES AND VETERINARY COMPOSITIONS CONTAINING THE SAME

Dean E. Welch and Robert R. Baron, Charles City, La., assignors to Salsbury Laboratories

No Drawing. Original application Aug. 14, 1967, Ser. No. 660,179, now Patent No. 3,518,305, dated June 30, 1970. Divided and this application July 14, 1969, Ser. No. 871,084

Int. Cl. A61k 27/00

U.S. Cl. 424-324

15 Claims

A new series of nitro-trifluoromethylbenzamides and feed compositions containing the same to be used for the prevention and control of coccidiosis in animals.

3,632,778

TABLETS CONTAINING L-DOPA

Prabhakar Ranchhordas Sheth, Nanuet, N.Y., and Gilbert Katz, Boonton, N.J., assignors to Hoffmann-La Roche, Inc., Nutley, N.J.

No Drawing. Filed June 10, 1970, Ser. No. 45,244
Int. Cl. A61j 3/10

U.S. Cl. 424-319

11 Claims

Improved tablets containing L-DOPA and a binder comprising amylopectin admixed with, polyvinylpyrrolidone, a lubricant and a tablet disintegrant are described.

3,632,779

METHOD USING (DIALKYLAMINOETHOXY) HALOMETHOXYANILINES FOR ALLEVIATING CARDIAC ARRHYTHMIAS

Franklin N. Marshall, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 6, 1969, Ser. No. 804,985
Int. Cl. A61k 27/00

U.S. Cl. 424-330

7 Claims

A method useful for alleviating cardiac arrhythmias such as tachycardias in animals by administering to an animal an antiarrhythmic amount of a (dialkylaminoethoxy)halomethoxyaniline or a pharmaceutically-acceptable salt thereof.

3,632,780

PHENOXYPROPYLAMINES IN COMPOSITIONS AND METHODS FOR EFFECTING B-SYMPATHOLYTICAL ACTIVITY

Volkert Govert Keizer and Johannes Maria Antonius Zwagemakers, van Houtenlaan, Weesp, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Original application Mar. 22, 1966, Ser. No. 536,320, now Patent No. 3,542,874, dated Nov. 24, 1970. Divided and this application Nov. 24, 1969, Ser. No. 877,592

Claims priority, application Netherlands, Apr. 3, 1965, 6504268

Int. Cl. A61k 27/00

U.S. Cl. 424-330

14 Claims

Pharmaceutical compositions containing eloxythio-phenoxy N substituted hydroxy-propylamino-propanes. The compositions are useful in treating diseases requiring use of agents exhibiting β-sympatholytical activities.

3,632,781

METHOD OF CONTROLLING FUNGUS

Marvin H. Gold, Sacramento, and Henry J. Marcus, West Covina, Calif., assignors to Aerojet-General Corporation, Azusa, Calif.

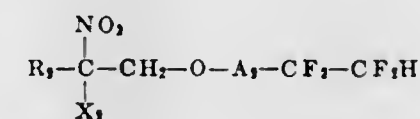
No Drawing. Application May 20, 1965, Ser. No. 487,942, now Patent No. 3,513,243, which is a division of application Ser. No. 326,286, Nov. 26, 1963, now Patent No. 3,359,334. Divided and this application Aug. 28, 1969, Ser. No. 853,961

Int. Cl. A01n 9/24

U.S. Cl. 424-342

2 Claims

A process for controlling the growth of fungus comprising treating the fungus with a compound of the formula:



wherein A₉ is lower alkylene, R₉ is lower alkyl and X₉ is selected from the group consisting of hydrogen and nitro.

3,632,782

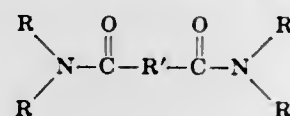
THYMOL AS AN ANTI-INFLUENZA AGENT
Harvey E. Alburn, West Chester, and George Greenspan, Merion, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Jan. 13, 1967, Ser. No. 609,016
Int. Cl. A61k 27/00

U.S. Cl. 424—346 1 Claim
Method of treating influenza virus infections and preventing influenza virus attacks in warm-blooded animals by administering from 0.5 to 100 mg. per kilogram of body weight of thymol in a unit dosage form.

3,632,783

TREATMENT OF MOSQUITO BITES EMPLOYING CERTAIN TETRAALKYL DIAMIDES
Joseph E. Stonis, Palos Park, Ill., assignor to The C. P. Hall Company of Illinois, Chicago, Ill.
No Drawing. Filed May 27, 1969, Ser. No. 828,385
Int. Cl. A61l 23/00

U.S. Cl. 424—320 11 Claims
Relief from mosquito bites on humans is obtained by applying to the surface of the bite area a diamide of the formula



in which each R is a saturated or unsaturated aliphatic hydrocarbon group of 1 to 6 carbon atoms and R' is a saturated or unsaturated aliphatic hydrocarbon group of 0 to 22 carbon atoms.

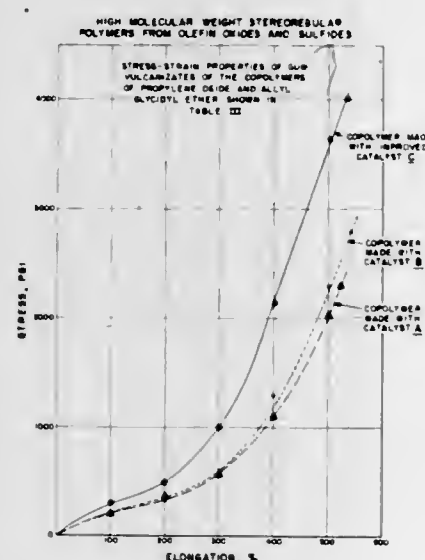
ERRATA

For Classes 260—2 thru 264—47 see:
Patent Nos. 3,632,784 thru 3,632,842

3,632,784

HIGH MOLECULAR WEIGHT STEREOREGULAR POLYMERS FROM OLEFIN OXIDES AND SULFIDES
Joginder Lal, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Dec. 18, 1968, Ser. No. 784,773
Int. Cl. C08g 23/14

U.S. Cl. 260—2 A 5 Claims



Olefin oxides (or sulfides) may be polymerized with a catalyst system comprised of a mixture of I the metal-containing reaction product of (A) an alcohol, phenol or mercaptan and (B) a metal alkyl thiocarbonate and II an

organometallic compound. The resulting polymers have higher molecular weight and/or higher stereoregularity than the polymers obtained in the absence of the organometallic compound. Polymers of propylene oxide prepared by the use of this catalyst system yield gum vulcanizates having tensile strength values in excess of 3500 p.s.i.

3,632,785

METHOD OF FORMING SHELL MOLDS
Leopold F. Bornstein, King of Prussia, Pa., assignor to Georgia Pacific Corporation, Portland, Oreg.
No Drawing. Filed Feb. 19, 1969, Ser. No. 800,772
Int. Cl. C08g 37/16

U.S. Cl. 260—25 4 Claims
Peelback in the formation of shell molds can be minimized by the inclusion in the resin of a water-soluble poly-flavonoid.

3,632,786

POLYVINYL ALCOHOL ADHESIVE COMPOSITION WITH HIGH WET TACK CONTAINING A BORON COMPOUND AND A CIS 1,2 POLYOL COMPOUND
Ralph F. Nickerson, West Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,170
Int. Cl. C08f 45/06, 45/24, 45/34

U.S. Cl. 260—29.6 4 Claims
Disclosed herein is an adhesive composition with high wet tack, which comprises:

- (A) a polyvinyl alcohol resin,
- (B) a water soluble boron compound such as boric acid, boric oxide or borax, and
- (C) a polyol selected from the group consisting of cis 1,2-polyols and certain 1,3-polyols such as sorbitol and mannitol.

The composition also includes an inert filler such as clay and may optionally include an additional binder material such as polyvinyl acetate.

3,632,787

VINYL ACETATE CONTAINING AQUEOUS EMULSIONS AND PROCESS FOR PRODUCING SAME
Arnold Gesner Wilbur, Summit, N.J., assignor to Celanese Corporation, New York, N.Y.
No Drawing. Filed Jan. 3, 1969, Ser. No. 788,917
Int. Cl. C08f 29/42

U.S. Cl. 260—29.6 RW 8 Claims
An improved stable polyvinyl acetate containing aqueous emulsion wherein a vinyl acetate copolymer base is overpolymerized by at least one ethylenically unsaturated monomer other than vinyl acetate in sufficient quantities to substantially prevent the vinyl acetate constituent from hydrolyzing.

3,632,788

PERFLUORO OLEFIN VINYLIDENE FLUORIDE ELASTOMER PRODUCT AND PROCESS
David A. Stivers, St. Paul, and Richard A. Guenther, Birchwood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,823
Int. Cl. C08g 51/30, 51/48, 51/50

U.S. Cl. 260—30.8 R 9 Claims
Improved low temperature flexibility and softness are imparted to fluoro-olefinic elastomeric formulations which include highly fluorinated fluid plasticizer in excess of its ordinary compatibility limit with said elastomer, obtained by the inclusion of a "compatibility extender" comprising one or more low melting, low molecular weight, polar, fluororadical compounds. The inclusion of said "compatibility extender" also greatly facilitates processing of said formulations.

3,632,789

PRODUCTION OF COATINGS FROM OLEFIN COPOLYMERS CONTAINING HYDROXYL GROUPS AND POLYISOCYANATES
Hans Wilhelm, Hemsheim, and Heinrich Hartmann and Klaus Gulbins, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Dec. 5, 1968, Ser. No. 781,637
Claims priority, application Germany, Dec. 6, 1967, P 16 21 822.7

Int. Cl. C08g 22/08, 22/10 11 Claims
U.S. Cl. 260—33.6 UB
Process for the production of coatings based on reaction products of polyisocyanates with copolymers containing hydroxyl groups which have been prepared by polymerization of the monomers in an organic liquid (which does not react with isocyanates in the presence of a soluble polymer) as the insoluble copolymer dispersed in the organic liquid.

3,632,790

THERMOPLASTIC COMPOSITIONS BASED ON OLEFIN POLYMERS AND NYLONS
Herbert Naarmann, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Jan. 23, 1969, Ser. No. 793,605
Claims priority, application Germany, Feb. 1, 1968, P 16 69 760.2

Int. Cl. C08f 29/12, 45/10 3 Claims
U.S. Cl. 260—37 N
Polyolefin-based thermoplastic molding compositions which contain powdered asbestos and an adhesion promoter. The molding compositions contain asbestos having a water content of from 2 to 4% by weight and, as the adhesion promoter, a polyamide derived from (I) an aliphatic saturated C₄-C₁₂ monoaminocarboxylic acid an/or (II) an aliphatic saturated C₄-C₁₂ diamine and an aliphatic saturated C₄-C₁₂ dicarboxylic acid.

3,632,791

COPOLYMER OF ALKENYL AROMATIC MONOMER AND MALEIMIDO REINFORCED WITH GLASS FIBERS
Walter E. F. Rupprecht and Kenneth J. Gullette, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 6, 1968, Ser. No. 773,948
Int. Cl. B32b 5/02, 17/04; C08f 45/10

U.S. Cl. 260—41 AG 5 Claims
The invention relates to reinforced or laminated plastic articles comprising reinforcing glass fibers bonded to a copolymer of an alkenyl aromatic monomer having a single aromatic ring and a cyclic imide of an unsaturated dicarboxylic acid. The copolymer has the unique property of self-promoting adhesion between the glass fibers and the copolymer.

3,632,792

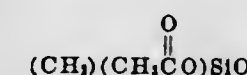
STEEL-REINFORCED COMPOSITE
Lawrence E. Nielsen, Creve Coeur, and Joseph E. Fields, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 753,850, Aug. 20, 1968. This application Nov. 29, 1968, Ser. No. 780,273

Int. Cl. C08f 45/10 7 Claims
U.S. Cl. 260—41
A shaped composite structure comprising steel fiber as reinforcing filler in a matrix comprising the zinc salt of

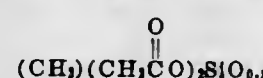
an acrylic acid polymer, and the method of preparing the same which comprises heating in a mold at a temperature of from about 175° C. to 400° C. and a pressure of from about 5,000 p.s.i. to 50,000 p.s.i. a mixture of zinc oxide and an acrylic acid polymer in contact with the steel fiber.

3,632,793

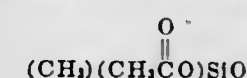
ACETOXY FUNCTIONAL COPOLYMERS COMPOSED OF MONOMETHYLSILOXANE UNITS AND DIPHENYLSILOXANE UNITS
Robert C. Antonen, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,196
Int. Cl. C08f 11/04 6 Claims
U.S. Cl. 260—46.5 R
Acetoxymonomethylsiloxane - diphenylsiloxane copolymers of



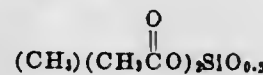
units, CH₃SiO_{1.5} units, (C₆H₅)₂SiO units and



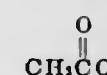
units where the (C₆H₅)₂SiO units are bonded to



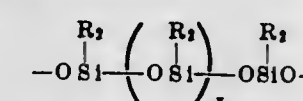
units, CH₃SiO_{1.5} units or



units, 15 to 46 weight percent of the copolymer is



and 25 to 50 mol percent of the siloxane units are (C₆H₅)₂SiO units is disclosed. Also disclosed are modified acetoxymonomethylsiloxane-diphenylsiloxane copolymers wherein molecules of the copolymer are linked together by segments of the formula



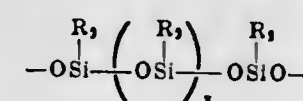
wherein x is at least 2 and R is methyl, phenyl or 3,3,3-trifluoropropyl and the segments being present in amounts of 1 to 50 weight percent. The copolymers and modified copolymers are useful as cross-linkers, intermediates and laminating resins.

3,632,794

HYDROXYLATED COPOLYMERS COMPOSED OF MONOMETHYLSILOXANE UNITS AND DIPHENYLSILOXANE UNITS
Robert C. Antonen, % Dow Corning Corporation, Midland, Mich. 48640

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,217
Int. Cl. C08f 11/04 4 Claims

U.S. Cl. 260—46.5 R
Hydroxylated copolymers of (C₆H₅)₂SiO units and CH₃SiO_{1.5} units are disclosed. The diphenylsiloxane units are present in an amount of 20 to 50 mol percent and are bonded to monomethylsiloxane units which contain the hydroxyl groups. Also disclosed are the above hydroxylated copolymers modified by linking segments of



where x is at least 2 and R is methyl, phenyl or 3,3,3-trifluoropropyl and the segments are present in amounts of 1 to 50 weight percent. The hydroxylated copolymers and the modified hydroxylated copolymers are resins useful in protective coatings, laminates, release coatings and molding resins.

3,632,795

ADDUCTS OF DICYANDIAMIDE AND THE EQUI-MOLAR CONDENSATE OF PHTHALIC ANHYDRIDE AND A POLYAMINE AS EPOXY RESIN LATENT CURING AGENTS

Hubert L. Thomas, East Lansing, and Alexander Mueller, Mason, Mich., assignors to Ren Plastics, Inc., Lansing, Mich.

No Drawing. Filed Jan. 9, 1969, Ser. No. 790,146
Int. Cl. C08g 30/14

U.S. Cl. 260—47 EN

6 Claims

Adducts of dicyandiamide with the product obtained by reaction of phthalic anhydride with a polyamine are described which are latent curing agents for epoxy resin compositions. The materials capable of forming the adducts can be added to epoxy resin compositions to provide for formation of the adduct in situ when the epoxy resin composition is being heated to its curing temperature. Epoxy resin compositions are described which contain a latent curing agent and which have long shelf-lives at normal room temperatures but which cure rapidly when heated to moderately elevated temperatures.

3,632,796

SATURATED LINEAR POLYMERS HAVING PLURAL PENDANT ETHYLENIC UNSATURATION

Donald F. Holicky, Parma, Kenneth G. Hahn, Brookpark, and Robert C. Gasman, Parma, Ohio, assignors to SCM Corporation, Cleveland, Ohio

No Drawing. Filed Feb. 11, 1969, Ser. No. 798,470
Int. Cl. C08g 41/04, 22/00

U.S. Cl. 260—77.5 CR

3 Claims

A class of polymers comprising a saturated, ester-free backbone having pendant therefrom through urethane linkage a plurality of ethylenically unsaturated groups which are polymerizable with vinyl monomer for thermosetting purposes under the influence of free radical catalysis is described along with process for preparing the copolymers.

Polymers falling within the scope of this invention are advantageous in that when thermoset, they produce shaped bodies or objects which have controlled physical properties (e.g., mechanical strength and flexibility). The polymers are further advantageous in that they are significantly more resistant to attack by solvents, acid and alkalis than are shaped objects prepared from conventional polyester polymers.

3,632,797

PROCESS FOR THE PREPARATION OF POLYIMIDES

Franklin Boardman, Englishtown, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,241
Int. Cl. C08g 20/20

U.S. Cl. 260—78 UA

7 Claims

Process for the preparation of polyimides from polymers containing a plurality of carboxy groups and/or anhydride groups which comprises treating said polymer with an amide, sulfonamide or phosphonamide at temperatures of from about 150° C. to about 250° C. Water may be added as a catalyst.

3,632,798

HEAT-TREATED PRODUCT OF ACRYLONITRILE COPOLYMER AND PROCESS FOR THE PREPARATION THEREOF

Ken-ichi Morita, Kamakura-shi, Toshio Mizushima, Fujisawa-shi, and Hideji Kitagawa and Hiroshi Sakai, Iyo-gun, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Filed Feb. 4, 1969, Ser. No. 796,608
Claims priority, application Japan, Feb. 7, 1968, 43/7,124; Feb. 8, 1968, 43/7,474; July 13, 1968, 43/48,848

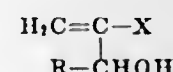
Int. Cl. C08f 15/22

U.S. Cl. 260—85.5

5 Claims

Product having improved physical properties which is treated at temperatures not lower than 50° C. of a novel copolymer which exhibit improved cyclic structure-forming ability, consisting of:

- (i) acrylonitrile
- (ii) 0.05–20 mol percent to the acrylonitrile of a hydroxymethylacrylic compound of the Formula 1 below:



(wherein X stands for a radical selected from the group consisting of cyano, carboxyl and carboxylate radicals; and R is a member of the group consisting of hydrogen, alkyl radicals of not over 12 carbons, aryl radicals of not over 10 carbons, cycloalkyl radicals of not over 12 carbons, and arylalkyl radicals of not over 12 carbons), and

- (iii) 0–15 mol percent to the acrylonitrile of other copolymerizable monomer or monomers:

and also to the processes for preparation of such heat-treated product.

3,632,799

METHOD FOR POLYMERIZING VINYL CHLORIDE IN THE PRESENCE OF STEREOSPECIFIC CATALYSTS

Rex W. Cochran, George F. Helfrich, Louis D. Hoblit, and Gordon Y. T. Liu, Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 25, 1968, Ser. No. 778,830
Int. Cl. C08f 3/30, 1/04, 1/56

U.S. Cl. 260—92.8 R

3 Claims

The present invention is directed to an unexpectedly efficient method for the preparation of polyvinyl chloride in the presence of certain Ziegler-type catalysts wherein such catalysts are prepared in the presence of vinyl chloride monomer. More particularly, the present invention calls for separation of the vinyl chloride monomer charge into two essentially equal portions (a) and (b), wherein the transition metal compound constituent of the prescribed catalyst system is admixed with (a) and the organo-metallic compound and complexing agent compound constituents of the catalyst system are admixed with (b); followed by admixture and subsequent polymerization of portions (a) and (b).

3,632,800

OLEFIN POLYMERIZATION

William S. Anderson, Oakland, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,588
Int. Cl. C08f 1/62, 3/06

U.S. Cl. 260—94.9 R

1 Claim

Novel, essentially linear alpha-omega dihydroxyalkanes of 1,000 to 15,000 number average molecular weight are produced by reacting ethylene in aqueous solution of a highly dissociated silver salt, containing a dialkyl peroxydicarbonate as free-radical generating reaction initiator, separating the solid reaction product and hydrolyzing it.

The dihydroxyalkanes can be converted to a variety of products by reactions of the terminal hydroxyl groups with reagents, such as diisocyanates, thionyl chloride, phosgene, adipoyl chloride and dimethyldichlorosilane. These conversion reactions can be applied to utilize the dihydroxyalkanes as castable resins in the production of shaped articles of polyethylene-like polymers.

3,632,801

PHENYL-AZO-PHENYL COMPOUNDS

Wolfgang Groebke, Oberwil, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz A.G., Basel, Switzerland)

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,388
Claims priority, application Switzerland, Feb. 2, 1968, 1,553/68

Int. Cl. C07c 107/06; C09b 29/26

U.S. Cl. 260—207

10 Claims

5-alkoxy-2-halo-4-nitrophenylazo - 2' - acylamino - 4' - (N,N-diacyloxyalkyl)aminobenzenes are of low solubility in water and are highly suitable for dyeing fibres and textiles consisting of hydrophobic synthetic or semi-synthetic organic compounds of high molecular weight.

3,632,802

OXIDATION OF CARBOHYDRATES

James N. BeMiller, Murphysboro, and Stephen D. Darling, Carbondale, Ill., assignors to Southern Illinois University Foundation, Carbondale, Ill.

No Drawing. Filed Dec. 6, 1968, Ser. No. 781,984
Int. Cl. C08b 19/01

U.S. Cl. 260—233.3 R

8 Claims

Carbohydrates such as starch and cellulose having unsubstituted primary hydroxyl groups are oxidized with an alkali metal ferrate, such as potassium ferrate, to yield products in which at least one of the primary hydroxyl groups is converted to an aldehyde group. The use of such a ferrate compound as the oxidizing agent permits oxidation to be carried out without the formation of carboxyl groups, without the oxidation of secondary hydroxyl groups and without scission of carbon to carbon bonds in the carbohydrate molecule. The resulting products exhibit improved physical properties and may be used, for example, in paper sizing applications or as chemical intermediates in the preparation of other useful derivatives.

3,632,803

METHOD OF CONTROLLING THE ALKALI-CATALYZED ETHERIFICATION OF GRANULE STARCH

Erling T. Hjermstad, Cedar Rapids, and Otto J. Rajtora, Iowa City, Iowa, assignors to Penick & Ford Limited, Cedar Rapids, Iowa

Filed Nov. 12, 1968, Ser. No. 774,694
Int. Cl. C08b 19/06

U.S. Cl. 260—233.3 R

9 Claims

An improvement is provided in the method of manufacturing plant batches of starch ethers in a large reaction tank by reacting a water suspension of alkali-catalyzed granule starch with a monofunctional etherifying reagent while maintaining the filterability of the starch, the improvement comprising pumping a water suspension of granule starch through a pipeline including turbulent flow producing means, and injecting into the turbulently flowing suspension substantially uniformly proportioned amounts of a water solution of an alkali etherification catalyst to substantially instantaneously produce a uniform mixture of the alkali catalyst with the suspension. The resulting suspension of alkali-catalyzed starch granules is charged to the reaction tank for carrying out the etherification reaction. The method improves reaction uniformity resulting in better product filterability, reduction of solubles loss, and other advantages.

3,632,804

GLYCOSE HYDROCARBON SULFONATE SURFACTANTS

Roy A. Gray, Edmund T. Kittleman, and Gardner C. Ray, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Jan. 3, 1969, Ser. No. 788,958
Int. Cl. C07c 69/32

U.S. Cl. 260—234 R

20 Claims

Novel surfactants and processes of producing same by forming alkali metal salts of a saccharide and reacting the so-formed alkali metal salts with a hydrocarbonsulfonyl halide.

3,632,805

PROCESS FOR PRODUCING 1-AMINOALKYL-BENZODIAZEPINE DERIVATIVES

Hisao Yamamoto, Nishinomiya-shi, Shigeo Inaba, Takarazuka-shi, Toshiyuki Hirohashi, Kobe, Kikuo Ishizumi and Isamu Maruyama, Minoo-shi, and Kazuo Mori, Kobe, Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,174
Claims priority, application Japan, Dec. 8, 1967, 42/78,903, 42/78,904; Dec. 9, 1967, 42/79,169; Dec. 21, 1967, 42/82,274

Int. Cl. C07d 53/06

U.S. Cl. 260—239.3

16 Claims

1 - aminoalkyl - benzodiazepine - 2 - ones are produced with commercial advantages through ring expansion by oxidation of N-aminoalkyl-2-aminomethyl-indoles. The starting N-aminoalkyl-2-aminomethyl-indoles are prepared either by subjecting an indole-2-carboxamide to aminoalkylation and to dehydration in an optional order and then reducing the resulting N-aminoalkyl-indole-2-carbonitrile, or by directly reducing an N - aminoalkyl - 2 - carboxamide.

3,632,806

NOVEL N - PYRIDYLMETHYLIDENE - HOMOCYSTEINE THIOLACTONE COMPOUND AND THE PREPARATION THEREOF

Kentaro Okumura, Kobe-shi, Hyogo-ken, Ichizo Inoue, Takarazuka-shi, Hyogo-ken, and Kazuhiko Kondo, Higashi-Osaka-shi, Osaka-fu, Japan, assignors to Tanabe Seryaku Co., Ltd., Osaka, Japan

No Drawing. Filed Oct. 14, 1968, Ser. No. 767,094
Claims priority, application Japan, Oct. 16, 1967, 42/66,416

Int. Cl. C07d 31/32

U.S. Cl. 260—240

2 Claims

A vitamin B₆ compound for oral administration comprises N - (2 - methyl - 3 - hydroxy - 5 - hydroxymethyl - 4 - pyridylmethylidene) - homocysteine thiolactone. A method is provided to produce this N-pyridylmethylidene-homocysteine thiolactone compound.

3,632,807

PROCESS FOR THE PREPARATION OF 2-CHLORO-PYRIDINE AND ITS DERIVATIVES

Manfred Maurer, Dirmsteden, uber Frankenthal, Pfalz, Winfried Orth, Schifferstadt, and Ludwig Rappen, Duisburg-Melderich, Germany, assignors to Rütgerswerke Aktiengesellschaft, Frankfurt am Main, Germany

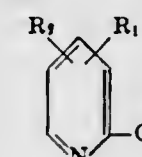
No Drawing. Filed Nov. 8, 1968, Ser. No. 774,488
Claims priority, application Germany, Dec. 18, 1967, P 16 95 659.5

Int. Cl. C07d 31/26

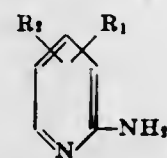
U.S. Cl. 260—290

5 Claims

Compounds corresponding to the formula



wherein R_1 as well as R_2 are selected from the group consisting of H, alkyl radicals having 1-4 carbon atoms and halogen, are prepared by reacting 2-amino-pyridines corresponding to the formula



wherein R_1 and R_2 have the same meaning as above, in methanolic solution saturated with hydrogen chloride, with alkyl nitrite, in the temperature range of 0 to 50° C.

3,632,808

CYANINE DYES CONTAINING AN IMIDAZO [4,5-b]QUINOXALINE NUCLEUS

Leslie G. S. Brooker and Earl J. Van Lare, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Division of application Ser. No. 609,791, Jan. 17, 1967, which is a continuation-in-part of application Ser. No. 573,183, Aug. 18, 1966, which in turn is a continuation-in-part of application Ser. No. 286,469, June 10, 1963. Divided and this application Aug. 8, 1968, Ser. No. 778,874

Int. Cl. C07d 51/78

U.S. Cl. 260—240.4 29 Claims
Cyanine dyes are provided which feature an imidazo [4,5-b]quinoxaline nucleus. Light sensitive emulsions containing such dyes are also provided.

3,632,809

VINTIAMOL ESTERS

Franco D'Alo and Arnaldo Masserini, Milan, Italy, assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,909
Claims priority, application Italy, Aug. 2, 1968, 19,759/68

Int. Cl. C07d 51/42

U.S. Cl. 260—240 J 20 Claims
O-esters, particularly the alkanoyl, cycloalkylalkanoyl, phenylalkanoyl, carboxyalkanoyl and phosphate esters of both the cis and trans forms of vintiamol (S-benzoylvintiamine) have been prepared. These esters exhibit a great enhancement of the vitamin B₁ activity of the starting vintiamol, said enhancement being particularly marked in case of the formate, acetate and phosphate esters.

3,632,810

DERIVATIVES OF 7-AMINO CEPHALOSPORANIC ACID

Hans Bickel, Binningen, Rolf Bosshardt, Arlesheim, Bruno Fechtig, Reinach, Enrico Menard, Basel, Johannes Mueller, Arlesheim, and Heinrich Peter, Riehen, Switzerland, assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,121

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C 10 Claims
7-(imidazolyl-acetylamin)-cephalosporanic acids. Use: antibiotics.

3,632,811

PROCESSES FOR CHEMICAL COMPOUNDS

Arthur E. Erickson, Cranford, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,607

Int. Cl. C07d 33/48

U.S. Cl. 260—287 3 Claims
The present process provides a method for converting germin to the 3,16 diester thereof by the initial reaction of germin and acetone under anhydrous conditions in

the presence of a hydrate-forming sulfonic acid to produce as a first intermediate germin acetone organic sulfonic acid salt hydrate, subsequently neutralizing the acetone salt hydrate to form germin acetone, isolating and esterifying the germin acetone to form the germin acetone diester and hydrolyzing said acetone diester under acidic conditions to produce the desired germin diester.

3,632,812

PROCESS FOR PREPARING ORGANIC THIOFORMAMIDES AND ORGANIC DITHIOCARBAMATES

Ludwig Maier, Tiergartenstrasse 17, Kilchberg, Zurich, Switzerland

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,208

Int. Cl. C07c 155/08

U.S. Cl. 260—293.85 9 Claims
Process for preparing organic thioformamides of the formula $R^1R^2NC(S)H$ and organic dithiocarbamates of the formula $R^1R^2NC(S)SH \cdot HNR^1R^2$ by either reacting formaldehyde and an amine or the condensation product thereof with sulfur at elevated temperatures in aqueous alcohol having 1 to 4 carbon atoms.

3,632,813

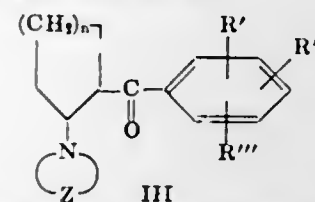
SUBSTITUTED PHENYL 2-PIPERIDINOCYCLOALKYL KETONES

Jacob Szmuszkowicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application June 13, 1966, Ser. No. 556,892, now Patent No. 3,558,599. Divided and this application Dec. 23, 1968, Ser. No. 786,421

Int. Cl. C07d 29/20

U.S. Cl. 260—294.7 J 4 Claims
Ketones of the Formula III



wherein n has the value 1 to 4 inclusive,



is a heterocyclic amino radical containing from 5 to 10 nuclear atoms, inclusive, and wherein R' , R'' and R''' are hydrogen, halogen, alkyl and alkoxy of 1 to 6 carbon atoms, inclusive and $-CF_3$, with at least one of the variant R' , R'' and R''' being halogen, alkoxy or CF_3 and acid addition salt are prepared. The new ketones are intermediates for the production of the corresponding 1,3-aminoalcohols and esters and ethers thereof, which have diuretic and sometimes strong anti-hyperglycemic activity and are thus useful to promote diuresis in mammals or as oral antidiabetic agents.

3,632,814

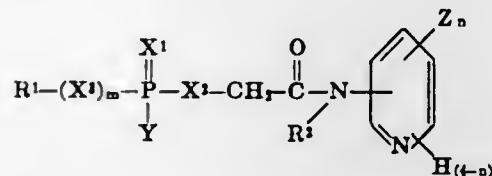
PHOSPHORAMIDATE ESTERS

Sidney B. Richter, Chicago, and Leonard J. Stach, Riverside, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

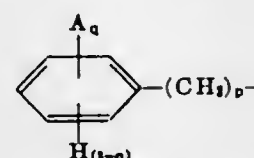
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,768

Int. Cl. C07d 31/50

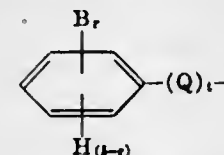
U.S. Cl. 260—294.8 K 4 Claims
This invention discloses new compounds of the formula



wherein R^1 is selected from the group consisting of alkyl, alkenyl and



wherein A is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, q is an integer from 0 to 5, and p is an integer from 0 to 3; X^1 , X^2 and X^3 are independently selected from the group consisting of oxygen and sulfur; m is an integer from 0 to 1; Y is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, amino, alkylamino, dialkylamino and



wherein B is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, dialkylamino, alkylsulfoxide and alkylsulfone, r is an integer from 0 to 5, Q is selected from the group consisting of oxygen, sulfur, alkylene, alkyleneoxy and alkyleneethio, and r is an integer from 0 to 1; R^2 is alkyl; Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen and nitro; and n is an integer from 0 to 4. The above described compounds are useful as pesticides, particularly as insecticides and acaricides.

3,632,815

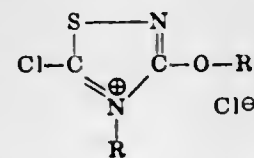
1,2,4-THIAZOLIUM COMPOUNDS

Gerhard Zumach, Cologne-Stammheim, Hans Holtschmidt, Leverkusen, and Engelbert Kuhle, Bergisch Gladbach, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 20, 1968, Ser. No. 777,481
Claims priority, application Germany, Dec. 8, 1967, F 54,266

Int. Cl. C07d 91/60

U.S. Cl. 260—302 D 4 Claims
1,2,4-thiazolium chlorides corresponding to the formula



in which R and R_1 are hydrocarbon radicals and a process for producing these compounds by reacting isothiocyanates, isocyanates and organic cyanates in the presence of chlorine or chlorine-yielding compounds at temperatures in the range from about 0 to about 100° C.

3,632,816

6-CHLOROIMIDAZO[2,1-b]THIAZOLE AND ITS 5-SUBSTITUTED DERIVATIVES

John P. Paolini, Flourtown, and Louis J. Lendvay, Philadelphia, Pa., assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,217

Int. Cl. C07d 99/06

U.S. Cl. 260—306.7 3 Claims
Novel 6-chloroimidazo[2,1-b]thiazole and its 5-substituted derivatives have useful anti-inflammatory properties. 6-chloroimidazo[2,1-b]thiazole is prepared by the reaction of phosphorous oxychloride on the known 2-imino-3-thiazolinacetic acid. The 5-substituted derivatives are prepared from this compound by a variety of processes illustrated in the specific examples.

3,632,817

NITROIMIDAZOLOYL DERIVATIVES

David W. Henry, Menlo Park, Calif., and Dale R. Hoff, Basking Ridge, and Arthur A. Patchett, Cranford, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Feb. 19, 1969, Ser. No. 800,705

Int. Cl. C07d 49/36

U.S. Cl. 260—309 7 Claims

Nitroimidazoloyl ureas and carbamates having antiprotozoal activity prepared by reaction of 1-loweralkyl-5-nitroimidazole-2-carboxamide with oxalyl halide and then with an appropriate alcohol or amine. The product compounds are useful as parasitocides.

3,632,818

3-AMINO-4-DIHALO PYRAZOLONES

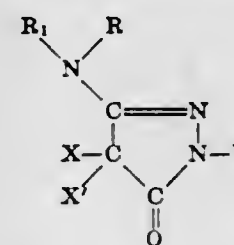
Andre Allais, Les Lilas, and Pierre Girault, Paris, France, assignors to Roussel-Uclaf, Paris, France

No Drawing. Filed Jan. 2, 1969, Ser. No. 788,629

Claims priority, application France, Jan. 4, 1968, 134,865

Int. Cl. C07d 49/06

U.S. Cl. 260—310 A 8 Claims
3-amino-4,4-dihalo-5-pyrazolones of the formula



(I)

wherein X and X' are selected from the group consisting of chlorine and bromine, Y is selected from the group consisting of alkyl, cycloalkyl and aryl which may be substituted and R and R_1 are selected from the group consisting of hydrogen, alkyl, aryl, cycloalkyl and aralkyl which possess fungicidal activity and their preparation.

3,632,819

BENZOYLATION OF INDOLES

Silvio Maffei and Franco Tosi, Chiasso, Switzerland, assignors to Biochemfarm S.A., Chiasso, Switzerland

No Drawing. Filed Oct. 25, 1968, Ser. No. 782,501

Int. Cl. C07d 27/56

U.S. Cl. 260—326.13 A 2 Claims

The arylation of indole derivatives is effected by reacting a mixed anhydride of a benzoic acid optionally substituted by a halogen atom and of a monoester of a carbonic acid, with an indole derivative. A process for preparing said new mixed anhydrides is also provided.

3,632,820

PROCESS FOR THE PRODUCTION OF FLUORINATED BENZODIOXANES

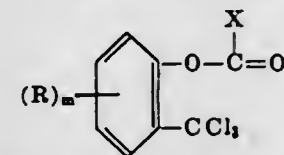
Hans-Ulrich Alles, Leichlingen, and Erich Klauke, Odenthal-Hahnenberg, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 22, 1968, Ser. No. 779,315

Claims priority, application Germany, Dec. 8, 1967, F 54,267

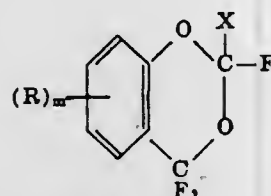
Int. Cl. C07d 15/08

U.S. Cl. 260—340.3 10 Claims
A process for the production of fluorinated benzodioxanes, wherein a compound of the formula



wherein m represents an integer from 1 to 4, R represents the same or different members selected from the group consisting of hydrogen, halogen, optionally substituted

aryl, chlorocarbonyl, fluorocarbonyl, trifluoroacetyl, isocyanato, CN, NO₂, FCOO, SO₂F, ClCOO, SO₂Cl or trihalogenomethyl radicals; or wherein two adjacent radicals R form an optionally substituted anellated benzene ring, and X represents halogen, trifluoromethyl or trichloromethyl, is reacted with anhydrous hydrofluoric acid, and the resultant novel fluorinated benzodioxanes of the formula



wherein R, m and X are as previously defined.

The compounds of this invention may be employed in the production of plant protection agents and they further have fungicidal properties.

3,632,821

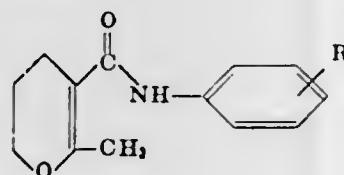
PYRAN-CARBOXYLIC ACID ANILIDES

Otto Scherer, Bad Soden, Taunus, and Günther Heubach, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Jan. 14, 1969, Ser. No. 791,134
Claims priority, application Germany, Jan. 22, 1968, P 16 68 899.6
Int. Cl. C07d 7/10

U.S. Cl. 260—345.7

8 Claims

2-methyl-5,6-dihydropyran-3-carboxylic acid anilides of the general formula



in which R stands for hydrogen, methyl or methoxy in the meta, ortho or para-position in the benzene nucleus. The novel compounds are used as fungicides.

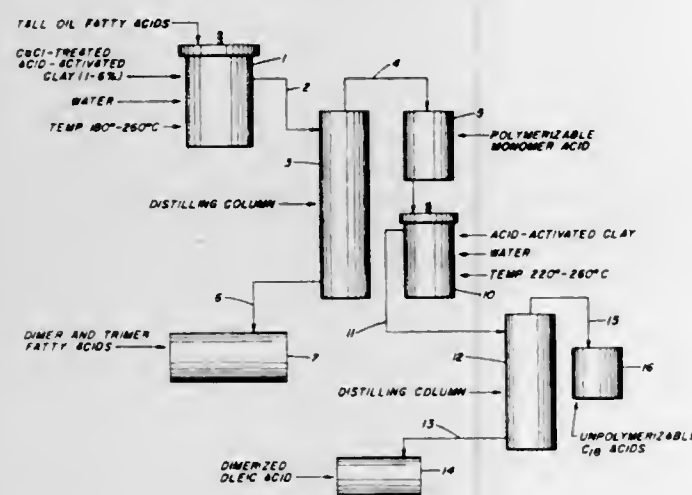
3,632,822

POLYMERIZATION OF UNSATURATED FATTY ACIDS

Natalie Hetman Conroy, New Canaan, Conn., assignor to Arizona Chemical Company, New York, N.Y.
Filed Feb. 4, 1969, Ser. No. 796,424
Int. Cl. C09f 7/06

U.S. Cl. 260—407

10 Claims



Mixtures of unsaturated higher fatty acids consisting predominantly of oleic and non-conjugated linoleic acids

are polymerized in two stages. In the first stage, the mixture is heated at 180° C. to 260° C. in the presence of a small amount of water and an alkaline earth metal salt modified mineral clay for about 2-5 hours. Residual unpolymerized acids, principally unmodified octadecenoic acids, are separated from the reaction product and may be dimerized in a second stage by heating at 220° C.-260° C. for about 2 to 5 hours in the presence of a small amount of water and of an acid-activated mineral clay, which is preferably a montmorillonite clay.

3,632,823

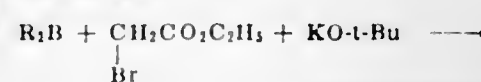
ALKYLATION WITH ORGANOBORANES

Herbert C. Brown, 1840 Garden St., West Lafayette, Ind. 47906
No Drawing. Filed Dec. 26, 1968, Ser. No. 787,272
Int. Cl. C11c 3/00

U.S. Cl. 260—408

21 Claims

Many organic compounds containing hydrogen in the alpha position to an activating group, such as aldehydes, ketones, esters, nitriles, sulfones, and nitro compounds, are readily transformed into the corresponding carbanions by treatment with an appropriate base. Such carbanions containing one or two halogen atoms in the alpha position are captured by organoboranes producing the corresponding aldehyde, ketone, ester, nitrile, sulfone, or nitro compound containing one or two organo substituents in the alpha position in place of the original halogen substituent.



The α-halocarbanion may either be preformed and reacted subsequently with the organoborane in a subsequent stage, or the α-halocarbanion may be produced in the presence of the organoborane. This development makes it possible to synthesize a wide variety of organic derivatives. Such organic compounds are valuable intermediates in organic synthesis.

3,632,824

METHOD OF PRODUCING PALLADIUM-CARBON BOND COMPOUNDS

Peter Fitton, South Charleston, W. Va., and James Edward McKeon, Thornwood, N.Y., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Dec. 31, 1968, Ser. No. 788,337
Int. Cl. C07j 15/00

U.S. Cl. 260—429 R

10 Claims

A method is disclosed for making reactive compounds of palladium containing palladium-carbon bonds by reacting palladium in the zero valent state with a halogen-carbon bond containing compound. The compounds have utility as intermediates and as catalysts.

3,632,825

NICKEL ALKOXIDE COMPOUNDS AND PROCESS FOR PREPARATION THEREOF

David Paul Jordan, Mahwah, N.J., assignor to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 632,931, Apr. 24, 1967. This application Dec. 5, 1968, Ser. No. 781,574
Int. Cl. C07f 15/04; C08f 45/62

U.S. Cl. 260—439 R

27 Claims

A process for preparing substantially pure nickel alkoxides in which 2,2'-thiobisphenol, a nickel salt, a primary alcohol and an acid acceptor are reacted in an essentially non-aqueous solvent. The nickel alkoxide precipitate then separates from solution in a substantially pure condition.

Useful biological activity and the light stabilization of chlorinated polymers by means of the compounds is disclosed.

3,632,826

METHOD FOR PRODUCING SILYLALKYL MERCAPTANS WITH SILICON HYDRIDE GROUPS

Abe Berger, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Filed Jan. 6, 1969, Ser. No. 789,396
Int. Cl. C07f 7/08

U.S. Cl. 260—448.2 N

10 Claims

Silylalkylmercaptans having silicon hydride groups are formed by reacting diolefinic materials with thioacids to form a monoolefinically unsaturated compound having a thioacid salt substituent. A silicon hydride having, as an additional substituent, a reducible group, is added across the single unsaturation of an olefinic compound to form an organosilicon compound with an alkylthioacid salt group, this compound being reduced by an alkali or alkaline earth metal aluminum hydride, to convert the thioacid salt to the mercaptan group and the reducible substituents on the silicon to hydride substituents. The novel compounds are used to modify RTV compositions.

3,632,827

PREPARATION OF AROMATIC ISOCYANATES

Eric Smith, Madison, Conn., assignor to Olin Mathieson Chemical Corporation
No Drawing. Filed Nov. 21, 1968, Ser. No. 777,890
Int. Cl. C07c 119/04

U.S. Cl. 260—453 P

20 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprised of (1) a nitrogen-containing heteroaromatic compound and (2) a halide of a noble metal, and (3) a halide of a non-noble metal selected from the group consisting of iron and the metals of Groups IVa, Va, VIa, VIIa, IIb, IVb and Vb of the Periodic Table. The heteroaromatic nitrogen-containing compound is one containing between five and six members in the ring, containing no element other than nitrogen and carbon in the ring, and having at least two double bonds in the ring. Pyridine and isoquinoline are the preferred heteroaromatic compounds. The noble metal halide is preferably a halide of palladium, rhodium, iridium, rhenium, platinum or mixtures thereof. The preferred non-noble metal halides are halides of titanium, zirconium, vanadium, tantalum, chromium, manganese, iron, zinc, mercury, germanium, tin, lead, arsenic, antimony and bismuth. A fourth component, such as molybdenum trioxide or another metal oxide, may also be included in the catalyst system.

3,632,828

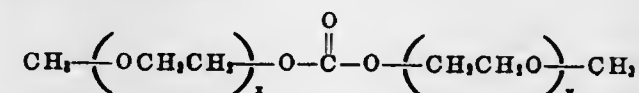
POLYETHYLENE GLYCOL MONOMETHYL ETHER CARBONATES

Ludo K. Frevel, Midland, and David F. Grandsen, North Bradley, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Dec. 16, 1968, Ser. No. 784,266
Int. Cl. C07c 69/00; C10m 3/20

U.S. Cl. 260—463

4 Claims

Polyoxyethylene glycol monomethyl ether carbonates having the formula



wherein x and y are independently 2 or 3 are new compounds that are useful in formulating brake fluids and as synthetic lubricants.

3,632,829

HALOGENATED MANDELANILIDE CARBANILATES

Ignatius Schumacher, Webster Groves, and Joseph W. Baker, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 7, 1968, Ser. No. 774,169
Int. Cl. C07c 103/30

U.S. Cl. 260—472

9 Claims

This disclosure covers halogenated mandelanilide carbanilates as new chemical compounds. These compounds have been found to be useful in the control of bacteria.

3,632,830

PROCESS FOR THE PURIFICATION OF CRUDE BIS-(β-HYDROXYETHYL) TEREPHTHALATE

Yataro Ichikawa, Michiyuki Tokashiki, and Nobuo Suzuki, Iwakuni-shi, Japan, assignors to Teijin Limited, Osaka, Japan
Filed Dec. 3, 1968, Ser. No. 780,619
Int. Cl. C07c 69/82

U.S. Cl. 260—475 PR

6 Claims

A process for purifying crude bis-(β-hydroxyethyl) terephthalate prepared by the reaction of terephthalic acid or dimethyl terephthalate with ethylene glycol or ethylene oxide which comprises dissolving the crude bis-(β-hydroxyethyl) terephthalate in an aromatic solvent at a concentration higher than the saturation solubility of the crude bis-(β-hydroxyethyl) terephthalate in the solvent at a temperature corresponding to the apparent melting point of the same crude bis-(β-hydroxyethyl) terephthalate in the same solvent at an elevated temperature above the apparent melting point and rapidly cooling the solution to a temperature below the apparent melting point, thereby avoiding the precipitation of granular or blocky solids of bis-(β-hydroxyethyl) terephthalate.

3,632,831

SYNTHESIS OF DIALKYL 4,4'-BIPHENYL-DICARBOXYLATES

Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Jan. 3, 1969, Ser. No. 788,952
Int. Cl. C07c 69/76

U.S. Cl. 260—475 R

5 Claims

Dialkyl 4,4'-biphenyldicarboxylates are prepared by heating under pressure a 4,4'-biphenyldihalide, dimethylcarbonate or diethylcarbonate and 0.01 to 50 mole percent of palladium per mole of 4,4'-biphenyldihalide. Inert solvents such as xylene can be used if desired.

3,632,832

OXIDATION OF 5-CARBOXYPHTHALIDE TO TRIMELLITIC ACID

LeRoy S. Forney, Metuchen, N.J., assignor to Mobil Oil Corporation
No Drawing. Filed Mar. 3, 1969, Ser. No. 804,008
Int. Cl. C07c 63/32

U.S. Cl. 260—523 R

1 Claim

5-carboxyphthalide is oxidized to trimellitic acid with 10-50 percent nitric acid at 120-250° C. at autogenous pressure. Trimellitic acid (and its anhydride) is a well known material that is useful, for example, to prepare polyesters for baked finishes such as wire coatings.

3,632,833

PROPYLENE OXIDATION IN THE PRESENCE OF RHODIUM METAL

Noel W. Cant and William K. Hall, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,810
Int. Cl. C07c 45/04

U.S. Cl. 260—604 R

9 Claims

Propylene is oxidized with oxygen to acrolein, acetone, etc. by oxidation in the contact presence of rhodium metal.

3,632,834

PROCESS FOR PREPARING TRICHLOROTRIFLUOROETHANE AND DICHLOROTETRAFLUOROETHANE

Frank Joseph Christoph, Jr., Elkton, Md., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 700,683, Jan. 24, 1968. This application Oct. 23, 1968, Ser. No. 770,125

Int. Cl. C07c 17/20, 19/08

U.S. Cl. 260—653.7

11 Claims

The vapor phase preparation of 1,1,2-trichloro-1,2,2-trifluoroethane and 1,2-dichloro-1,1,2,2-tetrafluoroethane by reacting a less highly fluorinated perhaloethane with hydrogen fluoride in the presence of chromium trifluoride. One reactant is perchloroethane which can be prepared in situ from tetrachloroethylene and chlorine. The presence of undesirable isomers in the products of the process is reduced.

3,632,835

HYDROCARBON ISOMERIZATION PROCESS

Roy T. Mitsche, McHenry, and Ernest L. Pollitzer, Skokie, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 723,896, Apr. 24, 1968. This application Feb. 25, 1969, Ser. No. 802,206

Int. Cl. C07c 5/22

U.S. Cl. 260—666

14 Claims

Isomerizable hydrocarbons including paraffins, cycloparaffins, olefins, and alkylaromatics, are isomerized by contacting the hydrocarbon, at isomerization conditions, with a catalytic composite containing a platinum group component and a rhenium component combined with a carrier material containing alumina and a finely-divided crystalline aluminosilicate.

3,632,836

SOLID, CURABLE POLYEPOXIDES MODIFIED WITH HYDROLYZED LIQUID POLYEPOXIDES

Eddie Bob Walker, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,857

Int. Cl. C08g 45/06

U.S. Cl. 260—830 R

2 Claims

A solid curable polyepoxide is rendered of greater reactivity to curing and esterification, while maintaining its other desirable properties by the addition thereto of minor amounts of a hydrolyzed or partially hydrolyzed epoxide product, or by preparing a solid curable polyepoxide from a liquid epoxy resin by reacting the liquid resin with a diphenolic compound and a catalyst in the presence of said hydrolyzed product.

3,632,837

DIPHENOL CONTAINING POLYESTERS DERIVED FROM TRIS(2-HYDROXYALKYL)ISOCYANURATES

John M. Kolyer, Convent, and Albert A. Kveglis, Pine Brook, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 30, 1968, Ser. No. 771,999

Int. Cl. C08g 17/06, 17/14, 20/32

U.S. Cl. 260—857 R

9 Claims

Incorporation of a diphenol in a polyester reaction product of a tris(2-hydroxyalkyl)isocyanurate and a polycarboxylic acid avoids gel formation and provides a thermo-oxidatively stable polyester with excellent adhesion properties.

3,632,838

SURFACE COATINGS BASED ON COPOLYMERS CONTAINING ETHERIFIED N-METHYLOLAMIDE GROUPS

Hans Wilhelm, Heinsheim, Gerhard Faulhaber, Mannheim, Matthias Marx, Bad Durkheim, and Ernst Wilhelm Hann, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,111
Claims priority, application Germany, Dec. 13, 1967, P 16 69 091.8

Int. Cl. C09d 3/52, 3/66, 3/76

U.S. Cl. 260—885

3 Claims

Surface coatings based on a dispersion of a copolymer (I) which contains units of (A) 50 to 95% by weight of a copolymerizable ester of a monoolefinically unsaturated carboxylic acid having three to five carbon atoms and an alcohol having one to eight carbon atoms; (B) 0.75 to 25% by weight of an N-methylolamide of a copolymerizable olefinically unsaturated carboxylic acid having three to five carbon atoms which has been etherified with an alcohol having one to eight carbon atoms; and (D) 0 to 40% by weight of at least one other copolymerizable monoolefinically unsaturated monomer. Copolymer I is prepared by polymerizing the said monomers in an organic liquid in which the copolymer (I) is insoluble, in the presence of a polymer (II) or polycondensates (II) or a mixture of both which is dissolved in the organic liquid using a conventional polymerization initiator.

3,632,839

HEAT AND LIGHT STABILIZED VINYL HALIDE COMPOSITION

David W. Young and Robert C. Strand, Homewood, and Donald L. Marion, Hillside, Ill., assignors to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Continuation of application Ser. No. 375,330, June 15, 1964. This application Oct. 21, 1968, Ser. No. 769,432

Int. Cl. C08f 29/24

U.S. Cl. 260—898

10 Claims

Vinyl halide compositions are stabilized against degradation under the influence of heat or light by the addition of small amounts of resinous copolymers of styrene and maleic anhydride or metal salts thereof. Salts employed are of boron, aluminum and metals of Groups II and IV of the Periodic Table.

3,632,840

HALOGEN CONTAINING POLYETHER POLYMER WITH AN ETHYLENICALLY UNSATURATED MONOMER GRAFT

Edwin J. Vandenberg, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,231

Int. Cl. C08f 29/22, 29/24

U.S. Cl. 260—899

13 Claims

Disclosed is a normally solid polyether polymer with many embodiments having a wide variety of uses and characterized by (a) at least one halo-substituted radical bonded to a chain carbon and selected from the group consisting of the halo-substituted hydrocarbon, hydrocarbon-oxy and hydrocarbon-oxy-hydrocarbon radicals and (b) a graft to at least one chain carbon, which graft comprises at least one free radically polymerizable ethylenically unsaturated monomer unit and usually a polymer of free radically polymerizable ethylenically unsaturated monomer material. The graft polymer is made by reacting (1) a normally solid polyether polymer having (a) at least one halo-substituted radical bonded to a chain carbon and selected from the group consisting of the halo-substituted hydrocarbon, hydrocarbon-oxy and hydrocar-

bon-oxy-hydrocarbon radicals, and (b) at least one hydrogen bonded to a chain carbon, with (2) free radically polymerizable ethylenically unsaturated monomer material. Preferably the reaction is effected with free radical material under free radical polymerizing conditions.

3,632,841

METHOD OF STRETCHING ACRYLIC PLASTICS AND PRODUCT

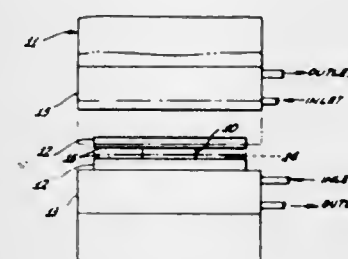
Terry D. Fortin, 8427 Edwanda Ave., Northridge, Calif. 91324

Continuation of application Ser. No. 691,294, Dec. 18, 1967. This application May 13, 1970, Ser. No. 37,430

Int. Cl. B29d 11/00

U.S. Cl. 264—1

19 Claims



A method for stretching of as-cast acrylic plastics to produce stretched acrylics having superior optical and physical properties, comprising compressing an acrylic plastic blank, preheated substantially isothermally to its softening temperature range, between a pair of curved or flat polished elements or plates having a film of lubricant coated thereon at a predetermined thickness-reduction rate until the desired acrylic sheet thickness is reached and, thereafter, cooling the stretched acrylic sheet at a predetermined rate to a temperature below its softening temperature range prior to removing the pressure from the acrylic materials.

3,632,842

METHOD OF MAKING A SYNTHETIC SUEDE

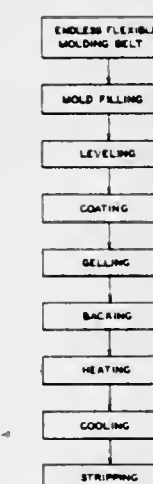
Norman Forrest, Byram, Conn., assignor to Tenneco Chemicals, Inc.

Filed Sept. 28, 1967, Ser. No. 671,304

Int. Cl. B29d 9/00

U.S. Cl. 264—47

2 Claims



A process of producing a synthetic suede product from a polyvinyl chloride plastic material characterized by un-

tapered plastic surface fibers with diameters thereof being a small fraction of their length, the density of the surface fibers ranging from about 10,000 to 500,000 per square inch, and having the appearance and shading characteristics of natural suede leather. This novel suede product is prepared by a continuous process which comprises the sequential steps of filling the mold cavities on the exposed surface of a flexible, endless molding belt with the polyvinyl chloride plastic material in liquid or viscous form; scraping off substantially all of the upper surface of the plastic material; coating the exposed surface of the molding belt with a viscous polyvinyl chloride resin to provide a base for the resin in said mold cavities, said coating resin containing a sufficient amount of additional plasticizer to make said base softer than the resin in said mold cavities; gelling the plastic material on the endless molding belt by heating to an elevated temperature; adding a foam backing material to the gelled plastic material; heating the resultant laminate to effect curing of the plastic material; cooling the cured plastic laminate; and then stripping the cooled plastic product from the endless molding belt.

ERRATA

For Classes 260—2 thru 260—949 see:
Patent Nos. 3,632,843 thru 3,632,862

3,632,843

BIS(PERFLUOROALKYLSULFONYL)METHANES IN CATIONIC POLYMERIZATION

Michael George Allen, Hudson, Wis., and George W. Beebe, Roseville, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Mar. 14, 1969, Ser. No. 807,409

Int. Cl. C08g 23/14, 30/10

U.S. Cl. 260—2 EC

14 Claims

Bis(perfluoroalkylsulfonyl)methanes in active or latent form (as free acids or latent amino or ammonium salts or as clathrates) are used as catalysts in the curing or polymerization of cationic sensitive monomers, such as epoxides, vinyl ethers, N-vinyl compounds, aziridines, and acetals.

3,632,844

NON-STICKING SAND MIX FOR FOUNDRY CORES

Janis Robins, St. Paul, Minn., assignor to Ashland

Oil, Inc., Houston, Tex.

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,800

The portion of the term of the patent subsequent to

Nov. 4, 1985, has been disclaimed

Int. Cl. B22c 1/22

U.S. Cl. 260—18 TN

13 Claims

Shaped foundry products, e.g., cores, which are made from sand and a phenolic resin-isocyanate binder are rendered non-sticking by adding fatty acid to the sand-binder mix.

3,632,845

SOLUBLE CURED POLYESTER POLYURETHANES

John E. Brownsword, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of application Ser. No. 539,664, Apr. 4, 1966. This application Mar. 5, 1969, Ser. No. 804,650

The portion of the term of the patent subsequent to

May 27, 1986, has been disclaimed

Int. Cl. C08g 22/10, 51/34

U.S. Cl. 260—75 NH

9 Claims

A cured polymeric polyurethane and a method for its preparation which comprises reacting, in required amounts, an organic diisocyanate selected from toluene diisocyanate and mixtures of toluene diisocyanate with diisocyanates selected from 4,4'-diphenyl methane diisocyanate and 4,4'-dicyclohexyl methane diisocyanate with

a mixture comprising a hydrocarbon diol additive having from 2 to 10 carbon atoms and having terminal hydroxyl groups, a diamino diphenyl sulfone and a polymeric polyester having a molecular weight of from about 700 to about 2500 derived from certain hydrocarbon diols having terminal hydroxyl groups and from dicarboxylic acids selected from adipic acid and azelaic acid, wherein the isocyanato groups of the diisocyanate are equal to from about 92 to about 97 percent of the total reactive hydrogens supplied by the polymeric polyester, the hydrocarbon diol additive and the diamino diphenyl sulfone, and curing the reaction mixture.

3,632,846

PETROLEUM HYDROCARBONS CONTAINING POLYESTER STABILIZERS

Richard D. Cassar, West Chester, Pa., and Jackson S. Boyer, Claymont, Del., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,819

Int. Cl. C08g 51/52; C101 1/18

U.S. Cl. 260—28 16 Claims

Petroleum hydrocarbon compositions having improved resistance to ultraviolet degradation comprising petroleum hydrocarbon containing an ultraviolet stability improving quantity of a polyester of a polymethylated muconic acid selected from the group consisting of α,β' -dimethylmuconic acid, α,α' -dimethylmuconic acid, α,α',β' -trimethylmuconic acid, α,β,β' -trimethylmuconic acid, $\alpha,\alpha',\beta,\beta'$ -tetramethylmuconic acid and mixtures thereof with a polyethylene glycol of a molecular weight in the range of 100 to 1000, said polyester having a molecular weight in the range of 600 to 20,000.

3,632,847

PROCESS FOR POLYMERIZING FLUORINE-CONTAINING MONOMERS USING ACIDS OF METALS AS CATALYST

Robert Hartwimmer, Burghausen-Salzach, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,242

Claims priority, application Germany, Mar. 12, 1968, P 17 20 801.4

Int. Cl. C08f 3/20, 15/06

U.S. Cl. 260—92.1 3 Claims

The present invention is related to a process for the manufacture of polymers and copolymers of fluorine-containing olefins at relatively low temperatures in the range of from 0 to 50° C. and at atmospheric or slightly elevated pressure. The polymerization is catalyzed by acids or salts of acids of subgroup V to VII metals or by compounds which are converted into such acids under the reaction conditions.

3,632,848

POST-CHLORINATION OF VINYL CHLORIDE RESINS IN AQUEOUS SUSPENSION

Warren L. Young and James S. Kennedy, Baton Rouge, La., Norman F. Carnahan, Norman, Okla., and Robert R. Blanchard, Port Allen, La., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 19, 1969, Ser. No. 808,674

Int. Cl. C08f 3/30, 27/03

U.S. Cl. 260—92.8 AC 6 Claims

This invention relates to an improved process for post-chlorinating vinyl chloride resins in aqueous suspension. More particularly, it is directed to a process whereby vinyl chloride resins are chlorinated in aqueous suspension while maintaining such suspension at a temperature above 100° C. but below 140° C. This process eliminates lengthy chlorination induction periods as well as undesirably high

reaction pressure and further provides for a rapid means of producing post-chlorinated vinyl chloride resins characterized by high heat distortion values.

3,632,849

PROCESS FOR THE PREPARATION OF TRANS-POLYPENTENAMERS

Gottfried Pampus, Leverkusen, and Josef Witte, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 19, 1969, Ser. No. 808,693

Claims priority, application Germany, Apr. 6, 1968, P 17 70 143.8

Int. Cl. C08f 7/02

U.S. Cl. 260—93.1 10 Claims

Method for producing trans-polypentenamer from cyclopentene by means of a catalyst comprising:

- (a) A tungsten salt
- (b) An organic epoxide
- (c) An organo-aluminium compound.

3,632,850

CEPHALEXIN SYNTHESIS

William L. Garbrecht, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Mar. 18, 1969, Ser. No. 808,313

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C 9 Claims

In the preparation of cephalixin from a penicillin sulfonamide ester by a series of steps involving expansion of the penicillin ring structure to the cephalosporin ring structure, an improvement in yield and ease of processing is realized when the p-nitrobenzyl ester is employed.

3,632,851

4-CARBOXY-2-PIPERIDONE

George J. Schmitt, Madison, and Karl P. Klein and Herbert K. Reimschuessel, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Feb. 26, 1969, Ser. No. 802,630

Int. Cl. C07d 29/24

U.S. Cl. 260—293.88 1 Claim

Dialkyl esters of itaconic acid react readily with hydrogen cyanide to form dialkyl cyanomethyl succinates which, upon catalytic hydrogenation, form monoalkyl esters of 4-carboxy-2-piperidone. Saponification of the ester affords the free acid, 4-carboxy-2-piperidone, which readily undergoes polymerization to a novel and highly useful polymer.

3,632,852

HEXAHYDROBENZOFUROFURO[3,2-c]QUINOLINE COMPOUNDS

Edward F. Elsinger and Donald F. Worth, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,982

Int. Cl. C07d 99/04

U.S. Cl. 260—287 R 5 Claims

A series of 2,3,3a,4,5,12d-hexahydro-12d-methyl-4-phenylbenzofuro[3,2-f]furo[3,2-c]quinoline compounds, optionally substituted at the para position of the 4-phenyl group by hydroxy, lower alkoxy, lower cycloalkyloxy, or acyloxy. The compounds have hypocholesteremic activity and can be produced by (a) reacting an N-benzylidene-2-dibenzofuranamine compound with 5-methyl-2,3-dihydrofuran in the presence of a Lewis acid, (b) converting a hydroxy group to a lower alkoxy or lower cycloalkyloxy group, (c) esterifying a hydroxy group, or (d) hydrolyzing an ester group.

3,632,853 CERTAIN BENZOCYCLOHEPTOXAZOLE COMPOUNDS

Eugene E. Galantay, Morristown, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Division of application Ser. No. 691,171, Dec. 18, 1967, now Patent No. 3,408,360, which is a continuation-in-part of applications Ser. No. 591,980, Nov. 4, 1966, and Ser. No. 645,471, June 12, 1967.

Divided and this application June 19, 1968, Ser. No. 807,138

Int. Cl. C07d 85/48

U.S. Cl. 260—307 D 19 Claims

The compounds are of the class 2-lower alkyl-6H-benzo[3,4]cyclohepta[1,2-d]oxazoles which are substituted at the 4-position by either a bromo, chloro or oxo function, and are useful as anti-depressants and diuretics, respectively, e.g. 2-methyl-4-chloro-6H-benzo[3,4]cyclohepta[1,2-d]oxazole and 2-methyl-5,6-dihydro-4H-benzo[3,4]cyclohepta[1,2-d]oxazol-4-one. Other compounds are 4-oxo and 4-(3-monoalkyl-and-dialkyl-aminopropylidene)-2-lower alkyl-9,10-dihydro-4H-benzo-[5,6]cyclohepta[1,2-d]oxazoles.

3,632,854

PRODUCTION OF ESTERS

George Colin William Randall, Sutton, Surrey, England, assignor to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Mar. 5, 1969, Ser. No. 804,658

Claims priority, application Great Britain, Mar. 9, 1968, 11,650/68

Int. Cl. C07c 69/54

U.S. Cl. 260—410.6 7 Claims

The present invention is a process for producing hydroxy esters of carboxylic acids by reacting the acid with an epoxy compound in the presence of a chromium salt of a carboxylic acid as catalyst. The salt is preferably a salt of the acid whose ester is being prepared.

3,632,855

ROSIN-FATTY OLEFIN EPOXIDE REACTION PRODUCTS

Noah J. Halbrook, Walter H. Schuller, and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 13, 1969, Ser. No. 807,103

Int. Cl. C07c 69/76

U.S. Cl. 260—468.5 3 Claims

This invention relates to a composition of matter formed by the reaction of one mole of rosin acid with one mole of a fatty olefin epoxide to give a hydroxy ester, useful as a tackifier in SBR rubber. It further relates to the reaction of the hydroxy ester with ethylene oxide to give a product useful as a wetting agent. It also relates to the reaction product of the hydroxy ester with a second mole of rosin to give a diester, which is also useful as a tackifier for SBR rubber.

3,632,856

SEPARATION OF ALDESTERS FROM AN OXIDATION MIXTURE

Elmer J. Hollstein, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 576,241, Aug. 31, 1966. This application Mar. 7, 1969, Ser. No. 805,360

Int. Cl. C07c 67/06

U.S. Cl. 260—469 6 Claims

Aromatic aldehydes are separated and recovered from a mixture of esterified aromatic oxidation products by a

process comprising forming water soluble bisulfite adducts of the aldehyde compounds with an alkali metal bisulfite, extracting the aldehyde bisulfite adducts with water, breaking the separated adducts with an acid or base, and selectively solvent extracting the aldehydes from other aldehyde compounds.

3,632,857

1,10 (OR 11) - DIHALO - 5-(3-DIMETHYLAMINO-PROPYL OR -PROPYLIDENE) - 5H-DIBENZO[a,d]CYCLOHEPTENE N-OXIDES

Emilio Kyburz, Reinach, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,700

Claims priority, application Switzerland, Mar. 20, 1968, 4,202/68

Int. Cl. C07c 87/28

U.S. Cl. 260—570.8 TC 11 Claims

1,10(or 11) - dihalo - 5 - (3-dimethylaminopropyl or propylidene) - 5H-dibenzo[a,d]cycloheptene N-oxides, prepared, inter alia, from the corresponding 1,10(or 11)-dihalo - 5 - (3-dimethylaminopropyl or propylidene)-5H-dibenzo[a,d]cycloheptenes, are described. The end products are useful as antidepressants.

3,632,858

PHENOLIC SUBSTITUTED BENZOPHENONES AS ANTIOXIDANTS FOR POLYOLEFINS

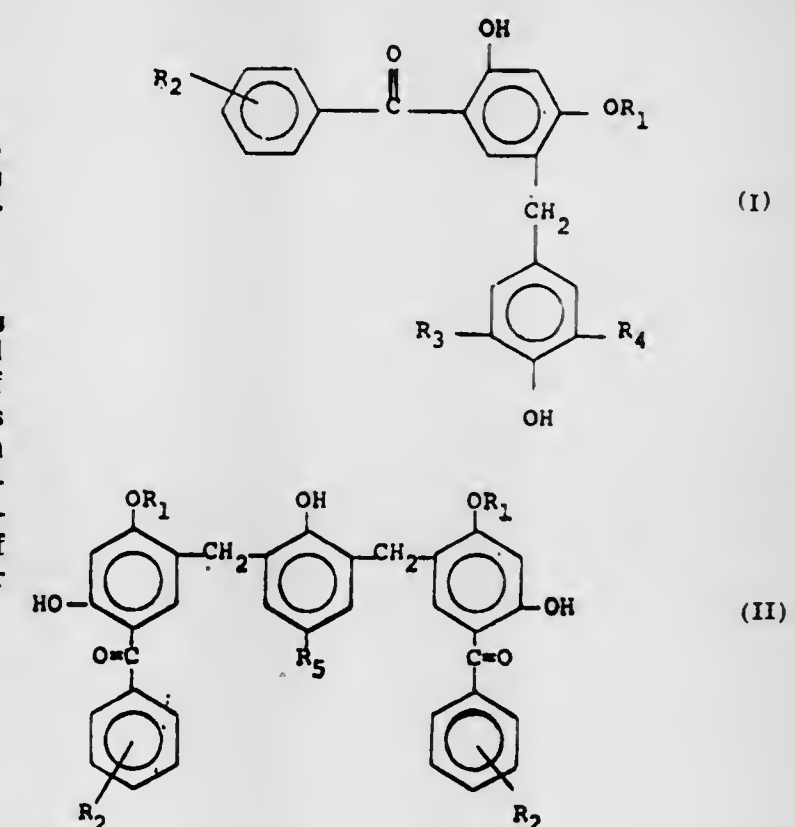
Jerry Peter Millon, Somerset, and Frank Meritt Furman, Somerville, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,110

Int. Cl. C07c 49/82

U.S. Cl. 260—591 5 Claims

Compounds represented by Formulae I and II:



and stabilized polyolefin compositions containing said compounds are provided. In the formulae, R₁ is alkyl of 1 to 18 carbons or aralkyl; R₂ is hydrogen, alkyl of 1 to 4 carbons, carboxy, carboalkoxy or halogen; R₃ and R₄ are hydrogen or alkyl of 1 to 12 carbons, except that

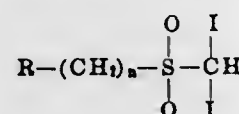
at least one of R_3 and R_4 is an alkyl group which is branched on the alpha carbon atom; and R_5 is alkyl of 1 to 12 carbons or aralkyl.

3,632,859

DIODOMETHYL SULFONES

Aldo Joseph Crovetti, Lake Forest, Ill., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,846
Int. Cl. C07c 147/02, 147/06; A01n 9/14
U.S. Cl. 260—607 A 11 Claims
Diiodomethyl sulfones of the formula:



wherein n is an integer from zero to four and R is selected from the group consisting of alkyl, cycloalkyl, *t*-butylphenyl, loweralkoxyphenyl, naphthyl, nitrophenyl, halonitrophenyl, nitroloweralkylphenyl, polyloweralkylphenyl, haloloweralkylphenyl, or halophenyl. The compounds are useful as fungicides.

3,632,860

ACETYLENIC KETALS

Roman Marbet, Riehen, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Feb. 8, 1965, Ser. No. 431,175, now Patent No. 3,456,015, dated July 15, 1969. Divided and this application Feb. 27, 1969, Ser. No. 803,046

Claims priority, application Switzerland, Feb. 25, 1964, 2,290/64

Int. Cl. C07c 43/30

U.S. Cl. 260—611 R

10 Claims

Allene ketones are produced by the reaction of propargyl alcohols with enol ethers and/or ketals and intermediates thereof. The allene ketones are useful as odorants and as intermediates in the preparation of odorants.

3,632,861
VINYL ESTER RESINS FROM EPOXIDES AND ISOMERIZED HYDROXY ALKYL ACRYLATES-MALEIC ANHYDRIDE REACTION PRODUCT

Sampse R. Hargis, Jr., Brazoria, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 19, 1969, Ser. No. 808,691

Int. Cl. C08g 45/04

21 Claims

Improved heat distortion temperatures are obtained from vinyl ester resins prepared from an unsaturated dicarboxylic acid half ester of a hydroxyalkyl acrylate which is reacted with a polyepoxide or a melamine resin. The improvement results from isomerizing at least about 30 mole percent of said half ester to the trans form before reaction with said polyepoxide, etc.

3,632,862

PHENYLTHIOVINYL PHOSPHOROTHIOATES AND THEIR METHOD OF PREPARATION

Roger William Addor, Pennington, and Thomas Walter Drabb, Jr., Trenton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

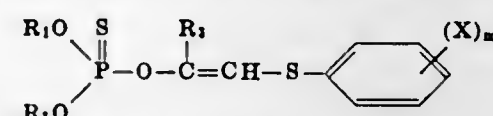
No Drawing. Filed Mar. 17, 1969, Ser. No. 808,006

Int. Cl. C07f 9/16; A01n 9/36

U.S. Cl. 260—949

10 Claims

The insecticidal and acaricidal compounds have the formula:



and include the trans and cis isomeric forms of the above compound as well as mixtures of the trans and cis isomers wherein:

R_1, R_2, R_3 are each lower alkyl,
 X is chloro, fluoro, or nitro,
 m is 0 or 1, except that when X is chloro, m is 1 to 3.

The compounds are prepared by reaction of an α -phenylthio ketone with a phosphorothioate compound in the presence of an inert reaction solvent and certain strong bases.

ELECTRICAL

3,632,863

INFORMATION TRANSMITTING AND RECEIVING SYSTEM EMPLOYING AN AUDIO SUBCARRIER MODULATED BY BINARY SIGNALS

Masayoshi Hirashima, Takatsuki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 11, 1970, Ser. No. 10,339

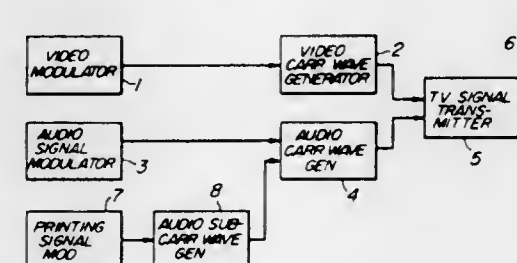
Claims priority, application Japan, Feb. 16, 1969, 44/11339;

Oct. 14, 1969, 44/11339; Dec. 6, 1969, 44/98146, 44/98147

Int. Cl. H04n 7/00

U.S. Cl. 178—5.6

13 Claims



A system for transmitting and receiving information in the form of television signal wave, wherein there are formed binary numbers each consisting of more than two digits which correspond to letters, symbols or pictures to be transmitted, an audio subcarrier wave is frequency-modulated with electrical signals corresponding to the signals thus produced, an audio carrier wave modulated with said subcarrier wave is transmitted together with a video carrier wave and then received and demodulated, whereby said letters, symbols or pictures are printed.

3,632,864

SIGNAL SEEKING SYSTEM FOR RADIO RECEIVERS WITH TUNING INDICATING CIRCUITRY FOR CONTROLLING THE SIGNAL SEEKING

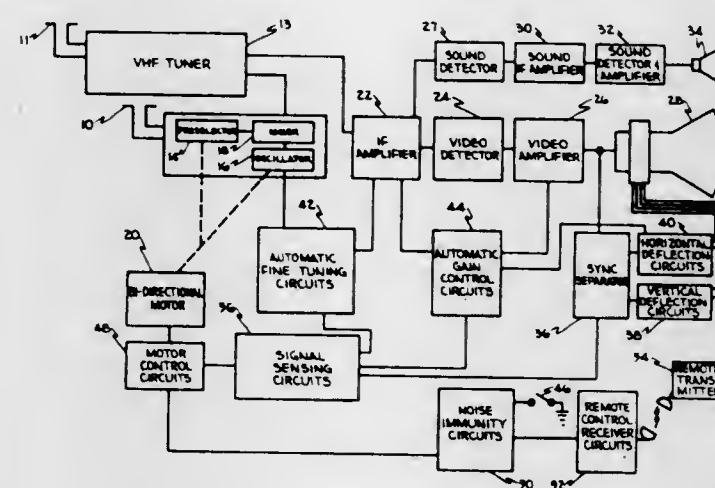
Wayne Wheeler Evans, Indianapolis, Ind., assignor to RCA Corporation

Filed June 2, 1969, Ser. No. 829,392

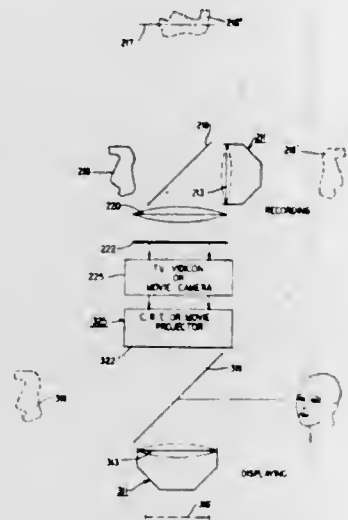
Int. Cl. H04m 5/60

U.S. Cl. 178—5.8 R

12 Claims



other end of the system, the images are projected into an appropriate display screen and this screen is viewed through a second varifocal mirror vibrating at the same frequency as



the first mirror but 180° out of phase. Consequently, this mirror forms a series of two-dimensional virtual images each located in the correct depth plane so as to recreate the original three-dimensional scene.

3,632,867

FACSIMILE SYSTEM FOR CONDENSING DATA TRANSMISSION

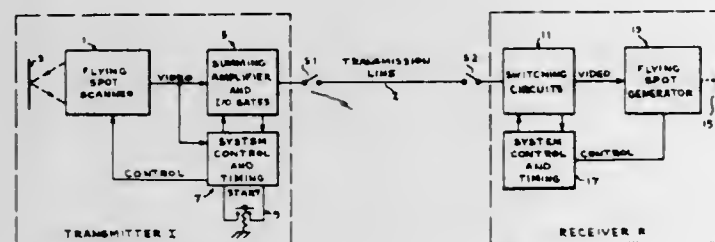
Elliott W. Markow, Burlington, Mass., assignor to Newton Electronic Systems, Inc., Waltham, Mass.

Filed Feb. 10, 1969, Ser. No. 797,865

Int. Cl. H04n 1/36, 1/38, 7/12

U.S. Cl. 178-6.8

29 Claims



A facsimile system in which the transmitter employs a dual scanning rate to prescan the copy to be duplicated at a rapid rate and to transmit video data on the content of the copy, at a slower rate, only for those regions of the copy on which significant information appears. The receiver is controlled by the transmitter to reproduce the copy at a rate dictated by its local information content.

3,632,868

INFRARED IMAGE CONVERSION APPARATUS

Jean Paul Gaffard, Plaisir; Yves Glangeaud, and Jose Suppo, both of Paris, all of France, assignors to Thomson-CSF Visualisation et Traitement des Informations T-VT, Paris, France

Filed Mar. 13, 1969, Ser. No. 806,973

Claims priority, application France, Mar. 14, 1968, 143780

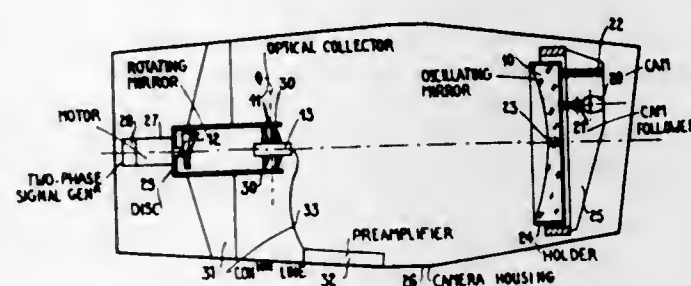
Int. Cl. H04n 3/08, 5/30

U.S. Cl. 178-6.8

16 Claims

A point-type radiation detector, located in a cryogenic surrounding provides output signals. Mechanical optical scanning of the image is obtained by an oscillating mirror focused on a projection plane, in which also the IR detector is located, and oscillating over an angle 2θ , from which plane a radiation collection means in the form of a plane-convex

lens system projects the IR radiation on a rotating mirror, so that the image is scanned in a sequential cycloidal pattern, the rotating mirror rotating about an axis angled with respect to the central axis of IR detector and the oscillating mirror.



Output signals are obtained from the IR detector, reflection signals from the scanning mechanism for both mirrors and all signals applied to a cathode-ray tube for reproduction of the image, as scanned.

3,632,869

PARTIALLY OVERLAPPING HOLOGRAM MOTION PICTURE RECORD

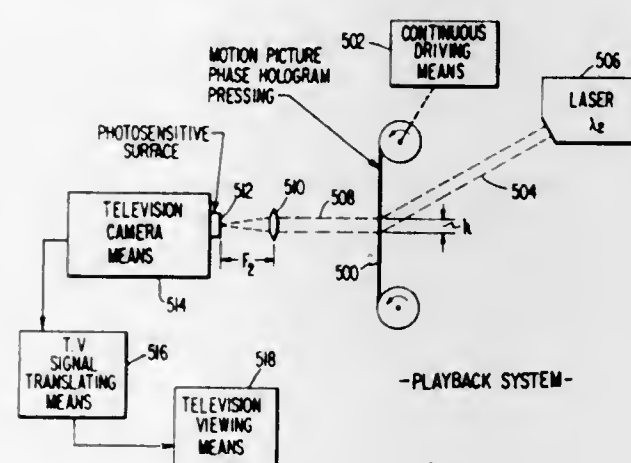
Robert Alfred Bartolini, Trenton, and Michael Jay Lurie, East Brunswick, both of N.J., assignors to RCA Corporation

Filed Nov. 25, 1969, Ser. No. 879,660

Int. Cl. G02b 27/00; H04n 3/00

U.S. Cl. 178-6.8

5 Claims



In a motion picture record in which successive frames of a motion picture are manifested by a series of successive holograms, such as phase holograms, greater redundancy and a saving in record material are achieved by having each one of the holograms partially overlap both the hologram which immediately precedes and the hologram which immediately succeeds that hologram in the series. The problem of unwanted spatial beat frequencies, which results from such overlap and is dependent on the amount of such overlap, can be eliminated by restricting the amount of overlap to a value such that the minimum spatial beat frequency is less than the ultimate resolution of the playback system (e.g. closed circuit television) employed in reconstructing the motion picture from the motion picture record.

3,632,870

SCANNER SYSTEM

Harold Bruce Henderson, Carrollton, Tex., assignor to Texas Instruments Incorporated, 13500 N. Central Expressway, Dallas 31, Tex.

Filed Jan. 3, 1966, Ser. No. 518,480

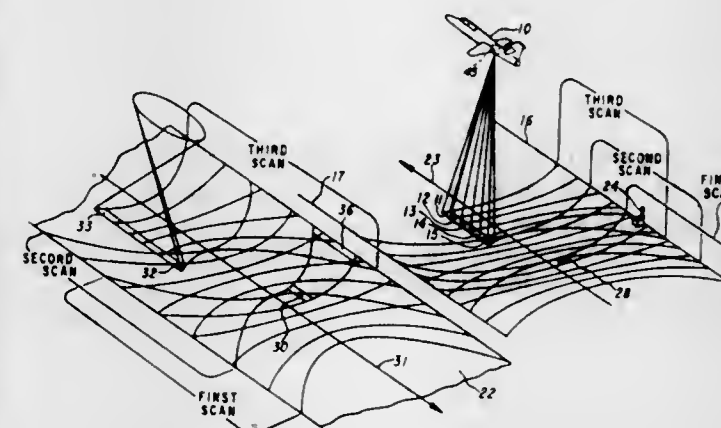
Int. Cl. H04n 3/00

U.S. Cl. 178-7.6

7 Claims

A method and apparatus for eliminating multiple images in an airborne optical scanner which occur because of the

widening of the scan path as the scanning beam moves from directly underneath the aircraft toward the horizon on either side of the aircraft, and which causes blurring or loss of resolution for the images falling within two or more scans.



The problem is overcome by placing selected apertures in the paths of beams of light modulated by information from associated scanners, so as to restrict to a minimum overlap the paths traced by such beams of light on a photographic recording medium.

3,632,871

OPTICAL SCANNING DEVICE

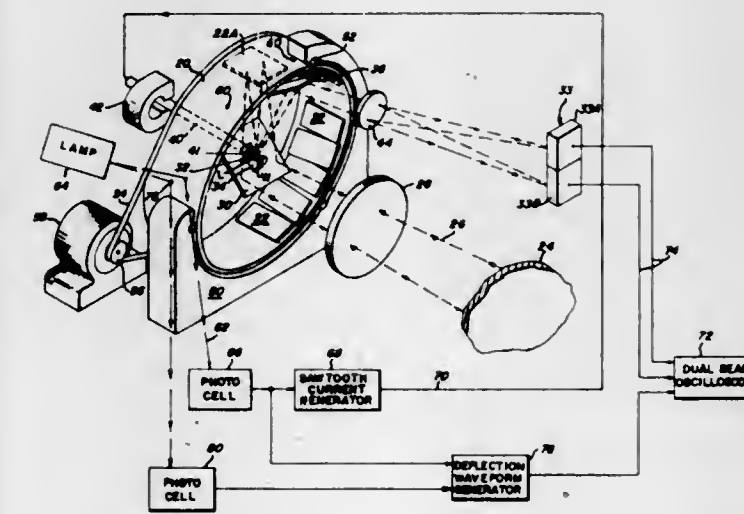
Robert A. Watkins, Santa Barbara, Calif., and Richard F. Schuma, Lynnfield, Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Apr. 25, 1969, Ser. No. 819,283

Int. Cl. H04n 1/04

U.S. Cl. 178-7.6

18 Claims



An optical scanning system embodying a rotatable drum having a series of mirrors arranged along its inner surface, a focusing lens system for directing an image onto an angled mirror located within the drum and on the axis of the system, the angled mirror directing the image onto the series of mirrors on the drum, the mirrors in the series being tilted at successively greater angles whereby as the drum rotates each mirror will effectively perform a line scan of said image directing the radiation from successive points along said scan toward a rotating mirror mounted on a galvanometer adjacent the axis of the rotating drum, the rotating mirror directing said scan to a remote detector.

3,632,872

VERTICAL SYNCHRONIZATION PULSE SEPARATOR

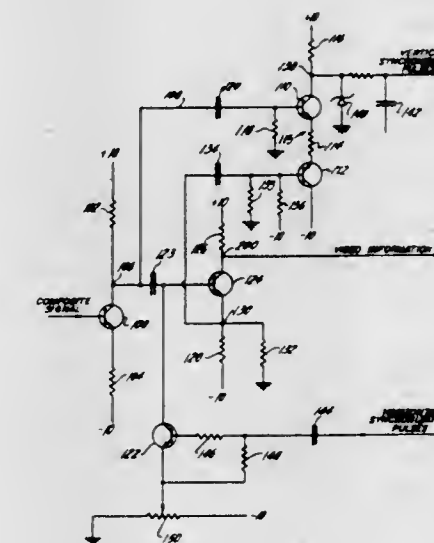
Donald W. Ridley, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed July 7, 1969, Ser. No. 839,562

Int. Cl. H04n 5/08

U.S. Cl. 178-7.3 S

10 Claims



A synchronization pulse separator in an electronic system utilizes a clamp to remove synchronization pulses from a composite video signal. The signal, with the synchronization pulses removed, is then subtracted from a composite signal from which the pulses have not been removed. The subtraction is performed by a differential amplifier having a uniform pulsed output corresponding to the synchronization pulses.

3,632,873

TELEVISION VIEWING AND PROJECTION DEVICE

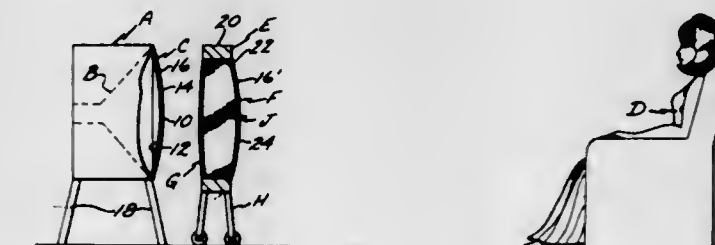
Louis L. Henkin, 5940 Stafford Ave., Huntington Park, Calif.

Filed June 16, 1969, Ser. No. 833,252

Int. Cl. H04n 5/72

U.S. Cl. 178-7.85

7 Claims



A device, which when used while viewing the lighted images appearing on a television screen, reproduces said images with but a minor loss in light intensity, free of scan lines and harsh lines that are tiring to the eye when viewed over a prolonged period of time, with the reproduced images presenting a sense of depth relative to one another that is not apparent in the images seen on a television screen when viewed without the device. When the viewing device of the present invention is used while watching images appearing on a television screen, the device may be adapted to filter out all harmful radiation emitted by the television set towards the viewer, as well as remove infrared light from the reproduced images, which infrared light is also tiring to the eyes. The device while illustrated and described in conjunction with a television screen, is equally applicable for use with any concavo-convex surface on which an image is defined.

3,632,874

GRAPHIC DATA TRANSCRIPTION SYSTEM

Lucien C. Malavard, Paris, and Pierre M. Marty, Verrieres-le-Buisson, both of France, assignors to Agence Nationale de Valorisation de la Recherche A.N.V.A.R., Puteaux, France

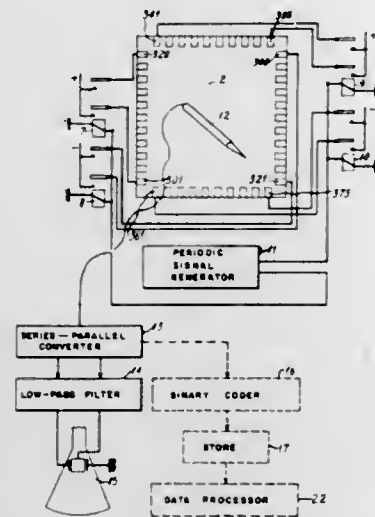
Filed Dec. 29, 1969, Ser. No. 888,381

Claims priority, application France, Dec. 31, 1968, 182840

Int. Cl. H04n 1/00

U.S. Cl. 178—18

5 Claims



Graphic data transcription apparatus comprising a writing plate made of an electrically resisting medium and having a given shape, two sets of terminals arranged along the periphery of said plate, means for alternately and rhythmically applying to one and the other of said sets biasing voltages to sequentially produce at a given frequency two mutually orthogonal electric fields in said medium, the terminals in each one of said sets being alternately interconnected and insulated from each other, a conductive point probe in bearing contact with and movable on the writing plate surface, and means for using the voltage alternately developed between said probe and a point at a fixed reference potential to visually reproduce on a receiver the geometric track followed by said probe on said surface. In the case of a rectangular writing plate, the ratio of the width of the terminals in each one of said sets to their mutual spacing is preferably comprised between one and two.

3,632,875

VARIABLE STOP GENERATION FOR TRANSMITTER

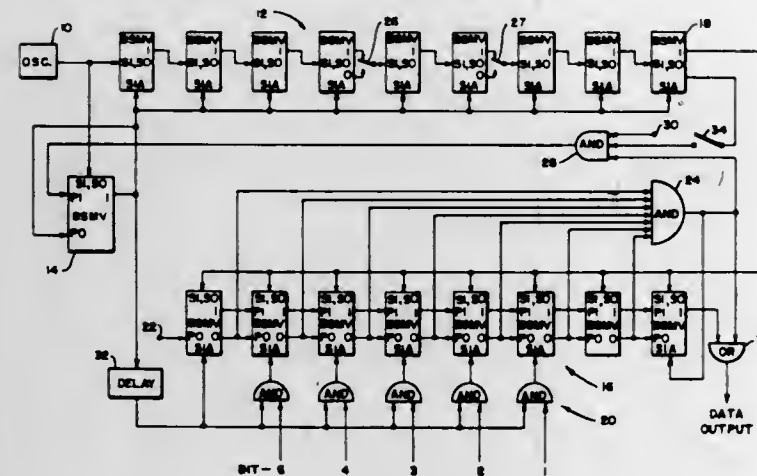
Jerry M. Glasson, Skokie, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed July 14, 1969, Ser. No. 841,694

Int. Cl. H04I 25/40

U.S. Cl. 178—53.1

2 Claims



A transmitter for a telegraph receiver in which the bit rate is determined by a high-frequency oscillator and a binary

counter frequency divider. The binary counter is reset to an initial condition at the beginning of the transmission of the stop or idle signal after transmission of all of the data bits of a given character. The counter is reset in order to count an initial count of less than its full capability, and the reset of the counter at the end of transmission of a character is delayed for a time equal to the duration of one-half of a data bit. This produces a stop-signal-time that can be controlled from one-half bit in duration, up to 1½ bits in duration, depending upon the initial reset condition of the counter.

3,632,876

BINARY TO PULSE WAVEFORM CONVERTER

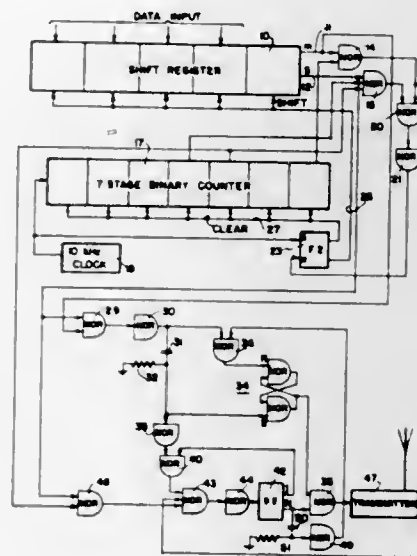
Stephen M. Bench, Rolling Meadows, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 16, 1969, Ser. No. 866,955

Int. Cl. H04I 15/00

U.S. Cl. 178—68

12 Claims



A sequence of binary data bits are transformed into a waveform consisting of a series of half-cycles of square waves of two different frequencies, the half-cycles being of alternating phase and each frequency corresponding to one of the two binary conditions. This sequence of half-cycle square waves then may be transmitted as a stream of exact half-cycles of audio tones.

3,632,877

HELIUM VOICE TRANSLATOR UTILIZING EITHER A GLOTTAL SYNCHRONOUS OR A MEMORY FULL RESET SIGNAL

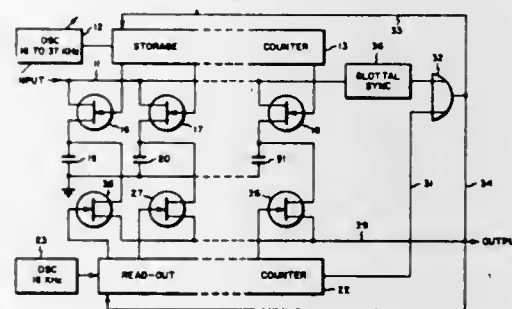
John W. Gray, Guilford, Conn., assignor to The Singer Company, New York, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,159

Int. Cl. G10I 1/00

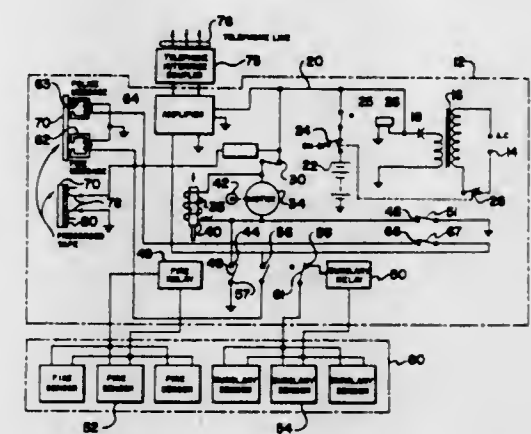
U.S. Cl. 179—1 SA

3 Claims



The voiced sounds produced by a diver breathing a helium oxygen mixture are stored as incremental charges on in-

dividual ones of a bank of condensers. The condensers are sequentially, and for discrete intervals of time, connected to the input by a series of switches sequentially closed by operation of a storage counter. A first oscillator, which may be variable, controls the rate of operation of the storage control counter. A series of output switches are successively closed to connect successive condensers to an output circuit. The output switches are successively closed by the operation of a readout counter which is in turn controlled by the output of a second oscillator operated at a fixed frequency which is less than the frequency of the first oscillator. In the free-running mode, i.e., in the absence of a glottal wave, both storage and readout counters are reset by the last count of the readout counter. The imposition of a glottal wave on the input, however, operates to reset both storage and readout counters regardless of how far a count has progressed. Formant frequencies are thus reduced in proportion to the ratio of the oscillator frequencies while glottal frequencies are unchanged.



3,632,878

PIGGYBACK AMPLIFIER

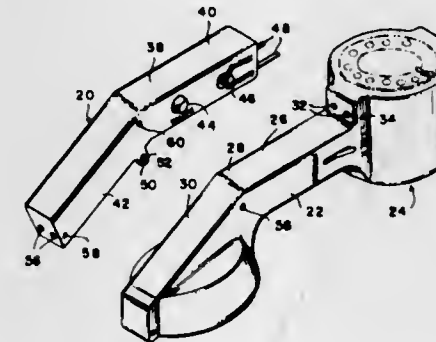
John A. Stratman, West Hollywood, Fla., assignor to Lummador Products Corporation, Miami, Fla.

Filed May 12, 1969, Ser. No. 823,729

Int. Cl. H04m 1/24, 1/00

U.S. Cl. 179—1 A

7 Claims



A piggyback amplifier for use in combination with a telephone handset. The amplifier is housed in an elongated casing which is shaped in accordance with the handle of a telephone handset. The amplifier has a pair of conductive rods which extend from one end of the case which are so disposed that the rods may be inserted into the openings which are provided in a telephone handset for input leads. The amplifier case has means for securing the amplifier to the handset. The case also has openings to receive the input leads so that the input leads will be connected to the input terminals of the handset via an audio amplifier.

3,632,879

AUTOMATIC TELEPHONE DIALER FOR EMERGENCY MESSAGES

Raymond Freisinger, Franklin Lakes, N.J., assignor to National Alarm Products Co., Inc., Farmingdale, N.Y.

Filed June 18, 1970, Ser. No. 47,210

Int. Cl. H04m 11/04

U.S. Cl. 179—5 P

8 Claims

Apparatus for automatically dialing a public telephone line and transmitting an emergency message has two pickup heads for selectively picking up prerecorded emergency messages from two channels of an endless magnetic tape in a tape cartridge. Two relays are connected in circuit with the pickup heads. Fire detecting sensors are connected to one relay and burglary detecting sensors are connected to the other relay. Activation of a burglary sensor starts a tape drive motor and causes pickup of a burglary notification message from one channel. Activation of a fire sensor cuts out the burglary message and transmits the fire message which has priority. A solenoid is actuated when a sensor is activated to

move the tape cartridge and press the tape against the pickup heads. The tape is automatically stopped when transmission

of a message is completed unless a sensor is actuated, whereupon the apparatus starts another cycle of transmission.

3,632,880

INFORMATION-ANNOUNCING SYSTEM

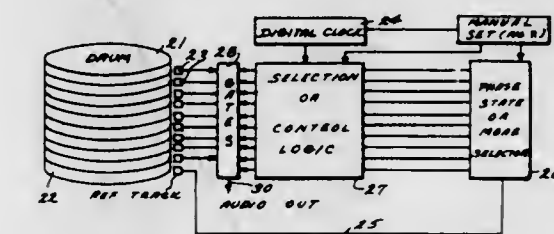
Gerald Goldschtein, Ossining, and Alan L. Goldman, Suffern, both of N.Y., assignors to Cognitronics Corporation, Mount Kisco, N.Y.

Continuation-in-part of application Ser. No. 730,730, May 21, 1968, now abandoned. This application Apr. 23, 1969, Ser. No. 825,104

Int. Cl. G11b 19/06; H04m 1/64

U.S. Cl. 179—6 TA

25 Claims



An electronic announcing system for announcing the time at predetermined intervals, e.g., 10 seconds, wherein a digital clock is utilized with an audio storage drum in conjunction with a phase state or mode selector and control logic so that an audio readout is gated from the audio storage device every so often to announce the correct time.

3,632,881

DATA COMMUNICATIONS METHOD AND SYSTEM

William I. Graham, Lane Cove, Australia, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 16, 1970, Ser. No. 19,680

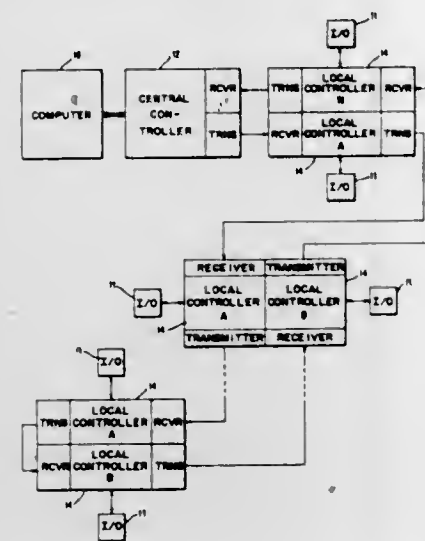
Int. Cl. H04J 3/04

U.S. Cl. 179—15 AL

8 Claims

A method of bidirectionally communicating data between a central control unit and a plurality of serially looped local control units in which a number of time-separated contiguous time slots are provided, the number of slots being substantially greater than one and substantially less than the maximum number of local controllers. The number of contiguous time slots are preceded by a header which includes

synchronizing control and addressing data which permits local controllers to initiate transmission or reception of data



which will continue via the specific slot assigned by the control data for the duration of the then initiated data exchange.

3,632,882

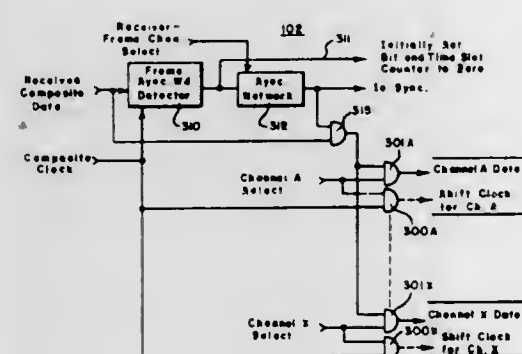
SYNCHRONOUS PROGRAMMABLE MIXED FORMAT TIME DIVISION MULTIPLEXER

Walter V. Ciecierski, Ridgefield; Welles K. Reymond, Noroton Heights, both of Conn., and Frederick R. Cronin, Larchmont, N.Y., assignors to General Datacomm Industries, Norwalk, Conn.

Filed May 15, 1970, Ser. No. 40,008
Int. Cl. H04j 3/16

U.S. Cl. 179-15 BA

4 Claims



A synchronous time division multiplexer and demultiplexer are provided which permit the transmission of data from a plurality of sources in a mixed format frame with means for programing the duration of any time slot in a frame, including the sync slot, to accommodate one to N bits.

3,632,883

TELECOMMUNICATION EXCHANGE WITH TIME DIVISION MULTIPLEX

Einar Andreas Aagaard, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed July 2, 1969, Ser. No. 838,463
Claims priority, application Netherlands, July 5, 1968, 6809491

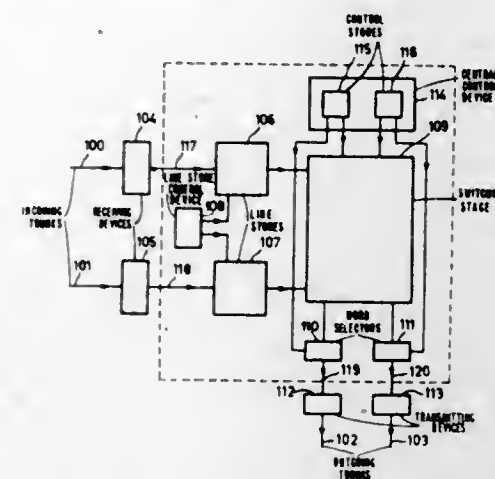
Int. Cl. H04j 3/00

U.S. Cl. 179-15 AQ

3 Claims

A telecommunication exchange with time-division multiplex for conducting information received on a channel of a time-multiplexed communications trunk to a selected channel of a second time-multiplexed communications trunk. The information from all channels is sequentially stored in a

cyclic storage register in fixed relationships with cyclic code numbers generated by a local clock generator. At a clock instant determined by the address of an output channel the address of an input channel is serially introduced into a second



cyclic register. The output of the second cyclic register is decoded and used to switch the output of the first cyclic register corresponding to the selected input channel to an output line.

3,632,884

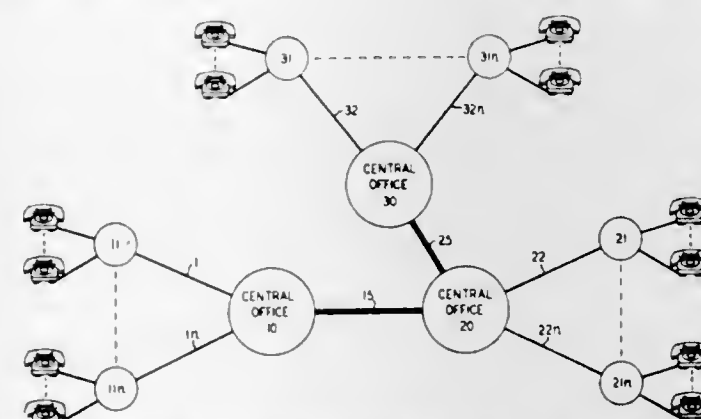
TIME DIVISION COMMUNICATION SYSTEM

Hiroshi Inose, and Tadao Saito, both of Tokyo, Japan, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 13, 1969, Ser. No. 849,634
Claims priority, application Japan, Sept. 12, 1968, 43/65224, 43/65225, 43/65226
Int. Cl. H04j 3/16

U.S. Cl. 179-15 AQ

14 Claims



A time division communication system is disclosed in which the multiplexed content of a plurality of transmission highways is further interleaved on a superhighway and in which pulse shifting devices in a switching center transpose information among the transmission highways in order to obviate blocking in the transfer of information between superhighways.

3,632,885

MEANS FOR AUTOMATICALLY SHIFTING CHANNEL ALLOCATIONS BETWEEN INDIVIDUAL STATIONS OF A MULTIPLEX TRANSMISSION SYSTEM

Wolf Herold, Ayllmer, Germany, assignor to Telefunken Patentverwertungsgesellschaft mbH, Ulm am Danube, Germany

Filed Oct. 24, 1969, Ser. No. 869,155
Claims priority, application Germany, Oct. 24, 1968, P 18 04 870.9

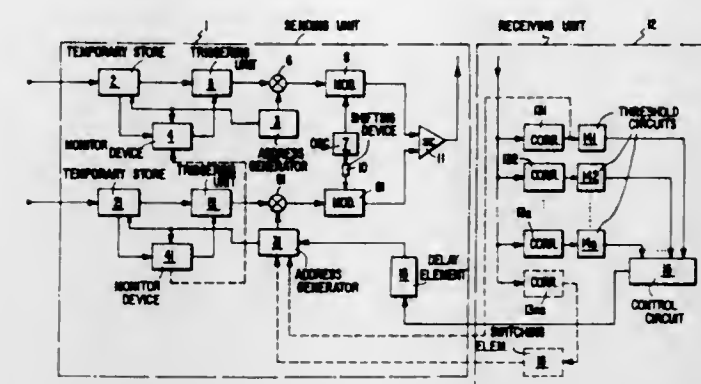
Int. Cl. H04j 5/00

U.S. Cl. 179-15 BA

7 Claims

In a multiplex transmission system composed of a plurality of ground stations each normally allocated an equal number

of the data channels available in the system, means for determining when all of the channels assigned any given ground



station are not being utilized and for permitting other ground stations to utilize those channels.

3,632,886

QUADRASONIC SOUND SYSTEM

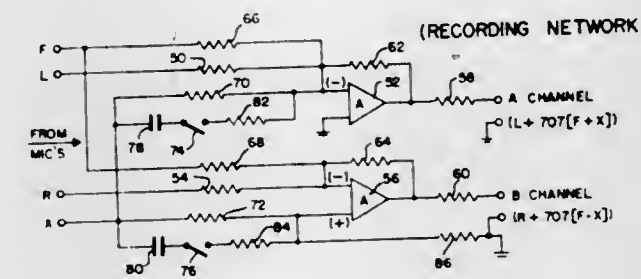
Peter Scheiber, 1989 Crompond Road, Peekskill, N.Y.

Continuation-in-part of application Ser. No. 853,822, Aug. 28, 1969, Continuation-in-part of application Ser. No. 967,103, Jan. 11, 1968. This application Dec. 29, 1969, Ser. No. 888,440

Int. Cl. H04h 5/00

U.S. Cl. 179-15 BT

27 Claims



A stereophonic sound system is disclosed utilizing a two-channel transmission path yet capable of locating virtual sound sources at any point on a circle around a listener. The two-channel transmission path may consist of conventional stereophonic channels such as records, tapes, broadcasting channels, etc. The recording or transmitting means (as the case may be) of the invention provides two audio signals which may comprise preselected combinations of four (for example) directional inputs. One channel may include the first input plus a signal proportional to the sum of the second and fourth inputs, while the second channel consists of the third input plus a signal proportional to the difference between the second and fourth inputs.

The sound reproducing means couples these signals and various combinations thereof to four (for example) loudspeakers which may be arranged on the circumference of a circle around the listener. The first speaker may be responsive to the signal on one channel, the next adjacent speaker is responsive to the sum of the signals on the two channels, the third successive speaker is responsive to the second channel, and the last speaker is responsive to the difference between the signals on the two channels. Means are disclosed for controlling the gain in the signal paths of the voltages coupled to the various speakers relative to the other speakers to increase the audio separation between adjacent speakers and thus enhance the directional effect.

3,632,887

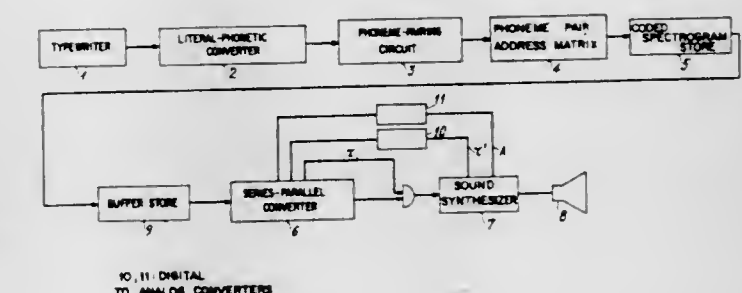
PRINTED DATA TO SPEECH SYNTHESIZER USING PHONEME-PAIR COMPARISON

Emile A. Leipp; Michele M. T. Castellengo; Jean-Sylvain R. Lienard, all of Paris; Jacques L. Quinio, Poissy; Jean Sapey, Paris, and Daniel G. Teil, Creteil, all of France, assignors to Agence Nationale de Valorisation de la Recherche A.N.V.A.R., Puteaux, France

Filed Dec. 31, 1969, Ser. No. 889,653
Claims priority, application France, Dec. 31, 1968, 182925
Int. Cl. G101 1/10

U.S. Cl. 179-1 SA

4 Claims



Machine for converting a text printed in literal characters into speech, comprising means for converting each literal character into a corresponding binary-coded character, means for comparing groups of a variable number of successive ones of said coded characters and for deriving therefrom the phonetic equivalent of any such group in the form of a coded phoneme, and means including an address matrix for deriving from any two consecutively appearing such coded phonemes the address of a corresponding coded word assembly in a coded phoneme-pair spectrogram store. In the latter store, each spectrogram is written in the form of an assembly of binary-coded words, which represents in digitalized form the short-time spectrogram of a corresponding phoneme pair. As soon as the above-mentioned address is found, the proper word assembly is selected and extracted from the store, and the bits in said words are used to successively control in time the operation of a plurality of oscillators in number equal to that of said words in said assembly, while a sound-reproducing means is simultaneously fed from all of said oscillators.

3,632,888

N-PATH FILTER USING SAMPLED DATA FILTER AS TIME-INVARIANT PART

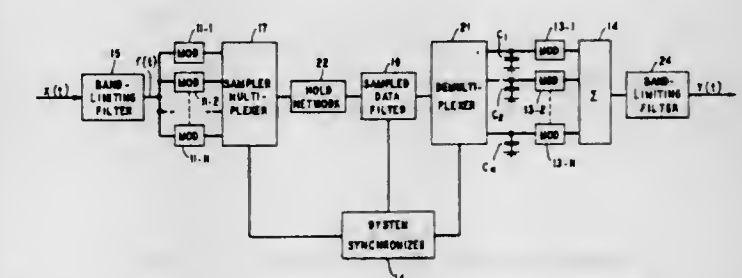
Arthur B. Glaser, East Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1969, Ser. No. 889,253

Int. Cl. H04j 3/04

U.S. Cl. 179-15 A

6 Claims



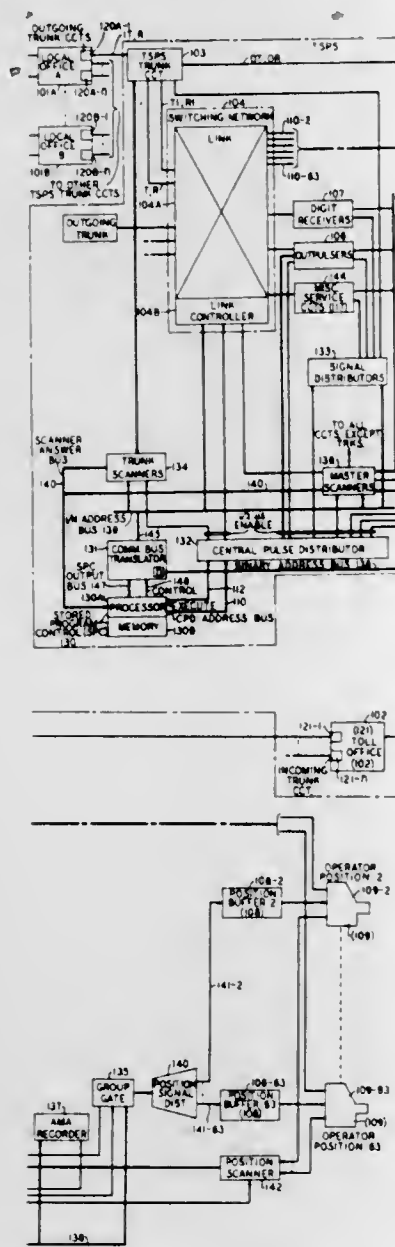
A time division multiplexed sampled data filter is used as the time-invariant part of an N-path filter. The use of a multiplexed sampled data filter alleviates the problem of closely matching the transmission characteristics of each of the N-paths.

3,632,889

INFORMATION FILTER AND STEERING CIRCUIT
 Michael Frank Sikorsky, Neptune City, and Herman Ewald Voigt, Middletown, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
 Filed Jan. 13, 1970, Ser. No. 2,580
 Int. Cl. H04m 3/60

U.S. Cl. 179-27 FF

46 Claims



A program arrangement for a telephone system is disclosed in which operator position key action signals are rehooped for a call whenever the signals are received by the base level processor during short real time breaks of a priority initiated base level key action program that has not yet completed its work function for the same call. When the program takes a real time break of a significantly longer duration, such as queuing for an available facility, the rehooped key signals and any newly arrived key signals for the same call are analyzed to determine whether they represent logical or illogical service requests. Illogical requests are disregarded. Logical requests are used to change the state or progress of the call.

3,632,890

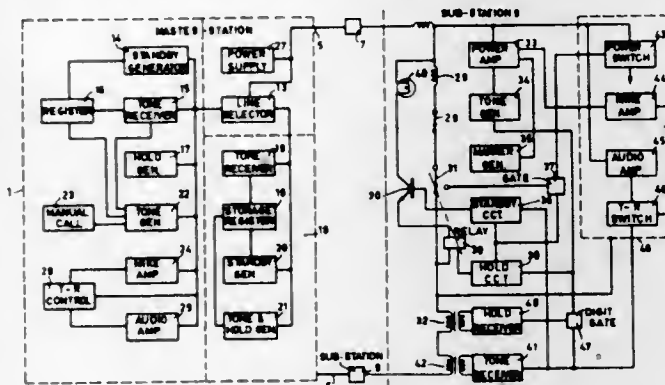
EMERGENCY TELEPHONE SYSTEM
 Eduard Herman Hugenholtz, Ontario, Canada, assignor to U.S. Philips Corporation, New York, N.Y.
 Filed Aug. 28, 1969, Ser. No. 853,735
 Claims priority, application Canada, Aug. 29, 1968, 028770
 Int. Cl. H04m 1/70

U.S. Cl. 179-32

6 Claims

This invention is directed to a communication system of the wired type and is especially suitable for use in emergency

situations such as arise in the case of fire, or violence eruptions in cities. The system is adaptable for use with existing fire alarm loop-call systems as the substations of the system



may readily replace the standard fire callboxes, i.e., they may be connected in series in existing fire callbox loops with many advantages being provided.

3,632,891

CIRCUIT ARRANGEMENT FOR THE INSERTION OF TELEPHONE CHANNELS IN THE INTERMEDIATE FREQUENCY JUNCTIONS FOR REPEATER STATIONS
 Bruno Basini, and Ignazio Caroli, both of Rome, Italy, assignors to Selenia-Industria Elettroniche Associate S.p.A., Naples, Italy

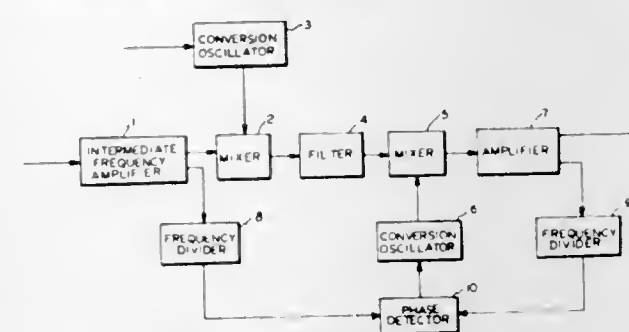
Filed Oct. 28, 1969, Ser. No. 870,022

Claims priority, application Italy, Dec. 12, 1968, 41930A/68

Int. Cl. H04j 1/10

U.S. Cl. 179-41 A

3 Claims



A circuit arrangement for the insertion of additional communication channels such as telephone channels and the like in the intermediate frequency junctions of the relaying stations, wherein the intermediate frequency signal, coming from the receiver of the station, is applied to a first frequency converter associated to a first conversion oscillator, said first converter being coupled through a band pass filter to a second frequency converter associated to a second conversion oscillator, wherein at least one of said conversion oscillators can be modulated by the signals of the channels to be added, and at least one of the two conversion oscillators is controlled by the error signal coming from a phase detector piloted by the signal coming from a first and a second frequency divider respectively connected to the input to, and the output from the system.

3,632,892

EXTERNAL ILLUMINATING DEVICE FOR KEY TELEPHONES

Richard T. McLaughlin, 764 N. 26th St.; Frederick G. Talbot, 4424 N. 26th St., both of Philadelphia, Pa.; Lawrence E. Kurtzo, Jr., 837 Concord Place, Lansdale, Pa., and Frederick T. Moulton, 1844 Willow Ave., Willow Grove, Pa.

Filed Sept. 24, 1969, Ser. No. 860,606

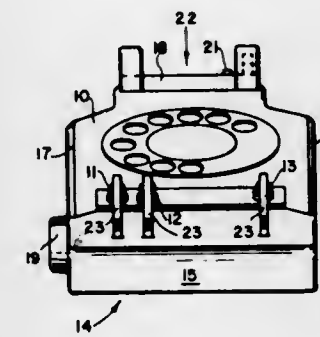
Int. Cl. H04m 1/00

U.S. Cl. 179-81 C

7 Claims

A visual signalling and control system for nonilluminated

pushbutton telephones which is electrically independent of the existing telephone. The system employs an electronic adapter housing includes a magnetic head and winding spindle; when positioned within a recess in the transducing ap-



logic signal-control center and station apparatus which duplicates the illuminated signalling functions of a self-contained illuminated pushbutton telephone.

3,632,893

CONTROL DEVICE FOR A TRANSCRIBING MACHINE WITH AUTOMATIC RECALL

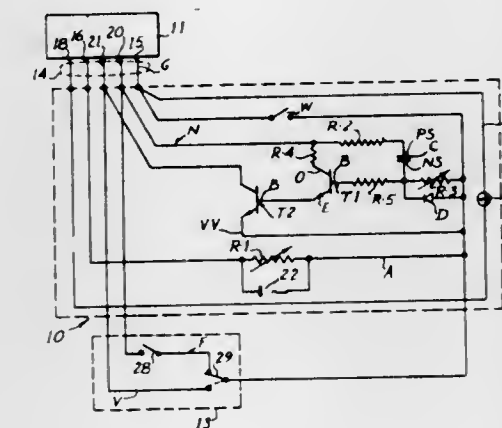
Fred C. Bolick, Jr., and James B. Godwin, III, both of Atlanta, Ga., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.

Filed Sept. 2, 1969, Ser. No. 854,428

Int. Cl. G11b 15/20

U.S. Cl. 179-100.1 R

9 Claims



A control device for controlling the motion of a tape in a transcribing machine so that successive transcribing intervals are overlapped by a predetermined amount to facilitate transcribing. A circuit is provided for causing the tape to move in a transcribing reverse direction when a transistor is made conductive by another transistor becoming conductive in response to a capacitor charging current which occurs when the tape stops moving in a transcribing direction. The amount of overlap of successive transcribing intervals is proportional to the duration of the capacitor charging current.

3,632,894

ADAPTER FOR USE ON A RECORDING AND/OR PLAYBACK APPARATUS

Hermann Bretschneider, and Alois Padlik, both of Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

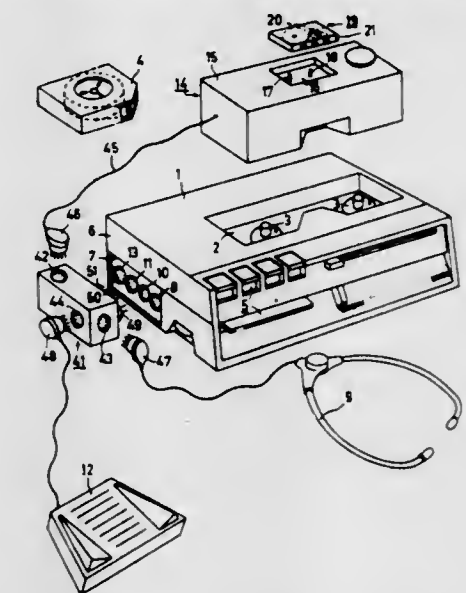
Filed Jan. 29, 1970, Ser. No. 6,847

Int. Cl. G11b 23/04

U.S. Cl. 179-100.2 Z

9 Claims

An adapter for converting a transducing apparatus used with a first tape record medium, to operatively accommodate a second differently arranged tape record medium. The



paratus, the adapter winding spindle may be selectively coupled to the winding spindle of the transducer apparatus.

3,632,895

DEVICE FOR AUTOMATICALLY ADJUSTING THE RECORDING LEVEL OF A TAPE RECORDER EMPLOYING AN ENDLESS TAPE

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo-to, Japan

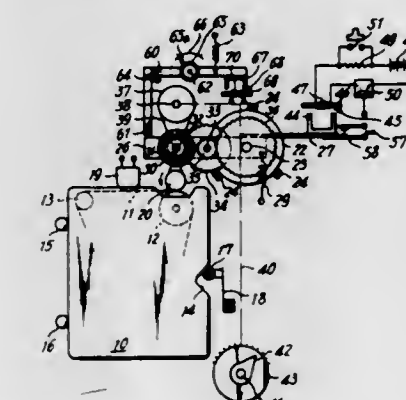
Filed Sept. 25, 1969, Ser. No. 860,947

Claims priority, application Japan, Sept. 30, 1968, 43/70138

Int. Cl. G11b 5/44

U.S. Cl. 179-100.2 Z

8 Claims



An endless magnetic tape automatic recording apparatus comprising a variable resistor incorporated in a recording circuit including a magnetic head for regulating the recording level, a device for rotating an operating shaft of the variable resistor in response to the initiation of the recording to allow the variable resistor to be changed in the direction that the recording level is raised, a device for stopping rotation of the operating shaft when the recording level is at a predetermined value, and a device for rotating the operating shaft of the variable resistor in response to the termination of the recording thereby operating the variable resistor to lower the recording level.

3,632,896

ENDLESS MAGNETIC TAPE PLAYING TIME INDICATING APPARATUS

Itsuki Ban, 829 Higashi-Oizumimachi, Nerima-ku, Tokyo-to, Japan

Filed Oct. 14, 1969, Ser. No. 866,349

Claims priority, application Japan, Oct. 15, 1968, 43/89356

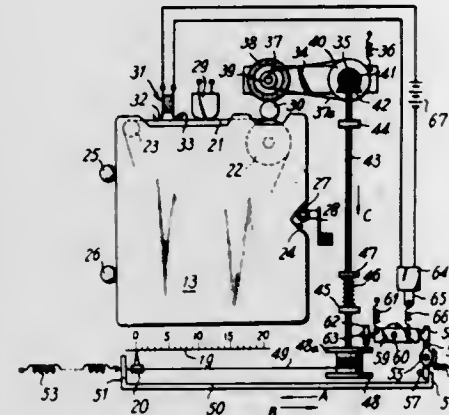
Int. Cl. G11b 27/14

U.S. Cl. 179-100.2 B

4 Claims

An endless magnetic tape playing time indicating ap-

paratus for an endless magnetic tape player is provided with pointer means rectilinearly moved by rotatable force of a rotary drive capstan for driving the tape, and indicator means including scale means corresponding to the pointer means. Provided between the pointer means and the rotary capstan are a speed reducing device decelerating rotation of the capstan, drum means rotatably driven through the speed reduc-



ing device by the capstan, and a flexible stringy member taken up by the drum means with rotation of the capstan, the pointer means being rectilinearly moved when the flexible stringy member is wound on the drum means. The flexible stringy member is drawn from the drum means whenever the magnetic tape completes one cycle to thus return the pointer means to its starting position.

3,632,897

TAPE CARTRIDGE SHIFTING APPARATUS

Itsuki Ban, 829 Higashi-Ozumimachi, Niri-ku, Tokyo-to, Japan

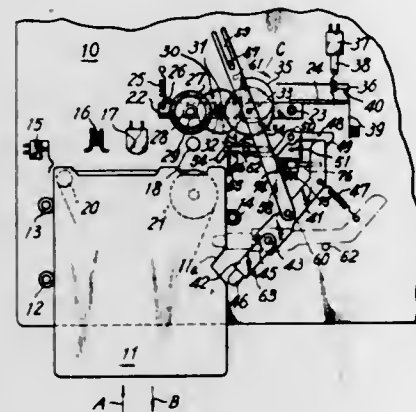
Filed Dec. 1, 1969, Ser. No. 881,139

Claims priority, application Japan, Dec. 2, 1968, 43/87618; Dec. 4, 1968, 43/88370

Int. Cl. G11b 15/06

U.S. Cl. 179-100.2 Z

5 Claims



A tape cartridge shifting apparatus for an endless magnetic tape cartridge player, comprising lever means movably provided on a deck in the player housing and engageable with the front edge of the tape cartridge located in the playing position, lever driving means for moving the lever means, an electromagnetic device for actuating operation of the lever driving means, and a control circuit energizing the electromagnetic device in relation to detection of an end mark of conductive foil provided on the tape or the nonrecorded zone between the recorded zones on the tape. The tape cartridge is shifted from the playing position to the nonplaying position by movement of the lever means by means of the lever driving means.

3,632,898 THERMOMAGNETIC COPYING OF MAGNETIC RECORDS WITH COOLING OF COPY MEDIUM CARRIER

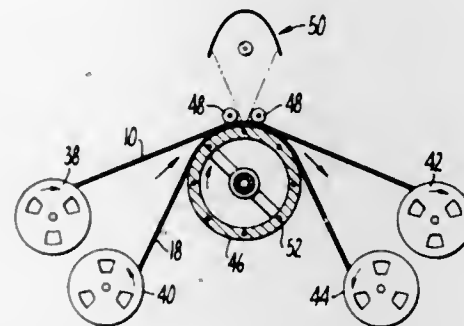
Albert E. Slade, Saratoga, and John J. Newman, Santa Clara, both of Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed June 16, 1969, Ser. No. 833,510

Int. Cl. G11b 5/02, 5/86

U.S. Cl. 179-100.2 E

5 Claims



This application discloses a method and apparatus for copying magnetic signals from an original tape to a copy tape which are made from magnetic materials of high and low Curie point, respectively. The two tapes are unwound and moved through a transfer zone and then rewound separately. In the transfer zone, the plastic carrier of the copy tape is cooled while the magnetic coating of the copy tape is heated to its Curie point by radiation passing to the copy tape through the original tape.

3,632,899

ENDLESS MAGNETIC TAPE INDICATOR APPARATUS WITH AUTOMATIC INDEX AFTER A TAPE CYCLE

Itsuki Ban, 829 Higashi-Ozumimachi, Nerima-ku, Tokyo-to, Japan

Filed Aug. 18, 1969, Ser. No. 850,772

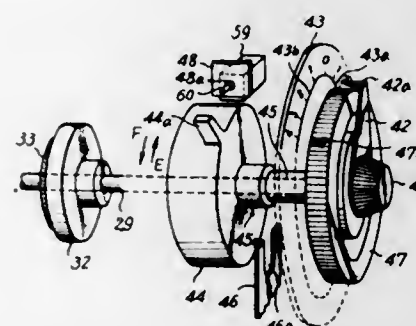
Claims priority, application Japan, Aug. 19, 1968, 43/58525;

Aug. 20, 1968, 43/58922

Int. Cl. G11b 27/14

U.S. Cl. 179-100.2 R

6 Claims



An endless magnetic tape indicator apparatus for an endless magnetic tape recording and reproducing apparatus wherein there is provided indication means which comprises, an index member rotatable by rotation of a rotary drive capstan for driving the tape, and a division member responsive to the index member. The index member is caused to be moved back to its starting position by a return device when a drive force between the capstan and the index member is disconnected in relation to an operation of a clutch device. The clutch device is operated by operating means in response to a conductive patch on the tape. The index member is automatically returned to the starting position whenever the tape effects one cycle.

3,632,900 MAGNETIC TRANSDUCER DISPLACEMENT CONTROL SYSTEM

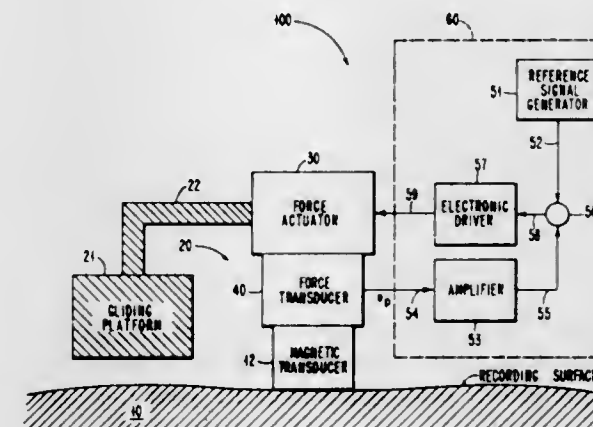
Fred Kurzweil, Jr., Saratoga; Peter I. Prentky, Los Gatos, and Charles E. Hasty, San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,441

Int. Cl. G11b 5/58

U.S. Cl. 179-100.2 P

4 Claims



A system for controlling the load force between a magnetic transducer and a magnetic medium is disclosed. The system comprises a means for sensing the force between the magnetic transducer and the magnetic medium and for developing an electrical signal in response thereto, means for producing a reference signal, means for comparing the electrical signal and the reference signal and for developing an error signal therefrom, and actuator means responsive to the error signal for displacing the magnetic transducer relative to the magnetic medium.

3,632,901

TAPE PLAYBACK ADAPTER FOR PLAYING THROUGH A RADIO RECEIVER

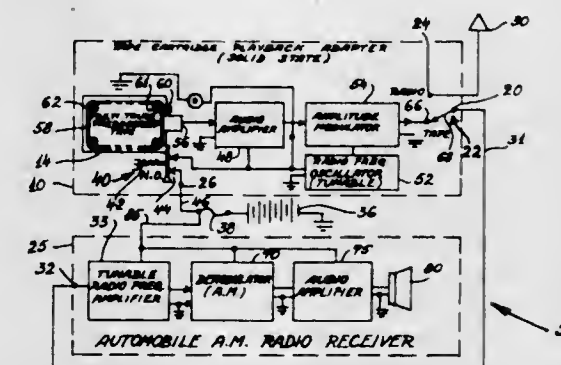
Harry W. Wally, 36 Plaza Street, Brooklyn, N.Y.

Filed Jan. 5, 1970, Ser. No. 663

Int. Cl. G11b 31/00

U.S. Cl. 179-100.11

1 Claim



A playback system for a multitrack prerecorded tape cartridge or cassette includes a tape playback adapter for inserting the cartridge or cassette therein. The adapter includes a motor for driving the tape, a magnetic head for picking up audio signals from the tape, a switch for selecting a particular track, an audio amplifier to amplify the picked-up audio signals, a tunable radiofrequency oscillator for generating a carrier, and a modulator for modulating the audio signals on the oscillator. The modulator is connectable via a selector switch to the radiofrequency input terminal of an amplitude or frequency modulated radio broadcast receiver. A radiofrequency antenna is also connectable to the radiofrequency input terminal via the selector switch. Both radio receiver and adapter are energized by a battery power supply connected to both the adapter and radio receiver.

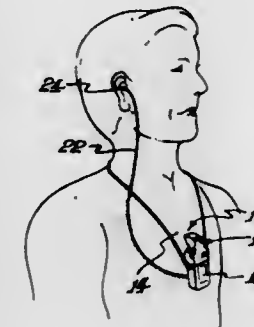
3,632,902 SOUND REFLECTOR-MODIFIER FOR HEARING AID MICROPHONES

John J. Wahler, 722 N. Mansfield Avenue, Los Angeles, Calif. Filed Feb. 24, 1969, Ser. No. 801,699

Int. Cl. H04r 25/00

U.S. Cl. 179-107 R

3 Claims



A sound reflector-modifier particularly useful to the hard of hearing for improving the quality and clarity of sounds received and reproduced by hearing aids and comprising in combination a sound reflective surface for receiving direct sound waves from a source and for reflecting them into an enlarged end of a sound passage leading to a sound chamber communicating with a sound pickup of a hearing aid.

3,632,903

ELECTROSTATIC HEADPHONE

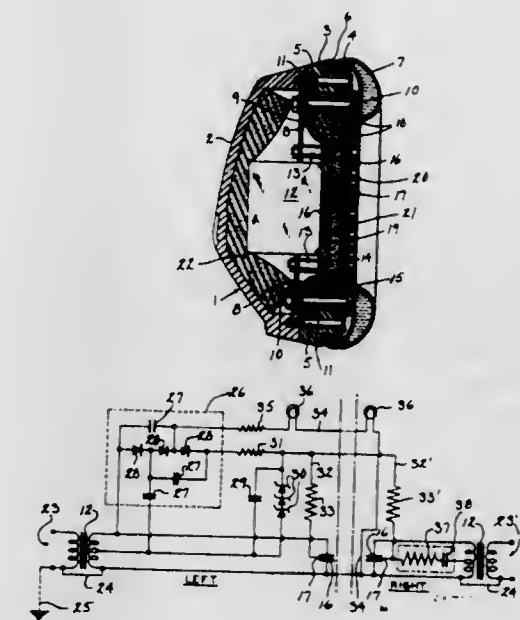
Martin Lange, Jr., River Hills, Wis., assignor to Koss Electronics, Inc., Milwaukee, Wis.

Continuation of application Ser. No. 785,166, Dec. 19, 1968, now abandoned. This application Oct. 28, 1970, Ser. No. 84,919

Int. Cl. H04r 19/00

U.S. Cl. 179-111

11 Claims



An electrostatic headphone speaker assembly includes a push-pull electrostatic driver operated off a coupling transformer, with the transformer secondary also supplying a polarizing circuit for the driver diaphragm. For enhanced operation there is a large resistance in the polarizing circuit to provide a long time constant, and the transformer leakage inductance is resonated with the driver input capacitance at 13 kHz.; and for a stereo headphone set with two transformers provided with ground jumpers, an isolation network is provided to decouple the transformer secondaries.

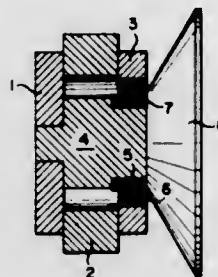
3,632,904 MOVING COIL LOUDSPEAKER WITH EDDY CURRENT SUPPRESSION

Paul Mauz, Badstrasse 1, 724 Horb, Germany
Continuation of application Ser. No. 500,630, Oct. 22, 1965,
now abandoned. This application Mar. 24, 1970, Ser. No.
36,761

Int. Cl. H04r 9/02

U.S. Cl. 179-119 R

3 Claims



An improved structure for a dynamic vibration generator, such as a loudspeaker or a microphone, which includes stacked sheets of high permeability material in the area of the pole gaps to suppress eddy currents.

3,632,905 METHOD FOR IMPROVING THE SETTLING TIME OF A TRANSVERSAL FILTER ADAPTIVE ECHO CANCELLER

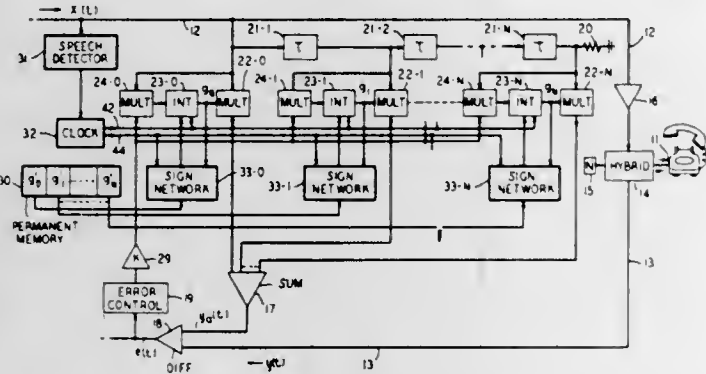
Edmond J. Thomas, Matawan, N.J., and John E. Urue, Jr.,
Westmont, Ill., assignors to Bell Telephone Laboratories,
Incorporated, Murray Hill, N.J.

Filed Dec. 19, 1969, Ser. No. 886,447

Int. Cl. H04b 3/22

U.S. Cl. 179-170.2

7 Claims



The method disclosed accomplishes a reduction in the initial "distance" between the tap gain vector, of a transversal filter adaptive echo canceller, and its optimum value. Tap gain magnitudes, related to the statistical distribution of echo path impulse response envelopes, are stored. The gains associated with each tap component are initially set to zero and adaptation then proceeds for a period of time sufficient to determine the polarity of each tap component. The determined polarities of each tap component are respectively assigned to the stored tap gain magnitudes and the tap components are set in accordance with the same. Convergence thence proceeds naturally from this new setting of the gain vector.

3,632,906 CABLE WINDER ON TRACTOR

Toru Aihara, Sagami-hara-shi, Japan, assignor to Caterpillar
Mitsubishi Ltd., Tokyo, Japan

Filed Sept. 14, 1970, Ser. No. 71,878

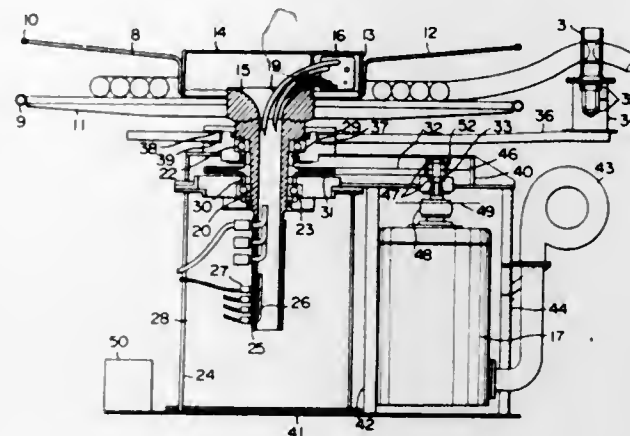
Int. Cl. H02j 11/02

U.S. Cl. 191-12.2 A

2 Claims

A cable winder mounted on a tractor for a construction machine, which uses an electric motor as a prime mover. In

the present invention is installed a reel driven with a torque motor. The tension of a hanging cable and the torque of the torque motor is balanced when the machine stands still; when it moves forward, the cable is tensioned and the torque



motor reverses, and the cable is unwound from the reel. When the machine moves backward, cable tension decreases, the torque motor normally moves to wind the cable on the reel.

3,632,907 WINDSCREEN WASHER AND WIPER CONTROL SYSTEM

Robert Leonard Gleeson, Burnley, England, assignor to
Joseph Lucas (Industries) Limited, Birmingham, England

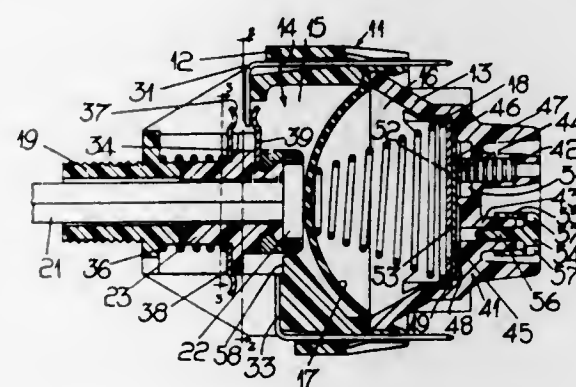
Filed Nov. 21, 1969, Ser. No. 878,675

Claims priority, application Great Britain, Dec. 6, 1968,
58,153/68

Int. Cl. H01h 9/00, 3/16

U.S. Cl. 200-4

5 Claims



A windscreen washer and wiper system for a road vehicle includes a windscreen washer unit, a windscreen wiper unit and a control switch for controlling the windscreen wiper unit and the windscreen washer unit. The control switch, in addition to controlling the windscreen wiper unit serves to operate the wiper unit when the windscreen washer unit is operated.

3,632,908 REGULATING TRANSFORMER TAP-CHANGER SWITCH

Alexander Bleibtreu; Anton Schunda, and Max Poppl, all of
Regensburg, Germany, assignors to Maschinenfabrik Rein-
hausen Gebrüder Scheubeck K.G., Regensburg, Germany

Filed June 10, 1970, Ser. No. 44,991

Claims priority, application Germany, June 18, 1969, P 19 30
719.8

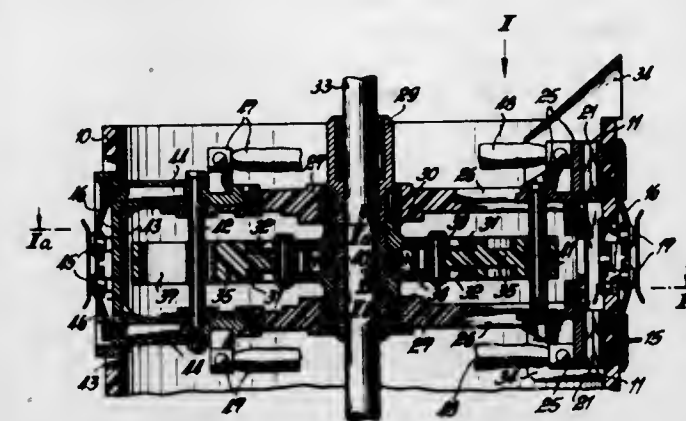
Int. Cl. H01h 19/56

U.S. Cl. 200-11 TC

18 Claims

A transfer switch wherein the conventional linkages for

operating the movable main contacts and the movable aux- rotor coupled to the plunger for angular movement therewith, and a fixed contact is carried by the casing and engaged with the rotor. Abutment means is provided on the



iliary contacts are replaced by specific cam means for operating said contacts.

3,632,909 SLIDE SELECTOR MATRIX KEYBOARD SWITCH ASSEMBLY WITH IMPROVED CONTACT STRUCTURE

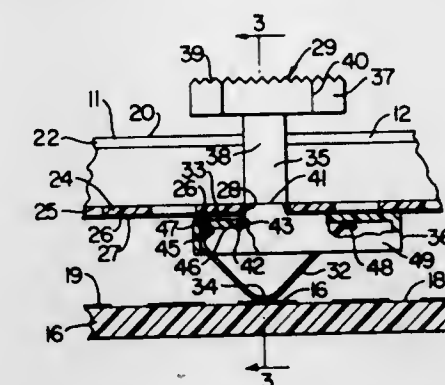
Paul M. Rowley, Bexley, Ohio, assignor to Robertshaw Con-
trols Company, Richmond, Va.

Filed Apr. 6, 1970, Ser. No. 25,863

Int. Cl. H01h 3/00, 9/00

U.S. Cl. 200-16 D

19 Claims



A first board member has a circuit conductor means thereon and a second board member is carried by the first board member and has second conductor means thereon disposed in electrically spaced relation from the circuit conductor means of the first member. A slide conductor is movably carried by one of the board members and has a first conductor portion for engaging the conductor means of the first board member and a second conductor portion for engaging the conductor means of the second board member whereby the slide conductor is adapted to electrically bridge the conductor means of the two board members in selected slide positions of the slide conductor relative to the board members. The slide conductor has means for disengaging one of its conductor portions from its respective conductor means during movement of the slide conductor relative to the board members so that electrical connection between the board members will not take place during a selection operation.

3,632,910 ELECTRICAL SWITCHES

Derek Rushton, 21 Lime Road, Accrington, Lancashire, En-
gland

Filed June 16, 1970, Ser. No. 46,603

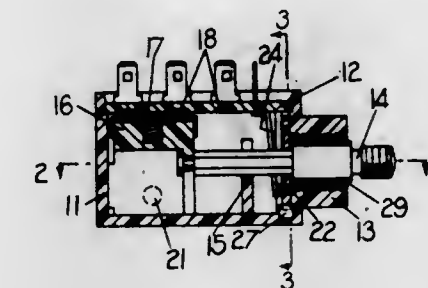
Claims priority, application Great Britain, July 7, 1969,
34,130/69

Int. Cl. H01h 15/00

U.S. Cl. 200-16 C

5 Claims

An electrical switch has a casing with a plunger axially and angularly movable within the casing. Within the casing is a



casing engageable by the rotor, to permit angular movement of the rotor but resist axial movement of the rotor during axial movement of the plunger.

3,632,911 PERIODIC SWITCH ASSEMBLY WITH IMPROVED ROTOR CONTACT STRUCTURE

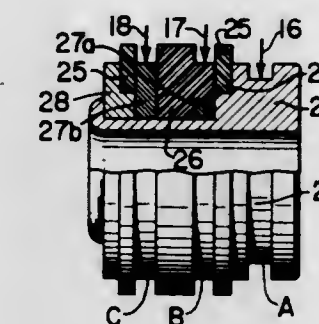
Kunio Endou, Tokyo, Japan, assignor to Mitsumi Seiko
Kabushiki Kaisha, Tokyo, Japan

Filed May 12, 1970, Ser. No. 36,538

Claims priority, application Japan, May 16, 1969, 44/37595
Int. Cl. H01h 19/56, 21/76

U.S. Cl. 200-24

6 Claims



In a pulse generating switch assembly the rotatable slip ring is comprised of a conductive sleeve having a continuously conductive groove formed directly therein. At least one insulating ring and one conductive ring are mounted directly on the sleeve with axially directed projections on the insulating ring intermeshing between radially projecting segments on the conductive ring. Thus, a portion of the circumference of the combined ring presents alternating conductive and insulating segments and a groove is formed therein. Wire brush means are mounted in resilient contact with the grooves so that upon rotation of the slipping assembly a series of pulses will be generated.

3,632,912 TIMING SWITCHING MECHANISM WITH ADJUSTABLE PROGRAM SLEEVE FOR DRUM ACTUATOR

Vernon W. Schuenke, West Allis, Wis., assignor to Casper W.
Heinrich, Milwaukee and Robert Kornacki, Waukesha,
Wis., part interest to each

Filed Dec. 1, 1969, Ser. No. 881,260

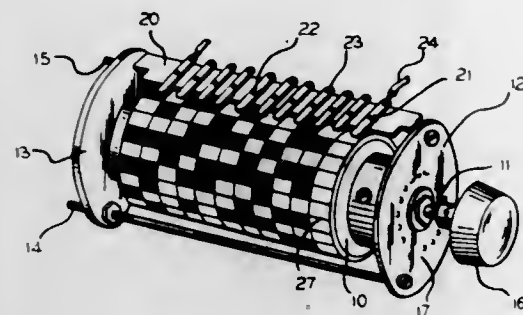
Int. Cl. H01h 43/08

U.S. Cl. 200-38 CA

4 Claims

A multipole, multithrow rotating switch. The switch com-

prises a rotatable nonconductive cylinder coated or covered with a conducting material. The coating or covering is selec-



tively removed or covered so that contacts are selectively electrically coupled during rotation of the cylinder.

3,632,913

ANTITHEFT LOCK DEVICE OF AN IGNITION SWITCH SYSTEM IN AN AUTOMOBILE

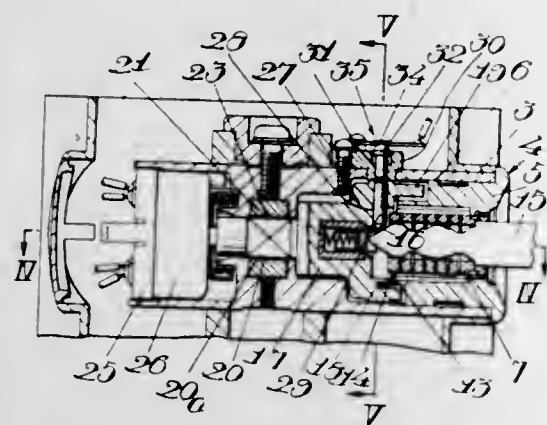
Masakazu Hukuta, Ama-gun, Aichi Prefecture, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishibiwajima-cho, Nishikasugai-gun, Aichi Prefecture, Japan

Continuation of application Ser. No. 794,532, Jan. 28, 1969, now abandoned. This application Aug. 25, 1970, Ser. No. 66,863

Claims priority, application Japan, Feb. 6, 1968, 43/7261
Int. Cl. H01h 27/00

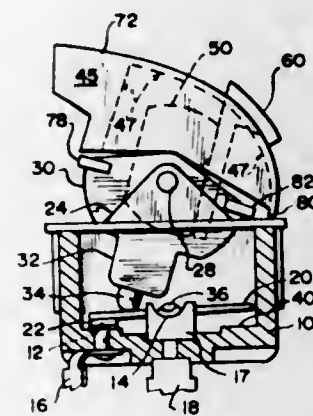
U.S. Cl. 200—42

2 Claims



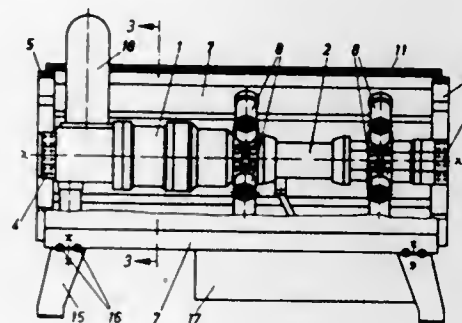
An antitheft lock device of an automotive vehicle ignition switch system comprises a member mounted for sliding movement radially of the rotor of a cylinder-type ignition lock, the member being moved radially outwardly by insertion of the key into the rotor until the radially outer end of the member is flush with the circumferential surface of the rotor. A cylindrical housing embraces the cylinder lock, and a switch control element is slidable in a radial slot in this housing and its radially inner end projects into the radial slot mounting the sliding member, when the key is withdrawn from the lock. In its radially inner position, the switch control element allows opening of an alarm switch. When the key is inserted into the lock, the sliding member is moved radially outwardly and the switch control element is displaced radially outwardly to close the alarm switch. The alarm switch is cooperable with another switch, such as the door-operated switch, so that, if the driver opens the door to leave the car without withdrawing the key from the ignition switch, an alarm is energized. This alarm may be a lamp, a buzzer, or a similar device.

3,632,914
KEY-OPERATED ELECTRICAL SWITCH
Thomas F. Osika, Gary, Ind., assignor to McGill Manufacturing Company, Valparaiso, Ind.
Filed Dec. 28, 1970, Ser. No. 101,934
Int. Cl. H01h 27/00
U.S. Cl. 200—42 T
6 Claims



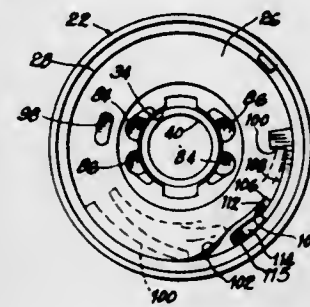
A key-operated electrical switch includes a rocker member which is rotatably mounted about an axle connected between two trunnions on the top of the switch casing. A carrier member is likewise mounted about the axle and has a portion which extends into the switch casing to operate the bridge mechanism for opening and closing the switch contacts. The rocker and the carrier member are free to rotate relative to one another about the axle with the carrier member moving into a cavity in the rocker. The key is inserted into the rocker and carrier to connect them together such that movement of the rocker will move the carrier in unison therewith to operate the switch.

3,632,915
HIGH-CURRENT ELECTRICAL SWITCHING UNIT ENCLOSED BY A HOUSING OF SPACED CONDUCTIVE BARS AND REMOVABLE INSULATING PLATES
Wilhelm Kramer, Sandhausen, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Mar. 2, 1970, Ser. No. 15,784
Claims priority, application Germany, Mar. 4, 1969, P 19 10 871.5
Int. Cl. H02b 1/10
U.S. Cl. 200—48 R
5 Claims



A high-current switch structure includes a plurality of switching units connected electrically in series and arranged along a common axis between two end connection terminals. The switching units are enclosed within a housing which includes an electrically conductive ring secured to each end terminal, circumferentially spaced electrically conductive bars extending between the end rings and insulator plates which extend between and are removably supported by the conductive bars that complete the housing structure. Sufficient spacing is provided between adjacent conductive bars to permit access to the switching units for servicing.

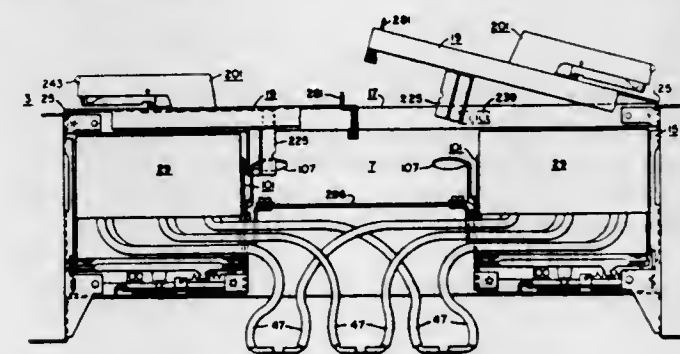
3,632,916
ELECTRICAL SWITCH WITH SELECTIVE BLOCKING ACTION
William J. Schaad, Winnetka, Ill., assignor to Indak Manufacturing Corp., Northbrook, Ill.
Filed May 25, 1970, Ser. No. 39,972
Int. Cl. H01h 27/06
U.S. Cl. 200—42 R
1 Claim



The disclosed electrical switch comprises an insulating plastic carriage which is rotatable in a casing, and which supports one or more contactors adapted to engage a series of contact points on an insulating board at the rear of the casing. The carriage is moveable to first, second and third positions. The selective blocking action is brought about by an arrangement comprising a flexible spring arm which is formed integrally with the carriage and thus is preferably made of the same plastic material. When the carriage is moved between the first and second positions, the arm is flexed in one lateral direction by a first cam or ramp on the casing. In this way the arm is enabled to pass a stop which would otherwise block movement of the arm beyond the second position. When the carriage is moved between the second and third positions, the arm moves off the end of the first cam. Upon the return movement of the carriage between the third and second positions, the arm is flexed in a different lateral direction by a second cam or ramp which enables the arm to avoid the first cam. When the carriage reaches the second position, the arm is released so that it moves behind the stop. Thus, the carriage cannot be moved again to the third position until the carriage has been returned to the first position. The spring arm, formed integrally with the carriage, provides the selective blocking action without any need for extra moving parts.

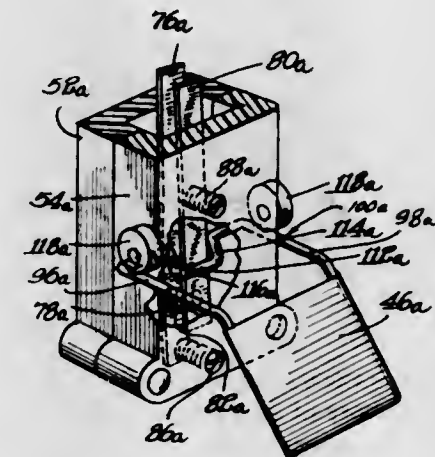
A recess is provided in said second cam behind said stop to receive said spring arm and to effect relaxation of the stress in said arm to prevent it from taking a set.

3,632,917
ELECTRIC SWITCHGEAR WITH COVER AND SWITCH INTERLOCK MEANS AND HANDLE-LATCHING MEANS
Alexander R. Norden, New York, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Original application June 8, 1965, Ser. No. 462,361, now Patent No. 3,525,835. Divided and this application Dec. 12, 1969, Ser. No. 889,803
Int. Cl. H01h 9/28
U.S. Cl. 200—42 T
6 Claims



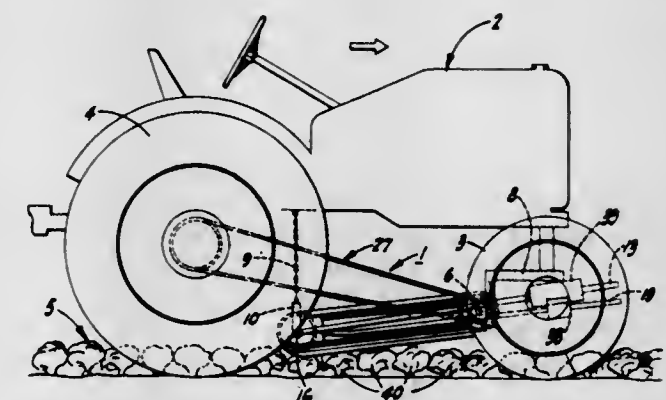
An improved externally operable enclosed switch with handle-interlocking means and cover latch means.

3,632,918
SENSING SWITCH CONSTRUCTION
James H. Anson, Auburn, and Norman F. Marsh, Springfield, both of Ill., assignors to Dickey-John Corporation, Chatham, Ill.
Continuation-in-part of application Ser. No. 797,171, Feb. 6, 1969, now abandoned. This application Aug. 25, 1969, Ser. No. 857,275
Int. Cl. H01h 3/16
U.S. Cl. 200—61.41
8 Claims



Switch units designed for use with electrical apparatus for detecting discrete articles passing along a path of travel, wherein said units are engaged by the articles to energize or interrupt an energized circuit, thus producing a detectable signal. Each switch unit includes a pair of leaf spring arms having juxtaposed contacts on the respective ends thereof, and a pivotally mounted actuating element adapted to be engaged by articles passing along said path. The engagement of said actuating element results in the operation of said unit to produce said signal. The leaf spring arms are prepositioned such that during operation the respective contacts will slide relative to one another, thereby effecting a wiping action which keeps the contacts free of deposits and in good working order. In addition, novel dampening means are employed, which provide for improved accuracy and control.

3,632,919
APPARATUS TO DETECT MATURE HEADS OF LETTUCE IN A CROP ROW
Francis J. Chatagnier, 5 East 13th Street, Antioch, Calif.
Filed Apr. 20, 1970, Ser. No. 29,801
Int. Cl. H01h 3/16
U.S. Cl. 200—61.42
7 Claims



An apparatus, to detect firm mature heads of lettuce in a crop row, comprising a mobile support movable along the row, and a support-mounted above-row vertically floatable detector unit bearing successively on the heads of lettuce as said support so moves; the detector unit including a gauge and detector wheel assembly.

3,632,920

ACCELERATION-RESPONSIVE SWITCH

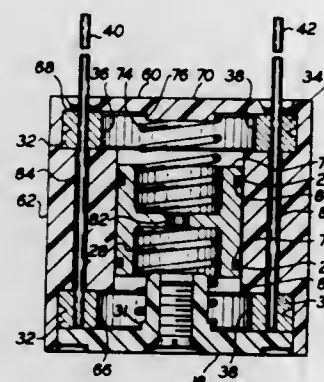
Leonard P. Tetrault, Northport, N.Y., assignor to Aerodyne Controls Corporation, Farmingdale, N.Y.

Filed Mar. 19, 1969, Ser. No. 825,838

Int. Cl. H01h 35/14

U.S. Cl. 200—61.53

10 Claims



An acceleration switch comprised of a housing having an internal cylindrical bore of at least two different diameters. A mass is adapted to move longitudinally within the smaller diameter bore into the larger diameter bore under excessive acceleration forces and thereby cause a compressed spring contact to expand so as to form an electrical contact bridge. This will alert the user that the switch was subjected to excessive forces.

3,632,921

SNAP ACTION CONSTRUCTION

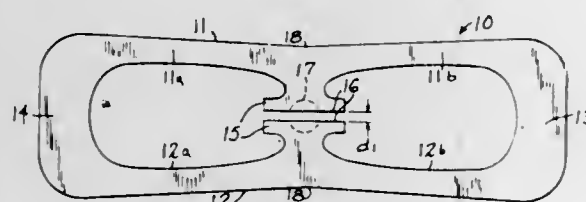
Theodore Y. Korsgren, 464 Taulman Road, Orange, Conn.

Filed Jan. 19, 1970, Ser. No. 3,599

Int. Cl. H01h 15/18

U.S. Cl. 200—76

21 Claims



A snap blade construction comprising a generally rectangular flat blade having side strips interconnected at each end. Extending inwardly from the side strips are projections or fulcrums. A self-retaining post member is inserted between the projections to stress the blade so that it will assume either one of two stable states and will move with a snap action between the two states.

3,632,922

CENTRIFUGAL SWITCH

Joseph Baumel, Jericho, L.I., N.Y., assignor to Controlotron Corporation, Farmingdale, L.I., N.Y.

Filed Apr. 1, 1970, Ser. No. 24,487

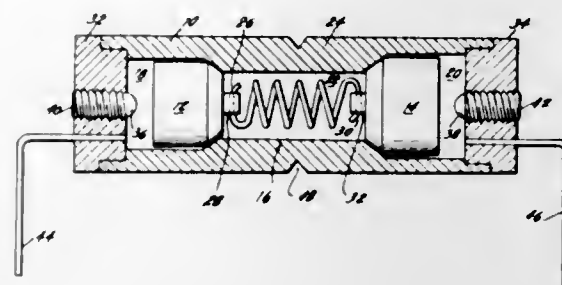
Int. Cl. H01h 35/10

U.S. Cl. 200—80 R

6 Claims

A freely suspended prestressed spring is employed in conjunction with a pair of inertial masses to sense rotational velocity by means of centrifugal force. The switch is so mounted that the center of rotation of the spring-mass combination is located midway between the inertial masses, which move in opposite directions when the switch reaches a rotational velocity in excess of a threshold value. This movement causes an expansion of the tension spring which, in the absence of such overcoming force, pulls the masses toward

one another. The inertial masses and prestressed spring are of electrically conducting material to electrically connect a



pair of switch terminals contacted by the masses when a predetermined rotational velocity is reached.

3,632,923

FLOW-RATE SWITCH

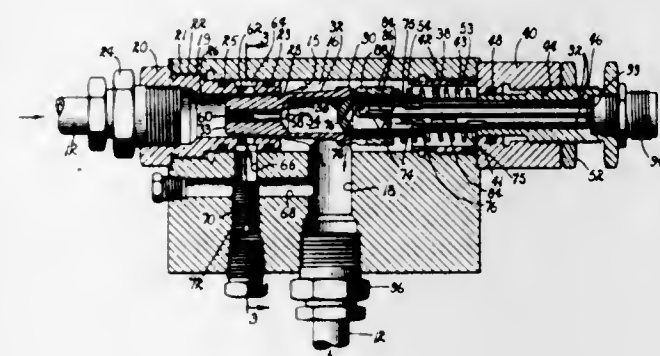
T. O. Paine, Administrator of the National Aeronautics and Space Administration in respect to an invention of, and George P. Gale, Orange, Calif.

Filed Sept. 24, 1969, Ser. No. 860,492

Int. Cl. H01h 35/40

U.S. Cl. 200—81.9 M

4 Claims



A flow-rate switch particularly suited for use in detecting variations in flow rates for fluids flowing through conduits of pressurized systems characterized by the utilization of a magnetically responsive circuit switching device seated within a tubular housing and a ring magnet concentrically disposed about the housing adapted to be repositioned in opposite directions along the housing for effecting circuit switching operations in response to changes in flow rates, a feature of the switch being the employment of a flow-responsive and variably positioned pintle disposed about said housing, within the path of the fluids, supporting the magnet for displacement relative to said switching device for repositioning the ring magnet relative to said switching device to effect switching operations as variation in flow rates occur.

3,632,924

PRESSURE DIFFERENCE RESPONSIVE ELECTRIC SWITCHES WITH RELEASABLE DETENTS AND DIRECTION OF RESPONSE INDICATORS

Stephen James Harper, Coventry, England, assignor to Rootes Motors Limited, London, England

Filed June 10, 1970, Ser. No. 45,197

Claims priority, application Great Britain, June 17, 1969,

30,679/69

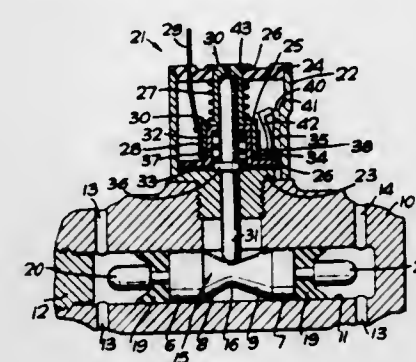
Int. Cl. H01h 35/38

U.S. Cl. 200—82 D

9 Claims

A pressure difference responsive device is drivably connected to a movable contact on an electric switch to close

the switch when a pressure difference occurs. The switch is connected in an electric circuit including a warning device



and the switch is held closed by releasable detents when the pressure difference has been removed.

ERRATUM

For Class 200—84 see:
Patent No. 3,632,953

3,632,925

FLOAT RESPONSIVE SWITCH UNIT

Katsuji Fujiwara, No. 191, Nishitani, Hiraoka-cho, Kakogawa-shi, Hyogo-ken, Japan

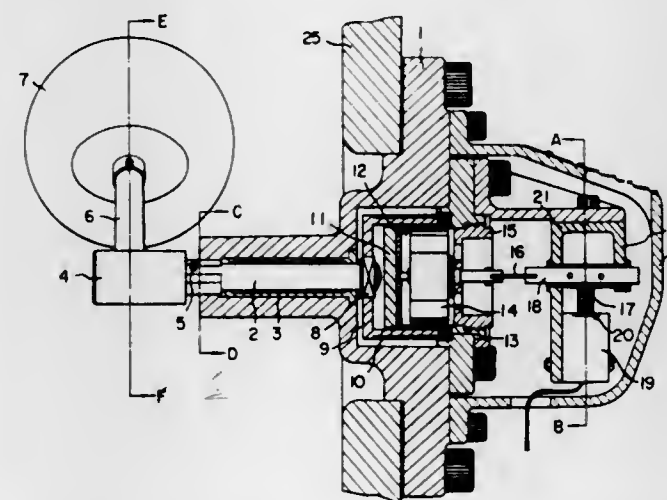
Filed July 22, 1969, Ser. No. 843,591

Claims priority, application Japan, Nov. 18, 1968, 43/84298

Int. Cl. H01h 35/18

U.S. Cl. 200—84 C

12 Claims



A new and improved float responsive switch controls the level of a liquid in a tank. The vertical motion of the float as responding to the liquid level is changed to a rotary motion through use of magnetic responses, which rotary motion in turn activates selectively a microswitch controlling the level of the liquid.

3,632,926

CURRENT-LIMITING CIRCUIT BREAKER HAVING ARC EXTINGUISHING MEANS WHICH INCLUDES IMPROVED ARC INITIATION AND EXTINGUISHING CHAMBER CONSTRUCTION

Eldon B. Heft, West Hartford, Conn., assignor to General Electric Company

Continuation of application Ser. No. 592,443, Nov. 7, 1966.

This application Apr. 20, 1970, Ser. No. 28,258

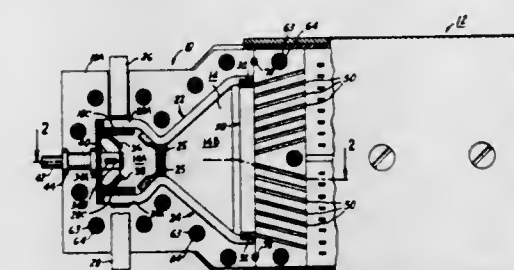
Int. Cl. H01h 33/00

U.S. Cl. 200—144 C

4 Claims

Current-limiting circuit breaker with arc-extinguishing means including a closed arc initiation chamber and a com-

municating arc-extinguishing chamber, the sidewalls of the chambers each being formed as a molded insert of high dielectric gas-generating material, the sidewalls of the arc-extinguishing chamber including means forming a controlled constriction through which the arc must pass, and diverging



arc runners together with strips of material extending between the outer extremities of the arc runners, said strips comprising a material which is normally nonconductive but which becomes conductive when heated by the effect of an electric arc.

3,632,927

ELECTRIC SWITCH AND SWITCH ENCLOSURE FOR MOTOR BRANCH CIRCUITS

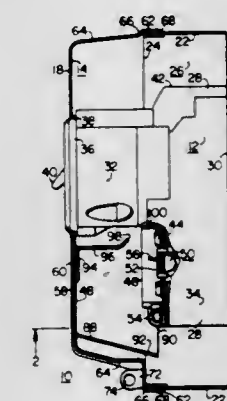
Joseph J. Gribble, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill.

Filed Oct. 2, 1970, Ser. No. 77,518

Int. Cl. H01h 9/30, 33/02

U.S. Cl. 200—144 R

5 Claims



A motor controller that is intended to be used in a branch circuit to an electric motor and includes an enclosed manually operated overload responsive switch. The enclosure for the switch is provided with a removable cover and a means which are positioned by the cover relative to the overload responsive units of the switch to reduce the length of the arcs generated within the enclosure and the temperature of the hot gases exiting from the enclosure when the current through the branch circuit has a magnitude sufficient to destroy current responsive units.

3,632,928

CONTACT STRUCTURES FOR VACUUM-TYPE CIRCUIT INTERRUPTERS

Werner Emmerich, Pittsburgh, and Roy E. Voshall, New Alexandria, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 20, 1969, Ser. No. 808,871

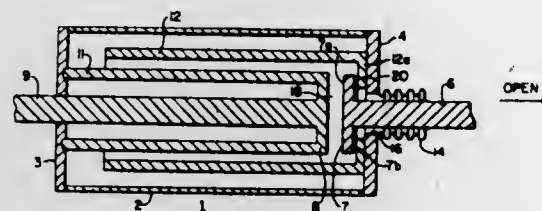
Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

10 Claims

A vacuum-type circuit interrupter is provided having lightweight separable butt arc-initiating contacts, and a pair of stationary generally cylindrical elongated arcing electrodes disposed in spaced relationship, and extending longitudinally of the vacuum circuit interrupter. During opening operation,

the lightweight separable arc-initiating contacts are separated to establish arcing therebetween, and the arc is moved, or transferred radially outwardly, to space the relatively small gap between the concentrically arranged stationary cylindrical arcing electrodes, where arc extinction occurs. In certain arrangements, the arcing electrodes are concentric tubes. In



other arrangements, the stationary electrodes assume a different configuration, either having a solid generally star-shaped configuration, or a hollow tubular configuration having helical slots, or other configured vent openings therethrough. In the latter case, an external shielding structure may be provided to protect the inner walls of the outer ceramic envelope.

3,632,929

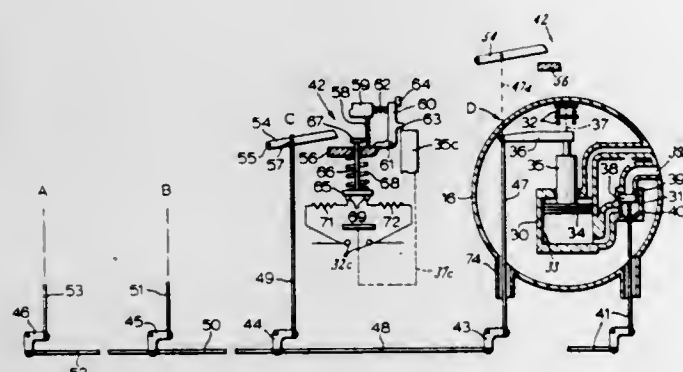
OPERATING MECHANISM FOR A MULTIPLE INTERRUPTER UNIT CIRCUIT BREAKER

James Butler, Peterborough, Ontario, Canada, assignor to Canadian General Electric Limited, Toronto, Canada
Filed Mar. 13, 1970, Ser. No. 19,342

Claims priority, application Canada, Nov. 12, 1969, 067,165
Int. Cl. H01h 33/14

U.S. Cl. 200—145 R

7 Claims



A high-voltage circuit breaker comprising a plurality of separate interrupter units connected in series, each unit comprising a set of main contacts, the series combination of a resistor and resistor switch in parallel with the main contacts, and an actuator for operating the main contacts. The actuator of one of these units operates the resistor switch of this particular unit and is mechanically linked with the resistor switches of all the other units so that the contacts of the other resistor switches are closed by the closing action of this one actuator. The resistor switches are opened in synchronism, each one by the actuator of its unit during contacts-opening action. During a circuit interruption, all the main contacts open simultaneously, placing all the resistors in series in the line; a few milliseconds later all the resistor switches open simultaneously to complete the opening cycle. During closing, the main contacts of the one unit close first, after which all the resistor switches close simultaneously, placing the resistors of the other units in series in the line; a few milliseconds later the main contacts of the other units close simultaneously to complete the closing cycle.

3,632,930
ELECTRIC SWITCHES

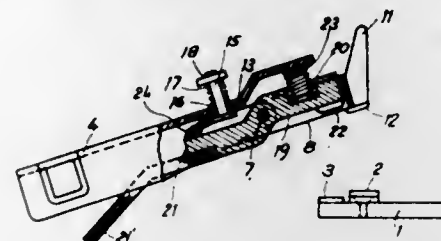
Marcello Parini, Via Vergani 12, Varese, Italy

Filed Mar. 18, 1970, Ser. No. 20,559

Claims priority, application Italy, Apr. 9, 1969, 15281-A/69
Int. Cl. H01h 33/12

U.S. Cl. 200—146 R

4 Claims



1. An electric switch, comprising a carrying member movable along a predetermined path between switch-opening and switch-closing positions; a first current-conducting carrier mounted on said member and having a first electric contact and exposed end and lateral surfaces; a second current-conducting carrier mounted on said member for movement relative to said first carrier and having a second electric contact, said second carrier at least substantially surrounding said surfaces of said first carrier; first and second complementary electric contacts respectively located in the path of said contacts on said first and second carriers during movement of said member toward said switch-closing position; and resilient means operating between said second carrier and said member to maintain the contact of said second carrier in such position with reference to the contact of said first carrier that the contact of said second carrier engages the second complementary contact prior to engagement between the contact of said first carrier and said first complementary contact during movement of said member toward said switch-closing position.

3,632,931

ARC-QUENCHING CHAMBER

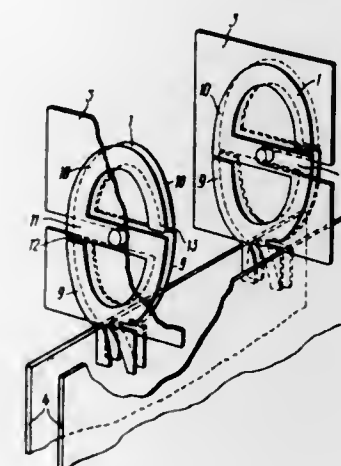
Rostislav Sergeevich Kuznetsov, ulitsa Scherbakovskaya, 40/42, kv. 195; Alexandr Grigorievich Uskach, ulitsa Otkryabskaya, 49, kv. 63, and Vladimir Grigorievich Kostikov, ulitsa Davydovskaya, 10, kv. 104, all of Moscow, U.S.S.R.

Filed Feb. 12, 1970, Ser. No. 10,782

Int. Cl. H01h 33/10

U.S. Cl. 200—147 R

1 Claim



The present invention relates to electric switching devices, and more specifically to the arc-quenching chambers of such devices, comprising metal De-Ion plates.

The arc-quenching chamber disclosed comprises a De-Ion grid composed of metal plates which are arranged in parallel

planes, have the shape of an S, and are joined pairwise by a current-conducting neck; the minor arcs circulate between said plates; said plates have U-shaped projections at the entrance of the arc to said grids and are pairwise joined by a neck at the central part.

3,632,932

CURRENT-LIMITING CIRCUIT BREAKER HAVING A FIELD STRAP ASSEMBLY

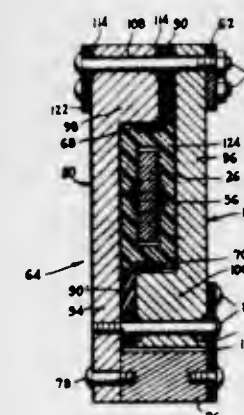
Norman R. Beaudoin, Bristol, and Robert W. Lauben, Farmington, both of Conn., assignors to General Electric Company

Filed Aug. 8, 1969, Ser. No. 848,425

Int. Cl. H01h 33/18

U.S. Cl. 200—147 R

4 Claims



A current-limiting electric circuit breaker is provided with a field strap assembly wherein the straps are arranged in close insulated proximity and secured against relative movement by retaining bolts insulating from at least one of the straps. The field strap assembly carries the circuit breaker stationary contacts.

3,632,933

RACK AND GEAR SPRING CHARGING MEANS FOR RECIPROCATING CONTACT

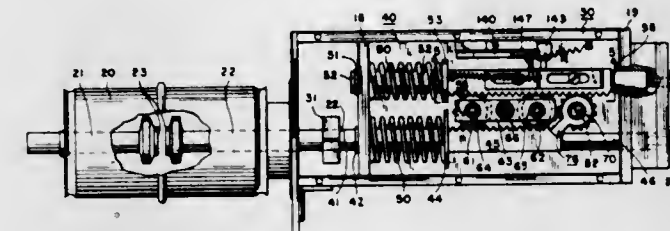
James E. McClain, and Argus F. Parks, both of Greenville, Tex., assignors to Esco Manufacturing Company, Greenville, Tex.

Filed Mar. 25, 1970, Ser. No. 22,554

Int. Cl. H01h 3/30, 3/40, 5/06

U.S. Cl. 200—153 SC

10 Claims



Disclosed is circuit interrupting apparatus of the type including a pair of coaxially disposed electrically conductive contact carrier rods, one of the carrier rods mounted for reciprocative movement between a closed position whereby the carrier rods are engaged, and an open position whereby the carrier rods are disengaged, and the current flow therethrough is interrupted. Improved actuator apparatus for translating the movable carrier rod into and out of engagement with the other contact carrier rod includes a pair of racks operatively coupled by rotary gears, the racks mounted for reciprocating motion in respective parallel linear paths. One of the racks is coupled to a gear and rotary shaft arrangement for urging the rack forward to compress a closing

spring coupled thereto, a latch and roller keeper arrangement temporarily holding the closing spring compressed. Another latch arrangement engages the operatively coupled rotary gear against linear motion when the closing spring is compressed, tripping means coupled to the rotary shaft then releasing the compressed closing spring, the rearward movement of the one rack powering the other rack coupled to the reciprocating contact carrier rod forward to close the contacts. An opening spring coupled to this rack is then compressed by the forward movement of the rack. The opening spring is then automatically released from compression by latch release means coupled to relay circuitry responsive to excessive current through the apparatus, or manually released by latch release means operatively coupled to the rotary shaft.

3,632,934
SWITCH

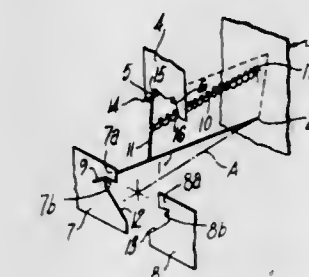
Paul T. Flumm, 101 Sunnyside Avenue, Oakville, Conn.

Filed Apr. 9, 1970, Ser. No. 26,902

Int. Cl. H01h 5/00

U.S. Cl. 200—153 J

27 Claims



A bistable pushbutton overcenter switch having a pair of stable positions to which the movable contact is shifted by identical successive movement of the pushbutton. A tension spring is connected to the pivoted pushbutton and to a projection on the movable contact. Camming surfaces are associated with each of the fixed contacts to cam the free end of the movable contact toward the other stationary contact upon depressing the pushbutton to change the tilt of the movable contact and shift it laterally through an overcenter position.

3,632,935

DOUBLE BLADE ROTOR SWITCH WITH BLADES INSERTABLE INTO ROTATABLE SHAFT

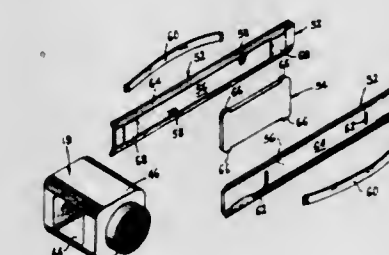
Louis T. Stegmaier, Plainville, Conn., assignor to General Electric Company

Filed Jan. 22, 1970, Ser. No. 4,941

Int. Cl. H01h 1/42, 21/56

U.S. Cl. 200—155 R

5 Claims



A multipole, double-break, contact-rotor electrical switch is provided having an elongated rotor carrying a pair of radially extending contact blades at each pole with each blade being biased toward the other and having a single locator positioned between each pair of blades. The locator not only serves to continuously maintain its respective contact blades in spaced parallel relation upon being disengaged from sta-

tionary switch contacts, but additionally coacts with the blades and the rotor to provide a self-locking assembly and restrains the blades against undesired longitudinal movement.

3,632,936

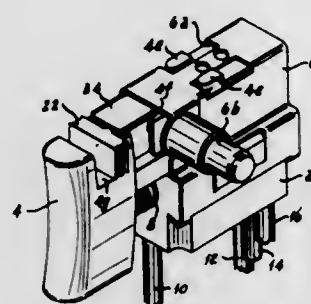
INTEGRAL REVERSING TRIGGER SWITCHES FOR SPEED CONTROLLED PORTABLE TOOLS

Earl T. Piber, Oconomowoc, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Oct. 28, 1970, Ser. No. 84,827

Int. Cl. H01h 13/08

U.S. Cl. 200—157



A self-enclosed trigger switch adapted for mounting in the handle of a portable tool and having an integral slide button reversing switch built into the upper portion of the trigger above and between the bottom recesses that hold the on-off switch movable contact and the variable resistor movable contact, with the solid-state speed control circuit being housed within the base in the usual manner. Three versions of integral reversing trigger switch are shown.

3,632,937

PULSE-PRODUCING ELECTRICAL SWITCH

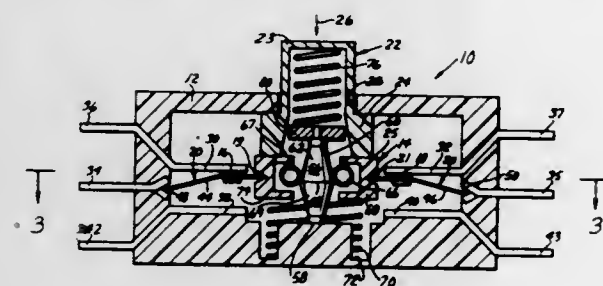
Robert N. Nanninga, Canoga Park, Calif., assignor to Industrial Electronic Hardware, New York, N.Y.

Filed Nov. 26, 1969, Ser. No. 879,990

Int. Cl. H01h 13/52

U.S. Cl. 200—160

14 Claims



A snap action pulse-producing electrical switch comprises a carrier means operatively connected to a support and movable relative to the support from first position to second position upon the application of an actuating force thereto, a first electrical contact operatively connected to the carrier means and movable therewith, a second electrical contact positioned to receive the first contact in an electrical connection, and snap means operatively connected to the first contact and effective to snap the first contact into engagement with the second contact when the first contact is moved past a predetermined position between its nonactuated first position and the engagement with the second contact. The snap means are also effective to quickly disengage the contacts after the engagement occurs, and to urge the first contact and the carrier to their respective first positions. In the preferred embodiment the snap means comprises a flexible member which is normally flexed in a first condition, and which snaps to a second flexed condition when the contact

passes a predetermined position in its travel. A resilient member provides additional force generation during the snap-over action of the flexible member. The resilient member is in operative contact with a stationary member and moves in the direction of travel of the first contact. The resilient member is also flexed from one condition to another simultaneously with the flexible member, thereby to provide additional snap driving means.

3,632,938

PUSHBUTTON SWITCH ASSEMBLY

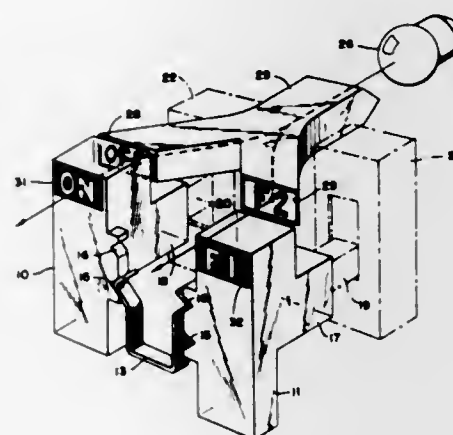
Martin C. Stessel, Schaumburg, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 25, 1970, Ser. No. 22,442

Int. Cl. H01h 9/18

U.S. Cl. 200—167 A

11 Claims



A pushbutton switch assembly includes a first display surface mounted in a recess in the housing for the assembly. A clear plastic pushbutton actuator is movable between first and second positions. In the first position, the pushbutton overlies the first display surface, with light passing through the first display surface and the pushbutton to illuminate a second display surface on the pushbutton. In the second position the pushbutton is moved below the first display surface to permit viewing of the first display surface.

3,632,939

CIRCUIT INTERRUPTER WITH IMPROVED MOLDED INSULATING HOUSING

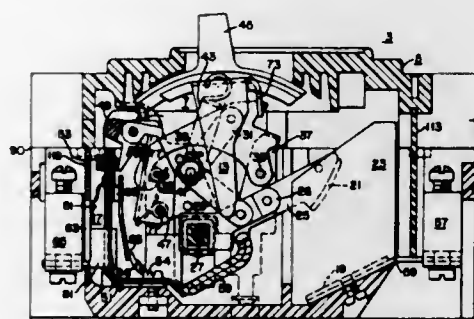
Nick Yorgin, Ambridge, and John G. Salvati, Beaver Falls, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 16, 1970, Ser. No. 11,452

Int. Cl. H01h 9/02

U.S. Cl. 200—168 R

4 Claims



A circuit interrupter comprises a molded insulating housing molded to form means for insulating mounting bolts from live parts of the circuit interrupter mechanism.

3,632,940

ROCKER SWITCH

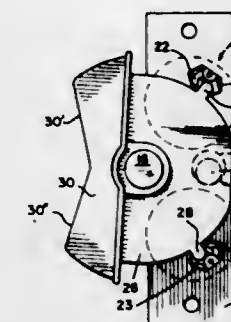
Charles L. Burns, Frankfort, Ind., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Aug. 7, 1970, Ser. No. 62,102

Int. Cl. H01h 3/02

U.S. Cl. 200—172 A

6 Claims



A manually operated pivotally mounted switch actuator means selectively actuates a pair of rotary switches.

3,632,941

CONSTANT IMPEDANCE COAXIAL SWITCH

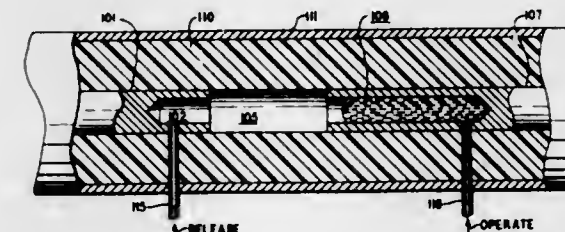
Norman Wasserman, Columbus, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 15, 1970, Ser. No. 28,776

Int. Cl. H01h 29/28

U.S. Cl. 200—182

8 Claims



A coaxial cable switch is disclosed which maintains a constant impedance through the switch by providing a contact configuration with the same ratio of inner conductor diameter to outer conductor diameter as is provided by the cable. The switch is operated by inserting a conductive liquid into a cavity resulting from a discontinuity in the inner conductor of the switch, thereby bridging the discontinuity.

3,632,942

ELECTRICAL DISCHARGE MACHINING DEVICE USING LOGICAL CONTROL

Iwao Kondo, 39-9 Kita-machi 1-chome, Nerima-ku, Tokyo, Japan

Filed Feb. 9, 1950, Ser. No. 9,566

Claims priority, application Japan, Feb. 7, 1969, 44/9554, 44/9555; June 11, 1969, 44/46422, 44/46423, 44/46424; July 24, 1969, 44/58503; Oct. 2, 1969, 44/78754

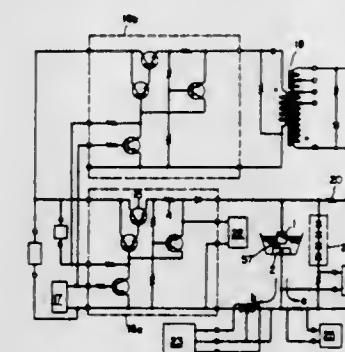
Int. Cl. B23p 1/08, 1/14

U.S. Cl. 219—69 C

9 Claims

An automatic electrical discharge machining device, including a logic circuit and detecting units monitoring voltages and currents at different parts of the machining device circuit. The detecting units deliver their outputs to the logic circuit, for determining short circuit, large gap conductance, sustained arcing, and other detrimental conditions at the

discharge gap, by suitably combining the outputs from the detecting units. Automatic control is made in response to the



output from the logic circuit for regulating an electrode or various voltage pulses.

3,632,943

APPARATUS FOR MAKING SEALS ON TUBULAR CONTAINERS

Otto Engler, and Meinhard Muller, both of Karlsruhe, Germany, assignors to Industrie-Werke Karlsruhe Aktiengesellschaft, Karlsruhe, Germany

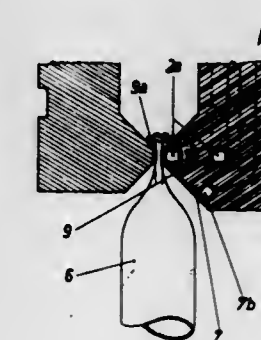
Filed Aug. 6, 1970, Ser. No. 61,599

Claims priority, application Germany, Oct. 10, 1969, P 19 51 161.6

Int. Cl. H05b 9/02

U.S. Cl. 219—10.79

11 Claims



An apparatus for making seals on tubular containers has a laminated wall provided with a seam and being composed of an inner layer of plastic material and a metal layer outside of the plastic layer. The apparatus includes a generating arrangement for generating high-frequency energy, a source of cooling medium for supplying the cooling medium to the generating arrangement, distributing means, conductors connecting the generating arrangement with the distributing means so as to supply energy and cooling medium from the latter to the former, and an electrode connected to the distributing means for receiving high-frequency energy and cooling medium from the distributing means. A damping arrangement damps eddy current leakage fields which tend to develop in the region of the seam in the tubular container in response to energization of the electrode.

3,632,944

HYSTERESIS HEATING UNIT

Leon R. Lease, c/o Electrol Equipment Incorporated, Box 1209, Mankato, Minn.

Filed Feb. 19, 1970, Ser. No. 12,736

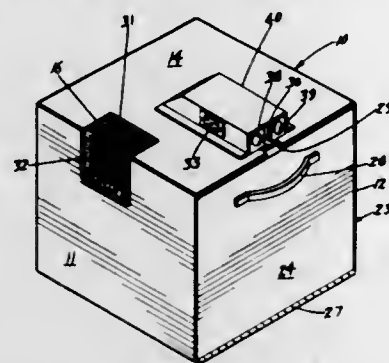
Int. Cl. H05b 5/00, 9/00

U.S. Cl. 219—10.49

6 Claims

A heating unit in the form of a flat hotplate or boxlike oven in which heat is generated by hysteresis. A ferromagnetic core in the form of a flat panel or three-dimensional container is wound with a coil of electrically conductive

material fitted with means for connection to a source of alternating current. The coil may be wound around a three-dimensional core or wound as a flat spiral on one surface of the core. The heating unit is operated by alternate mag-



netization and demagnetization of the ferromagnetic core to generate heat by hysteresis. One example of use of such a hysteresis heating unit is a portable oven for use in delivery of hot food and adapted for operation from the alternator of a mobile vehicle.

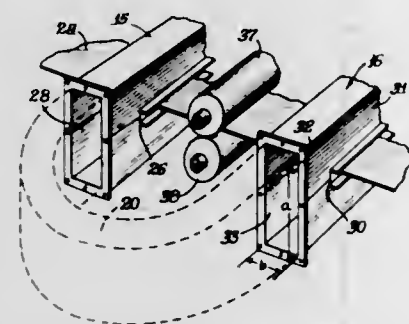
3,632,945

SYSTEM AND METHOD FOR HEATING MATERIAL EMPLOYING OVERSIZE WAVEGUIDE APPLICATOR
Ray M. Johnson, Danville, Calif., assignor to Cryodry Corporation, San Ramon, Calif.

Filed Apr. 16, 1969, Ser. No. 816,500
Int. Cl. H05b 9/06, 5/00

U.S. Cl. 219-10.55

19 Claims



A microwave heating applicator is provided in the form of a rectangular-type waveguide having dimensions a and b transverse of power flow through the guide. The b dimension is maintained less than one-half the free-space wavelength of the excitation frequency, λ_c ; and the dimension a is enlarged beyond λ_c thereby reducing the attenuation constant for the applicator and the heating rate of the material being treated. The microwave power is transmitted through a treating zone in a first direction; and the electric field intensity varies, transverse of the direction of power flow, from a minimum at one side of the treating zone to a maximum at the center of the zone and back to a minimum at the other side of the treating zone. These sides of the treating zone define the dimension a ; and the material is passed through the treating zone either along the direction of power flow or perpendicular to the direction of power flow, depending upon the application.

3,632,946

MICROWAVE FURNACE FOR CONTINUOUS HEAT TREATING OF VARIOUS PIECES OF DIELECTRIC MATERIAL

Joel Henri Auguste Soulier, 81 Boulevard Marceau, Colombes, France

Filed Nov. 5, 1969, Ser. No. 874,341

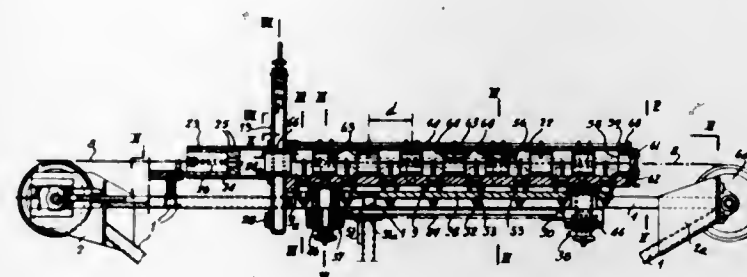
Claims priority, application France, Dec. 5, 1968, 176804
Int. Cl. H05b 9/06

U.S. Cl. 219-10.55

9 Claims

The furnace comprises a rectangular waveguide for a hyperfrequency wave generator and this waveguide is placed

transversally to a tunnel furnace defining a longitudinal corridor, at least one part of said tunnel furnace being formed



by two complementary half-shells assembled longitudinally to one another.

3,632,947

DRAW ROLL AND TEMPERATURE GAUGE FOR DRAW-TWISTING, DRAW-WINDING AND SPIN-DRAW-WINDING MACHINES

Felix Graf, Winterthur, and Armin Wirz, Dietlikon, both of Switzerland, assignors to Rieter Machine Works, Ltd.

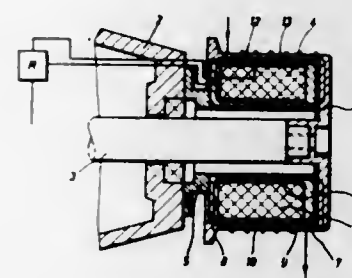
Filed Nov. 6, 1969, Ser. No. 874,544

Claims priority, application Switzerland, Nov. 6, 1968, 16658/68

Int. Cl. H05b 5/00, 9/06

U.S. Cl. 219-10.61

13 Claims



The draw roll is provided with a stationary temperature gauge positioned in slightly spaced relation to the inside surface of the draw roll. The temperature gauge is elongated along the middle region of the draw roll while the gap between the gauge and draw roll corresponds to the thickness of the air boundary layer which permits the most direct heat transfer. The gauge thus has a short response timelag.

3,632,948

APPARATUS FOR INDUCTORS FOR INDUCTION HEATING

Jean Moulin, Ris-Orangis; Jacques Doucerain, Paris, and Bernard Dallet, Savigny-Sur-Orge, all of France, assignors to Societe De Traitements Electrolytiques Et Electrothermiques (S.T.E.L.)

Filed July 13, 1970, Ser. No. 54,251

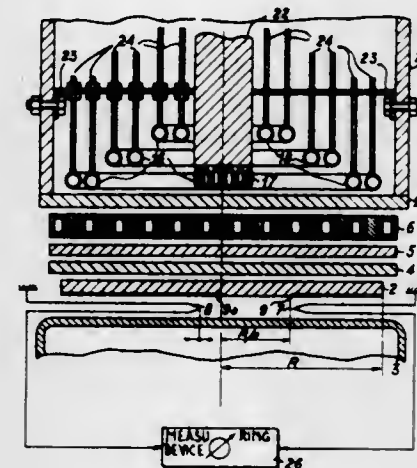
Claims priority, application France, Mar. 4, 1970, 7016182
Int. Cl. H05b 9/02

U.S. Cl. 219-10.79

5 Claims

To braze two platelike elements, in a press, together, particularly to join a good heat-conductive metal to stainless steel, for use in cooking utensils, or the like, an induction coil is formed of concentric rings, or of a spiral, and individual coils thereof are placed closer, or farther away from the surface to be heated, by means of adjustment screws, the adjustment of individual coils, or coil portions being carried out in accordance with sensed temperature directly, or differentially sensing temperature along the contiguous surfaces

of the plates, by introducing a thermocouple into grooves formed in at least one of the plates and adjusting the height



of the coils, or coil portions for minimum temperature difference across the diameter of the plate.

3,632,949

DC CAN WELDER

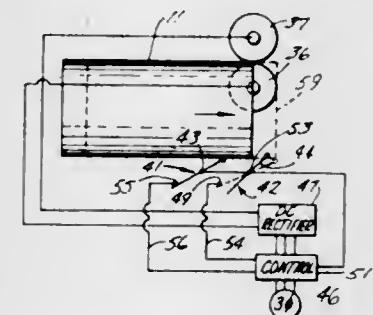
John Paul Thorne, Bay City, Mich., assignor to Newcor, Inc., Bay City, Mich.

Filed Aug. 12, 1969, Ser. No. 849,469

Int. Cl. B23k 31/06

U.S. Cl. 219-64

10 Claims



A method and apparatus for resistance lap welding a longitudinally extending seam on a metallic tubular element of relatively short (as for barrels, pails or cans) finite length utilizing a DC welding current and controlling same adjacent the leading and trailing edges to compensate for the change in current density thereat. The welded seam is then planished to render the weld joint smooth.

3,632,950

METHOD AND APPARATUS FOR UNDERWATER ARC WELDING

Ernest H. Berghof, La Belle, Fla., assignor to Anna Welding Corporation

Continuation-in-part of application Ser. No. 701,700, Jan. 30, 1968, now abandoned. This application Nov. 13, 1969, Ser.

No. 886,245

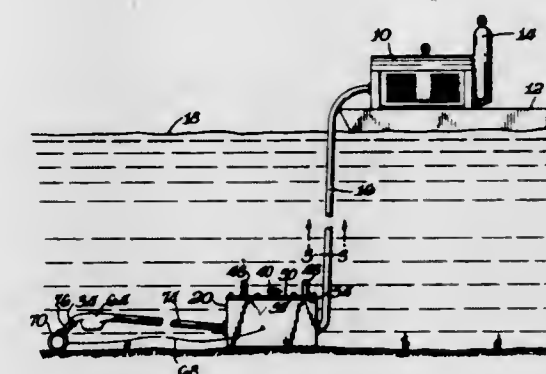
Int. Cl. B23k 9/16

U.S. Cl. 219-72

4 Claims

According to the method of this invention water is kept away from the arc in underwater arc welding by means of a gas under a pressure greater than that of the water and, preferably, the wire-feeding unit, welding gun, and electrode wire of the gas shielded, metal arc-welding apparatus to be used under water are enclosed in airtight and watertight containers. The air connecting conduits and tubing carrying the electrode wire and shielding gas are similarly enclosed in airtight and watertight conduits. The containers and conduits are then internally pressurized with a shield gas to prevent

the entry of water. The welding gun nozzle is enclosed within coaxially disposed tubular sections such that the electrode wire may be surrounded by either one or two annular gas streams under pressure which serve to shield it effectively from the surrounding water. Welding then takes place in a pocket of shielding gas to permit underwater welds of a quality previously obtainable only in atmospheric conditions.



The front end of one of the tubular sections may have a flexible gasket which contacts the workpiece to aid in maintaining the pocket of shielding gas in the vicinity of the weld itself. A viewing plate is provided within the tubular section to permit the welding operation itself to be viewed while in operation. A light source and a vent tube are associated with the tubular section to facilitate the welding operation.

3,632,951

PLASMA ARC WELDING TORCH

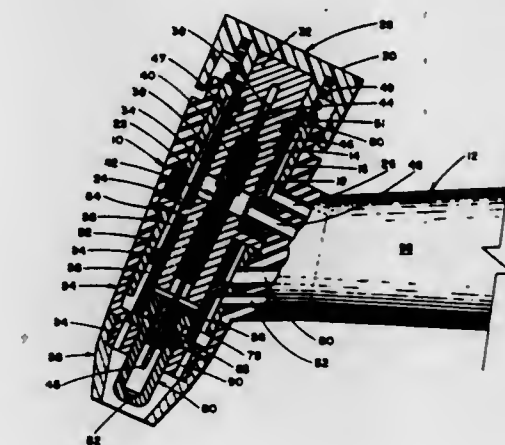
George A. Klasson, Port Washington, N.Y., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed June 9, 1969, Ser. No. 831,320

Int. Cl. B23k 9/16

U.S. Cl. 219-75

2 Claims



A plasma arc welding torch suitable for welding materials of construction. The torch is characterized in that the head is divided into two sections, each section carrying a different electrical potential, the sections separated by a combination electrical insulator and sealing member. The sealing expedient is effected by coating the opposite sides of the insulator with a metal layer and brazing each of the opposing layers to metal members associated with the two sections of the torch. There is further provided a collar for electrically insulating the torch tip from the nozzle and at the same time serving to aid in dissipating heat generated at the tip.

3,632,952

ELECTRIC ARC METAL SPRAY GUN

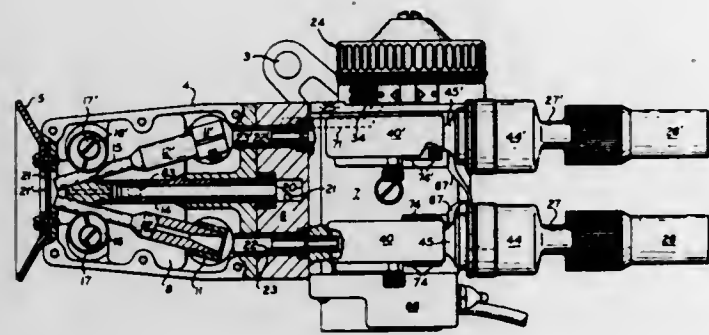
Anthony J. Rotolico, Hauppauge; William A. Vogts, Middle Village, and Henry C. Thompson, Huntington Bay, all of N.Y., assignors to Metco Inc.

Filed July 1, 1970, Ser. No. 51,428

Int. Cl. B23k 9/04

U.S. Cl. 219-76

12 Claims



An arc spray gun is provided for melting the ends of two electrically isolated metal wires in an electric arc struck between their ends and spraying the molten metal onto a work piece to be coated, for example, and includes a pair of hollow electrodes connected to a source of electric current, two pairs of wire feed rollers for feeding a metal wire through each of the electrodes, an air jet nozzle positioned adjacent the ends of the electrodes and connected to a source of compressed air and the ends of the electrodes being fixedly secured relative to each other and the air jet nozzle to insure proper contact of the wires for arc formation and uniform atomization of the molten metal. A plenum chamber surrounding the electrodes and the air jet nozzle, and connected to a source of compressed air is also provided. The chamber has a spray opening and is adapted to feed a stream of annular air about the electrodes and the air jet nozzle which flows out through the spray opening resulting in control of the spray pattern and coating metallurgy.

3,632,953

AUTOMATIC SWITCH FOR VENT FANS IN BATHROOMS

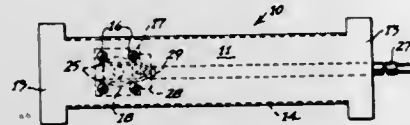
Marvin Odell Baker, 4010 Plantation Drive, Hermitage, Tenn.

Filed Dec. 1, 1969, Ser. No. 881,069

Int. Cl. H01h 35/18

U.S. Cl. 200-84 R

5 Claims



An automatic switch including a switch housing having a pair of stationary electrical terminals and an electrical conductor for connecting the terminals to a vent fan; a rod received within the housing for vertical movement, a float on the bottom of the rod, and a switch element on top of the rod for automatic engagement and disengagement with the switch terminals as the float falls and rises; an elongated bracket fixed to the top of the switch housing and having flat end portions for resting on the top edges of the opposed walls of a flush tank to suspend the float in operative engagement with the changing water level within the flush tank.

3,632,954

DIFFUSION BONDING APPARATUS

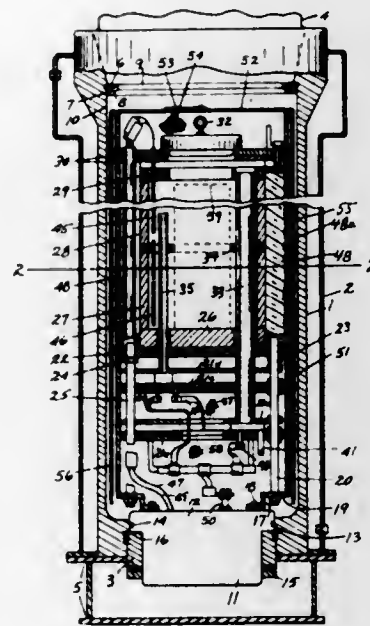
Charles W. Smith, Jr., Fairview, Pa., assignor to Autoclave Engineers, Inc., Erie, Pa.

Filed Apr. 15, 1970, Ser. No. 28,715

Int. Cl. B23k 11/04

U.S. Cl. 219-85

8 Claims



Apparatus for isostatic pressing, diffusion bonding, and the like, having a furnace designed to prevent turbulence in the hot zone so substantially the entire free space may be occupied by the work. In one form, the furnace can operate in vacuum to 100 microns and in air or inert gas at temperatures to 2,600° F. and pressures to 30,000 pounds per square inch which shortens the operating cycle by substantially eliminating the heatup and cooldown time.

3,632,955

SIMULTANEOUS MULTIPLE LEAD BONDING

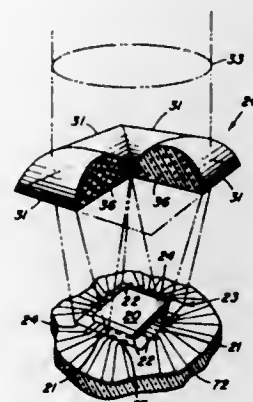
David Graham Cruickshank, Pennington, N.J.; James Philbert Epperson, Winston Salem, N.C.; William Alexander Murray, Sr., and Richard Allen Wydro, Sr., both of Trenton, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Original application Aug. 31, 1967, Ser. No. 664,747, now Patent No. 3,534,462, dated Oct. 20, 1970. Divided and this application Apr. 7, 1970, Ser. No. 31,033

Int. Cl. B23k 11/04

U.S. Cl. 219-85

3 Claims



The bonding of multiple leads on an individual basis is a tedious, time-consuming operation which is often impractical and uneconomical. For example, in bonding individual leads with a beam of radiant energy such as a laser beam, it is frequently impractical and uneconomical to align the lead with a bonding site, align the bonding site and the lead with

the beam of radiant energy, apply the laser beam and then repeat the process for each lead to be bonded. As disclosed herein, a beam of radiant energy is shaped into a predetermined pattern so that the beam can be simultaneously applied to a plurality of leads. A composite cylindrical lens is disclosed, for example, which includes a plurality of cylindrical lens segments wherein a line formed by each segment when a collimated beam of radiant energy strikes the composite lens forms a side of a polygon. A perimeter pattern may be formed in this manner which is suitable for simultaneous multiple lead bonding. For example, in simultaneously bonding a plurality of leads extending from a beam leadlike device, the perimeter pattern may have essentially the same configuration as the device so that radiant energy may be applied simultaneously to the leads to be bonded without applying the radiant energy directly to the device itself.

3,632,956

METHOD FOR SUPERVISING SPOT WELDING

Klaus Herbst, Solingen-Ohligs, Germany, assignor to Kronprinz Aktiengesellschaft, Solingen-Ohligs, Germany

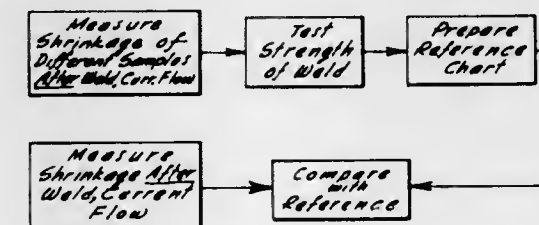
Filed Apr. 10, 1970, Ser. No. 27,415

Claims priority, application Germany, Apr. 14, 1969, P 19 19 538.1

Int. Cl. B23k 11/24

U.S. Cl. 219-109

3 Claims



Spot welds are monitored for determining the quality of the weld by measuring the amount of shrinkage that occurs at the weld, beginning subsequently to the termination of the welding current. The amount of shrinkage is compared to the shrinkage of reference welds which are known to be satisfactory.

3,632,957

RESISTANCE WELDING

Malcolm D. Hannah, Cambridge, England, assignor to The Welding Institute, Cambridge, England

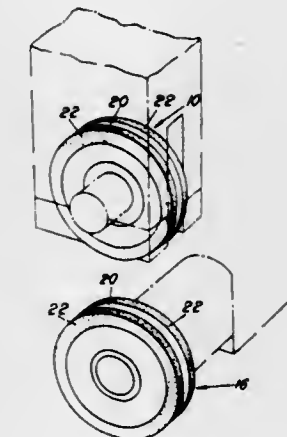
Filed Sept. 10, 1969, Ser. No. 856,564

Claims priority, application Great Britain, Sept. 13, 1968, 43,737/68

Int. Cl. B23k 9/24, 11/30

U.S. Cl. 219-119

6 Claims



For resistance welding, an electrode assembly includes auxiliary nonconductive clamping means providing a resilient

supporting surface flanking the electrode work face. For a spot-welding electrode the auxiliary clamping means may be a sleeve enclosing the electrode; for a seam-welding roller electrode it may be a pair of discs or rings, one on each side of the roller electrode. Its primary use is in overcoming difficulties experienced in the welding of soft heavy metals such as lead, for example.

3,632,958

ELECTRODE HOLDER

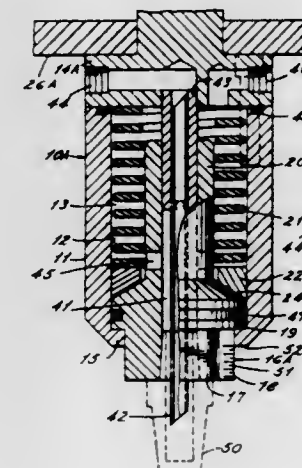
Robert B. Width, Rochester, Mich., assignor to Tuffaloy Products, Inc., Detroit, Mich.

Filed Jan. 18, 1971, Ser. No. 107,270

Int. Cl. B23k 9/24

U.S. Cl. 219-120

11 Claims



An electrode holder which conducts welding current from a platen via a base, a hollow body, and a spindle in the body. The spindle has an electrode tip socket in its outer end. This eliminates shunt cables. The spindle is axially moveable and has a head inside the body abutting a flange on the body. A split-ring jam-collar abuts the head and a spring forces the jam-collar into current-carrying contact with both the head and the body. The collar and head have camming surfaces to move the ring radially against the body. By using a spring to suit the work, preloading the spring, and calculating added load to move the spindle axially, the force of contact at the workpiece can be controlled to make good welding contact and to not damage the tip or work. The length of inward travel of the spindle in conjunction with the strength of the spring and preload gives an accurate measure of applied load. Two or more such holders on a platen may be used with the springs compensating differences in spacing and in workpieces.

3,632,959

EXCHANGEABLE CARTRIDGE UNIT FOR AUTOMATIC WELDERS

Jerome W. Nelson, and James B. Randolph, both of Houston, Tex., assignors to CRC-Croce International, Inc.

Continuation of application Ser. No. 755,035, Aug. 26, 1968, now abandoned. This application June 15, 1970, Ser. No. 48,884

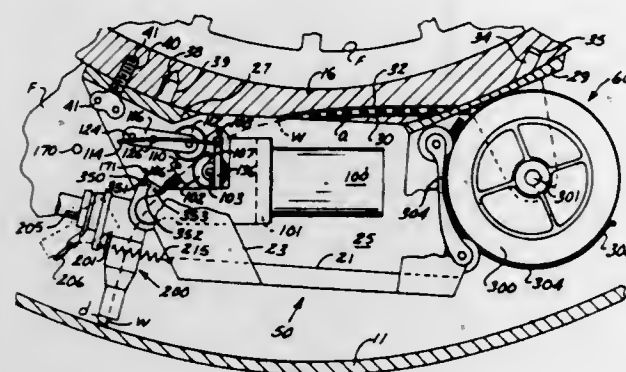
Int. Cl. B23k 9/12

U.S. Cl. 219-125 R

10 Claims

A quickly exchangeable cartridge unit for automatic or semiautomatic welder machines, e.g., for welding, especially large diameter pipelines and the like, includes a small unit frame capable of being instantly attached to or detached from a carrier. The small frame includes means for holding electrode wire supply, a wire drive, and a welding head. The

unit is designed particularly for travel, e.g., in an orbital path around the inner surface, forming a girth joint between



abutted annular members but can be used also for external welding or in automatic plate welding, etc.

3,632,960

APPARATUS FOR MONITORING, CONTROLLING AND REGULATING ELECTRIC WELDING PROCESSES

Friedrich Erdmann-Jesitzer, Hannover-Wettbergen, and Dietrich Rehfeldt, Vinahorst/Hannover, both of Germany, assignors to Redemat S.A. Holding, Luxembourg, Grand Duchy, Luxembourg

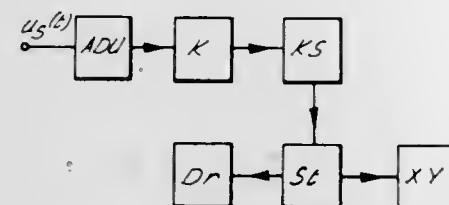
Filed Mar. 3, 1969, Ser. No. 803,663

Claims priority, application Germany, Mar. 1, 1968, P 16 90 562.7

Int. Cl. B23k 9/10

U.S. Cl. 219-131 R

11 Claims



An electronic method and apparatus for monitoring, controlling and regulating the welding operation in electric welding by determining the absolute frequency of at least one stochastic variable of a welding parameter, determining a reference curve of the absolute frequency with respect to quality and economy of the weld, and comparing the actual frequency curve with the desired frequency curve during the welding operation. When deviations are sensed these are signaled and a control intervenes in the welding operation to reduce the deviations. The places on the seam where the deviations occur are marked in a suitable manner.

3,632,961

SILICA-CLAY TOOLING MATERIAL FOR WELDING AND BRAZING OPERATIONS

William E. Lent, Los Angeles, and Louis E. Gates, Jr., Inglewood, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Continuation-in-part of application Ser. No. 719,667, Apr. 8, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 552,442, May 24, 1966. This application

Nov. 4, 1970, Ser. No. 86,961

Int. Cl. B21j 13/08; B28b 7/28; C04b 35/14

U.S. Cl. 219-160

5 Claims

A heat-resistant salt-free ceramic material especially suitable for use as a tooling mandrel for assemblies to be welded or brazed where the temperature of the entire mandrel is not raised above approximately 600° F., and where the tempera-

ture adjacent to the mandrel is highly localized and of short duration. The invention material is thus especially suitable for electron beam welding, percussive arc welding, and induction brazing where heating is confined to a small portion of the article to be brazed. The material readily disintegrates or slakes when impinged with jets of hot water following the welding or brazing operation.

3,632,962

COOKING APPARATUS

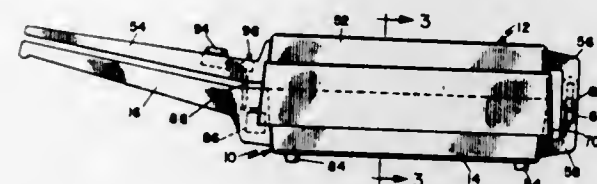
Victor B. Cherniak, 1057 Madison Ave., Chula Vista, Calif.

Filed Mar. 16, 1970, Ser. No. 19,874

Int. Cl. H05b 1/00

U.S. Cl. 219-200

9 Claims



Cooking apparatus in which food is cooked between upper and lower conductive plates, from which electrical current is applied directly through the food for very rapid cooking. The plates are contained in protective housings and a safety interlock switch is provided, together with means for selecting AC or DC current. Radiant heating means is also included for searing meat or other foods when required. The plates are readily removable for cleaning, or disposable inserts can be used, to ensure consistently good conductivity between the plates and the food.

3,632,963

FOOTWEAR-HEATING MOLD

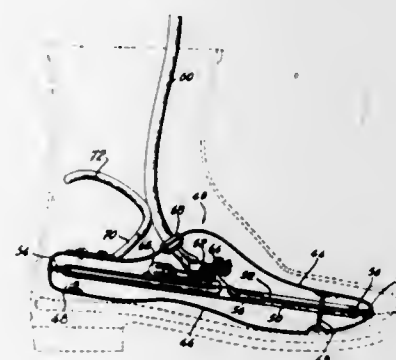
Andre Bosse, 3292 Prieur Street East, Montreal 459, Quebec, Canada

Filed Oct. 1, 1969, Ser. No. 862,848

Int. Cl. H05b 1/00

U.S. Cl. 219-200

4 Claims



A footwear-heating mold for insertion inside a shoe or a boot to heat and dry the same, comprising a shoe-like structure made of heat-conducting material, a heating element located inside such structure, and electric conductors connected to the heating element and adapted for connection to a power source for energizing the heating element.

3,632,964

APPARATUS FOR MAINTAINING THERMOCOUPLE REFERENCE JUNCTIONS AT A CONSTANT TEMPERATURE

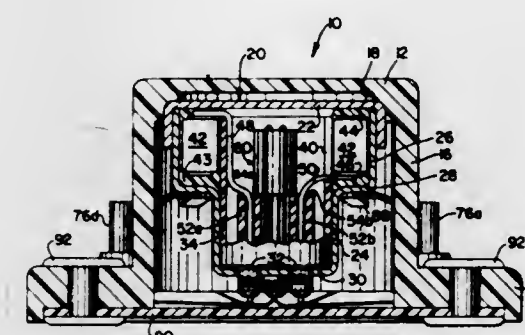
Martin H. Dapot, Pawtucket, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 2, 1970, Ser. No. 322

Int. Cl. H05b 1/00

U.S. Cl. 219-209

14 Claims



Apparatus for providing a virtually constant temperature for a thermocouple reference junction employs a self-regulating double-oven assembly. A specific embodiment described includes an annular heating element composed of semiconductive material having a steeply sloped positive temperature coefficient of resistance above an anomaly point of approximately 95° C. and is seated in a first section of a cylindrical housing of thermally conductive material having a first diameter. An electrically insulating liner is placed in a second section of the housing having a second smaller diameter and extends through the bore of the annular heating element. A plurality of nipples are formed in an end wall of the liner and extend through mating apertures in the housing. Two of the nipples extend inwardly into the interior of the housing to provide electrical insulation for the heater leads and also to form a seat for a second heating element which is also composed of semiconductive material having a steeply sloped positive temperature coefficient of resistance above an anomaly temperature of 120° C. The second heater is generally cylindrical and is formed with an axially extending bore in which are received two thermocouple reference junctions. The reference junctions are embedded in brass heat sinks to maximize their response and the heat sinks are potted securely in the bore by means of thermally conductive material. The thermocouple leads are wound around the inner heating element to minimize heat losses along the leads. The housing is received in a cup-shaped member and locked therein by a lock washer. The two heating elements are electrically connected in parallel with the heater and thermocouple leads threaded through the nipples and attached to terminal posts provided in a flange attached to the cup-shaped member.

3,632,965

ELECTRICALLY HEATED DISTRIBUTOR CAP

Raymond J. Guth, Rochester, and John T. Elle, East Bloomfield, both of N.Y., assignors to Dennis M. DeLeo, Webster, N.Y., a part interest

Filed Feb. 9, 1970, Ser. No. 9,517

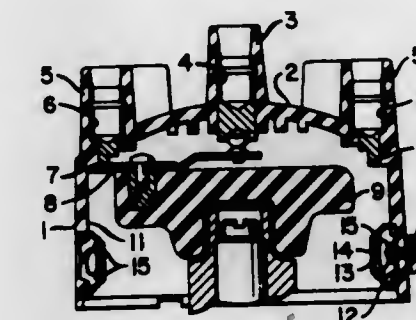
Int. Cl. H05b 1/00

U.S. Cl. 219-209

4 Claims

Continuous and efficient operation of spark ignition distributor caps under conditions of high humidity is promoted by heating the space enclosed within the cap. Such heating inhibits high humidity and moisture formation on the cap in-

terior. The heating means can be located either outside the cap or in the cap interior. An exemplary heating means is an electrical heating element, and it can be positioned, for ex-



ample, interiorly to the cap exterior surface. Additionally, a thermostatic control can be employed to maintain a desired temperature range in the cap interior.

3,632,966

ELECTRICALLY HEATED MITTEN

Stanley Arnon, 3323 Old Town Road, Bridgeport, Conn.

Filed Dec. 19, 1969, Ser. No. 886,708

Int. Cl. H05b 3/36

U.S. Cl. 219-211

2 Claims



A mitten for covering the hand of a user which has a length of electrical resistance ribbon positioned only adjacent the fingertips of the wearer's hand to supply and concentrate heat thereat. The ribbon is electrically connected to a pouch secured on the wrist portion and a small storage battery for supplying electricity to the ribbon to create the heat is contained within the pouch.

3,632,967

APPARATUS FOR CUTTING PLASTIC SHEET MATERIAL

Joseph M. Saltzer, Sr., Oneco; Roger L. Coult, Minneapolis, and Guido James Lauterbach, Anoka, all of Minn., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Feb. 16, 1970, Ser. No. 11,396

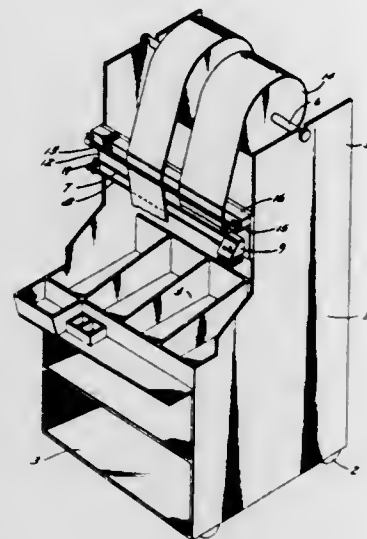
Int. Cl. H05b 3/00

U.S. Cl. 219-214

1 Claim

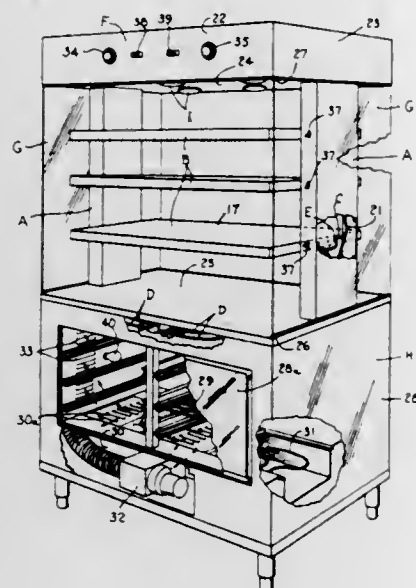
Apparatus for cutting plastic sheet material including means for preventing sheet material still attached to the sheet supply source from adhering to the hot wire. An electrical re-

sistance wire is mounted transversely on a frame. An upwardly extending deflector means is mounted between said



3,632,968
SELF-SERVICE FOOD WARMER ASSEMBLY
Robert G. Wilson, 643 E. Faris Road, Greenville, S.C.
Filed Dec. 14, 1970, Ser. No. 97,487
Int. Cl. H05b 1/00
U.S. Cl. 219-214

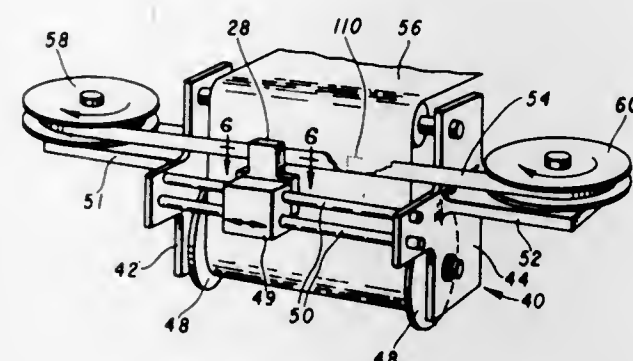
5 Claims



A self-service food warmer includes a plurality of vertically spaced elongated horizontal trays provided with means for fixing end portions of the trays to spaced vertical standards carried by a quick-recovery oven, and heating means are carried within the trays for providing uniformly heated surfaces thereof, with electrical connections extending through the means fixing the end portions of the trays for supplying electrical energy to the heating means, and a top as well as a partial closure means are provided.

3,632,969
ELECTRONIC PRINthead PROTECTION
Arnold M. Walkow, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed May 8, 1969, Ser. No. 823,127
Int. Cl. H05b 1/00
U.S. Cl. 219-216

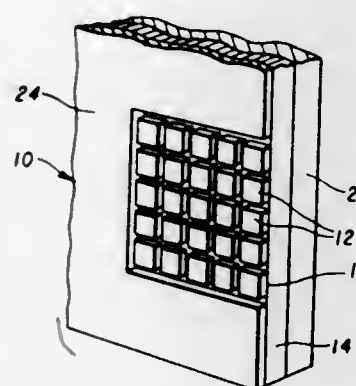
14 Claims



Disclosed herein is a thermal display system including a plurality of very small air-isolated semiconductor mesas or bodies, each of which contains a heater element so that when the heater element is energized a "hot spot" is formed at the top surface of the mesa to provide a localized dot of heat. By interposing a thin, flexible wear-resistant material, such as, for example, a thin paper or high-temperature plastic, between the mesas and a display medium, such as, thermal-sensitive paper, wear on the semiconductor mesas and residue buildup on and between the mesas may be substantially decreased.

3,632,970
METHOD AND APPARATUS FOR PROTECTING ELECTRONIC PRINtheadS
Arnold M. Walkow, and Joseph R. Canion, both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed May 8, 1969, Ser. No. 823,129
Int. Cl. H05b 1/00
U.S. Cl. 219-216

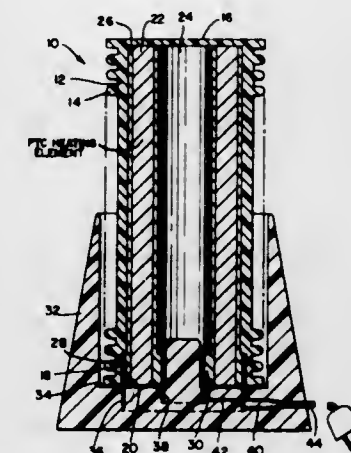
21 Claims



Disclosed herein is a thermal display system including a plurality of very small air-isolated semiconductor mesas or bodies, each of which contains a heater element so that when the heater element is energized a "hotspot" is formed at the top surface of the mesa to provide a localized dot of heat. By interposing a thin, flexible wear-resistant material, such as, for example, a high-temperature plastic, between the mesas and a display medium, such as, thermal sensitive paper, wear on the semiconductor mesas and residue buildup on and between the mesas may be substantially decreased.

3,632,971
SELF-LIMITING ELECTRIC HAIR CURLER HEATER
Charles D. Flanagan, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Jan. 27, 1970, Ser. No. 6,088
Int. Cl. H05b 3/00; A45d 2/36, 4/16
U.S. Cl. 219-222

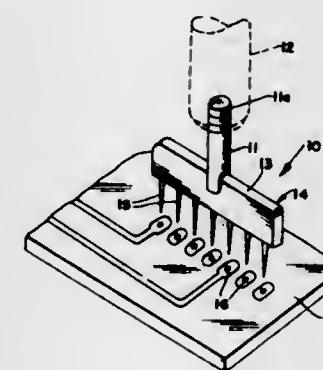
6 Claims



A hair curler employing a heater element having a steeply sloped positive temperature coefficient (PTC) of resistance at temperatures above an anomaly temperature of ceramic or polymer material is disclosed. The heater combines a fast warmup time due to a low base resistivity with a slow cool down time due to the relatively massive heat sink which the heater forms. The sharp rise in resistance at temperatures above an anomaly temperature limits the current levels and hence heat generation at elevated temperatures thereby obviating the need for additional control means such as thermostats and the like.

3,632,972
TIP FOR OPENING EYELET HOLES IN PRINTED CIRCUIT BOARDS
William M. Halstead, P.O. Box 881, Glen Burnie, Md.
Filed Sept. 30, 1969, Ser. No. 862,165
Int. Cl. B23k 3/02; H05b 1/00
U.S. Cl. 219-229

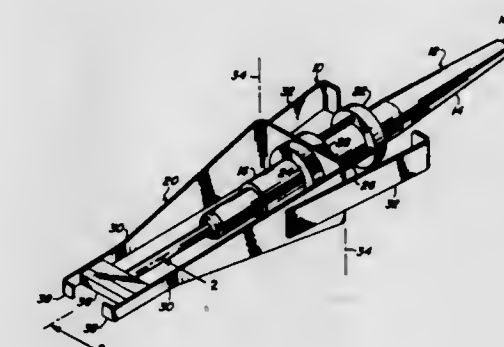
5 Claims



A shank adapted to be connected to and heated by a soldering iron carries at least one comblike member of heat conductive material, including a row of tapered, pointed prongs which are insertable in a row of solder-plugged eyelet holes in a printed circuit board so as to melt the solder and open up the holes for subsequent installation of wire leads of an electrical component such as an integrated circuit module. The material of the comblike member, including its prongs, is such that solder does not readily adhere thereto.

3,632,973
SOLDERING TOOL FOR REMOVAL AND REPLACEMENT OF COMPONENTS HAVING MULTIPLE SOLDERED JUNCTIONS
James Edward O'Keefe, Phoenix, Ariz., assignor to Honeywell Information Systems Inc.
Filed June 1, 1970, Ser. No. 42,389
Int. Cl. H01r 43/02; B23k 3/00; H05b 1/00
U.S. Cl. 219-230

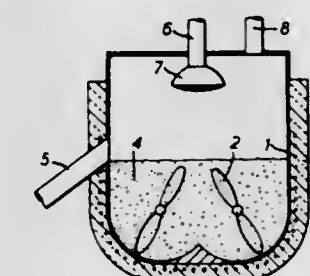
6 Claims



The soldering tool provides a working tip formed to contact the multiple pins of an integrated circuit. The working tip can be in the form of a channel to contact the outside of the pins for integrated circuits soldered in printed circuit boards. The working tip may also be a rectangular block partially chamfered for contacting the inside of an inverted integrated circuit for soldering or desoldering the integrated circuit from a printed circuit containing rows of pins. Biased clamping jaws are slidably fastened to the soldering tool for gripping the integrated circuit to bring the working bit into and out of contact with the plurality of solder junctions on the integrated circuit without releasing the clamping jaws.

3,632,974
HEAT TRANSFER APPARATUS
Frederick Claud Cowliard, and George Ord, both of Ilford, England, assignors to The Plasey Company Limited, Ilford, England
Filed July 22, 1968, Ser. No. 746,395
Claims priority, application Great Britain, July 27, 1967, 34,567/67
Int. Cl. H05b 3/00; B01j 2/10
U.S. Cl. 219-371

3 Claims



A reaction vessel for making granular ferrite material from a stoichiometrically mixed solution of nitrates of the metals present in the ferrite molecular comprises a heatable container having overflow means for maintaining a bed of granular material in the container at a predetermined level, a mixing conveyor for the granular material which is wholly submerged in the granular material below this level, and a spray-feed device for distributing the mixed solution in droplet form over the surface of the bed of granular material.

3,632,975

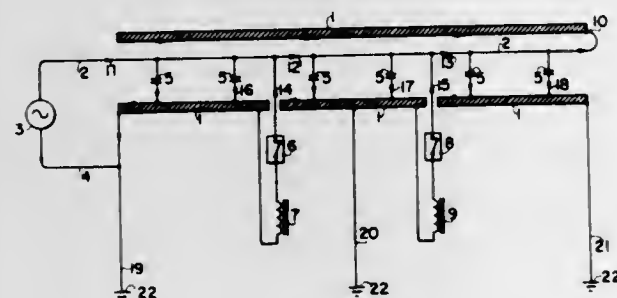
LONG HEAT-GENERATING PIPE UTILIZING SKIN EFFECT OF AC HAVING ONE OR MORE IMPEDANCE ELEMENTS IN THE CIRCUIT

Masao Ando, Yokohamashi, and Hideaki Takagi, Tokyo, both of Japan, assignors to Chisso Corporation, Osaka, Japan
Filed Mar. 31, 1970, Ser. No. 24,125

Claims priority, application Japan, Apr. 22, 1969, 44/31093
Int. Cl. H05b 3/40

U.S. Cl. 219—300

2 Claims



Impedance elements are inserted, to offset the non-uniformity of the electric current, i.e., heat generation, varying from position to position due to the distributed electrostatic capacity and inductance or to locally control heat generation, in the long heat-generating pipe which comprises a ferromagnetic pipe and an insulated conductor line installed therein and so arranged that an alternating current flows through the conductor line and the inner skin portion of the ferromagnetic pipe thereby to generate heat.

3,632,976

DIFFERENTIAL AND/OR DISCONTINUOUS HEATING ALONG PIPELINES BY HEAT-GENERATING PIPES UTILIZING SKIN-EFFECT CURRENT

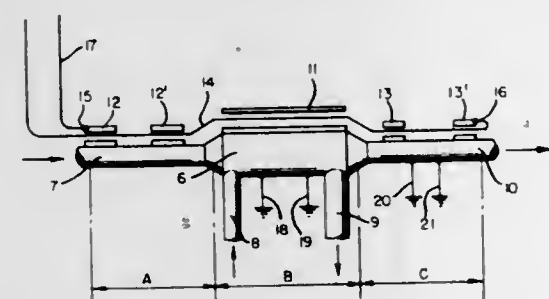
Masao Ando, Yokohamashi, Japan, assignor to Chisso Corporation, Osaka, Japan

Filed June 16, 1969, Ser. No. 833,418

Claims priority, application Japan, June 17, 1968, 43/41785
Int. Cl. H05b 3/40, 11/00

U.S. Cl. 219—301

2 Claims



Heating a pipeline by means of at least one ferromagnetic heat-generating pipe wherein an electric conductor is disposed along the interior length of said ferromagnetic pipe but is insulated from the inner wall thereof so that upon passage of alternating voltage through said electric conductor there is a concentrated flow of current along the inner skin of the ferromagnetic pipe to thereby generate heat in said ferromagnetic pipe, said heat being transferred to said pipeline by conduction, and controlling the amount of heat conducted to various sections of said pipeline by varying the placement density of said ferromagnetic pipe along various sections of said pipeline.

3,632,977

IMMERSION HEATER

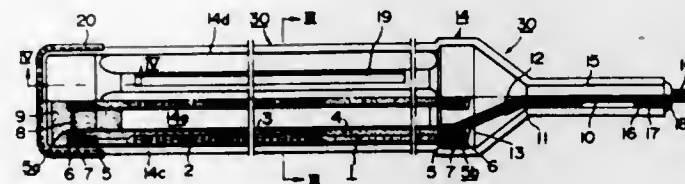
Kiyosumi Takayasu, No. 2, 5-Chome, Horita-Dori, Mizuhoku, Nagoya, Japan

Filed Dec. 28, 1970, Ser. No. 101,970

Claims priority, application Japan, Jan. 12, 1970, 45/3409
Int. Cl. H05b 1/00

U.S. Cl. 219—335

6 Claims



An electric immersion heater having one or more heating element assemblies fittingly enclosed by a corrosion-resistant cover made of substantially equal two halves and having a cord inlet opening. A feeder cord is secured to the inlet opening, and its conductors are bared between the inlet opening and the terminal of the heating element assembly, which bare conductor portion is insulated in at least two layers, a short porcelain tube layer and a thermally contractable silicone tube.

3,632,978

ELECTRICAL HEATER WITH TEMPERATURE CUTOUT

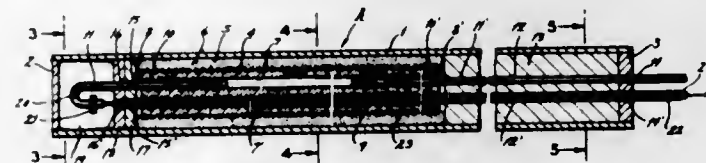
Ronald M. Wrob, Sunset Hills, Mo., assignor to Watlow Electric Manufacturing Co., St. Louis, Mo.

Filed Nov. 20, 1969, Ser. No. 878,520

Int. Cl. H05b 1/00

U.S. Cl. 219—335

14 Claims



A temperature cutout for an electrical heater of the cartridge type having a resistance element wound on an insulating core disposed within a metal sheath and surrounded by insulating material, a first conductor in electrical contact with said resistance element and a second conductor freely disposed within said core, having one end portion normally in electrical contact with said first conductor, said second conductor having a relatively lower coefficient of expansion than said sheath and being sized electrically for self-heating and axial extension and retraction responsive to the current flow, whereby upon attaining a preselected first temperature during heating, contact between said conductors will be broken and said second conductor will cool and contract for rapidly separating said conductors; and upon reaching a relatively lower second temperature during cooling, contact between conductors will be reestablished and said second conductor will heat and extend for rapidly engaging said conductor so that cycling is reduced and arcing is substantially eliminated.

3,632,979

CONVERTER FOR PRODUCING CONTROLLED ATMOSPHERE FOR HEAT TREATING

Edward J. McCrink, 75 East Lake Street, Northlake, Ill.

Filed May 25, 1970, Ser. No. 40,160

Int. Cl. H05b 3/02, 3/12, 3/42

U.S. Cl. 219—368

4 Claims

Air and oxidizable gas are introduced into a conduit comprising a silicon carbide tube which is electrically heated,

thereby promoting burning or oxidation of the oxidizable



gases. A screw-shaped baffle is provided interiorly of the conduit to insure proper mixing of the air and other gas.

3,632,980

CONVECTOR SURFACE COOKING UNIT

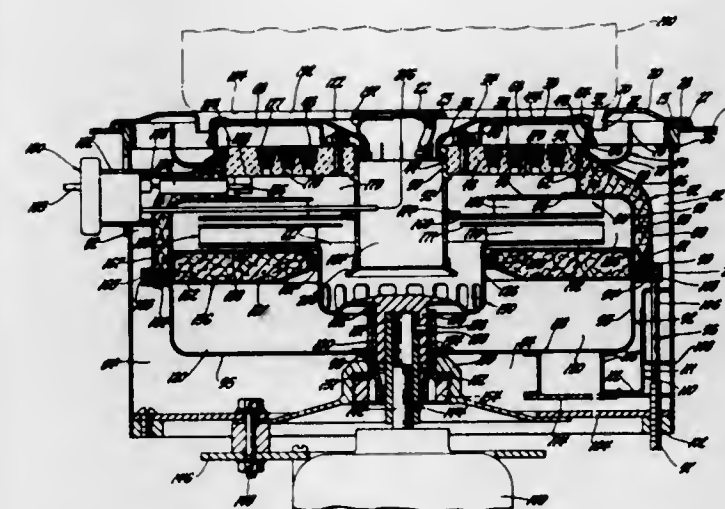
James R. Hornaday, Jr., Troy; Edwin J. Miller, Mt. Clemens, and Charles W. Vigor, Rochester, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 24, 1970, Ser. No. 22,149

Int. Cl. F24h 3/04

U.S. Cl. 219—370

13 Claims



An air convection range surface heater has a centrifugal air impeller for recirculating electrically heated air and includes fixed stator vanes operative with the impeller to increase the mass airflow through a heat exchanger and into an air circulation space adjacent to a utensil to thereby distribute maximum heat flux to the utensil. The unit provides both inner and outer cooperating spill chambers that readily separate the heated air from spillage to eliminate fire and electrical short circuiting hazards. A solid state air monitor and control circuit is provided for throttling power input to limit the maximum air temperature in the unit's heat exchanger at any desired value.

3,632,981

RADIANT HEATER WITH MEANS FOR REDUCING SAG OF THE ELECTRICAL HEATING ELEMENT

Bernardas Gasparaitis, Chicago, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed July 13, 1970, Ser. No. 54,103

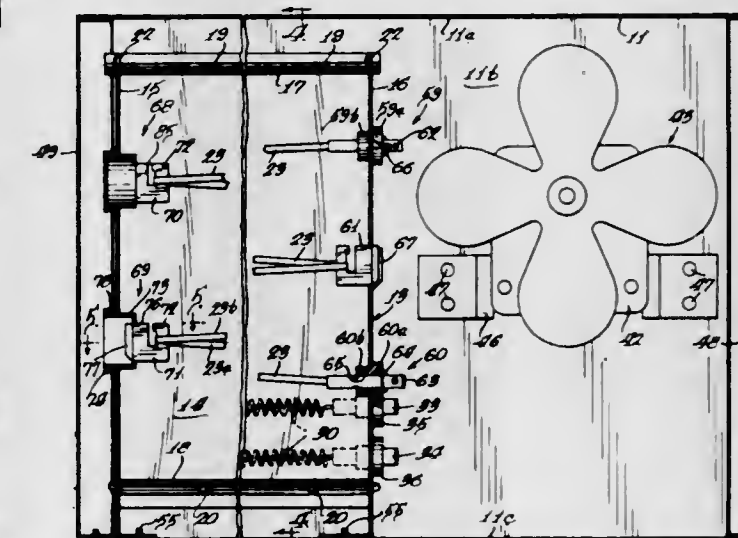
Int. Cl. F24h 3/02; H05b 3/32

U.S. Cl. 219—377

6 Claims

A radiant heater is provided in which a housing section and a grille section enclose a removable reflector assembly. The reflector assembly includes a support assembly for providing a substantially constant amount of tension to the heating element to minimize sag of the heating element dur-

ing operation of the heater. The support assembly includes a number of insulator assemblies each of which consist of a cylindrical retaining cup having an outwardly extending rim, an insulator which extends through an opening in a closed



portion of the retaining cup to receive a loop of the heating element and a helically coiled spring which is compressibly disposed around the periphery of the associated retaining cup between its rim and an exterior surface of the reflector assembly.

3,632,982

COMBINATION ELECTRIC GRIDDLE AND COOKTOP

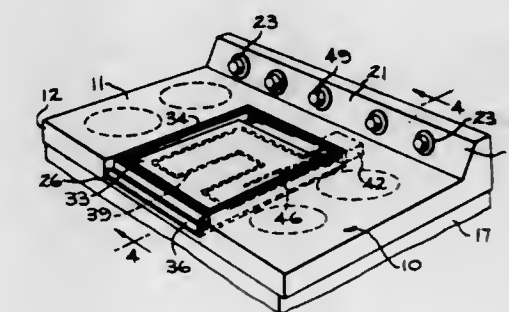
Harrison K. Linger, Louisville, Ky., assignor to General Electric Company

Filed Nov. 13, 1969, Ser. No. 876,240

Int. Cl. H05b 3/68

U.S. Cl. 219—447

7 Claims



A surface cooktop mounted on a free-standing range or adapted to be supported in the kitchen counter as a built-in cooktop. A plurality of surface heating units are mounted in the cooktop. There is a shallow recess formed in the cooktop and the recess is open at the front edge of the cooktop. A reversible electric griddle is adapted to be seated within the recess either in a first concealed position having a top work surface substantially flush with the top surface of the cooktop or in a second heating position where the griddle is turned over to expose an electric griddle surface. An electrical resistance heating element is embedded in the griddle and it has terminals along the back edge of the griddle which are adapted to fit into an electrical receptacle mounted at the rear edge of the recess so as to supply electric power to the griddle. An electric thermostat is furnished with the cooktop for governing the temperature levels of the griddle. This thermostat includes a temperature sensor mounted within the griddle and connecting means between the thermostat and the sensor as well as between the griddle and the cooktop for making and breaking connection between the thermostat and the sensor.

3,632,983

SMOOTH SURFACED, HEATED COOKTOP

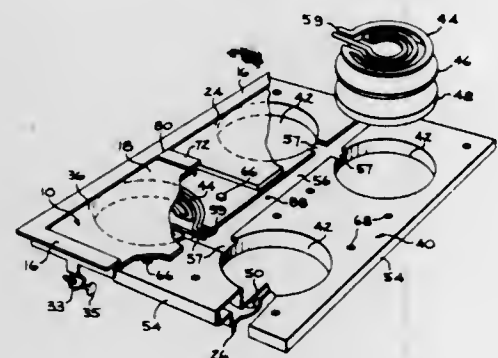
Raymond L. Dills, Louisville, Ky., assignor to General Electric Company

Filed Oct. 13, 1970, Ser. No. 80,405

Int. Cl. H05b 3/68

U.S. Cl. 219-464

10 Claims



A heated cooktop formed of four individual glass-ceramic plates supported in a plane across the open top of a mounting box. This box is adapted to be suspended in an opening formed in a kitchen counter to provide a flush, cooking surface, there being multiple remote control switches adapted to be mounted on the kitchen wall or on the front of the cabinet which supports the counter. Each plate is furnished with a metal-sheathed resistance heating element bearing against the underside thereof. A high emissivity, ceramic coating is interposed between the metal sheath and the underside of the glass-ceramic plate. A lower layer of thermal insulation supports the heating element up against the plate. Narrow trim strips overlie the peripheral edge of each plate to fasten the plates down. Resilient pads are located adjacent each corner of each plate to help support the plates. Certain of the trim strips are removable so that the cooktop is top-serviceable.

3,632,984

APPARATUS FOR REPRODUCTION MACHINES

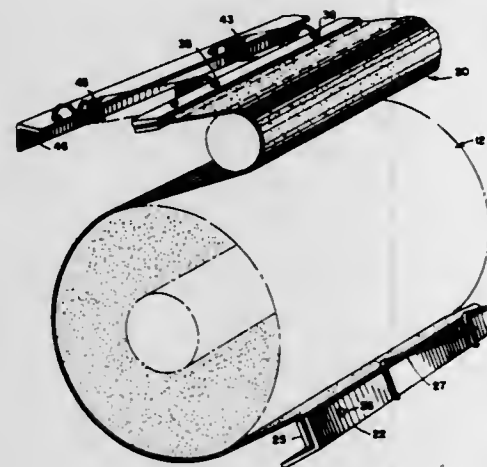
Philip J. Browncombe, Millington, N.J., assignor to Canadian Thermo-Images Ltd.

Filed Sept. 15, 1969, Ser. No. 857,799

Int. Cl. H05b 1/02

U.S. Cl. 219-469

6 Claims



Apparatus for development of heat-sensitive images on sheets embodying a hollow, thin-walled, heat-conducting, rotatable cylinder or drum and a heat-resistant, perforated, flexible stationary belt wrapped about the cylindrical surface of said cylinder or drum with its bight portion in light, sliding contact therewith.

3,632,985

THERMOCOUPLE BRIDGE TEMPERATURE CONTROL

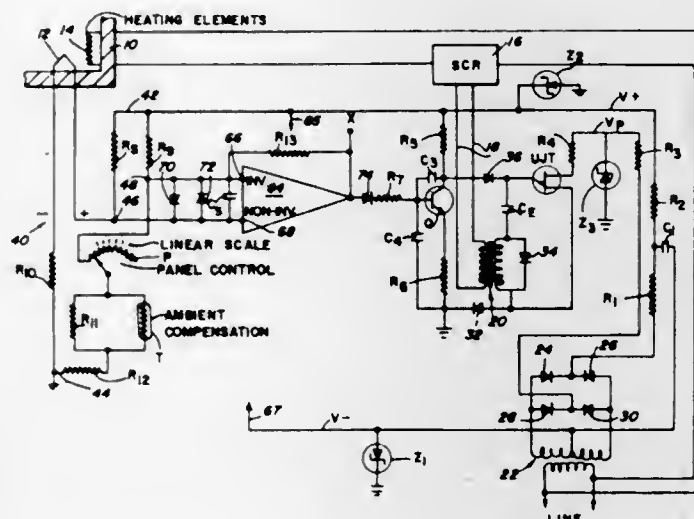
Duward J. Bare, Riverdale, and Chester S. Penk, Crestwood, both of Ill., assignors to Blue M Electric Company, Blue Island, Ill.

Filed Mar. 9, 1970, Ser. No. 17,427

Int. Cl. H05b 1/02

U.S. Cl. 219-499

12 Claims



A linearly calibrated temperature control suitable for economical commercial manufacture employs a thermocouple as an element of an arm of a Wheatstone bridge of particular resistance relation having a high-gain operational amplifier as the DC unbalance detector. The control temperature is varied by manual variation of resistance of a bridge arm and variations of amplifier offset are compensated at all temperatures by single-temperature scale adjustment. The DC output of the operational amplifier controls a power regulation circuit which responds to unbalance of one polarity.

3,632,986

TEMPERATURE CONTROL SYSTEM

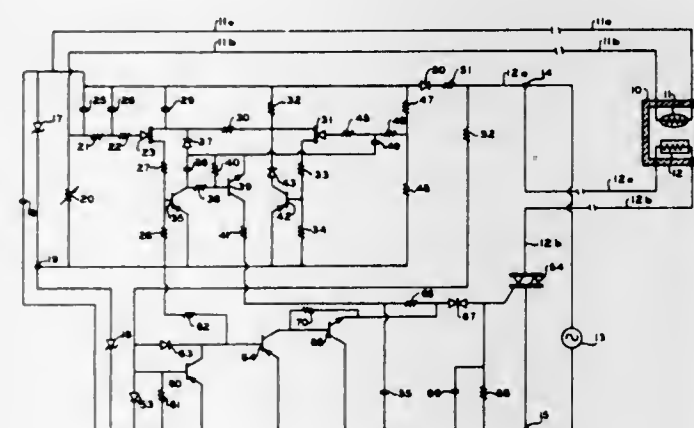
Harold M. Neer, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed May 18, 1970, Ser. No. 37,968

Int. Cl. H05b 1/02

U.S. Cl. 219-501

5 Claims



A temperature-sensing thermistor and a heating element are positioned in a region of temperature to be controlled. The thermistor is connected in a bridge circuit, the output of which charges a capacitor. The voltage on the capacitor controls the firing of a thyristor which passes current to the heating element. Means are provided for discharging the capacitor periodically.

3,632,987

HEATING AND RADIATING UNIT FOR ELECTRICAL HEATERS

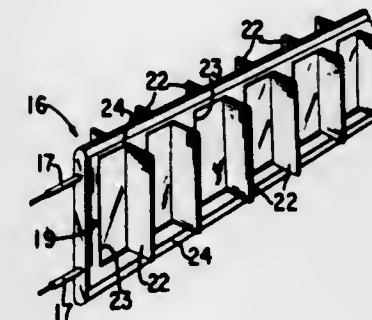
Harley J. Orr, 11 Briar Road, N.H.

Filed Feb. 20, 1970, Ser. No. 16,634

Int. Cl. H05b 3/50

U.S. Cl. 219-530

4 Claims



An electric heating element for baseboard heaters or the like wherein strips of supporting material, insulating strips and a heater element strip are fed to a forming and gathering apparatus and formed into a heating unit. The supporting material preferably has fins stamped thereon.

3,632,988

CONCENTRIC SALES CONTROL SYSTEM AND APPARATUS IN FUEL SUPPLYING AND SERVICING STATION

Shunro Yamawaki, Tokyo; Isao Ohya, Yokohama-City; Mitsunori Nishizawa, Kawasaki-City, and Ken Hayakawa, Yokohama-city, all of Japan, assignors to Tokico Ltd., Kanagawa-ken, Japan

Filed Jan. 20, 1970, Ser. No. 4,322

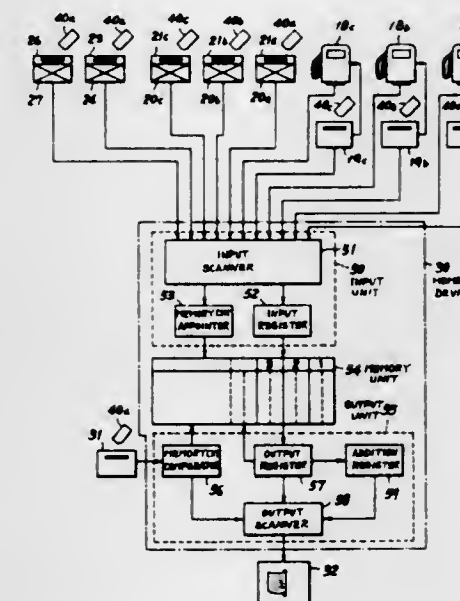
Claims priority, application Japan, Jan. 22, 1969, 44/4627;

Jan. 23, 1969, 44/4972; Jan. 24, 1969, 44/5078, 44/5079

Int. Cl. G06k 7/08

U.S. Cl. 235-61.7 B

7 Claims



A concentric sales control system and apparatus in which a fuel supplying and service station is provided with card readers and signal emission devices in respective sales and service areas for the information relating to kind and amount of sales, the signals from the signal emission devices being concentrically stored at one place corresponding to the code number of the customer. The stored information is read through card readers at the exit of the station corresponding to the card of the customer who received fuel and service and the proceeds are collected based on the thusly obtained information.

3,632,989

METHOD AND SYSTEM FOR PRODUCTION OF PROGRAM CONTROLS FOR MACHINE TOOLS

Kuno Kaschke, Goppingen, Germany, assignor to Gebi Boehringer G.m.b.H., Goppingen, Germany

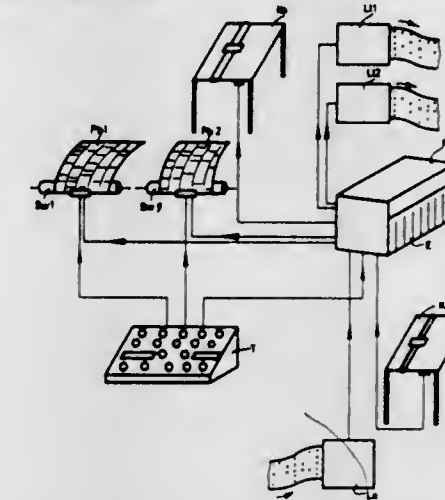
Continuation-in-part of application Ser. No. 727,607, May 8, 1968, now abandoned. This application Aug. 6, 1969, Ser. No. 850,327

Claims priority, application Germany, May 17, 1967, B 92570; Aug. 8, 1968, P 17 63 790.0

Int. Cl. G06f 3/12

U.S. Cl. 235-61.9 R

20 Claims



In the production of command data carriers for control of machine tools, a conventional language information input from a keyboard is recorded by a printer and applied to a simplified computer. The computer calculates and feeds machine tool control commands, both in a machine-related code to a device for producing a command data carrier, and in conventional language to the printer for producing a conventional language record of the commands. The computer also calculates and causes printout of the advance time for producing a workpiece, from information supplied also from a coordinate reader, which scans a drawing of the workpiece.

3,632,990

DATA READOUT AND RECORDING APPARATUS

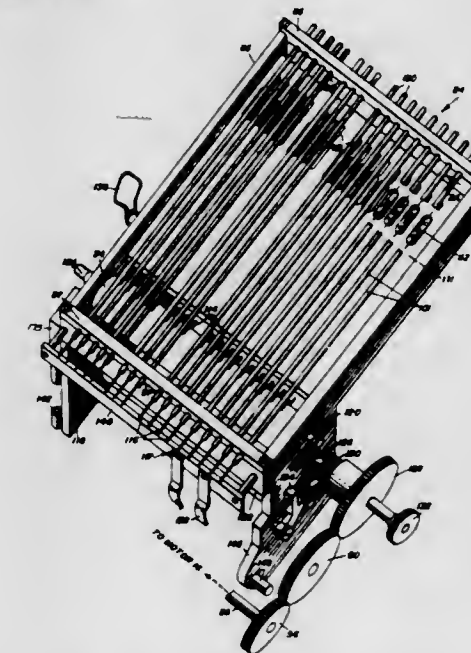
Harold O. Wires, Columbus; Samuel E. Rickly, Grove City; Harold E. Cox, Columbus, and Duane M. Preble, Columbus, all of Ohio, assignors to The United States of America as represented by the Secretary of the Interior

Filed Feb. 18, 1970, Ser. No. 12,406

Int. Cl. G06k 7/08; H01h 43/24

U.S. Cl. 235-61.11 D

7 Claims



A punch tape reader apparatus controlling item and total printing of a lister-adder machine is cyclically operable to

read binary-coded decimal data from the tape by sensing the punched holes a tape line at a time, and serially transmit signal representations of individual decimal value digits of each line of data thus sensed to circuits energizing solenoid actuators for machine keys corresponding to the decimal digit values read. Data-sensing proceeds when reciprocative sensor rods guided in knife-edged openings descend by gravity upon each tape line to direct seeker pins on the rods through holes in the tape. Magnets affixed to the rods move therewith such that rods finding holes position magnets opposite to glass sealed, magnetically actuated switches. A multicontact stepping relay operates to scan the switches and initiate a sequence of functions wherein data sensed and imparted to the switches by actuation thereof is transferred through a binary-decimal to decimal converter and thence to the key-actuating solenoids. A counter registering operational cycles in presettable to control item printing after every predetermined number of items sensed, and a further counter registering a number of items printed is presettable to control total taking after every predetermined number of items printed.

3,632,991

SENSING CODED PERIPHERY OF OBJECTS

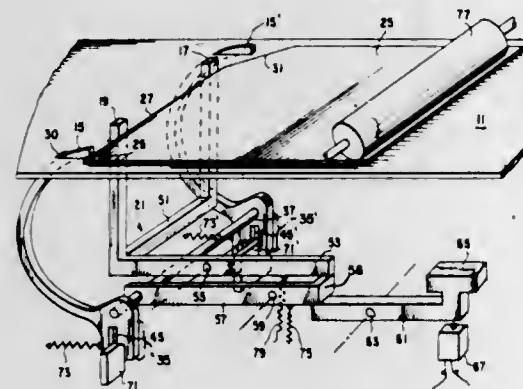
Earl E. Brinning, Detroit, Mich., assignor to The Bendix Corporation, Detroit, Mich.

Filed Feb. 19, 1970, Ser. No. 12,684

Int. Cl. G06k 7/18; G06g 1/00

U.S. Cl. 235-61.11 B

17 Claims



Apparatus for sensing notches in the periphery of objects wherein an object is inserted into the apparatus until the leading edge contacts a detent frame. A plurality of precoded feeler arms is positioned to respond to a code; the code being the arrangement of notches in the leading edge of the object. A test signal is applied and if but only if the arrangement of notches corresponds to the predetermined code of the feeler arms, the detent frame will drop out of the path of travel of the object.

3,632,992

SERIAL RECORD MEDIUM READER

Edgar Wolf, New Hyde Park, N.Y., assignor to Digitronics Corporation, Albertson, N.Y.

Filed Jan. 12, 1968, Ser. No. 697,524

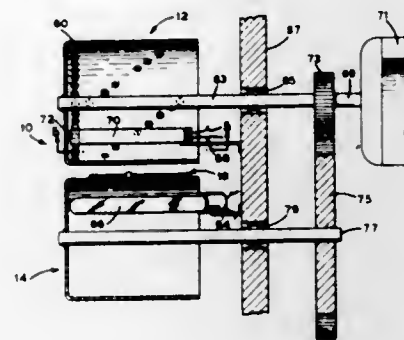
Int. Cl. G06k 7/10

U.S. Cl. 235-61.11 E

11 Claims

Apparatus for serially reading a row of information bits parallelly recorded on a record medium including a record support and a source of light disposed on one side of the record medium. Scanning is provided in the form of a surface having a plurality of apertures adapted to be sequentially

aligned with the information bits in each row of the record medium. A sensor is disposed on the other side of the record



medium for sensing the passage of light through the information bits and the scanning means to produce a signal.

3,632,993

COLOR CODE SYSTEM

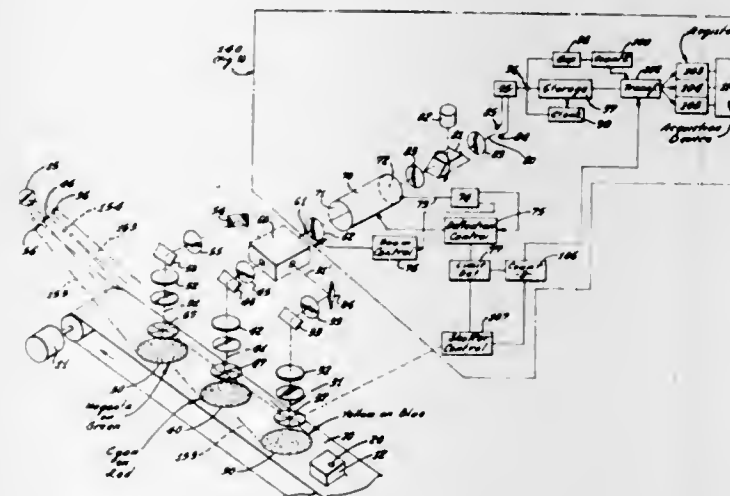
Norbert Karl Acker, Falltorweg, Germany, assignor to Scanner, Inc., Houston, Tex.

Filed Aug. 25, 1969, Ser. No. 852,571

Int. Cl. G06k 7/12

U.S. Cl. 235-61.11 E

11 Claims



Systems for reading information from a carrier is disclosed, the information having random position and random orientation on the carrier and being contained in differently colored data fields collectively identifying the data field carrier. The data fields are monochromatically read individually, the reading of each data field being preceded by an image producing, alignment and orientation process to obtain proper readout position to the reading device. The data read from the different fields on the carrier are assembled to identify the carrier.

3,632,994

PNEUMATIC TAPE READOUT APPARATUS

Karl A. Brandenburg, Hayward, Calif., assignor to The Aro Corporation

Filed Nov. 12, 1969, Ser. No. 875,856

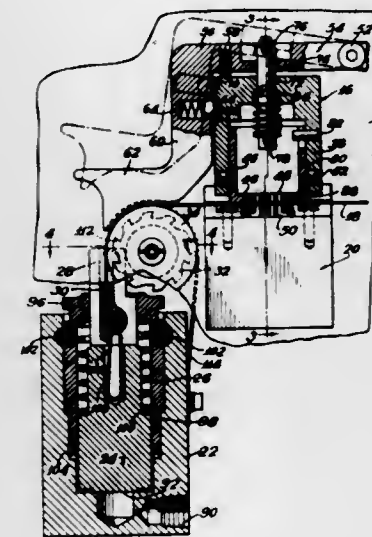
Int. Cl. G06k 7/02

U.S. Cl. 235-61.11 J

6 Claims

A pneumatic tape reader for generating control programs from a punched tape includes a supply head, a reader head, a stepping motor to drive an advance sprocket and a tape-

retaining lever pivotally attached to the supply head. A pressure pulse supplied to the stepping motor advances the tape, the advance occurring only on pneumatic pulse discharge.



The retaining lever acts to retain the tape against the sprocket and also is adapted to lock the tape in a substantially fluidtight position between the supply head and reader head.

3,632,995

CODED ARTICLE

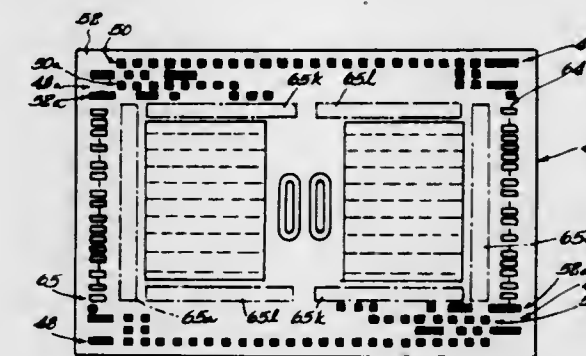
Howard W. Wilson, 918 Glenhaven Drive, Pacific Palisades, Calif.

Filed May 9, 1968, Ser. No. 729,876

Int. Cl. G06k 19/06

U.S. Cl. 235-61.12 N

29 Claims



A merchandising coupon having a coded information track comprising a pair of substantially parallel rows of adjacent portions of contrasting character (for example, black and white), the portions of the first of said rows serving as a timer track, and the portions of the second of said rows serving as an information track; the contrasting portions of the first row being symmetrically and uniformly spaced to serve as a timing or clocking track, and the contrasting portions of the second row being of a length to overlie one or more of the adjacent contrasting portions of the first row, whereby said rows, when correlated in a binary system, operate according to a nonreturn-to-zero method in order to provide substantial manufacturing, shipping, receiving, ordering or marketing inventory control and accounting information, and capable of being imprinted at any handling stage with one or more additional rows of data operating in substantially the same manner.

3,632,996

DIGITAL QUASI-EXPONENTIAL FUNCTION GENERATOR

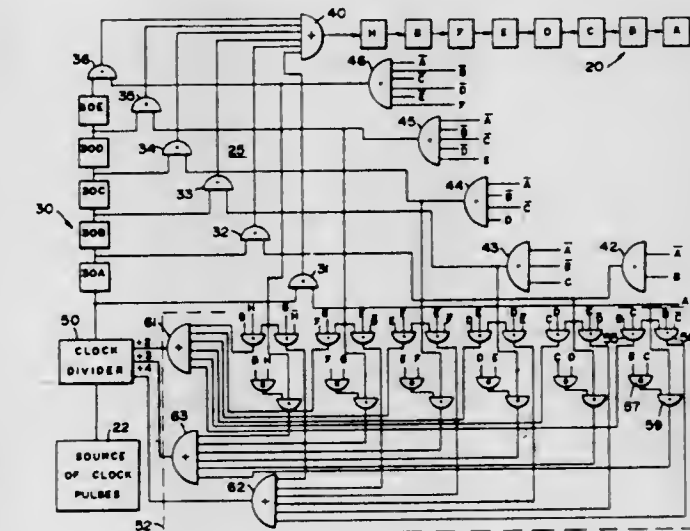
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Tage O. Anderson, Arcadia, and William J. Hurd, La Canada, both of Calif.

Filed May 14, 1970, Ser. No. 21,508

Int. Cl. G06m 3/00

U.S. Cl. 235-92 DE

6 Claims



A quasi-exponential function generator comprising a multistage counter which is clocked at a rate which is a function of the count or value of the counter. The possible counts are divided into fields which are sensed and the clock rate is reduced by a factor of two, as the count changes from one field to a lower field. Each field is further divided into several subfields which are also detected to control the clock rate to vary from subfield to subfield.

3,632,997

BIDIRECTIONAL COUNTER

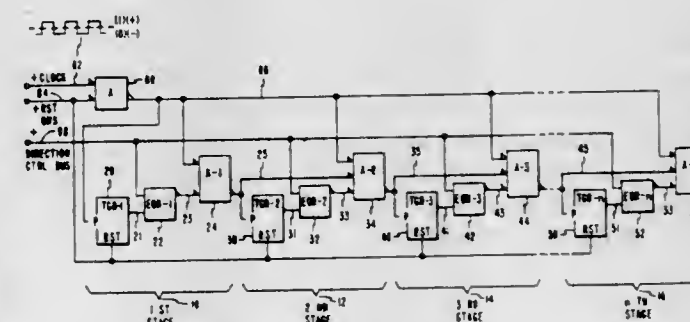
James W. Froemke, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 16, 1970, Ser. No. 89,920

Int. Cl. H03k 21/06; G06m 3/14

U.S. Cl. 235-92 EV

9 Claims



A counter including a plurality of triggers changed in condition by signal transitions applied thereto and disposed in a series of tandem connected stages each of which also includes an exclusive OR circuit driven by the trigger and driving an AND circuit, the AND circuit of each preceding stage being connected to drive the AND circuit of the succeeding stage, means providing an alternating clock signal for driving the trigger of the first stage and the AND circuits in the other stages, and a direction control bus constituting an input to the exclusive OR circuits for causing the counter to count up or count down under the influence of the clock signals depending on the potential applied to the direction control bus.

3,632,998

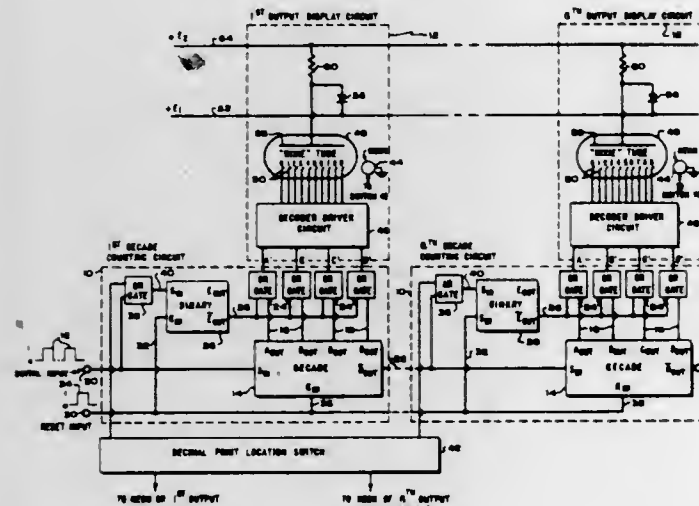
ELECTRONIC COUNTER IN WHICH THE DISPLAY OF NONSIGNIFICANT DIGITS IS BLANKED

Alan S. Begley, Los Altos Hills; Ian T. Band, Palo Alto, and Charles M. Hill, Los Altos, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 26, 1967, Ser. No. 693,619
Int. Cl. H03k 21/20, 21/12

U.S. Cl. 235—92 PL

41 Claims



N decade counting circuits, each having a blanking state in addition to the normal zero through nine counting states, are connected in cascade to provide an N-digit electronic counter. A separate cathode indicator glow tube display circuit, such as a "Nixie" tube display circuit, is connected to each decade counting circuit to provide the electronic counter with an N-digit output display. In response to a reset signal and the position of a switch controlling the location of a decimal point in the output display, the decade counting circuits connected to display circuits on the left of the decimal point are set to the blanking state and the remaining decade counting circuits are set to the zero counting state. Each decade counting circuit set to the blanking state or to the zero counting state is set to the one counting state in response to the first input signal applied thereto and, until another reset signal is received, advances sequentially through its counting states in response to application of additional input signals. The decade counting circuits set to the blanking state are operable for switching off the cathode driving currents supplied to the "Nixie" tubes in their associated display circuits so that all nonsignificant zeros to the left of the decimal point are blanked in the output display. Each "Nixie" tube is provided with an anode-clamping circuit to limit the rise in its anode voltage when its cathode driving current is switched off.

3,632,999

COST ACCUMULATOR AND METHOD FOR COST ACCUMULATING

Charles F. Strandberg, Jr., and Robert C. Strandberg, both of Greensboro, N.C., assignors to Strandberg Engineering Laboratories Inc., Greensboro, N.C.

Filed Jan. 14, 1970, Ser. No. 2,693

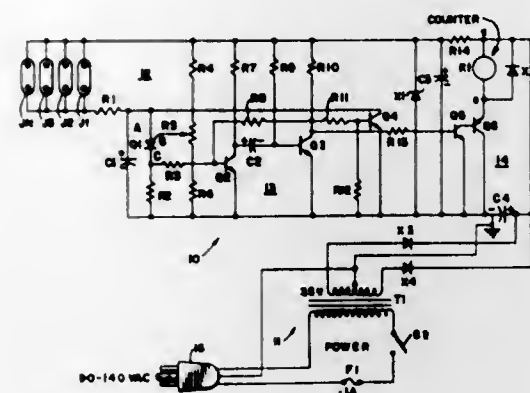
Int. Cl. G07c 3/10

U.S. Cl. 235—92 PD

11 Claims

A device to compute and totalize hourly pay rates times on-job time for any number of hourly paid workers with differing hourly rates, having means to display the resultant total (total dollar cost to the nearest cent) on a digital counter. The device comprising a resistance-controlled elec-

tronic oscillator whose output frequency may be varied by plugging into the frequency-determining circuit of the oscillator resistances in parallel, whose values are selected in relationship with the hourly pay rates of individual workers so



that the oscillator frequency will be proportional to the combined hourly pay rates for all the workers on the job and integrating means for integrating the combined hourly pay rates with time.

3,633,000

COMPUTING DEVICE

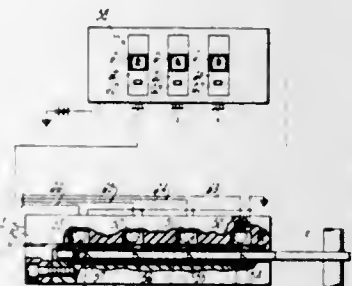
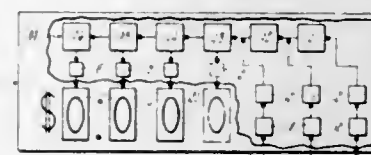
John H. Bickford, Middletown, Conn., assignor to Veeder Industries, Inc., Hartford, Conn.

Filed Oct. 21, 1969, Ser. No. 868,070

Int. Cl. G06m 1/272

U.S. Cl. 235—92 FL

29 Claims



A cost computing device for a fuel-dispensing system having a rotary disc with a plurality of light apertures arranged in four light aperture circles and a plurality of output heads for different places respectively of a multiple place unit volume fuel price range—each having a bank of four lamps for the four aperture circles respectively and a photoelectric cell adapted to be selectively operated by the light apertures of each aperture circle when the corresponding lamp is energized to generate an output pulse train. A bank of presettable indicator switches is provided for selectively energizing the lamps to establish the unit volume price and for posting the established unit volume price.

3,633,001

APPARATUS FOR MEASURING THE ACTIVITY OF LABORATORY ANIMALS

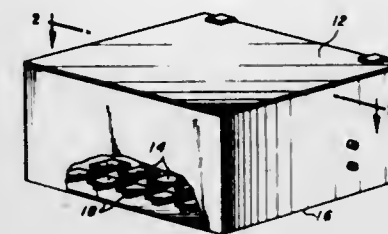
Barnabas Vajnovszky, Morris Plains, N.J., assignor to Bel-Art Products, Pequannock, N.J.

Filed Nov. 5, 1969, Ser. No. 874,183

Int. Cl. G06m 1/27

U.S. Cl. 235—92 MT

5 Claims



Apparatus is provided for measuring the effect of psychostimulants upon the activity of laboratory animals. The movement of an animal within a cage is measured by applying a voltage gradient to insulated segments of the cage floor. The animal, in moving across the floor, intermittently contacts adjacent floor segments of different polarity which results in the flow of an interrupted low-amperage current through the animal's body. The current is amplified and the pulses are counted; the number of pulses per unit of time being a measure of the activity of the animal and the effectiveness of the drug dosage administered.

3,633,002

INTEGRATOR FOR USE IN DIGITAL DIFFERENTIAL ANALYZER SYSTEMS

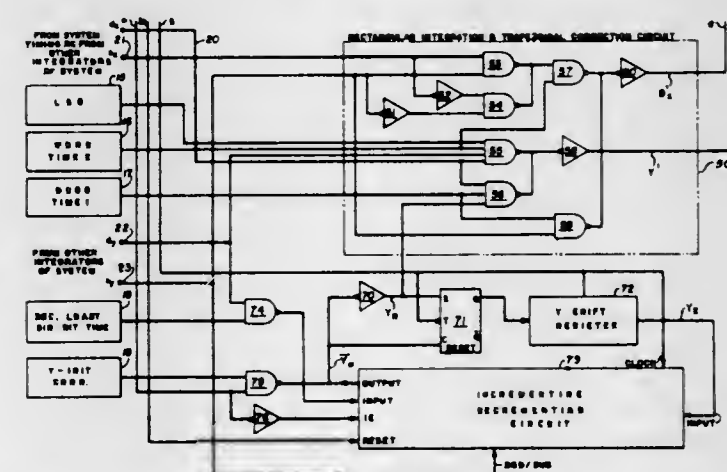
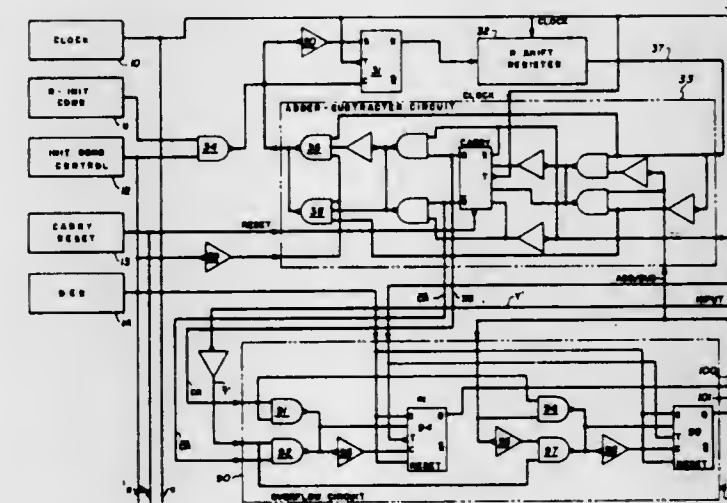
Joe B. Dendy, and Sam P. Liden, both of Phoenix, Ariz., assignors to Sperry Rand Corporation

Filed Jan. 9, 1970, Ser. No. 1,654

Int. Cl. G06j 1/02; G06f 15/32

U.S. Cl. 235—150.31

18 Claims



An integrator employing a trapezoidal integration algorithm for use in digital differential analyzer systems. Rever-

sible computation is achieved with respect to each integrator of the system as well as with respect to the inter-connected system of integrators by utilizing a two-interval computation cycle for each iteration of the computation. During the first interval, rectangular integration is performed wherein the Y-quantity is combined with the R-quantity in accordance with the dx- input signal thereby providing dz-overflow signals. During the second interval a trapezoidal correction quantity is algebraically added to the R-quantity, the correction quantity having a numerical value of $\frac{1}{2} dx \cdot dy$. The dx- and dy-quantities utilized in computing the trapezoidal correction quantities are undelayed with respect to the iteration being performed since the dx- and dy- quantities are provided by the dz- outputs of the interconnected integrators of the system, the dz- outputs being provided during the first interval of the computation cycle.

3,633,003

OFF-LEVELING COMPUTER

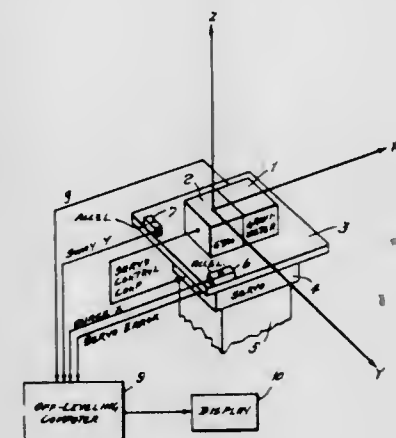
Manik Talwani, Valley Cottage, N.Y., assignor to The United States of America as represented by the Secretary of the Navy

Filed Feb. 11, 1970, Ser. No. 10,327

Int. Cl. G01c 19/54

U.S. Cl. 235—150.25

6 Claims



This invention describes an off-leveling computer which continuously corrects for the error induced in sea gravimetry measurements because the gravimeter measuring axis is not aligned with the local vertical at all times. The apparatus computes the error in the measurement of the local gravitational acceleration due to off-leveling of a stable platform on which the gravimeter is mounted by first determining the sum of the angular positioning errors induced by the servo loop and the gyro erection system. It then computes the component of the horizontal acceleration which, by virtue of this error in verticality, is along the gravimeter measuring axis. This computed signal is then subtracted from the gravimeter signal to eliminate errors in the measurement of gravitational acceleration due to the misalignment of the gravimeter with the local vertical.

3,633,004

INTEGRATOR/SYNCHRONIZER WITH INFINITE MEMORY INCLUDING A DRIFT-CORRECTING FEEDBACK CIRCUIT

Robert L. James, Bloomfield, N.J., and David A. Tawfik, Rego Park, N.Y., assignors to The Bendix Corporation

Filed Sept. 24, 1969, Ser. No. 860,596

Int. Cl. G06g 7/18, 1/00

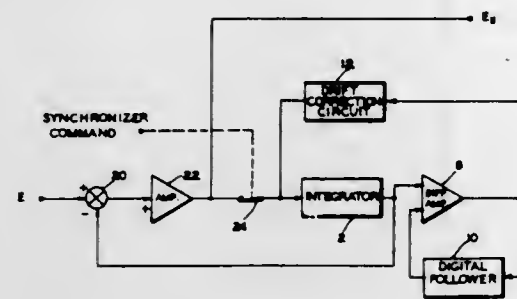
U.S. Cl. 235—150.51

6 Claims

Apparatus including an analog integrator and means for operating the analog integrator in closed-loop configuration

as a synchronizer. Circuits are provided for imparting infinite

at said detection section with a quantity set previously and detecting a deviation of a detected quantity from said set quantity in the form of analogue quantities, an amplifier integrator for amplifying said analogue quantities and integrat-



memory to the device and for minimizing output drift.

3,633,005

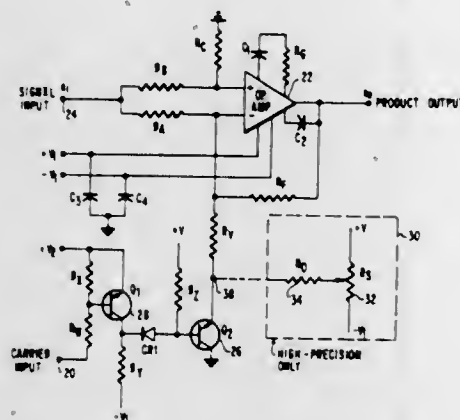
FOUR QUADRANT MULTIPLIER USING A SINGLE AMPLIFIER IN A BALANCED MODULATOR CIRCUIT
Howard N. Leighton, Rockville, Md., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 26, 1970, Ser. No. 14,416

Int. Cl. G06j 1/00; G06g 7/16

U.S. Cl. 235-150.52

5 Claims



A multiplier circuit, having a relatively constant input impedance, capable of multiplying a positive or a negative input signal by a gain which is variable from a positive to a negative value by varying one control impedance. The input signal is applied to a reference input and to a signal input which includes a feedback path to provide both positive and negative products without the need for additional sign circuits or complimentary signals. The multiplier circuit can be adapted for use as a balanced modulator by providing an analog input signal and switching the control impedance between two different impedance values with a binary carrier signal.

3,633,006

AUTOMATIC CONTROL DEVICE

Wahei Inoue, Tokyo, Japan, assignor to Kabushiki Kaisha Maekawa Seisakusho, Tokyo, Japan

Filed Sept. 12, 1969, Ser. No. 857,388

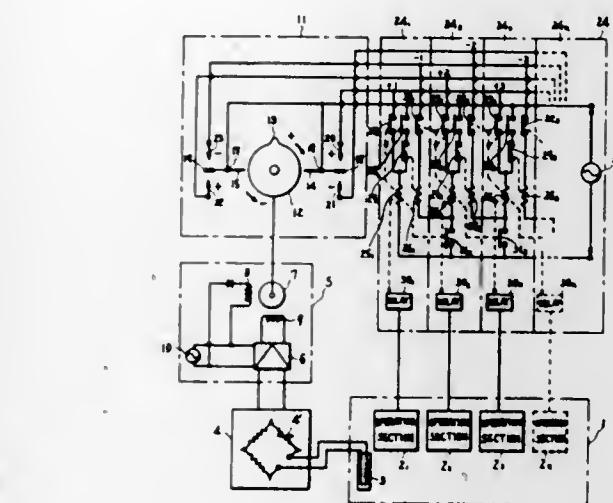
Int. Cl. G05b 1/18

U.S. Cl. 235-151

3 Claims

An automatic control device comprising a control chamber, a detection section provided in said control chamber for detecting physical quantities of an objective to be controlled, a setting section for comparing values detected

A golf game computer including a circuit for computing the instantaneous velocity of a golf ball hit from a tee and including a circuit operative to receive a signal representative of the initial velocity of a golf ball hit from a tee and apply thereto, the effect of drag. In the exemplary embodiment of the invention, a plurality of electrically parallel circuits, each having a switch therein, are utilized to provide a signal proportional to the mathematical square of the instantaneous velocity which is used in computation.



3,633,007

GOLF GAME COMPUTER INCLUDING IMPROVED DRAG CIRCUIT

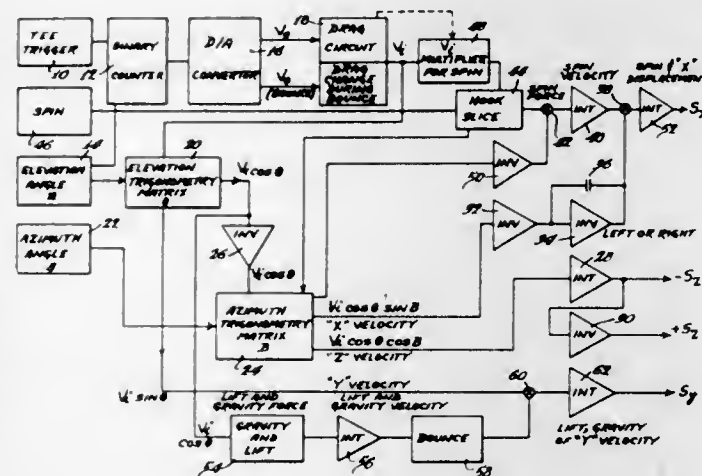
James W. Sanders, Grand Haven, Mich., assignor to Brunswick Corporation

Filed Jan. 7, 1970, Ser. No. 1,188

Int. Cl. G06f 15/44; G011 5/02

U.S. Cl. 235-151

2 Claims



3,633,008

GOLF GAME COMPUTER INCLUDING BOUNCE AND ROLL GENERATOR

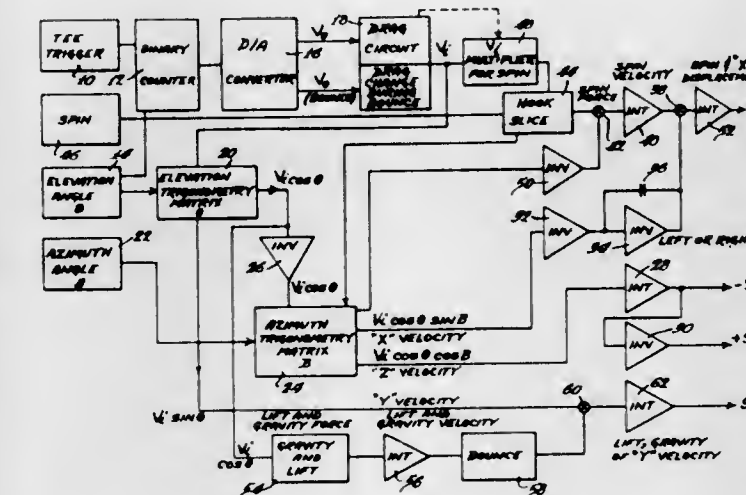
James W. Sanders, Grand Haven, Mich., assignor to Brunswick Corporation

Filed Dec. 3, 1969, Ser. No. 881,770

Int. Cl. G06f 15/44; G011 5/02

U.S. Cl. 235-151

12 Claims



An improved bounce and roll circuit for use in golf game computing systems. The improved circuit is formed principally of semiconductors and is constructed so that the integration of a signal representing artificial gravity during the bound portion of a ball flight is accomplished by an integrator already present for integrating acceleration due to lift and gravity; and means are provided for continually retriggering the circuit to initiate or continue the bounce and roll portion of the flight of a ball in the event the circuit fails to trigger on the first or any subsequent trigger.

3,633,009

AUTOMATIC JOINT PROBABILITY CALCULATION OF NOISE CORRUPTED PROCESS MEASUREMENTS

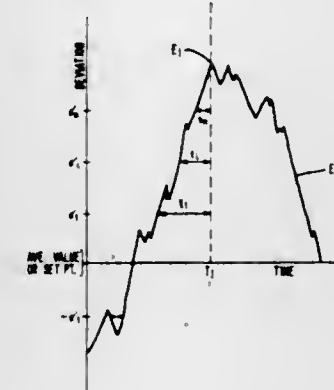
Thomas A. Green, Roslyn, and Charles W. Ross, Hatboro, both of Pa., assignors to Leeds & Northrup Company, Philadelphia, Pa.

Filed Jan. 19, 1970, Ser. No. 3,704

Int. Cl. G06f 15/36; 15/46

U.S. Cl. 235-151.3

9 Claims



A method for automatically calculating from a noise corrupted process measurement a quantity whose value is indicative of the probability that a process disturbance has occurred which caused the measurement to vary in such a way that it does not fit the statistical model for the expected noise at a particular reference level.

3,633,010

COMPUTER-AIDED LASER-BASED MEASUREMENT SYSTEM

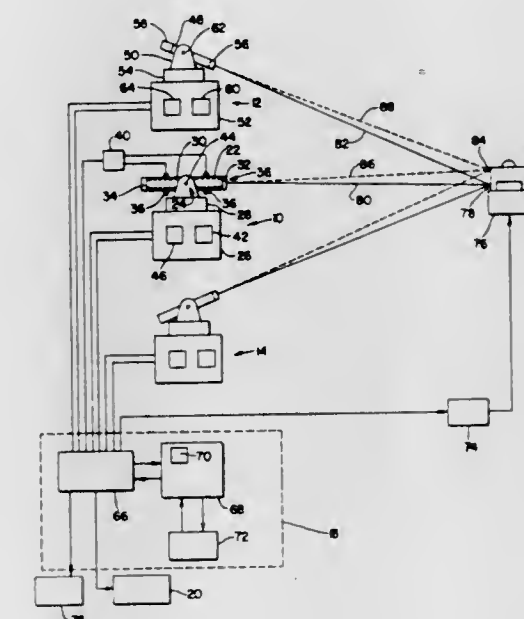
Oleg Svetlichny, Chelmsford, Mass., assignor to Geosystems, Inc., Burlington, Mass.

Filed May 4, 1970, Ser. No. 34,197

Int. Cl. G01b 15/04; G05b 15/02

U.S. Cl. 235-151.3

9 Claims



A system having laser source and radiation sensor assemblies electrically communicating with a computer is provided for rapid, remote sensing of the static, geometric and dynamic motion properties of a selected specimen. A laser beam incrementally scans the surface of a specimen to be evaluated in response to computer generated programmed signals and the radiation sensor follows the laser beam illumination as at the specimen surface. Both the source and sensor provide output signals representing the angular position of pointing of the source and sensor assemblies. The source and sensor angle signals are triangulated in the computer for calculation of desired geometric and dynamic specimen properties. The computer can be programmed to generate a display for presentation of the specimen properties or for governing industrial control, inspection or processing systems, that are related to the specimen properties measured.

3,633,011

METHOD AND APPARATUS FOR PRECISELY CONTOURING A WORKPIECE IMPRECISELY POSITIONED ON A SUPPORTING FIXTURE

Seymour Bederman, Yorktown, and Larry G. Lankford, Mahopac, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 29, 1968, Ser. No. 756,091

Int. Cl. G05d 5/00; G06f 15/18; B23q 5/22

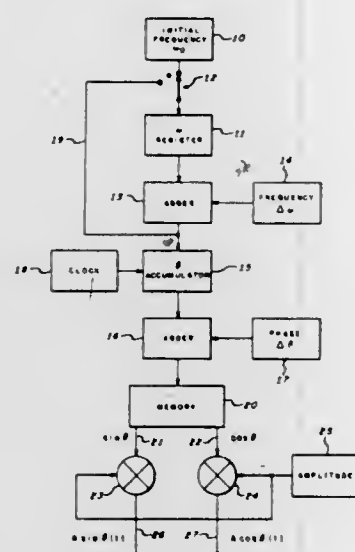
U.S. Cl. 235-151.11

13 Claims

Method and apparatus for manufacturing precisely dimensioned metal parts on a program-controlled machine tool having a workpiece-supporting fixture, without the necessity of precisely locating the workpiece on the fixture.

The workpiece is first placed on the fixture in an approximate position within predetermined limits of a standard position. The actual position (i.e., location and orientation) of the workpiece on the fixture is then measured by means of a programmed measuring apparatus while the fixture is accurately located with respect to that apparatus. The machine tool is controlled by a standard program, based on a standard position of the workpiece on its fixture and an accurate location of the fixture on the machine tool. The data defining the

Two embodiments are disclosed, one of which utilizes two registers for controlling the frequency and phase, respectively,



of the output waveform. The other embodiment utilizes a difference equation computer to approximate the phase function by a recursively generated polynomial function of time.

3,633,018

DIGITAL DIVISION BY RECIPROCAL CONVERSION TECHNIQUE

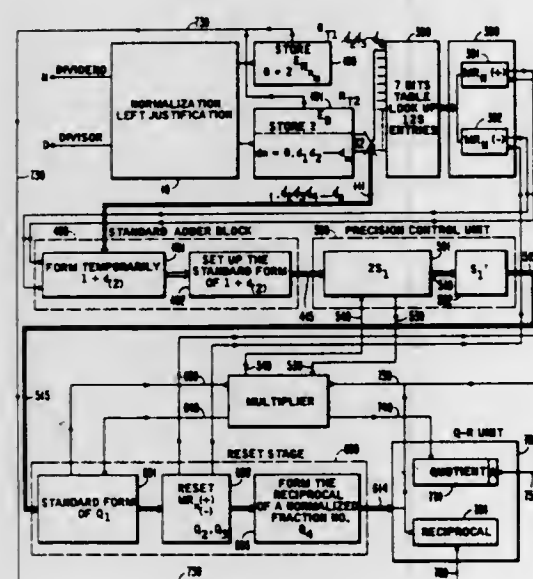
Huei Ling, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 18, 1969, Ser. No. 886,236

Int. Cl. G06f 7/52

U.S. Cl. 235-164

5 Claims



A reciprocal conversion technique for obtaining the quotient of two numbers and the reciprocal of a number. A predetermined number of leading bits of the mantissa of the denominator is used as an entry into a table used for locating the required number of shifts and adds or shifts and subtracts to form a standard form of a denominator. Significant precision control and the semireciprocal of the normalized fraction is formed in successive multiplication steps. The reciprocal of the normalized fraction is formed and the quotient can thereafter be determined with a final multiplication step.

3,633,019 APPARATUS FOR EXPOSING SPECIMENS TO MAXIMUM AMOUNTS OF SUNLIGHT

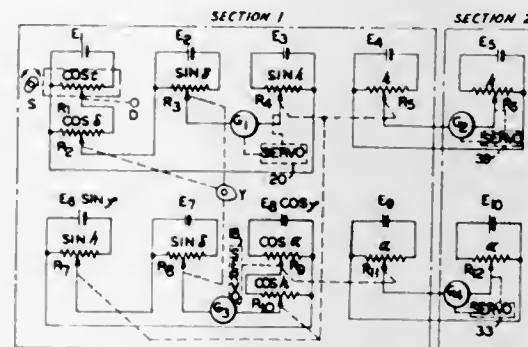
Nagaichi Suga, No. 2, Tayama-cho, Shinjokee-ku, Tokyo, Japan

Filed Oct. 14, 1969, Ser. No. 866,333

Int. Cl. G06g 7/22; G06f 15/50

U.S. Cl. 235-186

3 Claims



An apparatus for exposing specimens to sunlight which is always pointed directly at the sun. Electrical circuits are provided which produce an output corresponding to the path of the sun across the sky at the particular location of the apparatus for each successive day of the year so that the specimen holder is always pointed in the direction from which the rays of the sun are coming.

3,633,020

AUTOMOTIVE CORNERING LAMP

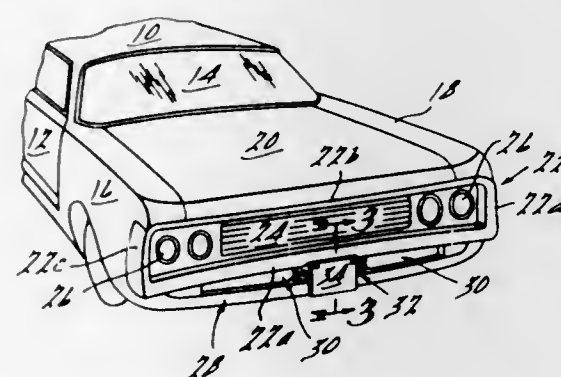
Richard G. Macadam, Birmingham, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Sept. 8, 1969, Ser. No. 855,910

Int. Cl. B60g 1/00

U.S. Cl. 240-7.1

3 Claims



A front end structure for an automobile in which the front license plate is mounted centrally on the bumper and depends from the bumper, and a cornering light assembly is positioned immediately beneath the bumper and immediately behind the depending license plate. The cornering light assembly includes a pair of cornering lamps which are directed laterally outwardly from opposite sides of the license to illuminate the areas to each side of the front of the vehicle.

3,633,021

MARKER LAMP

Robert R. Rossi, Audubon, N.J., assignor to Arrow Safety Device Company, Mount Holly, N.J.

Filed Oct. 1, 1969, Ser. No. 862,689

Int. Cl. B60q 1/32

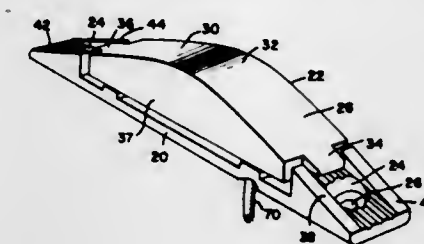
U.S. Cl. 240-8.2

5 Claims

A marker lamp for mounting on truck bodies and the like consists of an elongated base having inclined surfaces at both

ends, and a plastic lens mounted on the base between the inclined surfaces. The lens are protected from damage by tree branches since the inclined surfaces tend to deflect the

connected lamps which are spaced apart and supported by a number of spherical members.



3,633,024

LAMP RETAINER STRUCTURE

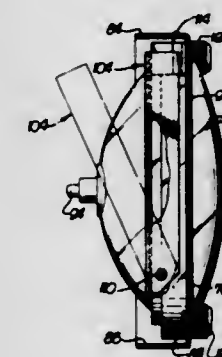
Maxey A. Hankins, Encino, Calif., assignor to Mole-Richardson Co., Hollywood, Calif.

Filed Mar. 28, 1969, Ser. No. 811,538

Int. Cl. F21v 21/00

U.S. Cl. 240-52 R

2 Claims



3,633,022

LAMP

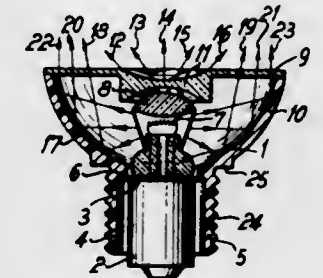
Knut Otto Sassmanshausen, Idar-Oberstein, Rothenbach, Germany

Filed Dec. 8, 1969, Ser. No. 882,997

Int. Cl. B60q 1/30

U.S. Cl. 240-8.3

19 Claims



A double-beam lamp, such as a taillight or warning light has a collective lens bulb in the axis of a surrounding reflector in whose focal space, the luminous wire of the lens bulb is located. The collective lens projects a first beam, and the reflector, whose shape deviates from a geometrical parabola, projects a second beam, and while one of the beams is made narrow and conical, the other beam is spread in horizontal direction by a cylindrical dispersing lens over a wide angle for lateral visibility while remaining narrow in the vertical direction to avoid loss of light.

3,633,023

ELECTRIC LIGHTING APPARATUS, PARTICULARLY FOR DECORATIVE USES

Livio Castiglioni, Via Morosini n. 51/1, and Gianfranco Frattini, Via Lanzone N. 2, both of Milan, Italy

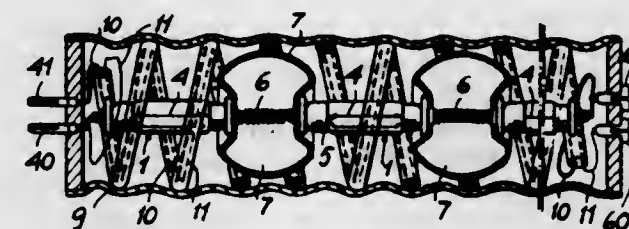
Filed Mar. 18, 1970, Ser. No. 20,627

Claims priority, application Italy, Oct. 9, 1968, 22254A/68

Int. Cl. F21b 1/02

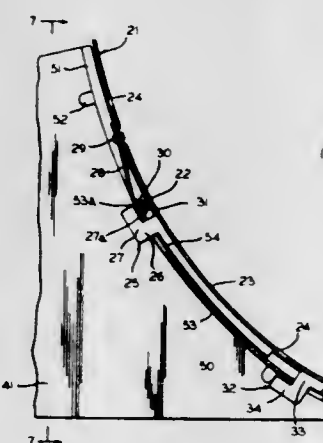
U.S. Cl. 240-10

5 Claims



A lighting apparatus consisting of a tube of transparent, translucent or similar material housing a plurality of series

The assembly includes a reflector having a decorative front surface and a rear surface, a first mounting member on the rear of the reflector, a second mounting member adapted to be attached to a lighting fixture, and a releasable connecting assembly on both mounting members for interconnection therebetween so as to mount the reflector in removable relationship in front of the lighting fixture.



3,633,025

FACIA REFLECTOR ASSEMBLY

Manuel C. Johnson, Chicago, Ill., assignor to Forum Incorporated, Chicago, Ill.

Filed May 23, 1969, Ser. No. 827,238

Int. Cl. F21v 7/12, 1/04, 17/06

U.S. Cl. 240-103 B

7 Claims

3,633,026

RAILWAY CAR RETARDER CONTROL WITH TIMED BRAKE APPLICATION

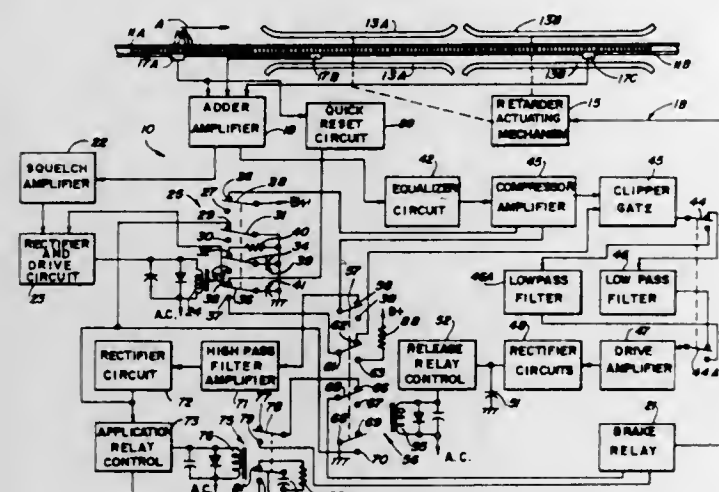
Ronald A. Sarbach, Columbus, and Richard E. Porter, Powell, both of Ohio, assignors to Abex Corporation, New York, N.Y.

Filed Dec. 2, 1969, Ser. No. 881,475

Int. Cl. B611 1/04

U.S. Cl. 246—182 A

8 Claims



A speed-sensitive railway car retarder control system employing a plurality of vibration transducers mounted on a rail extending through the retarder, with speed determination based upon frequency of the signals generated by the transducers; a timed application circuit, preferably actuated by the signal from the transducer nearest the entrance end of the retarder, sets the retarder to braking condition for a given time interval whenever a new car enters the retarder, with the corresponding timed retarder operation for a stalled car.

3,633,027

MASS SPECTROMETER CONNECTED TO A GAP CHROMATOGRAPH THROUGH A VALVED MOLECULE SEPARATOR

Erik Ragnar Ryhage, Stockholm, Sweden, assignor to LKB-Produkter AB, Bromma, Sweden

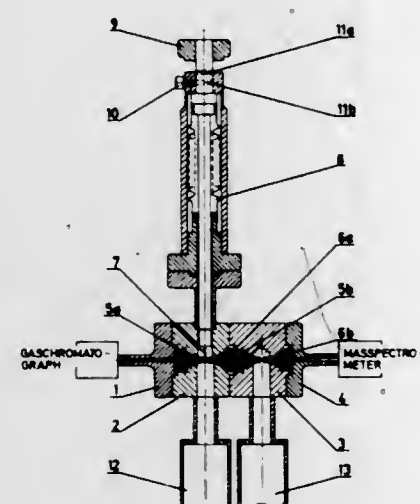
Filed Mar. 30, 1970, Ser. No. 23,715

Claims priority, application Sweden, Apr. 21, 1969, 5621/69

Int. Cl. H01j 39/34; B01d 59/44

U.S. Cl. 250—41.9 S

3 Claims



An instrument for analyzing organic chemical compounds is provided. The instrument comprises a gas chromatograph

which via a molecule separator is connected to the ion source of a mass spectrometer. The separator consists of a number of series connected evacuating stages, each stage being connected to a vacuum pump. Each stage is provided with an input jet nozzle and a coaxial output nozzle, a slide being insertable between these nozzles in the first stage so as to make it possible to switch off the flow through the separator.

3,633,028

MULTIPOSITIONABLE DEVICE FOR X-RAY FILM CASSETTE

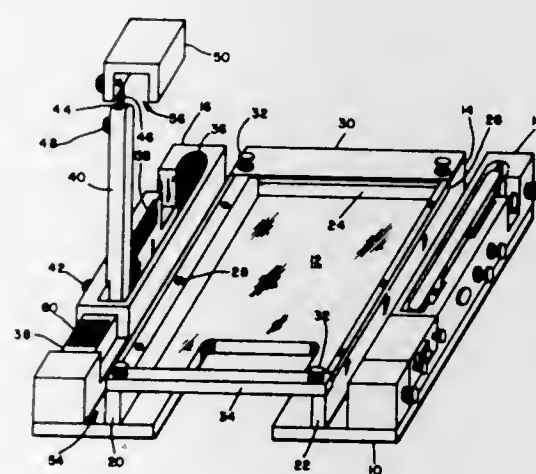
Nicholas A. Marino, 98-96 Proctor Ave., Revere, Mass.

Filed July 8, 1970, Ser. No. 53,079

Int. Cl. G01n 21/00

U.S. Cl. 250—50

11 Claims



In a device adapted for multiplane reception of an X-ray film plate so that X-rays may be taken in several views without repositioning a patient, a cover is captively held in spaced parallel relation to a base by a support and bars are captively held to the base in spaced parallel relation to opposite sides of the support. The cover, support and base define an open-ended enclosure which is adapted for reception of the X-ray film plate in a first plane. An arm, formed with cavity adapted for slidable reception of a finger, is articulated to each bar and a channel is removably mounted to one end of the finger. The bar, base, and support define a lower guideway and the channel defines an upper guideway, the lower and upper guideways being in spaced relation to each other and adapted for reception of the X-ray film plate in a second plane normal to the first plane. A head support and restraining devices are provided for securing the patient to the device.

3,633,029

PULSED X-RAY CONTROL SYSTEM WITH IMPROVED FILM DARKENING

Philip A. Duffy, Jr., Catonsville, and Melvin P. Siedband, Baltimore, both of Md., assignors to CGR Medical Corporation, Cheverly, Md.

Filed Oct. 27, 1970, Ser. No. 84,430

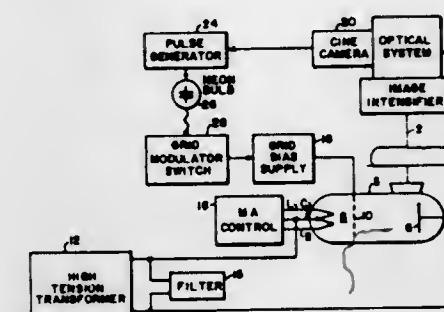
Int. Cl. H05g 1/14, 1/24, 1/34

U.S. Cl. 250—65 R

11 Claims

A circuit for use with a grid pulse X-ray tube which is operated at its maximum rated kv. and ma. The circuit provides more film darkening than would otherwise be possible when the X-ray tube is operated under such a maximum load. The circuit includes a filter which converts the output

of the high-tension transformer from a sine wave to substantially a square wave which is then fed to the input of the X-ray tube. The pulsing of the grid is controlled by other circuits in such a way that the X-ray tube conducts symmetri-



cally about the midpoint of the sine wave. Such precise timing of the grid pulse to initiate conductivity of the X-ray tube aids the filter in its function of providing a square wave to the X-ray tube input.

3,633,030

SEMICONDUCTOR DETECTOR BOREHOLE LOGGING TECHNIQUE

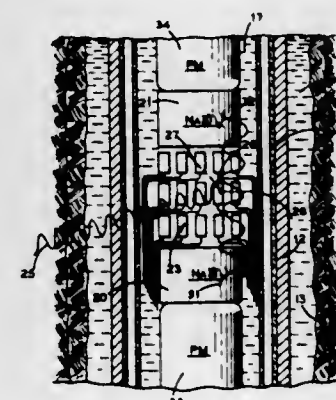
Stephen Antkwi, Ridgefield, and Jay Tittman, Danbury, both of Conn., assignors to Schlumberger Technology Corporation, New York, N.Y.

Filed May 12, 1969, Ser. No. 823,899

Int. Cl. G01v 5/00; G01t 1/20, 1/24

U.S. Cl. 250—71.5 R

9 Claims



One embodiment of the invention provides an array of semiconductor radiation detectors for coincidence or anticoincidence counting in a borehole logging tool. A further refinement combines, in a logging tool, a semiconductor spectrometer with one or more scintillation detectors. The response of this latter arrangement corresponds to the fine spectral resolution that characterizes semiconductor detectors rather than the less sharply defined spectral resolution of scintillation devices.

3,633,031

CAN WELD SIDE-SEAM DEFECT DETECTOR UTILIZING INFRARED DETECTION MEANS AND COLLIMATOR FIBER OPTICS

Carl A. Pesce, Oak Lawn, and Sheldon Osheff, Chicago, both of Ill., assignors to Continental Can Company Inc., New York, N.Y.

Filed Jan. 9, 1970, Ser. No. 1,676

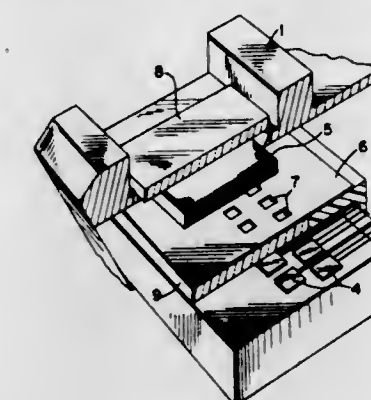
Int. Cl. G01j 5/00

U.S. Cl. 250—83.3 H

17 Claims

In order to detect can weld side-seam flaws or defects an infrared sensitive detector head is used. A collimator fiber optics or an optical mask are used to give a higher resolution. Optical fibers may have a second coating of EMA or an oc-

casional optically absorbent fiber may be placed parallel to the optic fibers in order to cut down crosstalk and introduce



an absorbent medium between the fibers. Coherent fiber optics may be used.

3,633,032

EQUIPMENT FOR GAMMA RADIOGRAPHY OF CLOSED VESSELS AND PIPELINES

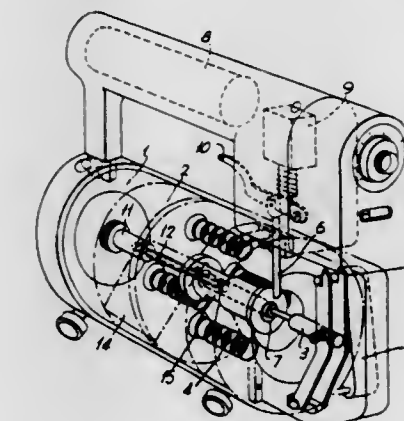
Stephen Stein, 54 Dunstan Road, London, N.W. 11, England

Filed Apr. 21, 1969, Ser. No. 817,843

Int. Cl. G21f 5/02

U.S. Cl. 250—106 S

8 Claims



A container for a radioactive source comprises a cylindrical two-part shield, one part being fixed and the other part movable axially with the source being located along the axis midway between the two parts of the shield when in the open position. Springs act to hold the two parts together in the closed position and a time-controlled actuating mechanism separates the two parts of the shield against the spring action for a set period of time.

3,633,033

CONTROLLED VENT FOR ISOTOPE FUEL CAPSULE

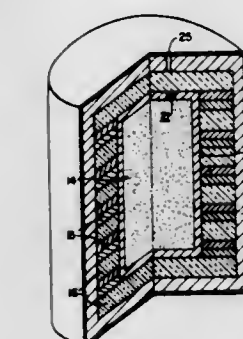
Alfred E. Cottam, Bethel Park, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1969, Ser. No. 825,779

Int. Cl. G21h 5/00

U.S. Cl. 250—106 S

9 Claims



A controlled vent for an isotope fuel capsule utilizes physical passages for gas flow which are large enough to permit

flow to take place be viscous or free molecular flow and are small enough or sufficiently tortuous to prevent passage of fuel particles. A plurality of punctured thin metal discs or foils are stacked together with the holes misaligned to form a continuous flow channel, thereby permitting gas generated within the capsule to escape through the vent. Thus, the weight and volume of the fuel capsule can be reduced since the internal pressure is reduced.

3,633,034

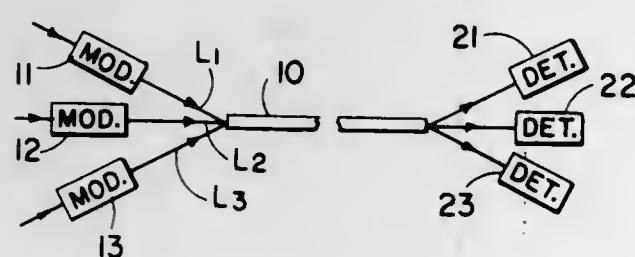
MULTIPLEXED OPTICAL COMMUNICATION SYSTEM
Teiji Uchida, and Motoaki Furukawa, both of Tokyo, Japan, assignors to Nippon Selfoc Company Limited, c/o Nippon Electric Company, Ltd., Tokyo, Japan
Filed July 7, 1969, Ser. No. 839,267

Claims priority, application Japan, July 6, 1968, 43/46960, 43/46961, 43/46962

Int. Cl. H04b 9/00

U.S. Cl. 250-199

5 Claims



A time-division, space-division multiplex system employing a fibrous converging light guide having a specific reflective index distribution. Beams of coherent modulated light spatially multiplexed (and if desired, also time-division multiplexed) are impinged upon one end of the guide, each beam having a specific incident angle and position from the axis. The modulated beams are emitted in a spatially multiplexed fashion from the other end of the guide where they are detected.

3,633,035

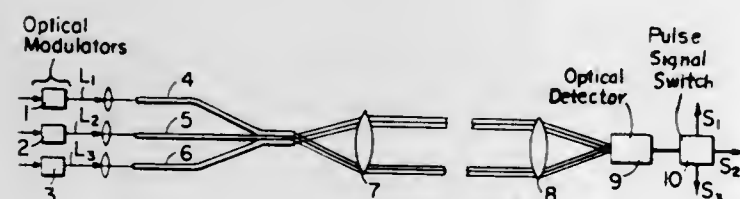
MULTIPLEXED OPTICAL COMMUNICATIONS SYSTEM
Teiji Uchida, and Motoaki Furukawa, both of Tokyo, Japan, assignors to Nippon Selfoc Company, Limited, c/o Nippon Electric Company, Limited, Tokyo, Japan
Filed Nov. 13, 1969, Ser. No. 876,357

Claims priority, application Japan, Nov. 16, 1968, 43/83674

Int. Cl. H04b 9/00

U.S. Cl. 250-199

3 Claims



A multiplexed optical communications system comprises a plurality of fibrous light guide elements which receive respective ones of a plurality of modulated light beam sources having predetermined phase differences therebetween. The output ends of the elements are formed into a bundle which communicates with one end of a light transmission path. Means positioned at the other end of the transmission path are provided for separating the modulated signals in accord with their respective phase separations.

3,633,036 CONTROL CIRCUIT WITH CONTROLLED SEMICONDUCTOR AND INTEGRATING SWITCH MEANS

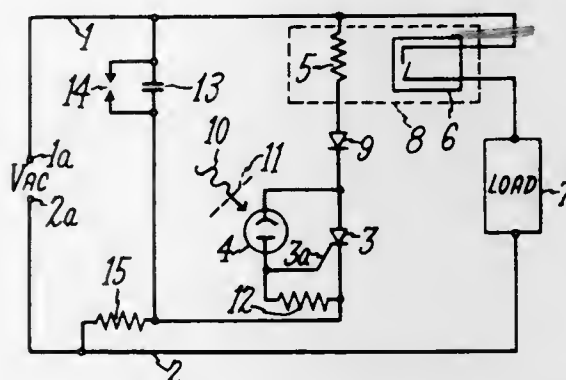
Joe A. Nuckolls, Hendersonville, N.C., assignor to General Electric Company

Continuation-in-part of application Ser. No. 633,980, Apr. 26, 1967, now abandoned. This application Apr. 16, 1968, Ser. No. 725,572

Int. Cl. H01j 39/12

U.S. Cl. 250-214 R

11 Claims



Control device for switching loads on and off, such as street lights, in response to ambient light levels comprises a photoelectric cell which has a variable resistance depending upon the intensity of incident light rays, a controlled rectifier which serves as a switch in response to the operation of the photoelectric cell, and an integrating switch such as a thermal switch operating in response to the controlled rectifier for turning the load on and off.

3,633,037

METHOD AND APPARATUS FOR OBSERVING, DETECTING AND CORRECTING PERIODIC STRUCTURES IN A MOVING WEB

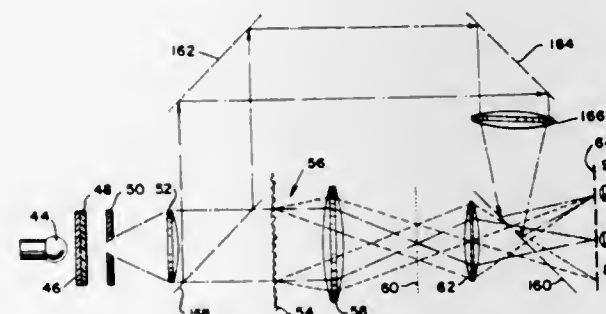
Peter H. Langenbeck, Norwalk, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Oct. 15, 1969, Ser. No. 866,587

Int. Cl. G01n 21/30

U.S. Cl. 250-219 WE

11 Claims



The diffraction pattern, produced by the periodic structure of a moving web is stationary. Characteristics of the periodic structure may be observed in the diffraction pattern. Deviations from a norm of a characteristic of the periodic structure are detected by imaging the diffraction pattern on a mask which is a matched filter for the characteristic. In a specific application the periodic structure is the weft of a moving cloth web, the characteristic is weft alignment, and the matched filter mask is a slit. In order to obtain an alternating current output signal, the cloth is illuminated by an oscillating slit of monochromatic light. Misalignments of the weft produce rotations in the diffraction image which may be detected by means of a pair of photodetectors located behind a slit in the plane of the diffraction image. As in the prior art a plurality of such weft misalignment detectors may be located across the moving cloth web and the angular deviations of

the weft at each detector compared to produce a control signal for controlling existing automatic devices for making weft misalignment corrections.

In an alternative embodiment, relative rotation between the diffraction image and a slit produces a peak output from a photodetector when the slit is aligned with a linear pattern in the diffraction image. The output of a pulse generator driven in synchronism with the slit or image is counted from an initial reference position until the peak is attained to provide a digital output of the angular orientation of the pattern.

In another embodiment of the invention, the detector takes the form of a photochromic sheet illuminated by an ultraviolet diffraction pattern and collecting optics focusing the ultraviolet radiation passing through the photochromic sheet upon a photodetector. A perfect moving web will produce a stationary diffraction pattern forming an opaque mask in the photochromic sheet and substantially no ultraviolet light will fall on the photodetector. Short term deviations from normal will cause diffracted light to pass through the transparent areas of the photochromic material producing a signal at the photodetector. The detector may also be illuminated with infrared radiation which tends to bleach it.

The frequency of the periodicity of the moving web may be detected by combining diffracted light with a reference beam of light from the same source of illumination or a source of illumination coherent therewith to thereby produce a beat amplitude at a photodetector in synchronism with the passage of the periodic structure.

3,633,038

TRANSDUCER-POSITIONING SYSTEM USING RADIATION-SENSITIVE MEANS

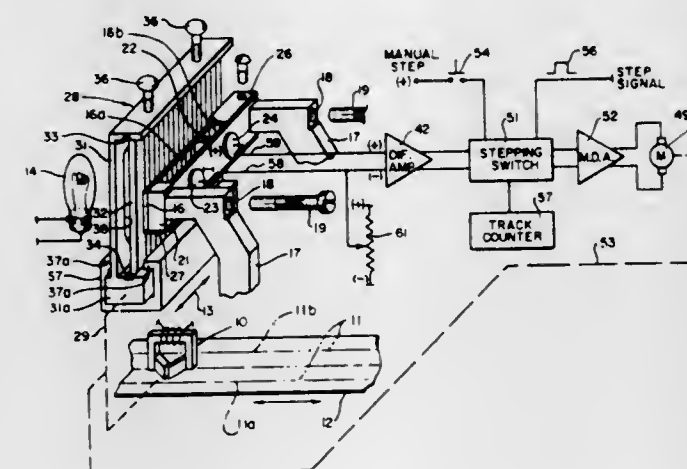
Mervin L. Falk, Sunnyvale, Calif., assignor to Newell Industries, Sunnyvale, Calif.

Filed May 1, 1970, Ser. No. 33,689

Int. Cl. G01d 5/34

U.S. Cl. 250-231 R

5 Claims



A transducer-positioning system for registering a signal transducer with respect to each of a plurality of laterally adjacent record paths. Optical averaging of a large number of position-sensible signals is employed to position the transducer in a centered position relative to each particular track.

3,633,039

DISTURBANCE-SENSING DEVICE

Martin Herbstman, Forest Hills, and William Yarina, Whitestone, both of N.Y., assignors to Maxson Electronics Corporation, Great River, N.Y.

Filed July 7, 1969, Ser. No. 839,408

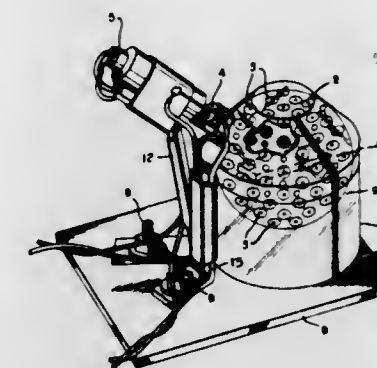
Int. Cl. G01d 5/34

U.S. Cl. 250-231

7 Claims

The device comprises a liquid-floated plastic ball in which a magnetic compass is embedded. The external surface of the ball is marked with a plurality of small black dots. A narrow

light beam is directed to the marked surface and the light reflected therefrom is detected by a photoelectric sensor. The variations in the intensity of the reflected light which are



caused by the motion of the ball are converted by the photoelectric sensor into an electric signal which triggers a control or alarm circuit.

3,633,040

REMOTE CONTROL VEHICLE-STARTING SYSTEM USING A LOW AC VOLTAGE SUPPLY

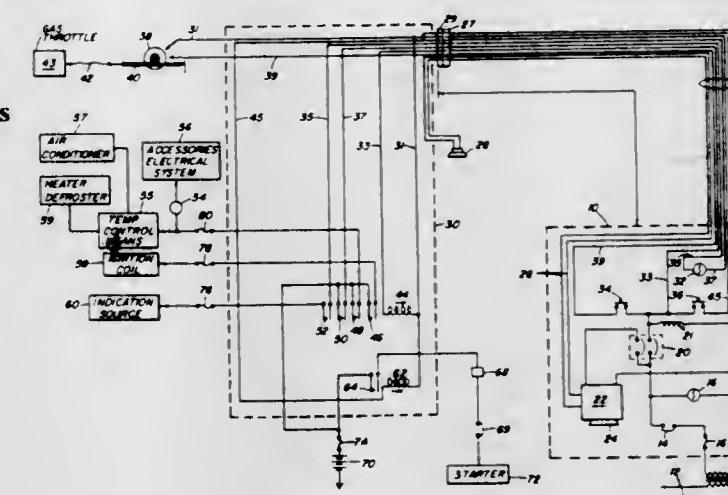
Gordon H. Baxter, P.O. Box 186, Circleville, N.Y.

Filed Feb. 18, 1970, Ser. No. 12,196

Int. Cl. F02n 11/00

U.S. Cl. 290-38

2 Claims



A remote control console is connected by plug-in cable to a motor vehicle engine control unit positioned in a motor vehicle which is to be started. Actuation of an ignition switch in the console activates a relay closing circuits to the vehicle's ignition coil, heater and engine condition indicators, for example, oil pressure. A gas advance circuit is provided to prime the engine via a throttle advance device, and a start switch closes a circuit to the engine starter via a relay. An intercommunication system is provided to monitor all engine sounds.

3,633,041

CENTRIFUGE CONTROL SYSTEM

Dennis E. Koskela, Astoria, Oreg., assignor to Bio-Consultants, Inc., South Gate, Calif.

Filed July 20, 1970, Ser. No. 56,611

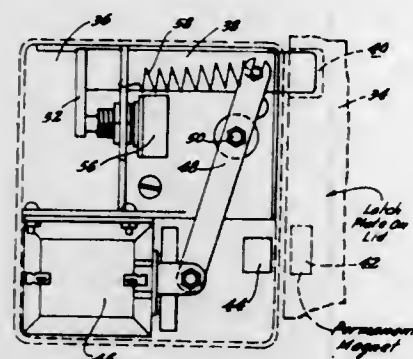
Int. Cl. H01h 35/00

U.S. Cl. 307-119

4 Claims

A centrifuge control system and apparatus is provided in the form of an improved adjustable timing means for the centrifuge; and also in the form of an improved control circuit

which prevents the lid of the centrifuge from being opened so long as the rotor head is rotating and which, conversely,



prevents the centrifuge motor from being energized until the lid is closed and latched.

3,633,042

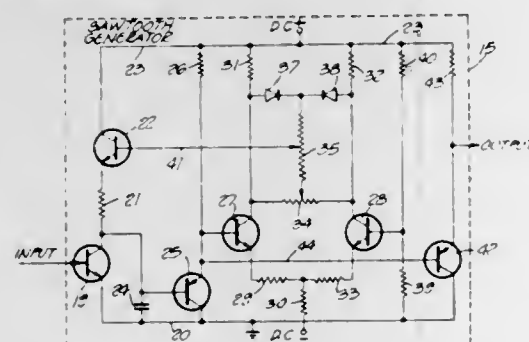
FUNCTION GENERATOR

Dee J. Neville, Ventura, Calif., assignor to Statham Instruments, Inc., Oxnard, Calif.

Filed Oct. 2, 1969, Ser. No. 863,194
Int. Cl. H03k 4/08

U.S. Cl. 307-228

7 Claims



A storage capacitance across which a ramp function signal is to be generated is serially related through a fixed resistor, electric signal variable-voltage solid-state device to a source of charging current. The potential developed across the capacitance is one input to a differential amplifier. Selectively variable potentiometers relate the differential amplifier output to the variable-voltage device correspondingly controlling the capacitance charging current. A further aspect is the use of back-to-back diodes for appropriate poling of the signal from the potentiometers to the solid-state device.

3,633,043

CONSTANT SLEW RATE CIRCUITS

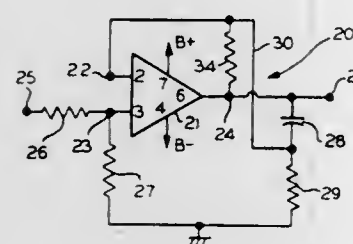
Myron L. Anthony, LaGrange, Ill., assignor to Thomas E. Dorn, Clarendon, Ill., a part interest

Continuation-in-part of application Ser. No. 851,028, Aug. 18, 1969, and a continuation-in-part of 886,054, Dec. 18, 1969. This application Feb. 16, 1970, Ser. No. 11,399

Int. Cl. G06g 7/12

U.S. Cl. 307-230

25 Claims



A constant slew rate circuit exhibiting essentially zero phase distortion over a substantial frequency range, compris-

ing an integrated solid-state amplifier with a capacitor and a small, nonreactive sensing impedance connected in series from the amplifier output to ground, a low-impedance AC rate feedback circuit from the common terminal of the capacitor and the sensing impedance to the amplifier input, and a relatively high-impedance negative feedback DC stabilization circuit from the output to the input of the amplifier. With various modifications, the circuit may be used as a low-pass filter, a high-pass filter, a constant phase shift circuit, and a wave-shaping circuit.

3,633,044

GAMMA CORRECTION CIRCUIT

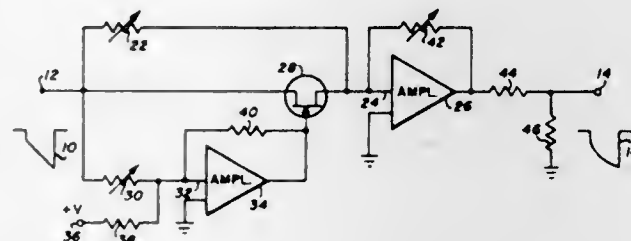
Stanley A. Buckstad, San Jose, Calif., assignor to Singer-General Precision, Inc., Binghamton, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,367

Int. Cl. G06g 7/12

U.S. Cl. 307-230

6 Claims



In the exposure of film with a CRT, for example, the resulting recorded information density on the film is not proportional to the amplitude of the video signal applied to the CRT. That is, if a linear ramp function is applied to a CRT for the purpose of exposing film, the resulting exposed density on the film will be an exponential function. This response is defined as the gamma of the film and produces an error in recording an image on film. The disclosed embodiment of this invention is a circuit for correcting the error which results during the exposure of a photographic film or in the transmission of light through a layer of phosphor, such as found on the face of a CRT, due to the gamma characteristic thereof. The circuit is formed of an amplifier having a resistance feedback and a second resistance connecting the video signal to an input of the amplifier. In one embodiment, the input resistance is formed of a F.E.T., and in a second embodiment the feedback resistance is formed of an F.E.T. The operating characteristics of the F.E.T. establish the amount of correction provided to the video signal by the circuit. The operating characteristics of the F.E.T. in both embodiments of the invention can be varied by applying the video signal to a gate electrode of that F.E.T.

3,633,045

MULTIPLE LEVEL DETECTOR

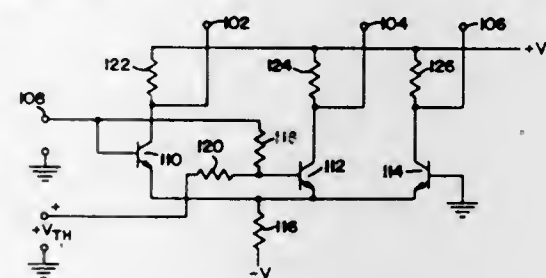
Frederik Nordling, Sausalito, Calif., assignor to Lynch Communication Systems, Inc., San Francisco, Calif.

Filed Jan. 21, 1970, Ser. No. 4,636

Int. Cl. H03k 5/20

U.S. Cl. 307-235

4 Claims



A solid-state dual limit detector circuit provides three outputs depending on whether an input signal is more positive than a positive limit, more negative than a negative limit, or

between the two limits. The sampling, decision making, storage, and timing functions of the signal pulse reconstituting circuits of a PCM telephone repeater are combined in a single circuit by providing such a dual limit detector with momentary sampling capability and a lock-in feature to hold the detected indication for half a clock cycle. The two extreme outputs of the dual limit detector control a pair of saturated amplifiers whose outputs are coupled in opposite directions to an output transformer to produce the reconstituted PCM signal.

3,633,046

PARALLEL THYRISTORS SWITCHING MATRICES

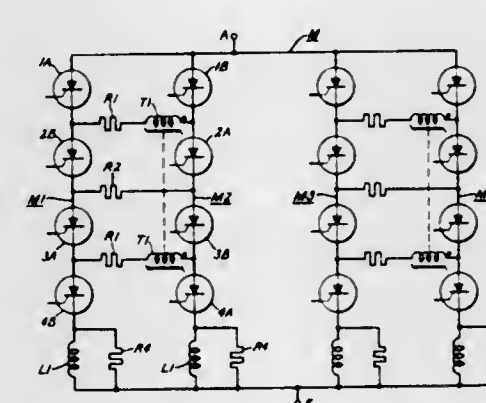
Clyde G. Dewey, Drexel Hill, Pa., assignor to General Electric Company

Filed Apr. 28, 1970, Ser. No. 32,640

Int. Cl. H03k 17/00, 17/56

U.S. Cl. 307-252 Q

22 Claims



Disclosed are solid-state switching matrices adapted to be serially connected to other such matrices to form an electric valve of a converter system. Each matrix comprises a plurality of thyristors connected in parallel paths to enable the matrix to conduct high current. Means are provided to maintain the requisite turn on anode voltage across any thyristor when its parallel mate begins conducting. Means are also provided to rapidly suppress any commutation transients which may arise upon turn on. In one embodiment of my matrix selected thyristors are triggered prior to others during each conducting interval of the matrix, whereas, in another embodiment the triggering order is alternated each conducting interval.

3,633,047

DELAY-ON-MAKE SOLID-STATE CONTROLLER

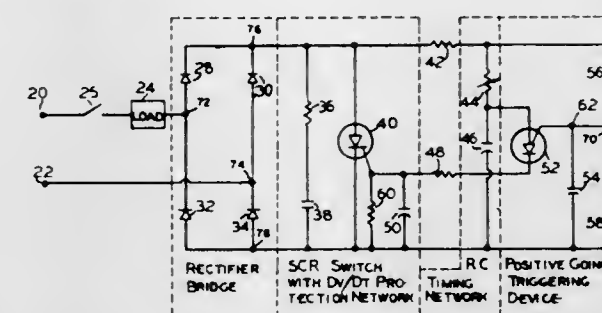
Zaghloul Kadah, North Syracuse, and Gerard Rolland, Syracuse, both of N.Y., assignors to Syracuse Electronics Corporation, Syracuse, N.Y.

Filed Nov. 4, 1968, Ser. No. 775,231

Int. Cl. H03k 17/00, 17/26

U.S. Cl. 307-252 F

2 Claims



Delay-on-make solid-state controller circuit for series connection to a load, having a bridge rectifier circuit, a silicon-controlled rectifier connected across the bridge rectifier circuit output, a current-limiting resistor, a pair of divider resistors in series connected through the resistor to the rectifi-

er, a variable resistance and capacitance connected in series, and connected in parallel with the divider resistances, a programmable unijunction connected to the midpoint of the resistance capacitance circuit, and through a resistance to the gate of the silicon-controlled rectifier, and a connection from the midpoint of the divider resistors, to the trigger of the unijunction, a capacitance connected between the trigger of the unijunction and the cathode of the silicon-controlled rectifier, a capacitance connected between the cathode of the rectifier and its gate, and a capacitance resistance circuit connected across the bridge output.

3,633,048

MONOSTABLE MULTIVIBRATOR

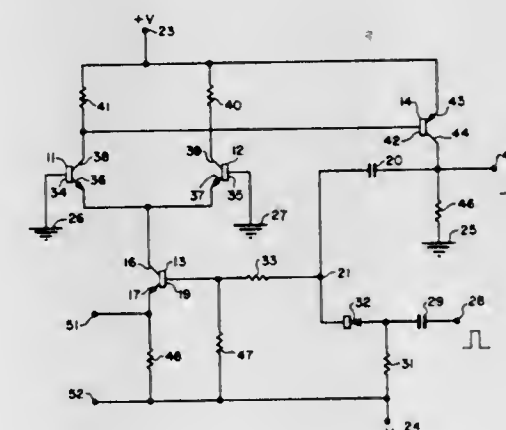
Leonard L. Kleinberg, Greenbelt, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed May 28, 1970, Ser. No. 41,430

Int. Cl. H03k 3/10

U.S. Cl. 307-273

1 Claim



Circuitry for producing fixed duration output pulses with no power dissipation in the standby state, involving a switching circuit driving an amplifying stage, the output of which is fed back to the input of the differential amplifier to turn it off in a fixed period after the receipt of an input pulse.

3,633,049

BISTABLE LOGIC CIRCUIT

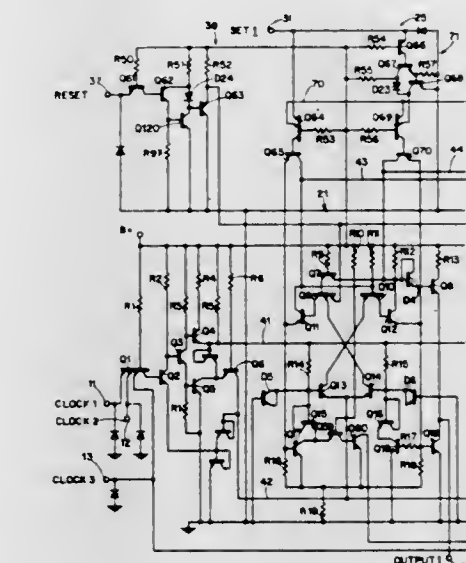
Suman H. Patel, Arlington, Mass., assignor to Sylvania Electric Products Inc.

Filed Aug. 7, 1970, Ser. No. 61,926

Int. Cl. H03k 3/286

U.S. Cl. 307-291

7 Claims



Counter circuit including four bistable stages arranged to count upward through a recurring sequence of combinations

of operating states of the bistable stages in response to trigger pulses. An output circuit produces an output signal when the bistable stages have counted upward to the highest count before repeating the sequence. A setting circuit in each bistable stage can switch its stage into either the "1" or "0" state at any time during a sequence. Setting signals are applied at input terminals of each setting circuit and are gated in to set the bistable stages simultaneously by a strobe circuit.

3,633,050

TIME DELAY CIRCUIT WITH NORMALLY CONDUCTING FET GATED OFF DURING TIME DELAY PERIOD

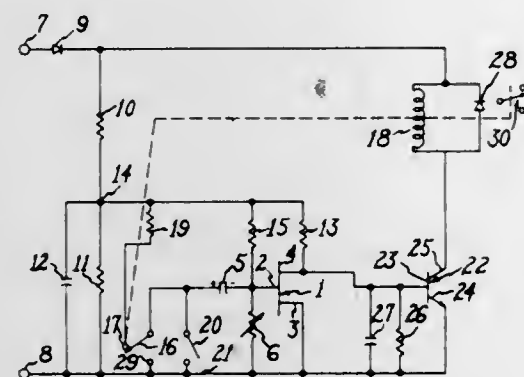
Chester J. Zajac, Thomaston, Conn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jan. 12, 1970, Ser. No. 2,344

Int. Cl. H03k 17/28

U.S. Cl. 307-293

8 Claims



A solid-state timer is provided using a field-effect transistor connected to be biased "on" and during the timed period held "off" by a prior charged capacitor. The operating condition of the field-effect transistor determines the operative status of a second transistor connected to a relay. A transient bypass filter is provided at the input of the second transistor. The relay is provided with a contact connected to provide a holding circuit so only momentary operation of a time period initiating switch is needed.

3,633,051

TRANSISTORIZED LOAD CONTROL CIRCUIT

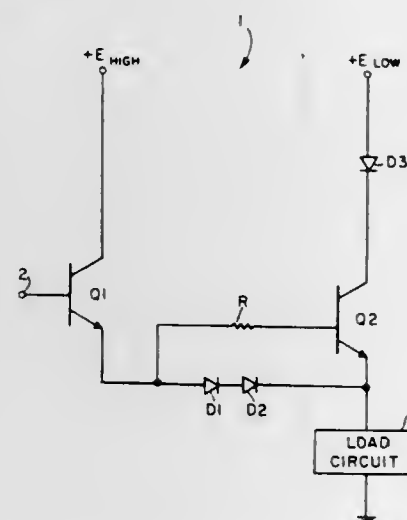
Meyer Press, Sharon; James F. Teixeira, Sudbury, and Gerald Wolff, Framingham, all of Mass., assignors to GTE Sylvania Incorporated

Filed Feb. 16, 1971, Ser. No. 115,528

Int. Cl. H03k 17/00

U.S. Cl. 307-296

5 Claims



A transistorized load control circuit including first and second transistors for supplying current to a load circuit from

a high-voltage source or from a low-voltage source. The base of the first transistor is connected to an input terminal, the collector is connected to the high-voltage source, and the emitter is connected through a resistance to the base of the second transistor and also through first and second series-connected diodes to the emitter of the second transistor. The collector of the second transistor is connected through a third diode to the low-voltage source and the emitter is connected to a load circuit. When a predetermined first control voltage condition is present at the input terminal, current is supplied to the load circuit from the low-voltage source via a current path including the third diode and the second transistor. When a predetermined second control voltage condition is present at the input terminal, current is supplied to the load circuit from the high-voltage source via a current path including the first transistor and the first and second diodes. During operation of the load control circuit, the base-emitter circuit of the second transistor is prevented from receiving and conducting excessive values of current.

3,633,052

LOW-NOISE INTEGRATED CIRCUIT ZENER VOLTAGE REFERENCE DEVICE INCLUDING A MULTIPLE COLLECTOR LATERAL TRANSISTOR

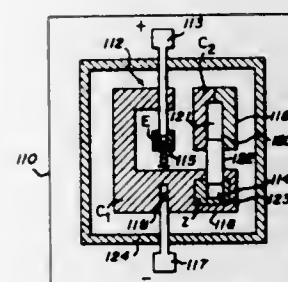
John E. Hanna, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed May 13, 1970, Ser. No. 36,964

Int. Cl. H011 19/00

U.S. Cl. 307-299

7 Claims



A low-noise integrated circuit zener voltage reference device including a multiple collector lateral transistor and a zener breakdown device coupled together in such a manner as to utilize the relatively poor-high frequency response characteristics and the plural current paths of the lateral transistor to substantially reduce the level of broadband zener noise appearing in the reference voltage.

3,633,053

VIBRATION TRANSDUCER

Rex B. Peters, Concord, Calif., assignor to Systron-Donner Corporation, Concord, Calif.

Filed June 18, 1970, Ser. No. 47,272

Int. Cl. H02k 35/02

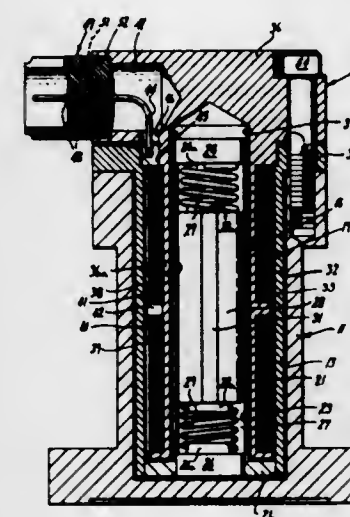
U.S. Cl. 310-15

13 Claims

Vibration transducer having a sealed capsule secured concentrically to an integral soft iron pole piece. An elongate bar magnet is slidably mounted in the capsule and has substantially coincident magnetic and mechanical axes. Suitable means is mounted within the capsule and engages opposite ends of the bar magnet and serves to yieldably retain the bar magnet in a predetermined position within the capsule. The capsule is filled with gas. The capsule and bar magnet are formed in such a manner that there is provided a passage for the controlled flow of gas from one end of the magnet to the

other end of the magnet as the magnet moves from its predetermined position. Electromagnetic coil means is pro-

terleaved one-for-one with the pole pieces of the first stator member. The stator members are formed of mild low-carbon steel that is annealed after fabrication. In each stator section, a coil encompasses the pole pieces of the stator members. The rotor is a permanent magnet ring with as many poles as the stator sections, mounted in a single-unitary bearing struc-



vided for detecting the movement of the magnet within the capsule.

3,633,054

ARRANGEMENT FOR COOLING THE POLES OF A DYNAMOELECTRIC MACHINE

Eugen Wiedeman, deceased, late of Baden, Switzerland, and Peter Voer, administrator, 540 Boda Neustadthof Mellieghers 1, Baden, Switzerland, assignor Aktiengesellschaft Brown, Bomeri & Cie, Baden, Switzerland

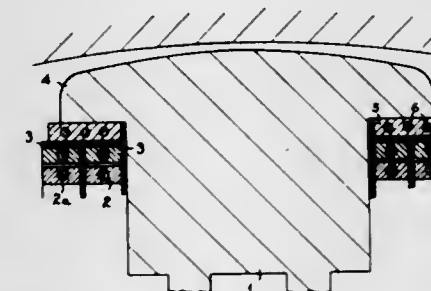
Filed Dec. 16, 1969, Ser. No. 885,489

Claims priority, application Switzerland, Feb. 21, 1969, 2705/69

Int. Cl. H02k 9/00

U.S. Cl. 310-54

1 Claim



An arrangement for cooling the pole shoes of a leg-type pole dynamoelectric machine includes a metal frame which is arranged on and surrounds the pole core between the pole coils and the pole shoe. The metal frame which lies in direct contact with the pole shoe is provided with internal channels through which a liquid coolant is circulated and also constitutes a closed loop which thereby also establishes a single-turn short circuit winding on the pole core.

3,633,055

PERMANENT MAGNET MOTOR

Ivan W. Maier, Lombard, Ill., assignor to Molon Motor & Cell Corp., Rolling Meadows, Ill.

Filed June 22, 1970, Ser. No. 48,104

Int. Cl. H02k 21/12

U.S. Cl. 310-156

10 Claims

A small permanent magnet synchronous motor having one or more pairs of stator sections mounted in tandem. Each stator section includes a first annular stator member of generally U-shaped cross section with multiple pole pieces around the inside of the annulus parallel to the axis, the pole pieces preferably being of tapered construction. A similar second annular stator member interfits with the first stator member; the pole pieces of the second stator member are in-

ture. The motor is assembled by coating one inner frame member with an epoxy resin adhesive, assembling the inner frame members back-to-back on a gauge hub with interengaging index elements assuring accurate alignment at a displacement of 90° electrically between the stator sections, then adding the coils and outer stator members.

3,633,056

STATOR SLOT AND WINDING ARRANGEMENTS

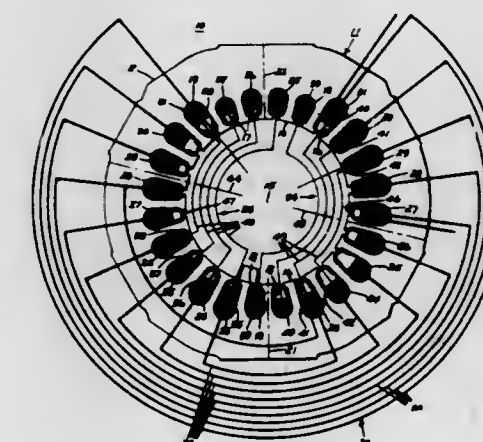
William R. Hoffmeyer, Holland, Mich., assignor to General Electric Company

Continuation-in-part of application Ser. No. 805,625, Mar. 10, 1969, now abandoned. This application July 21, 1970, Ser. No. 56,926

Int. Cl. H02k 17/28

U.S. Cl. 310-180

14 Claims



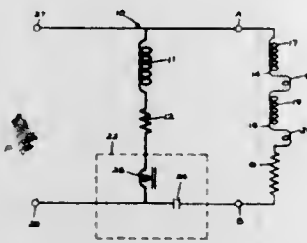
A stator, for use in an alternating current motor, includes a core having a plurality of angularly spaced slots. A distributed main winding is concentrically arranged in a plurality of the slots, with these slots encompassing a first arcuate region of the core, less than its circumference. End turns for the main winding are positioned adjacent an end face of the first arcuate region of the core. This provides a second arcuate region of at least one end face of the core free of the main winding. In a first embodiment, an auxiliary winding, displaced in phase from the main winding, is received in a plurality of the slots, including at least some slots in the second arcuate region. In the first embodiment, end turns of the auxiliary winding in the second arcuate region are disposed inwardly of the radially outermost edges of the slots in the second arcuate region along at least one end face of the core. In a second embodiment, the second arcuate region of one end face of the core is free of both the auxiliary winding and the main winding.

3,633,057

STATOR HAVING IMPROVED WINDING DISTRIBUTION
 Chester A. Smith, and William M. Stoddard, both of Holland, Mich., assignors to General Electric Company
 Filed July 21, 1970, Ser. No. 56,935
 Int. Cl. H02k 3/00

U.S. Cl. 310—184

7 Claims

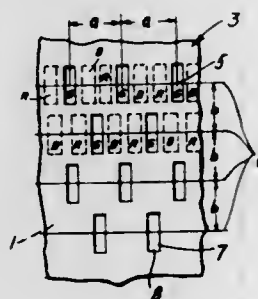


A stator includes a slotted magnetic core supporting first (e.g., main) and second (e.g., auxiliary) windings. The main and auxiliary windings are each referred to as including at least first and second coil groups, whether the windings are wound in place, formed as a single coil group and then placed in the slots, or formed by any other suitable method. One of the auxiliary winding coil groups has at least the end turns thereof adjacent one of the core end faces disposed along a first portion of the core and extending along a preselected arcuate region of the core, and a second one of the auxiliary winding coil groups has at least the end turns thereof adjacent the same core end face disposed along the first portion of the core and within the preselected arcuate region. The main winding includes end turns adjacent the auxiliary winding end turns. Preferably, at least the greater part of the main winding end turns adjacent the same above-referred-to core end face extend in the same preselected arcuate region.

3,633,058

COLOR PICTURE TUBE WITH RECTANGULAR HALL SHADOW MASK
 Akiyoshi Kouno, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
 Filed Jan. 21, 1970, Ser. No. 4,620
 Claims priority, application Japan, Jan. 24, 1969, 44/5159
 Int. Cl. H01j 29/32, 31/20, 29/06
 U.S. Cl. 313—92 B

4 Claims



A cathode-ray tube for displaying colored images comprises an in-line three-element gun and a shadow mask. The shadow mask has formed therein a plurality of rectangular holes arranged in an orderly manner in rows and columns. The dimensions and spacing of the rectangular holes is selected to provide for optimum transmission of the electron beams to the screen, while still providing mechanical strength for the shadow mask.

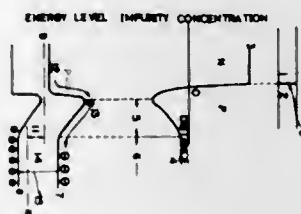
3,633,059

ELECTROLUMINESCENT PN JUNCTION SEMICONDUCTOR DEVICE FOR USE AT HIGHER FREQUENCIES

Jun-ichi Nishizawa, and Tokuzo Sukegawa, both of Sendai, Japan, assignors to Semiconductor Research Foundation, Kawauchi, Sendai, Japan
 Continuation of application Ser. No. 640,981, May 24, 1967.
 This application Mar. 13, 1970, Ser. No. 18,384
 Claims priority, application Japan, June 1, 1966, 41/35329
 Int. Cl. H05b 33/16

U.S. Cl. 313—108 D

3 Claims



Disclosed herein are PN junction semiconductors comprising electroluminescent devices having impurity concentration which decreases as the distance from the PN junction increases. When pulses having a duration of 10^{-6} to 10^{-10} seconds are applied forwardly across the PN junction the minority carriers are rapidly and efficiently injected into the varied concentration portion and then rapidly transferred to an adjacent long lifetime portion by the action of the established field. The minority carriers which reach and are accumulated on the adjacent long lifetime portion cause a slow transition wherein the minority carriers are recombined with the majority carriers to emit light having the effect of afterglow.

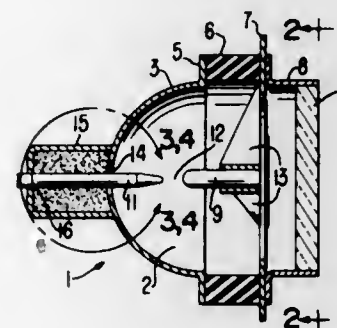
3,633,060

ARC LAMP HAVING AN ACOUSTICAL MODE ABSORBER

John F. Richter, Mountain View, Calif., assignor to Varian Associates, Palo Alto, Calif.
 Filed July 7, 1969, Ser. No. 839,499
 Int. Cl. H01j 1/18, 19/12

U.S. Cl. 313—269

10 Claims



A high-intensity arc lamp is disclosed. The arc lamp includes an arc chamber having an optical reflector at one end and an optical window at the other end and an anode and a cathode electrode disposed within the chamber in spaced relation to define an arc therebetween. A housing is coupled to the arc chamber via a gas passageway. The housing includes a mode-absorbing structure, such as a mass of intertwined refractory fibers, a stack of baffle plates, or a stack of tuned grid wires, which are acoustically coupled to the arc chamber for coupling to the resonant acoustical modes thereof for suppression of such modes to improve the stability of the arc.

3,633,061

ARC LAMP INCLUDING ELECTRODES HAVING INTEGRAL MEANS FOR SECURING THE ELECTRODES AGAINST SHOCK DISLODGE

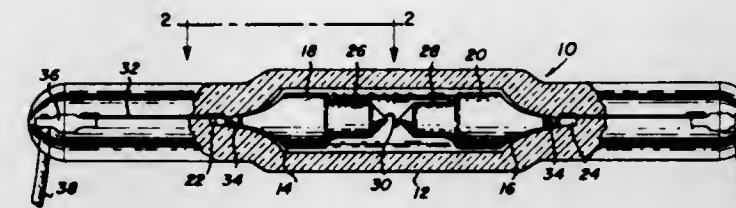
Raymond E. Paquette, Saratoga, Calif., assignor to Republic National Bank of Dallas; Irving Trust Company and Union Bank

Filed Apr. 4, 1969, Ser. No. 813,429

Int. Cl. H01j 1/88

U.S. Cl. 313—283

6 Claims



An arc lamp construction wherein a pair of metallic electrodes defining an arc gap are mounted within a quartz envelope and are secured within said envelope by shrinking the same into engagement with a foot portion of each electrode. The foot portions of the electrodes are tapered and include certain surface irregularities large enough to allow the quartz envelope, when shrunk thereabout, to be deformed into or around the irregularities to provide an interlocking mechanical mating therebetween to prevent longitudinal displacement of the electrodes within the envelope.

3,633,062

DIRECT-HEATED CATHODE ELECTRODES WITH CATHODE SHIELD FOR ELECTRON GUNS

Mitsuru Tamura, Ise, Japan, assignor to Ise Electronics Corporation, Ise, Japan

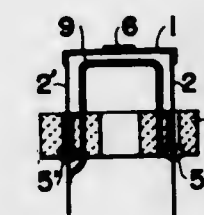
Filed May 26, 1969, Ser. No. 827,590

Claims priority, application Japan, May 28, 1968, 43/43526

Int. Cl. H01j 1/15, 19/08

U.S. Cl. 313—341

3 Claims



In a direct-heated cathode electrode for use in electron guns wherein a heating element is mounted on a base to heat a cathode pellet which emits thermoions, a cathode shield maintained at the same potential as the heating element is disposed between the same and the base.

3,633,063

SUCCESSIVELY JOINABLE CARBON ELECTRODE FOR GOUGING METALLIC ARTICLES

Masao Ando, Ogaki-shi, Japan, assignor to Ibigawa Electric Industry Co., Ltd., Ogaki-shi, Japan

Continuation-in-part of application Ser. No. 657,195, July 31, 1967, now abandoned. This application Jan. 15, 1970, Ser. No. 3,007

Claims priority, application Japan, Feb. 8, 1967, 42/10020

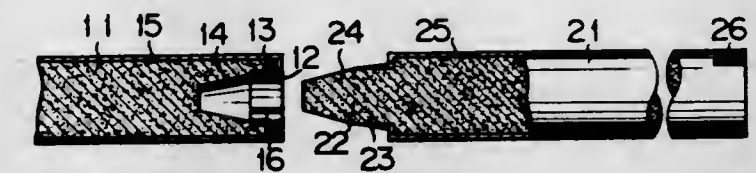
Int. Cl. B23k 35/04, 35/22

U.S. Cl. 313—357

6 Claims

A joinable slender carbon electrode having its surface coated with copper, one end of which is formed into a substantially coaxial projecting portion and the other end into a substantially coaxial socket portion, whereby said electrode is improved in the following respects:

I. A projection consisting of a cylindrical base part coated with a slightly tapered formation of a thin copper layer which is applied in continuation of the copper layer plated on the carbon electrode body, and a noncoated frustoconical top part integrally formed with said base part.



II. A socket shaped like said projection wherein there is a slotted cut throughout its open cylindrical part, and the inner wall of said cylindrical part is uniformly coated with a thin copper layer which is applied in continuation of the copper layer plated on the carbon electrode body.

3,633,064

SIGNAL CONVERTING SYSTEM USING BARRIER GRID-TYPE STORAGE TUBE

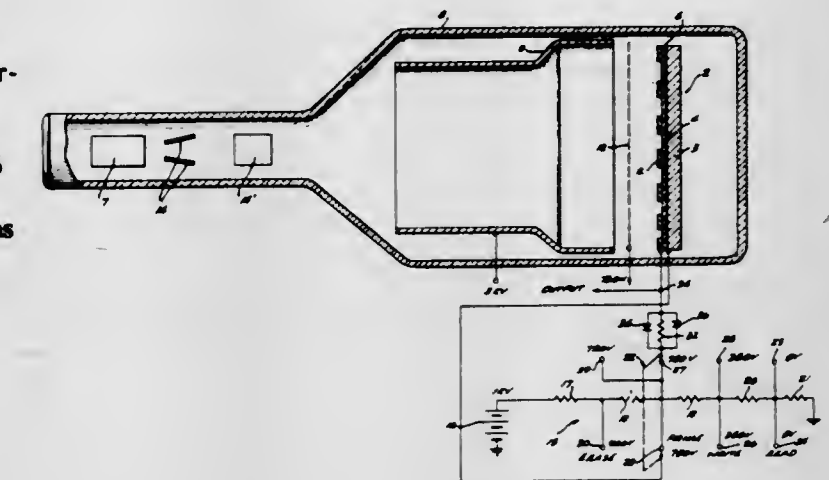
Elvin E. Herman, Pacific Palisades, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 22, 1970, Ser. No. 48,237

Int. Cl. H01j 29/41

U.S. Cl. 315—12

6 Claims



A single-gun converter tube having a barrier grid-type storage target including a thin dielectric member of high-electrical resistivity and having a conductive grid on the surface thereof which faces a scanning electron gun for "writing," "reading" and "erasing" information on the dielectric member by a charging action which takes place transversely to the axis of the electron beam and a backing electrode on the thin dielectric member for priming the storage surface thereof by means of capacity division and potential division.

3,633,065

SHAPED BEAM TUBE

Robert H. Compton, Saugus, and Alexander Bell, Carlsbad, both of Calif., assignors to Stromberg Datagraphix, Inc., San Diego, Calif.

Filed Oct. 21, 1969, Ser. No. 868,055

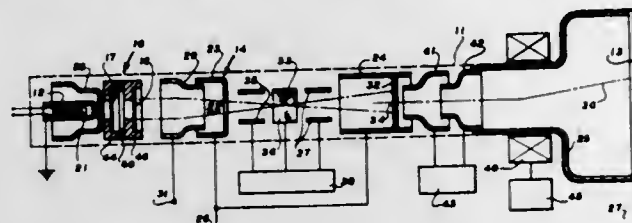
Int. Cl. H01j 29/82

U.S. Cl. 315—14

11 Claims

A shaped beam tube is described wherein the means for shaping the cross section of the beam include a pair of axially spaced electron opaque members, each having a set of apertures therein. Each aperture in one set corresponds to an

aperture in the other set for producing a particular desired image. The opaque members are positioned with their cor-



responding apertures aligned on the path of the electron beam.

3,633,066

AUTOMATIC SYNCHRONIZING SYSTEMS FOR SAMPLING DEVICES

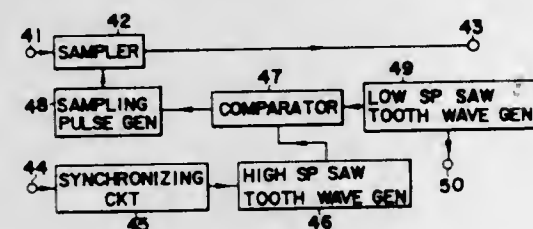
Kozo Uchida; Naohisa Nakaya, and Koji Suzuki, all of Tokyo, Japan, assignors to Iwatsu Electric Company Limited, Tokyo, Japan

Filed Aug. 20, 1969, Ser. No. 851,609

Claims priority, application Japan, Aug. 23, 1968, 43/59922
Int. Cl. H01J 29/70

U.S. Cl. 315-19

3 Claims



In a sampling device including a synchronizing device comprising a synchronizing circuit, a sampler, an oscilloscope, and a synchronism control circuit having a differentiation circuit to differentiate the output from the sampler to vary a variable element in the synchronizing circuit whereby to stop variation of the variable element and to maintain the same in the stopped condition upon reaching synchronism there is provided means to stop the operation of the synchronism control circuit over the flyback interval of a low-speed sawtooth wave supplied to one deflection axis of the oscilloscope to prevent loss of synchronization which otherwise tends to occur during the flyback interval.

3,633,067

MAGNETO-OPTICALLY CONTROLLED IONIZATION TUBE

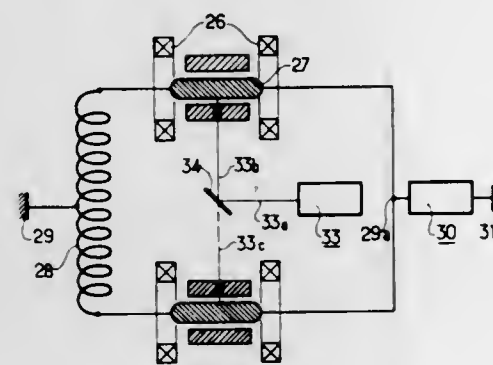
Andre Dubois, Orsay, France, assignor to Compagnie Generale D'Electricite, Paris, France

Filed Jan. 9, 1970, Ser. No. 1,670

Int. Cl. H05b 37/02

U.S. Cl. 315-149

1 Claim



An ion valve has two coaxial electrodes between which is a closed volume filled with pressurized gas through which an electric arc passes. Remote ignition of arc is achieved by means of a laser beam sent into the interelectrode gap. The

arc is shut off by means of a magnetic field of short duration, pointed parallel to the axis of the electrodes.

3,633,068

STATIC DISCHARGER WITH IONIZATION BYPASS

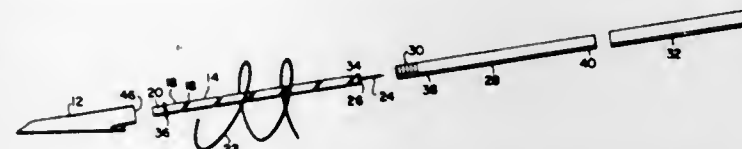
Chester H. Miller, 5060 S. W. 89th Pl., Miami, Fla.

Filed Jan. 7, 1970, Ser. No. 1,121

Int. Cl. B64d 45/02

U.S. Cl. 317-2 E

7 Claims



A static discharger for use with aircraft of the internal resistive element type having the electrically conductive internal construction shielded by a nonconductive outer covering and an electrically conductive ionization bypass overfitting portions of the nonconductive outer shield.

3,633,069

ALTERNATING CURRENT CIRCUIT-INTERRUPTING SYSTEM COMPRISING A RECTIFIER SHUNT PATH

Georges Bernard, Saint Egreve, and Adrien Scole, Grenoble, both of France, assignors to Merlin Gerin, Societe Anonyme, Grenoble, France

Filed Dec. 24, 1970, Ser. No. 101,272

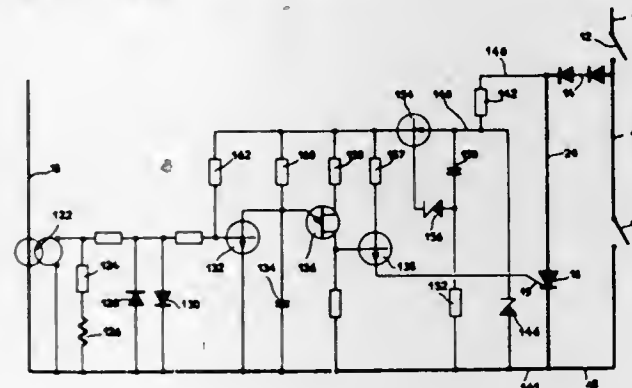
Claims priority, application France, Jan. 14, 1970, 01314

June 2, 1970, 20274

Int. Cl. H01h 9/30

U.S. Cl. 317-11 E

21 Claims



A medium- or high-voltage switching system for AC current comprising two series-connected switches substantially simultaneously opened by random operated opening means. The first switch is shunted by a series arrangement of rectifiers and of a thyristor having together a reverse voltage rated to withstand the restriking voltage across said first switch. Electronic trigger means fed by the arcing voltage across the first switch and responsive to the current to be interrupted trigger said thyristor shortly before current zero in the appropriate half-cycle to commutate said current from the switch to the shunt path. The arcing interval of the first switch subsequently deionizes and the opened second switch prevents application of the recovery voltage to the rectifiers.

3,633,070

GROUND FAULT CURRENT INTERRUPTER

Louis J. Vassos, 7025 N. Osceola, Chicago, Ill., and Alex F. Gawron, 7727 West Farragut Ave., Chicago, Ill.

Filed Dec. 15, 1969, Ser. No. 884,888

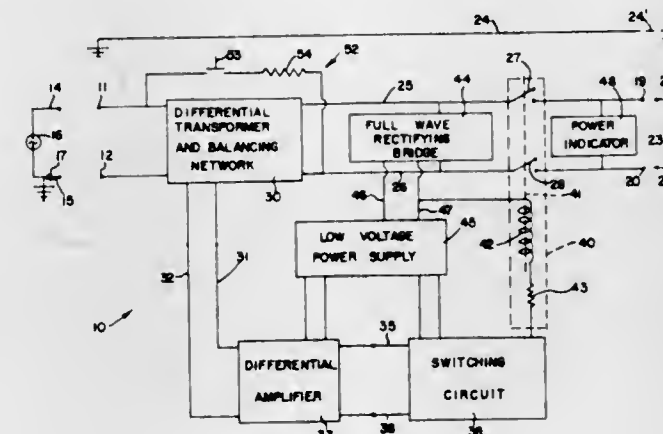
Int. Cl. H02h 3/26

U.S. Cl. 317-18 D

11 Claims

A differential amplifier circuit is connected between the secondary of a differential transformer and an electronic switch connected in series with a relay coil adapted to

operate circuit breaker contacts when the current flow through the coil is changed. The differential amplifier circuit will sense a current unbalance in the transformer during either a negative or a positive half cycle and thereby im-



mediately provide an output "trip" signal to the electronic switch. A delay circuit is connected between the differential amplifier circuit and the electronic switch to prevent accidental operation of the electronic switch by transient signals which are picked up by any part of the control circuit.

3,633,071

DIFFERENTIAL PROTECTIVE CIRCUIT

Alfons Fendt, Erlangen, and Eckart Maenicke, Berlin, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

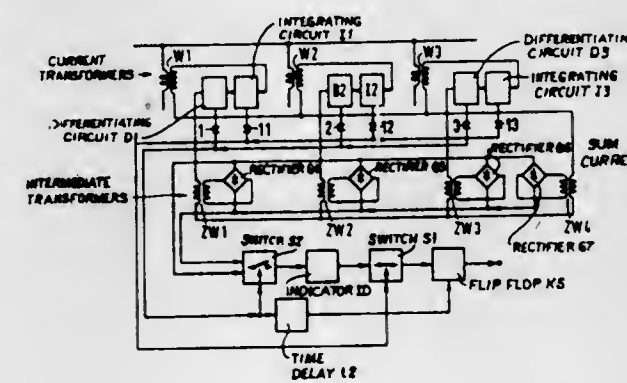
Filed Nov. 6, 1970, Ser. No. 87,454

Claims priority, application Germany, Nov. 11, 1969, P 19 56 527.6

Int. Cl. H02h 3/26

U.S. Cl. 317-26

5 Claims



The outputs of a system to be protected are connected to current transformers. A summing circuit is connected to the secondary winding of the current transformers and produces the algebraic sum of the currents flowing in the system to be protected and provides an electrical magnitude derived from such sum to an indicator. The indicator produces an output signal which controls circuit breakers or the like in order to disconnect the system to be protected.

3,633,072

PHASE DETECTION CIRCUIT

Lawrence N. Duncan, 178 Elm Crest Drive, Wheeling, W. Va.

Filed Feb. 24, 1970, Ser. No. 13,724

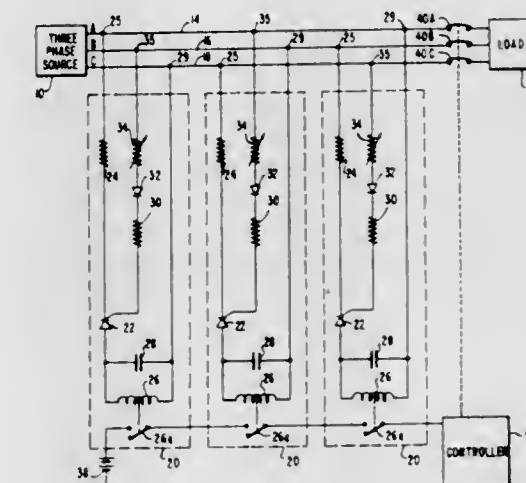
Int. Cl. H02h 3/26

U.S. Cl. 317-27 R

1 Claim

Apparatus for detecting the phase relationship and potential difference between the phases of a polyphase electrical circuit and for interrupting the circuit if a shift in phase or a decrease in potential difference occurs beyond acceptable

limits. The current-passing terminals of a controlled switching device such as a silicon controlled rectifier are coupled in series with a control device across two phases of the polyphase circuit, while the control electrode such as the gate of the silicon controlled rectifier is coupled to a third phase. So long as the proper phase relationship and potential



difference are maintained, current through the circuit is sufficient to maintain the control device in a first state. Should a phase shift or a decrease in potential difference, or a combination thereof, in excess of the allowable limits occur, current through the circuit is insufficient to maintain the control device in that first state, and the power applied from the polyphase source to its load is interrupted.

3,633,073

OVERLOAD AND OVERCURRENT REGULATION AND PROTECTION SYSTEM

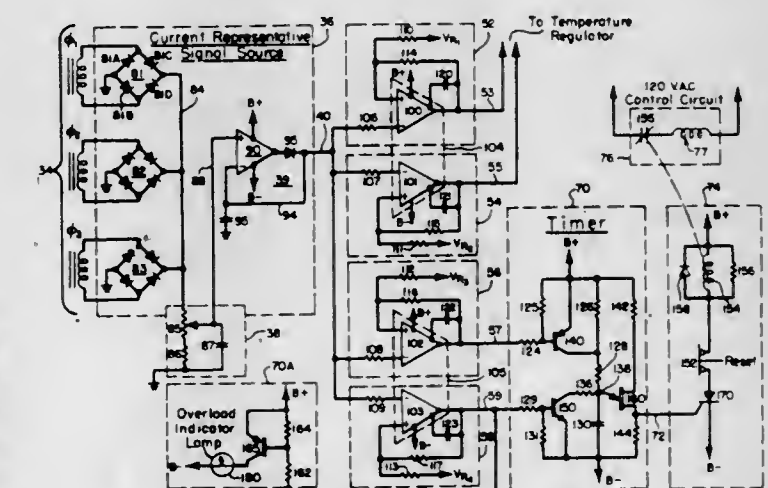
Arthur Reginald Day, III, Camp Hill, and Frank A. Kimpel, York, both of Pa., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 5, 1969, Ser. No. 882,792

Int. Cl. H02h 3/08; F25b 1/00

U.S. Cl. 317-38

14 Claims



An overload and overcurrent regulation and protection system and circuit are disclosed for a polyphase electric motor in a refrigeration system of the type including adjustable mechanical load decreasing means, such as adjustable prerotation vanes on a refrigeration centrifugal compressor. The system and circuit provides for varying types of overload conditions: continuous low overload, short term high overload, or for intermediate overload situations; before automatically operating a safety deenergizing relay switch. A time delay provides time for corrective measures to be instituted by the mechanical load decreasing means and allows

transient overloads occasioned by normal conditions, such as starting or shifts in mechanical load, to be accommodated without unnecessarily disabling the motor. The circuit includes a rectifying circuit for deriving a DC signal proportioned to the maximum AC current in any one of the phases windings two pairs of Schmitt Trigger circuits employing solid state Operational Amplifier devices operated from a voltage dividing circuit and sources of different valued DC standard signals, for respectively producing an overload signal of one of four types, representing respectively small and large overloads, a single unijunction transistor timing circuit operated by one pair of the Schmitt Triggers, an SCR-controlled relay for operating a motor deenergizing device such as a relay in response to the timing circuit. The other pair of Schmitt Triggers function to control the mechanical load decreasing means to allow for correction of small overloads without unnecessarily deenergizing the compressor motor.

3,633,074

ELECTRONIC DEVICE WITH USE OF BLOCK UNITS
Takasi Nojiri, 135 Aza-Koyasu, Oaza-Haguro, Inuyama-shi, Aichi-ken, Japan

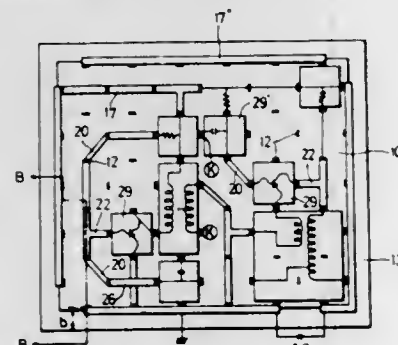
Filed Dec. 23, 1969, Ser. No. 887,510

Claims priority, application Japan, Dec. 25, 1968, 43/113240; May 8, 1969, 44/42142

Int. Cl. H05k 1/04

U.S. Cl. 317-101 CC

4 Claims



An electronic device comprising block units individually encasing a circuit element, connection leads for electrically connecting said block units and electronic boards provided with mounting holes to mount said block units and connection leads which holes are bored at the central part of each side of a square drawn on said electronic board.

3,633,075

CABINET HOUSING MOTOR CONTROLS MOUNTED ON PLUG-IN MODULES

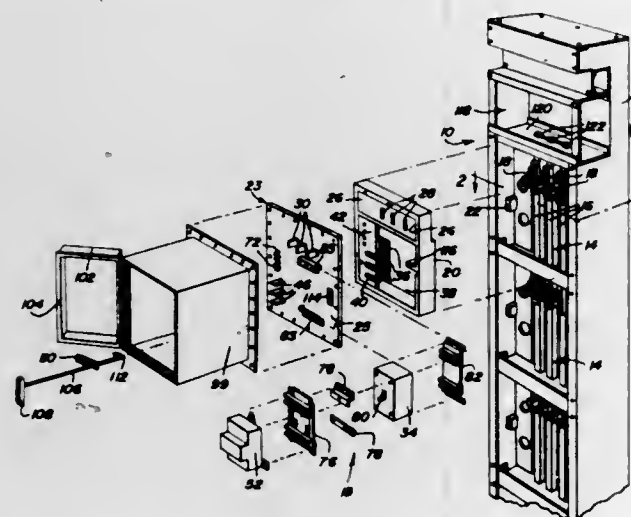
Benjamin K. Hawkins, Delta Electric Co., P.O. Box 5097, Greenville, Miss.

Filed Feb. 18, 1970, Ser. No. 12,192

Int. Cl. H02b 1/04

U.S. Cl. 317-114

15 Claims



A compartmentalized cabinet installation for housing motor circuit controls mounted on plug-in modules. Controls

such as motor starters and breakers are easily attached to the plug-in modules which allow rapid assembly and disassembly of the controls in associated compartments having power distributing bus bars therein. In order to gain entrance into a compartment, a safety handle must be turned causing actuation of a linked circuit breaker. The cabinet is equipped with a separate trough through which power bus bars pass. Fuses that are easily removed from a power circuit, bridge the bus bars located in the trough and other bus bars supplying power to the plug-in modules.

3,633,076

THREE LAYER METALLIC CONTACT STRIP AT A SEMICONDUCTOR STRUCTURAL COMPONENT
Heinz-Herbert Arndt, Nurnberg; Jurgen Schadel, and Dieter Muller, both of Erlanger, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Mar. 20, 1967, Ser. No. 624,580

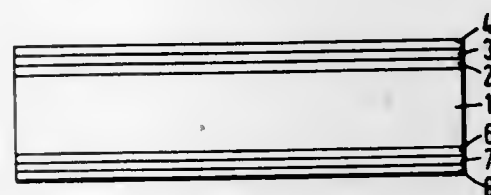
Claims priority, application Germany, Mar. 19, 1966, S

102622

Int. Cl. H01l 1/14

U.S. Cl. 317-234 R

4 Claims



The method of applying a metallic contact strip to a semiconductor and the strip per se. The contact strip consists of three sequential layers of different metals stacked upon each other. The lowest layer, i.e., that adjacent the semiconductor, possesses a high affinity toward oxygen and is preferably selected from molybdenum, tungsten, vanadium and chromium. The middle layer is selected from iron, cobalt, nickel, manganese and chromium. The outer layer is a noble metal.

3,633,077

SEMICONDUCTOR PHOTOELECTRIC CONVERTING DEVICE HAVING SPACED ELEMENTS FOR DECREASING SURFACE RECOMBINATION OF MINORITY CARRIERS

Shigeo Tsuji, Fujisawa, and Shunji Shirouzu, Kawasaki, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

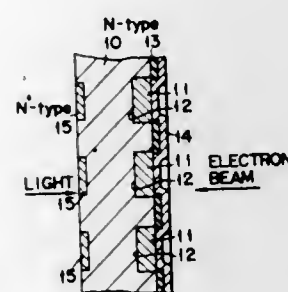
Filed Mar. 30, 1970, Ser. No. 23,922

Claims priority, application Japan, Apr. 2, 1969, 44/25429

Int. Cl. H01l 15/00, 15/02

U.S. Cl. 317-235 R

12 Claims



A photoelectric converting device comprising a semiconductor substrate in one surface of which there are provided a plurality of junctions in a mosaic arrangement. In the portions of the opposite surface of said substrate which are in registration with and face said junctions is provided means to decrease effectively the surface recombination of minority carriers created due to the introduction of a light.

3,633,078

STABLE N-CHANNEL TETRODE

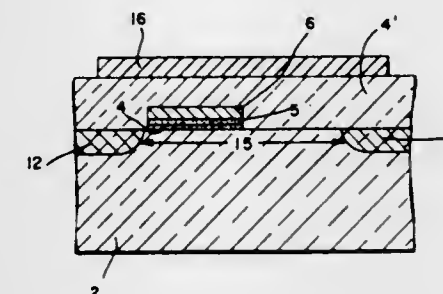
Hans G. Dill, Costa Mesa; Darrell M. Erb, Newport Beach, and Thomas N. Toombs, Irvine, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 24, 1969, Ser. No. 869,151

Int. Cl. H01l 1/100; H01c 7/14

U.S. Cl. 317-235 R

4 Claims U.S. Cl. 317-242



A field-effect transistor having two overlapping insulated gates, the first gate being of silicon and extending only partially over the channel region between the source and drain with the second gate being superimposed over the first gate so as to cover the channel region at least where not covered by the first gate and being insulated from the first gate by silicon oxide formed from the first gate.

3,633,079

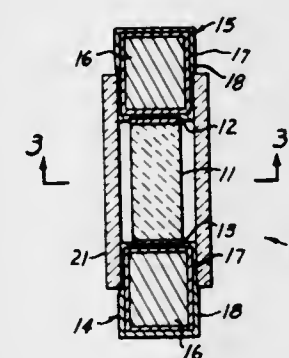
CAPACITOR WITH MALLEABLE MEANS FOR PROVIDING A HERMETIC SEAL AND STRAIN RELIEF
Alvin N. Watson, Glendora, Calif., assignor to Johanson Technology, Inc., Boonton, N.J.

Filed Apr. 29, 1970, Ser. No. 32,807

Int. Cl. H01g 1/02, 1/14, 3/06

U.S. Cl. 317-242

14 Claims



Capacitor in which a ceramic chip is held compressively between two metal heads by a peripheral glass sheath. A layer of malleable metal is provided between the end faces of the chip and each of the heads, and also a peripheral band of malleable metal extends around a cylindrical surface on each head which is embraced by the glass sheath, the heads and chips being held together only by compressive force exerted by the sheath, the malleable metal providing a compressive jointer between the abutting faces resistive to thermal and mechanical shock and between the sheath and heads providing for relief of excessive forces due to variations in tolerances of the parts and for a reliable hermetic seal.

3,633,080

CAPACITOR UTILIZING A GLASS SLEEVE AS STRUCTURAL AND SPACING MEANS

Alvin N. Watson, Glendora, Calif., assignor to Johanson Technology, Inc., Boonton, N.J.

Filed Apr. 29, 1970, Ser. No. 32,849

Int. Cl. H01g 1/00, 3/02

4 Claims U.S. Cl. 317-242

4 Claims



A capacitor comprising a pair of leads held in spaced relationship by the compressive embrace of a glass sleeve which extends between them and interconnects them. The end surfaces of the leads constitute the plates of the capacitor, a spacer may optionally be positioned between the end surface of the leads more accurately to determine the size of the spacing between the end surfaces.

3,633,081

APPARATUS FOR CONTROLLING AND REGULATING A CUTTER HOIST

Karl Heinz Weber, Witten-Haven, and Horst Engelhardt, Bochum-Stiepel, both of Germany, assignors to Gebr. Eickhoff, Maschinenfabrik und Eisengieserei m.b.H., Bochum, Germany

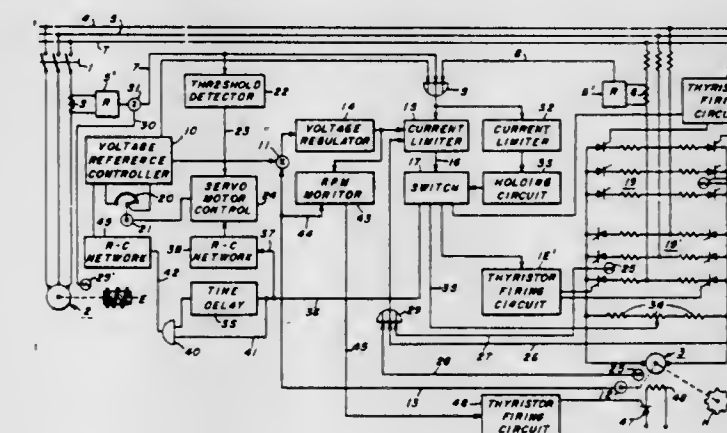
Filed June 18, 1970, Ser. No. 47,529

Claims priority, application Germany, June 20, 1969, P 19 31 357.6

Int. Cl. B23q 5/28

U.S. Cl. 318-39

11 Claims



Motor control system for a mining machine of the type in which a cutting element is driven by a first electrical motor and the mining machine is advanced into a coal face by a second motor. The system is characterized in that the torque and speed of the second motor are reduced both when the cutter element drive motor is idling as well as when the cutter motor is overloaded. The arrangement is such that as the cutting element approaches the coal seam and is idling, the speed of the advancing drive motor is relatively low; when the cutter enters the coal face and the current to the cutter drive motor increases, the speed of the advancing drive motor is also increased; and when the cutter element drive motor is overloaded, the advancing drive motor is reversed to withdraw the cutting element from the coal face and thereafter again advances the cutting element into the coal face in a pulsing or reciprocating motion.

3,633,082

CONTROL CIRCUIT FOR DRIVING, STOPPING AND RESTARTING A VARIABLE SPEED SINGLE-PHASE INDUCTION MOTOR

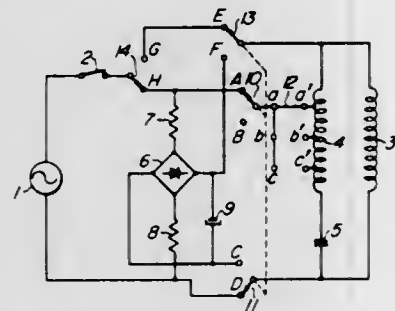
Hidenobu Hasegawa, Kurita-gun; Zenji Kusuda, Ibaragi-shi; Akira Tanaka, Takatsuki, and Jinichiro Noritani, Sakai, all of Japan, assignors to Matsushita Electronics Corporation and Matsushita Seiko Co., Ltd., Osaka, Japan

Filed Sept. 24, 1970, Ser. No. 74,947

Claims priority, application Japan, Oct. 3, 1969, 44/79523
Int. Cl. H02p 3/18

U.S. Cl. 318-212

4 Claims



A control circuit for driving, stopping and restarting a variable speed single-phase induction motor, in which when said motor is stopped from a running state by a DC braking means, the full voltage of the AC power source available for restarting the motor only for a predetermined time interval after it is stopped, regardless of the state of the running speed just before the stoppage. Three switches are provided for selectively connecting the AC power source, a DC power source for braking the motor, whereby the full starting torque is available to restart the motor in any state of the speed setting of the motor.

3,633,083

FERRORESONANT AMPLIFYING SERVOMOTORS

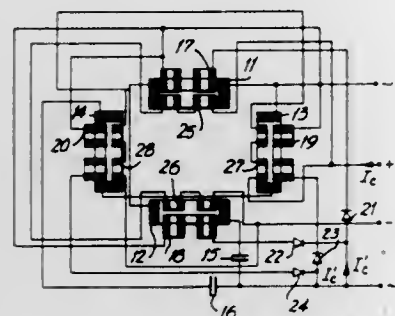
Dan Teodorescu, Timisoara, Romania, assignor to Ministerul Industriei Constructiilor de Masini, Bucharest, Romania

Filed Jan. 12, 1968, Ser. No. 697,364

Claims priority, application Romania, Jan. 25, 1967, 52958
Int. Cl. H02p 5/28

U.S. Cl. 318-225 R

6 Claims



A ferroresonant servomotor characterized by the fact that saturation coils are series connected with diodes and the resulting circuits are in parallel connection and are connected to an alternating current supply voltage, the diodes, which are connected in series with the saturation coils through which passes flux produced by primary coils of the same ferroresonant circuit, being connected in an inverse conduction sense, while control coils proper, through which passes direct current, are mounted on each pole in such a way that their ampere-turns are added in the closed magnetic circuit of the pole to the ampere-turns of the saturation coils on the poles of one of the ferroresonant circuits and are subtracted from the ampere-turns of the saturation coils at the poles of the other ferroresonant circuit.

3,633,084

BRUSHLESS DC MOTOR HAVING AUTOMATIC BRAKING

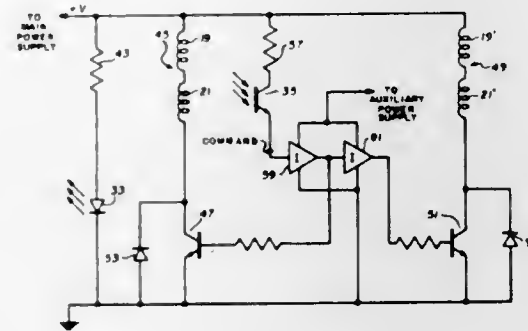
Rodney G. Rakes, Bristol, Tenn., assignor to Sperry Rand Corporation

Filed June 24, 1970, Ser. No. 49,475

Int. Cl. H02k 29/00

U.S. Cl. 318-254

7 Claims



A single-sensor, two-winding brushless DC motor includes a main power supply from which the stator windings are energized and an auxiliary power supply through which a commutating circuit is energized. A position-sensing circuit provides a command signal only while the rotor is within a given 180° sector. The commutating means completes a circuit through a first stator winding in response to a command signal; a circuit through a second stator winding in the absence of a command signal. Dynamic braking is achieved by turning off the main power supply while keeping the auxiliary power supply on. Under these conditions, the commutating means completes a circuit through the second stator winding so that the kinetic energy of the rotor may be dissipated and the motor stopped smoothly and rapidly.

3,633,085

INTERMITTENT WINDSHIELD WIPER CONTROL

Philippe A. R. Rouvre; Jean E. Pineau, and Francois Peroy, all of Billancourt, France, assignors to Regie Nationale des Usines Renault, Billancourt, France and Automobiles Peugeot, Paris, France

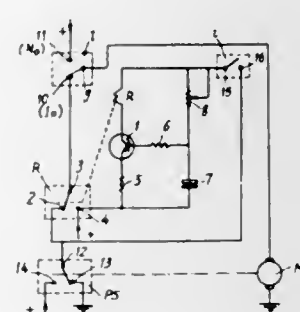
Filed Jan. 6, 1970, Ser. No. 960

Claims priority, application France, Jan. 7, 1969, 6900097

Int. Cl. B60s 1/08

U.S. Cl. 318-443

2 Claims



This control device comprises an amplifier consisting of a transistor associated with a relay, a capacitor inserted in the emitter-base circuit of said transistor and a potentiometer for adjusting the charging time of said capacitor, and switch means for associating said amplifier to a fixed-stop system of a wiper motor, said transistor being held in its saturated condition during the charging time, the input and output of said amplifier being put at the same potential immediately as the motor is started by the action of said fixed-stop system, thus causing the discharge of said capacitor so as to block said transistor and deenergize said relay.

3,633,086

CLOSED-LOOP REGULATING SYSTEM FOR A CONTROL DRIVE WITH A CONTROL DRIVE

Winfried Speth, and Rudolf Westermayer, both of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

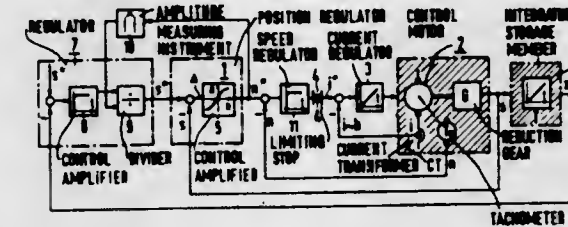
Filed Feb. 10, 1970, Ser. No. 10,256

Claims priority, application Germany, Feb. 12, 1969, P 19 06 836.1

Int. Cl. G05b 5/01

U.S. Cl. 318-489

11 Claims



A closed-loop regulating system comprises a regulator and a control drive limited in speed and acceleration. The control drive includes a position regulator. A subsidiary control loop controls the control drive and the amplitude of a magnitude depending upon the input signal of the position regulator inversely controls the amplification of the regulator.

3,633,087

ELECTRONIC TRACER METHOD AND APPARATUS FOR MONITORING THE PATH OF A NUMERICALLY CONTROLLED MACHINE

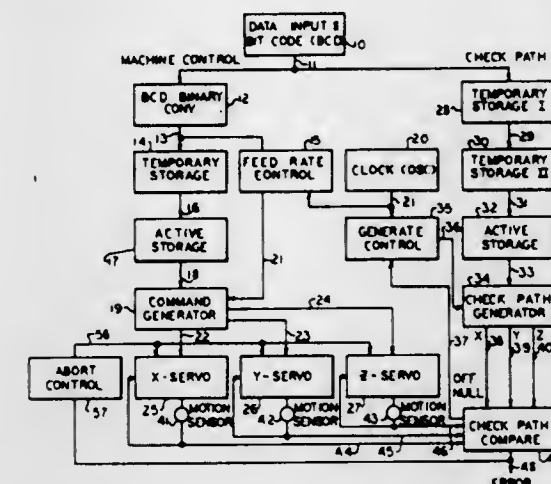
Verne E. Vawter, Bonita; William D. Wilson, and Kyle W. Leake, both of San Diego, all of Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed Mar. 16, 1970, Ser. No. 19,716

Int. Cl. G05b 23/02, 19/22

U.S. Cl. 318-565

18 Claims



Machine path pulses produced by X, Y and Z slide movements of a numerically controlled machine are compared with pulses derived from the programmed data independently of those which produced the slide movements on command, extra temporary storage being employed to delay the production of the tracer path pulses to compensate for the machine position lag behind the electronic position produced by the command generator. Gated X, Y and Z up-down counters, each counting up on its machine path pulses and down on its tracer path pulses, tend to establish a null condition within up and down count limits to either side of an initially set value. A gating network generates an off null signal when any of the counters exceeds the null limits. Clock signals modulated by the off null signal change the rate of generation of the tracer path pulses to thereby restore the counters to the null condition. When the off null signal persists longer than a predetermined interval, an error signal is produced to stop the machine operation.

3,633,088

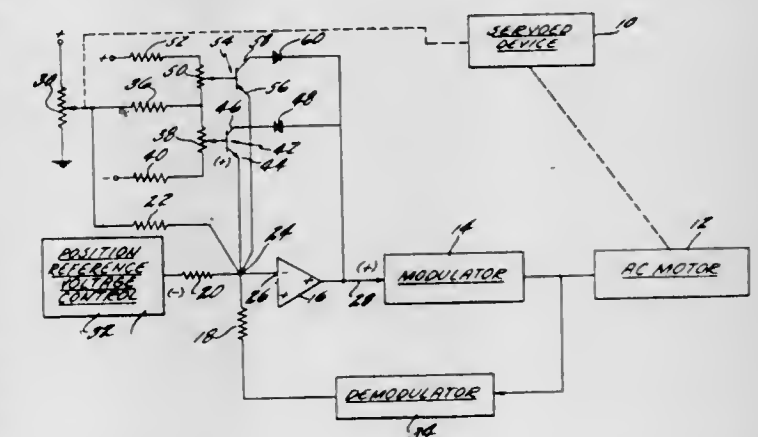
LIMIT STOP SERVOCONTROL SYSTEM

Bertram F. Kupersmith, Bloomfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn. Continuation of application Ser. No. 794,625, Jan. 28, 1969, now abandoned. This application Mar. 17, 1971, Ser. No. 125,404

Int. Cl. G05g 5/00

U.S. Cl. 318-626

2 Claims



Unidirectional feedback around a servoamplifier clamps the gain of the amplifier when the position feedback potential indicates the approaching of a stop. The clamping is in response to an amplifier output potential of a polarity that drives the servoed device into the stop, and is inoperative when the amplifier is of a polarity to drive the servoed device away from the stop. Full gain is therefore available when driving away from the stop. Increased accuracy is achieved, eliminating all position loop errors, by utilizing position feedback potential as a summing potential to control the operation of the clamping loop.

3,633,089

HOLDER FOR A SAFETY RAZOR

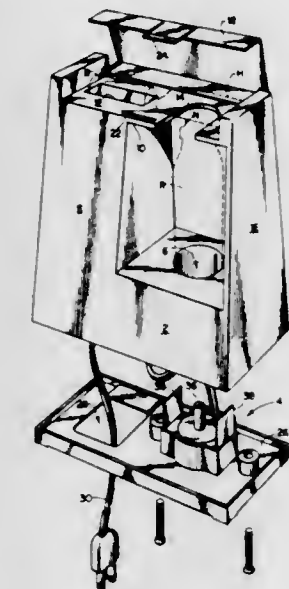
Francis W. Dorion, Jr., Hingham, and Norman D. Poisson, Marblehead, both of Mass., assignors to The Gillette Company, Boston, Mass.

Filed Apr. 9, 1970, Ser. No. 27,071

Int. Cl. H02j 7/00

U.S. Cl. 320-2

7 Claims



Holder for a safety razor comprising a base portion housing battery-charging means and having a first recess for receiving a safety razor handle end, support means extending from the base portion, and bridge means extending from the end of the support means remote from the base portion, the end of the support means and the bridge portion being provided with second and third recesses to accommodate razor.

blade dispenser means and a neck portion of the safety razor, the third recess being removed from, but aligned with the first recess in the base portion.

3,633,090

BATTERY-CHARGING SYSTEMS

William Frank Hill, Stafford, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

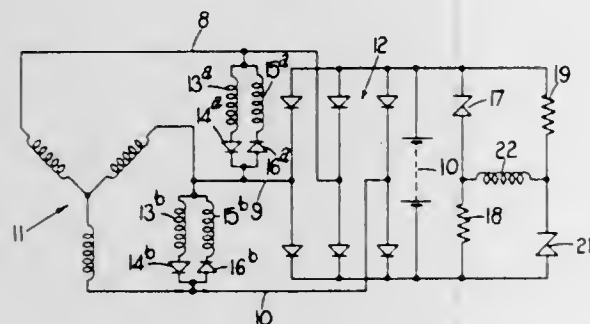
Filed June 16, 1970, Ser. No. 46,602

Claims priority, application Great Britain, July 28, 1969, 37713/69

Int. Cl. H02j 7/04

U.S. Cl. 323-9

8 Claims



In a battery-charging system in which a three-phase permanent magnet alternator charges a battery, the three output lines of the alternator are coupled by two variable impedance means connected between two of the three pairs of output lines. Voltage-sensing means connected across the battery controls the impedances of the variable impedance means to regulate the battery voltage.

3,633,091

ZERO TIME CONSTANT FILTER USING SAMPLE-AND-HOLD TECHNIQUE

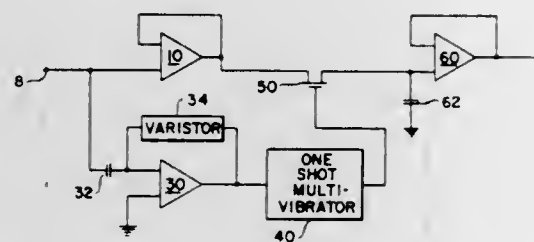
Richard Charles Bowers, Richmond, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Mar. 16, 1970, Ser. No. 19,577

Int. Cl. H02m 1/08

U.S. Cl. 321-18

5 Claims



A long-standing problem in developing electronic feedback-type servosystems has been the filtering of the DC control signal without introducing time constants which comprise the usefulness of the servo. A new concept of filtering based on analog sample-and-hold techniques has been developed as a means of converting AC signals to DC control voltages with a time constant equal to a very small fraction of one cycle of the AC signal. Thus, the servo becomes a sampled data system with the control signal updated on each cycle of the AC signal.

An amplifier connected in the voltage follower mode which includes a current-limiting circuit in the feedback loop. The circuit increases in impedance as an overload condition develops and a semiconductor network decreases in impedance under the same conditions so as to preserve the voltage follower mode of the amplifier while uncoupling a load therefrom. The overload protection is also shown with a programmable gain amplifier as well as with another amplifier having overload protection so as to provide a differential input amplifier circuit.

3,633,092

PULSED POWER SUPPLY

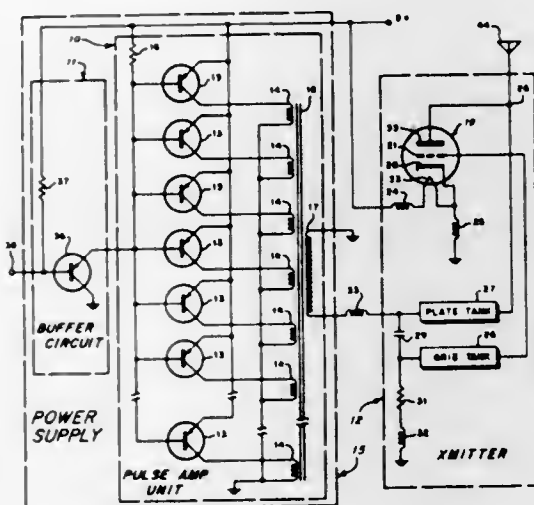
Salvatore J. Grillo, Willow Grove, and Cary L. Townsend, Langhorne, both of Pa., assignors to The United States of America as represented by the Secretary of the Navy

Filed July 30, 1970, Ser. No. 59,384

Int. Cl. H02m 7/52; H04b 1/04; H03d 1/02

U.S. Cl. 321-27 R

5 Claims



A step-up power supply is provided by a plurality of transistors arranged to drive respective, equal turn primary windings of a transformer. The transistor bases receive a common energizing pulse and the emitters are connected to a common source of positive voltage. Each collector is connected to ground via a single respective winding so that the voltage in each conduction path is shared by only one transistor and winding, thus maximizing the total voltage applied to the transformer. The power supply amplifies pulses from a blocking oscillator to drive a tuned-plate, tuned-grid transmitter.

3,633,093

AMPLIFIER OVERLOAD PROTECTION CIRCUIT

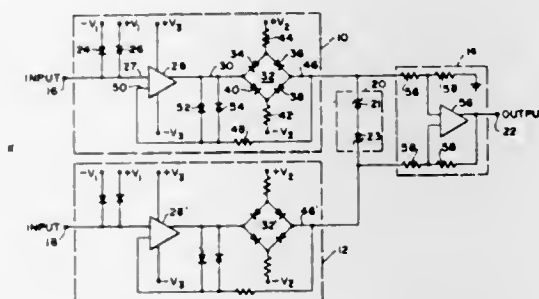
Leroy N. Templeton, Jr., Sherborn; Paul J. Grant, Natick, and Daniel D. Strassberg, Arlington, all of Mass., assignors to Honeywell, Inc., Minneapolis, Minn.

Filed July 1, 1970, Ser. No. 51,487

Int. Cl. G05f 1/10; H02h 9/00

U.S. Cl. 323-9

17 Claims



3,633,094

BURST LENGTH PROPORTIONING CONTROLLER

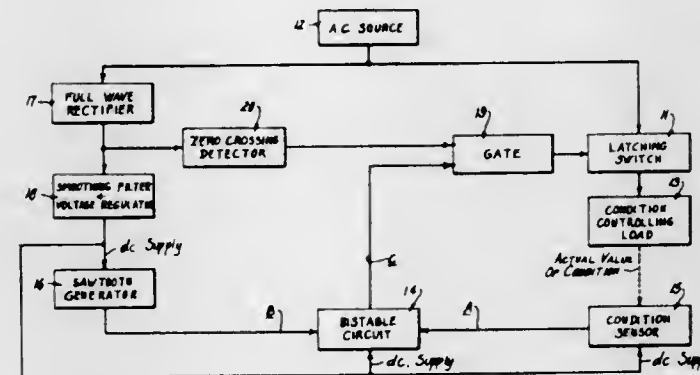
Ralph E. Clements, Rockford, Ill., assignor to Barber-Colman Company, Rockford, Ill.

Filed Apr. 15, 1970, Ser. No. 28,620

Int. Cl. G05d 23/24

U.S. Cl. 323-18

9 Claims



A burst length proportioning controller for supplying bursts of integral numbers of half-cycles of AC current to a condition-controlling load in a manner tending to maintain the controlled condition, such as temperature, at a predetermined set point. Whenever energization of the load is required a thyristor-type switch is fired by a firing pulse of predetermined amplitude and in timed synchronism with a zero crossing of the AC voltage, so that positive and unambiguous operation of the switch is assured and the noise and interference generated by its operation are minimized. The determination as to whether energization of the load is required or not is made in a bistable circuit which compares the magnitude of a condition-responsive signal to the magnitude of a cyclical sawtooth reference signal.

3,633,095

ZERO-CROSSING POWER LINE CONTROL SYSTEM

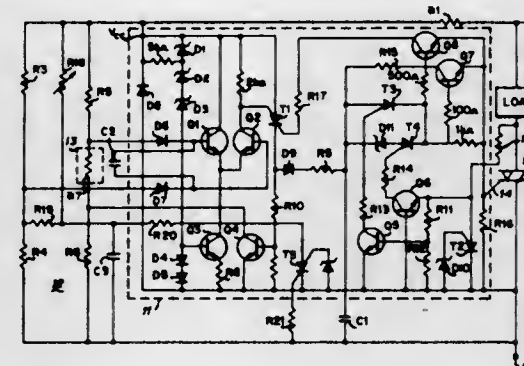
Robert B. Hood, Los Altos, Calif., assignor to Fairchild Camera and Instrument Corporation, Mountain View, Calif.

Filed July 31, 1970, Ser. No. 60,008

Int. Cl. G05f 1/44

U.S. Cl. 323-18

28 Claims



A zero-crossing control system operative responsive to zero crossing of power line voltage or current. Each input signal results in the application of one full (360°) cycle of power to the load, the control circuit operating on each input signal to deliver a gate pulse to the power line switch at each of the next two zero line crossings. A hysteresis transfer characteristic is provided in the input circuit of the control system including time proportioning circuits which may be utilized in the control system and output-pulse-forming circuits, circuits providing delay turn-on of the power switch and delay of the input signal, and open and shorted input sensor detector circuits and, operation of the control system with three-phase systems.

3,633,096

WIRE HARNESS JIGBOARD HAVING A PLURALITY OF WIRE RETAINING PINS DETACHABLY EMBEDDED IN SPACED WOVEN SCREEN ELEMENTS

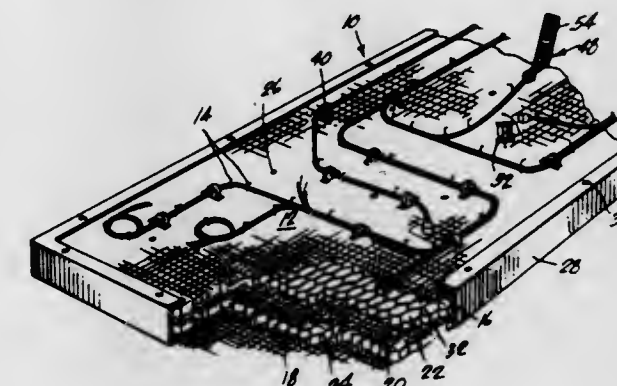
Clifford J. Bollman, Cypress, Calif., assignor to McDonnell Douglas Corporation

Filed July 1, 1969, Ser. No. 838,244

Int. Cl. G01r 31/02; H01r 43/00; B21f 27/00

U.S. Cl. 324-51

3 Claims



An apparatus comprising a panel and a plurality of pins inserted through selected openings therein to define an outline of a wire harness to be formed. The panel includes a first metallic screen element and a second metallic screen element parallel to and spaced apart from the first element. A penetrable core material is positioned intermediate the first and second screen elements to increase structural rigidity. Each pin is positioned through and held by the first and second screen elements for purposes of harness assembly. The pins may be removed easily for purposes of changing a wire harness assembly pattern.

3,633,097

DATA NORMALIZER FOR MICROWAVE MEASUREMENT OUTPUTS

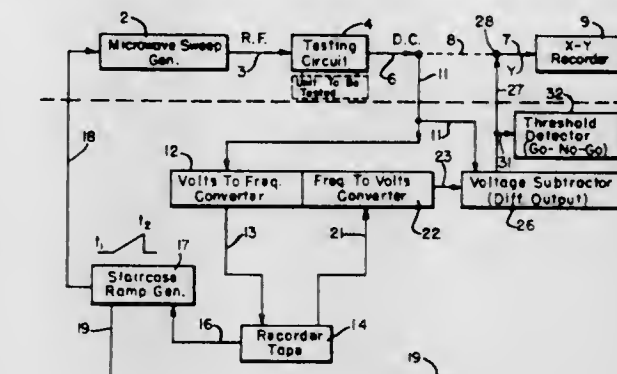
James R. Siconolfi, Rockville, Md., assignor to Weinschel Engineering Co., Inc., Gaithersburg, Md.

Filed Nov. 18, 1969, Ser. No. 877,807

Int. Cl. G01n 27/04

U.S. Cl. 324-58 A

5 Claims



In making microwave measurements, such as attenuation, VSWR, etc., over a broad frequency band, the resulting test values are obscured by the highly variable frequency characteristics of the testing circuitry itself, which must be corrected for at all points (or at any desired points of interest), from the test output curve to indicate the true value of the item or component being tested, at such points. Where the output is a logarithm of the input, the correction can be accomplished by subtracting calibration curve values from the output values. The present disclosure describes a system which, automatically and continuously during such a microwave broadband measurement, makes this subtraction and provides a true corrected output representing the desired test values.

3,633,098

ELECTRICAL COMPONENT TESTING APPARATUS HAVING A TEMPERATURE-COMPENSATING CIRCUIT

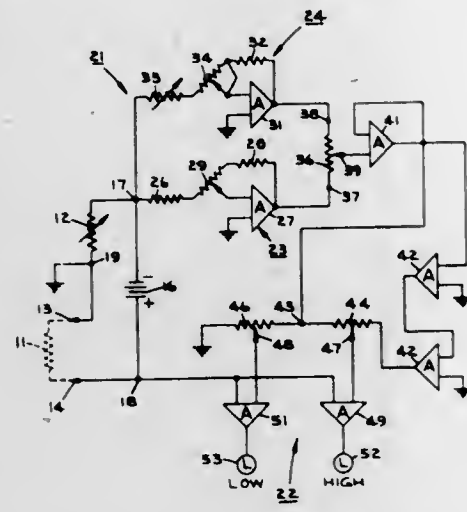
Robert L. Westlund, Yukon, Okla., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 17, 1969, Ser. No. 877,094

Int. Cl. G01n 27/02

U.S. Cl. 324-62 R

4 Claims



In testing apparatus in which voltages are developed across an electrical component and a standard resistance and are compared to determine whether the resistance of the electrical component falls within desired limits, temperature-compensating circuitry is provided for modifying the voltage developed across the standard resistance in response to changes in temperature and as a direct function of the temperature coefficient of resistance of a specific electrically conducting material in the electrical component. The temperature compensating circuitry is adjustable over a preselected range in accordance with the percentage of the specific electrically conducting material in the electrical component, and is connected between the standard resistance and a comparator circuit so as to feed the modified voltage to the comparator circuit for comparison with the voltage developed across the electrical component.

3,633,099

PROCESS AND APPARATUS FOR DETERMINING CREVICE CORROSION BY POLARIZATION TECHNIQUES

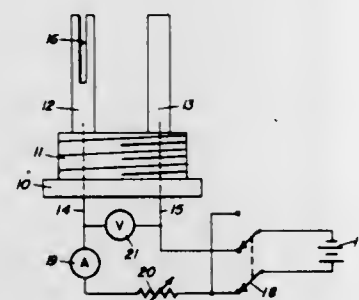
Russell B. Richman, Richland, Wash., assignor to The United States of America as represented by the Secretary of the Interior

Filed June 30, 1969, Ser. No. 837,818

Int. Cl. G01n 27/00

U.S. Cl. 324-71 C

7 Claims



Crevice corrosion is detected and its extent is qualitatively measured by use of a two-electrode, polarization-type probe. The two electrodes are fabricated of the same metal and have substantially equal surface areas. At least one of the electrodes is shaped to define a crevice area of relatively narrow width. The crevice area may be formed by cutting or

milling a slot in the electrodes, by grooving or threading the electrodes or by encircling the electrodes with a sleeve-like element of a nonconducting material.

3,633,100

TESTING OF NONLINEAR CIRCUITS BY COMPARISON WITH A REFERENCE SIMULATION WITH MEANS TO ELIMINATE ERRORS CAUSED BY CRITICAL RACE CONDITIONS

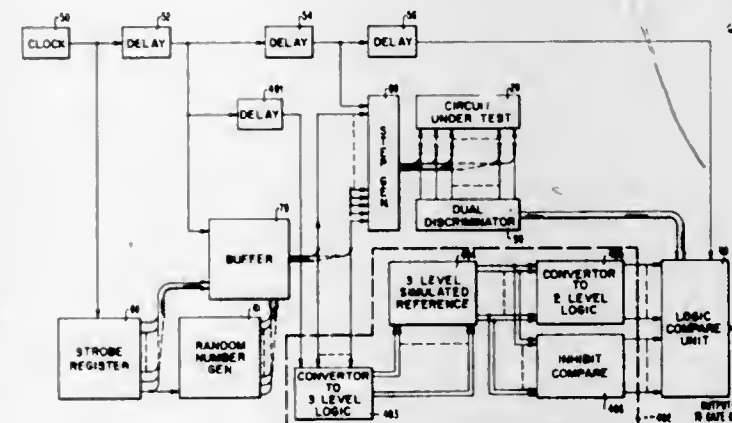
Melvin F. Heilweil, Poughkeepsie, and Maurice T. McMahon, Jr., Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 12, 1970, Ser. No. 36,523

Int. Cl. G01r 15/12

U.S. Cl. 324-73

41 Claims



A method and apparatus for testing complex nonlinear binary circuits by applying a bilevel signal pattern, particularly a random pattern, to both a plurality of inputs in the circuit being tested and to a corresponding plurality of inputs in a reference simulation of said circuit, and for comparing corresponding outputs from the circuit and the simulation.

The apparatus includes means for converting the signal pattern which is to be applied to the simulation to a three level signal pattern in which two levels represent the two levels in the bilevel pattern and the third level represents an indeterminate binary circuit state. The reference simulation is adapted to receive a three level pattern input and to provide a three level output. Means for applying the three level signal pattern to the reference simulation include means for applying a third level signal to a given simulation input during a change between first and second level signals being applied to said input. Sensing means determine which portion of the simulation output remains at the third level, particularly after a change between any of the first two levels at one or more of the simulation inputs; the existence of the third or indeterminate level indicates that the change produced race conditions critical to the portion of the output at the indeterminate level. Inhibiting means prevent that portion of the simulation output at the indeterminate level from being compared with the output of the circuit being tested. This presents an improper rejection of a good circuit because of "compare failure" caused by the critical race conditions.

3,633,101

VOLTAGE TRANSIENT MONITOR

Raymond E. Johnson, and Abraham Levine, both of Ft. Lauderdale, Fla., assignors to Data Research Corporation, Ft. Lauderdale, Fla.

Filed Mar. 4, 1970, Ser. No. 16,458

Int. Cl. G01r 27/28, 13/04

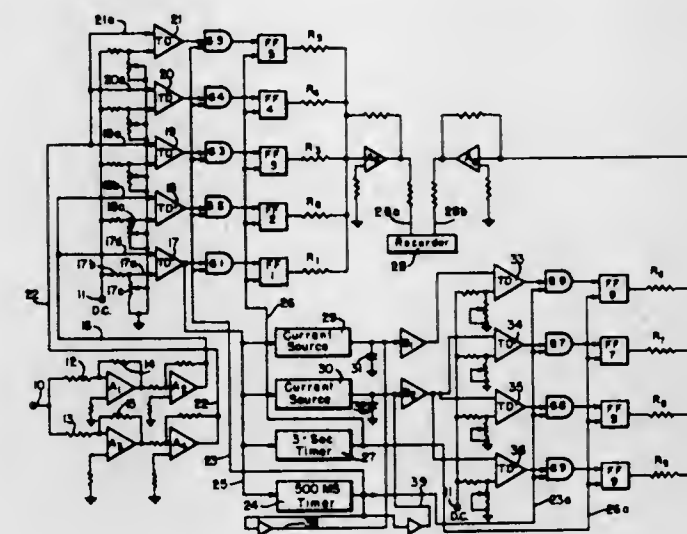
U.S. Cl. 324-102

9 Claims

A system is provided for measuring and recording high-speed transients occurring on a powerline or other voltage

source, using a relatively slow speed recorder. The transient is quantized into discrete amplitude steps and discrete dura-

ponent being tested. Contact between the electrical component being tested and appropriate test circuitry is established through the contact bodies.



tion increments. The resulting digital values are then stored, and subsequently displayed on the recorder.

3,633,102

ELECTRICAL COMPONENT TEST APPARATUS

Alan Edgar Heather, Hedge End, Southampton, England, assignor to U.S. Philips Corporation, New York, N.Y.

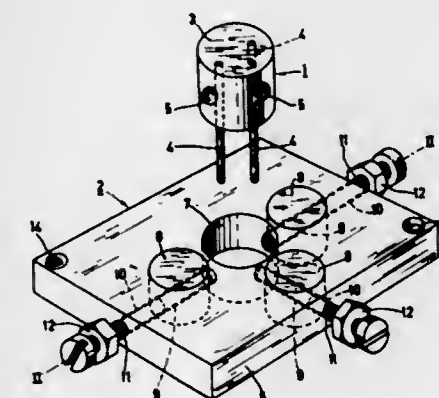
Filed Mar. 26, 1969, Ser. No. 810,495

Claims priority, application Great Britain, Apr. 17, 1968, 18,157/68

Int. Cl. G01r 31/22; H01r 13/50

U.S. Cl. 324-158 F

8 Claims



An electrical component test apparatus for testing such components as transistors and other solid-state devices. The apparatus comprises a socket member in combination with a socket receptacle member. The socket member comprises a cylindrical body of insulating material having a plurality of substantially parallel extending longitudinal metal guide tubes for receiving and engaging in electrical contact the lead wires of the electrical component to be tested. Each of the metal tubes has a portion exposed at an opening in a sidewall of the socket body. The socket receptacle member comprises a base having an aperture for receiving the socket body. The base is further provided with a plurality of electrically conductive contact bodies located adjacent the aperture and a corresponding plurality of clamping screws axially movable through the base and through one of the contact bodies for movement toward and away from the aperture holding the socket member. The movable members are each engageable with the exposed portion of one of the metal tubes so as to produce electrical contact with one of the leads of the com-

3,633,103

MICROWAVE RELAY EQUIPMENT

Mineo Sugiyama, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

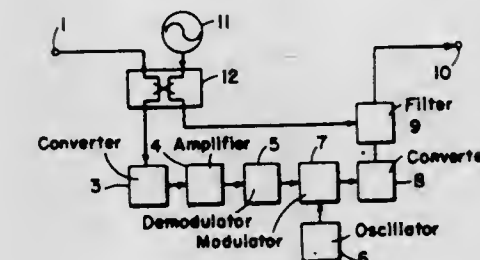
Filed July 22, 1970, Ser. No. 57,186

Claims priority, application Japan, July 25, 1969, 44/59155

Int. Cl. H04b 3/36

U.S. Cl. 325-11

3 Claims



A microwave repeated in which only a single diplexing filter is employed and in which no dummy load element is required. The input terminal is connected directly to one port of a four-port directional coupler and a second port of the coupler is coupled directly to a receiving frequency converter.

3,633,104

HIGH-STABILITY ELECTROMAGNETIC RESONATOR

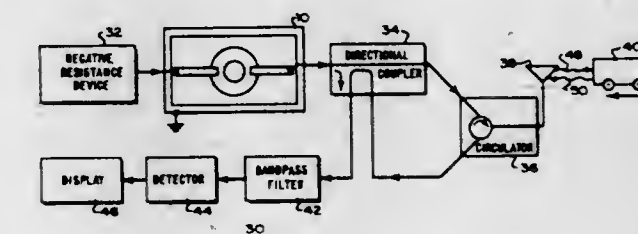
Douglas A. Gray, Portola Valley, and William W. Heinz, Palo Alto, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 5, 1970, Ser. No. 61,225

Int. Cl. H04b 1/38

U.S. Cl. 325-18

6 Claims



A metal disc is deposited on a quartz substrate to reduce the effective linear thermal coefficient of expansion of the disc, and air is contained between the quartz substrate and a ground plane to reduce the effective dielectric constant thermal coefficient to make an electromagnetic resonator which is stable in frequency with temperature.

3,633,105

DIGITAL ADAPTIVE EQUALIZER SYSTEM

Adam Lender, Palo Alto, and Henry H. P. Olszanski, Belmont, both of Calif., assignors to GTE Automatic Electric Laboratories, Northlake, Del.

Filed Apr. 1, 1970, Ser. No. 24,791

Int. Cl. H04b 15/00

U.S. Cl. 325-42

23 Claims

Because of delay and attenuation distortion a received message data signal may have extreme intersymbol interference which would result in errors in the recovered data.

Amplitude as well as phase equalization of the incoming signal may be performed on a decision-directed basis according to the novel algorithm:

$$C_{j+1} = C_j - P \operatorname{Sgn} \epsilon_j \operatorname{Sgn} X_{ij}$$

where:

C_j = Present value of the j th coefficient

C_{j+1} = Next value of the j th coefficient

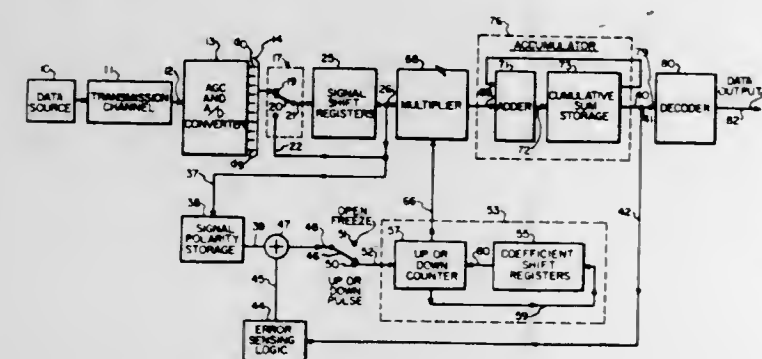
P = Constant

$\operatorname{Sgn} \epsilon_j$ = Sign of the error

$\operatorname{Sgn} X_{ij}$ = Sign of signal sample.

While analog implementation is possible, this new algorithm readily permits digital implementation.

In an equalizer based on this new algorithm binary, multilevel or correlative waveform is first converted into an n -digit binary code at a sampling rate determined by the data rate. The n -digit sample is gated into n -shift registers each of which has storage for k samples. The gate is then opened to incoming samples and is closed to permit processing and recycling of the k , n -digit samples around the register. In order to accomplish the processing before a new sample is introduced, the processing is done at a rate which is equal to the product of the data rate and the sum of the number of shift register stages plus one.



When the samples are read out, they are nondestructively read into a multiplier and back into the register. Each time a new sample is added, the oldest sample is discarded. The signal samples are digitally multiplied by coefficients and the result of k multiplications is summed in an accumulator to obtain an equalized output in binary code form. This equalized output is decoded to obtain the equalized message data signal. The equalized binary code signals are also applied to the error sensing logic circuitry. The output of the error sensing logic is combined in an Exclusive-OR gate with the polarity digit of the signal samples to provide information for correction of the coefficients.

3,633,106

EMERGENCY SIGNALLING TRANSMITTER

John George Willis, Wakefield, Mass., assignor to Solid State Technology, Inc., Wilmington, Del.

Filed Apr. 3, 1970, Ser. No. 25,512

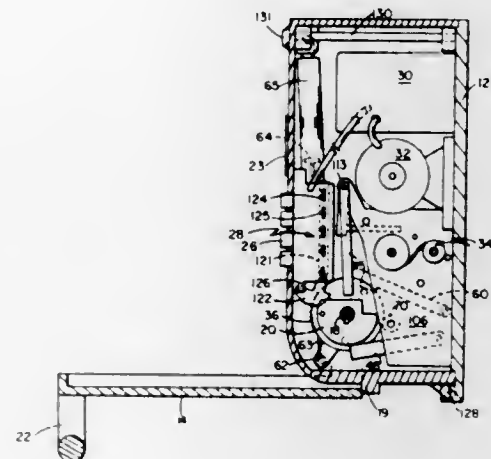
Int. Cl. H04b 1/02

U.S. Cl. 325-185

2 Claims

An enclosed batteryless remote wireless electrical signalling system with a radio transmitter having a plurality of selectable transmission modes and an electromechanical generator driven by a spring mounted within the enclosure. Manually operable means are provided for operating the generator to energize the transmitter means for a substantial period of time for transmission of the selected mode. Such means includes a manual winding lever overlying a portion of the front wall of the enclosure with its lower end pivoted adjacent the bottom of the front wall and with its free upper end having a handle. The lever is manually swingable downwardly and away from said front wall throughout an arcuate path of about 90° generally perpendicular to said front

wall to wind the spring. Selecting means are provided having a plurality of push buttons contained in an electrical switch mounted on the enclosure front wall behind and normally concealed by the overlying winding lever for exposure by the downward arcuate movement of the lever, each button being connected to the transmitter to select one of the transmission



modes as indicated by indicia provided adjacent said buttons. Further included in the manually operated means is a cam operated linkage for initiating driving of the generator upon return of the manual winding lever to the normal vertical position adjacent said front wall to transmit the selected transmission mode.

3,633,107

ADAPTIVE SIGNAL PROCESSOR FOR DIVERSITY RADIO RECEIVERS

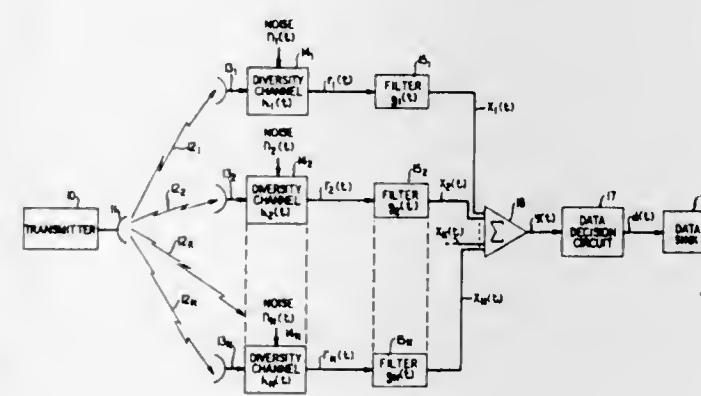
Douglas MacPherson Brady, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 4, 1970, Ser. No. 43,378

Int. Cl. H04b 1/16

U.S. Cl. 325-305

8 Claims



A signal processor in a diversity receiver for digital data transmitted over dispersive and fading radio channels performs the functions of demodulation, diversity signal combining, delay equalization, multipath distortion equalization and timing jitter elimination. Transversal equalizers, one in each diversity channel, are made adaptive to a common, time-varying mean-square error signal derived from the combined postdetection output data.

3,633,108

TIMING RECOVERY THROUGH DISTORTION MONITORING IN DATA TRANSMISSION SYSTEMS

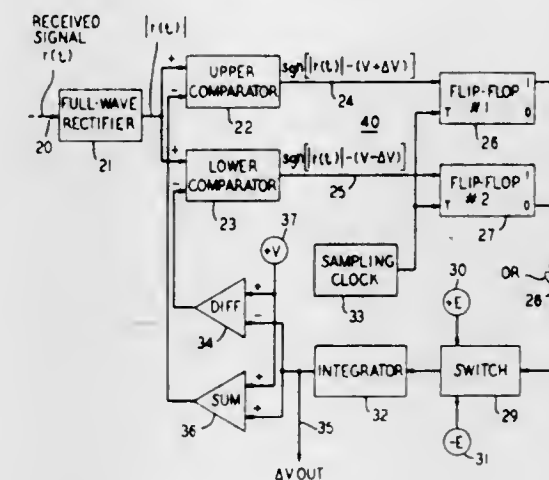
Joseph G. Kneuer, Fair Haven, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Mar. 18, 1969, Ser. No. 808,130

Int. Cl. H04b 1/10

U.S. Cl. 325-323

9 Claims



A receiver timing recovery arrangement for band-limited data transmission systems, particularly where adaptive equalizers are used, compensates for mistiming in the receiver eye pattern by generating caliper levels straddling a nominal received amplitude. The caliper spacing is continually expanded or contracted depending on whether the received signals at sampling times lie outside or between the caliper levels. The phase of the sampling wave is made to sweep back and forth about its nominal position, the direction of the sweep being reversed whenever the caliper spacing requires expanding. The timing wave thus adaptively seeks the instant of minimum noise and intersymbol interference.

3,633,109

NEGATIVE RESISTANCE ANTENNA AMPLIFIER ARRANGEMENT

Hansrichard Schulz, Villingen/Schwarzwald, Germany, assignor to Saba Schwarzwald Apparati Bau-Anstalt August Schwer Sohne GmbH, Villingen-Schwarzwald, Germany

Filed Oct. 21, 1968, Ser. No. 769,144

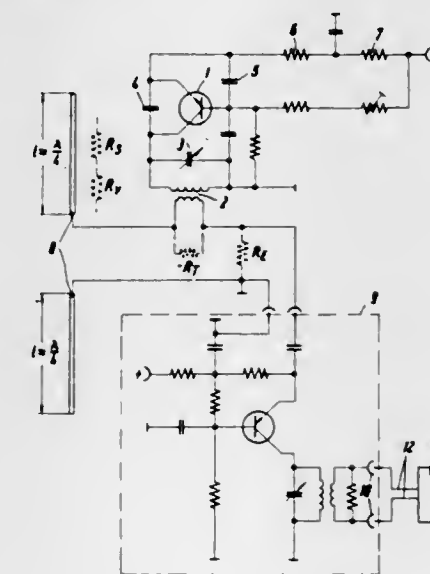
Claims priority, application Germany, Oct. 21, 1967, S

112511

Int. Cl. H04b 1/18

U.S. Cl. 325-373

11 Claims



An oscillator circuit is kept at a predetermined stable-operating point below the onset of oscillations by high-re-

sistance feedback in the emitter circuit. The tuned circuit of the oscillator has one winding of a transformer whose second winding is connected either in series between the antenna and the receiver, or in parallel with the receiver. The impedance seen looking into the second winding is a negative resistance.

3,633,110

WAVEGUIDE MIXER

Thomas E. Sullivan, Watertown, and Lothar Frenkel, Lynn, both of Mass., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed June 26, 1970, Ser. No. 50,207

Int. Cl. H01p 5/00

U.S. Cl. 325-445

12 Claims



A microwave mixer comprised of crossed waveguides and a crystal mixer. One of the waveguides has input horns at each end which are axially adjustable with respect to the ends of the waveguide. Axial adjustment of a horn with respect to the end of a waveguide varies the width of the gap between the horn and the waveguide to tune the signal input from the horn to the mixer. Accordingly, the mixer may be tuned by adjusting the position of the input horns with respect to the input ports of the mixer.

3,633,111

SIGNAL-SEEKING RADIO RECEIVER

Wayne A. Smith, Russiaville, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 22, 1969, Ser. No. 868,365

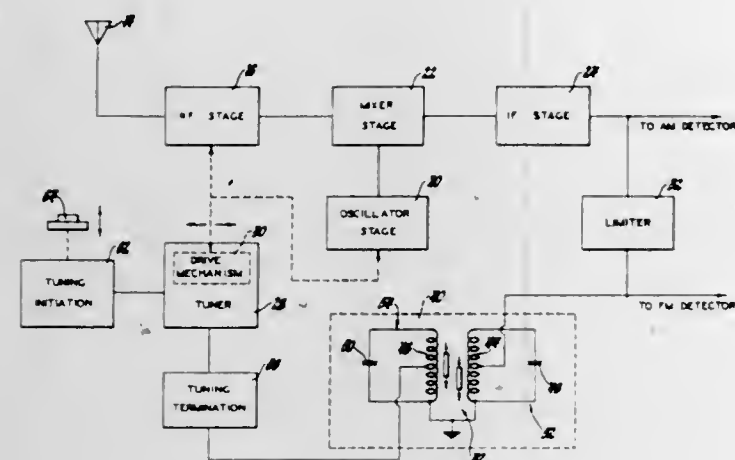
Int. Cl. H04b 1/32

U.S. Cl. 325-470

3 Claims

A superheterodyne radio receiver is provided for receiving RF signals over a reception frequency spectrum. The radio receiver includes a signal-seeking tuner having a drive mechanism for defining the reception frequency of the radio receiver as a function of the movement of the drive mechanism. The tuner is responsive to a start signal to initiate movement of the drive mechanism to vary the reception frequency of the radio receiver over the reception frequency band. Further, the tuner is responsive to a stop signal to terminate movement of the drive mechanism after the drive mechanism has coasted to a stop over a stopping-frequency range. A control circuit includes a transformer having a primary tuned circuit and a secondary tuned circuit each exhibiting a slightly different resonant frequency. A limiter circuit combines with the control circuit to provide frequency response curves for the IF signal of the radio receiver which are compressed with respect to overall magnitude and skewed with respect to peak frequency. As a

result, an IF control signal is developed having an amplitude which exceeds a trigger level only when the nominal magnitude of the received RF signal exceeds a minimum reception level, and only when the reception frequency of the radio receiver differs from the carrier frequency of the received RF signal by an amount approximately equal to the



stopping frequency range of the tuner drive mechanism. A stop signal is applied to the tuner when the amplitude of the IF signal exceeds the trigger level so that the drive mechanism coasts to a stop at a frequency approximately equal to the carrier frequency of the next received RF signal having a nominal magnitude in excess of the minimum reception level.

3,633,112

DIGITAL AUDIO SQUELCH

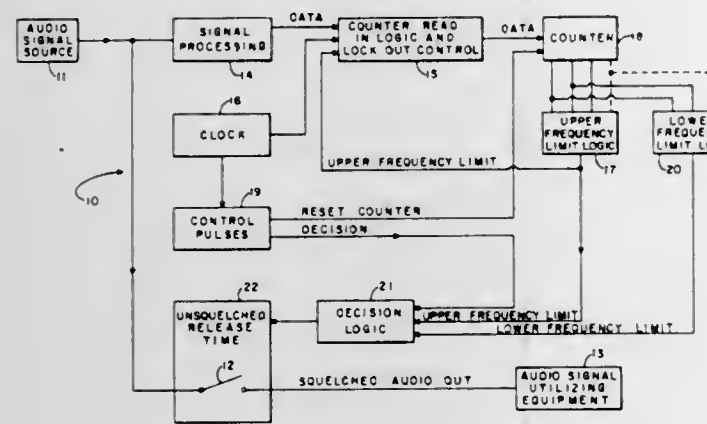
Dean T. Anderson, Marion, Iowa, assignor to Collins Radio Company, Dallas, Tex.

Filed Sept. 28, 1970, Ser. No. 76,116

Int. Cl. H04b 1/16

U.S. Cl. 325-478

10 Claims



A digital squelch circuit taking the received audio signal and generating a digital train of pulses representing zero crossing characteristics of the received signal with, for example, if the signal is greater than zero, a logic level one being generated and if it is less than zero, a logic level zero being generated. The processed signal is then repeatedly sampled for predetermined time intervals via a counter (or a charging sample and hold circuit) to determine the time measured apparent zero crossing frequency. The time measured apparent frequency is then used repeatedly to gate and ungate the squelch.

3,633,113 TIMED PULSE TRAIN GENERATING SYSTEM

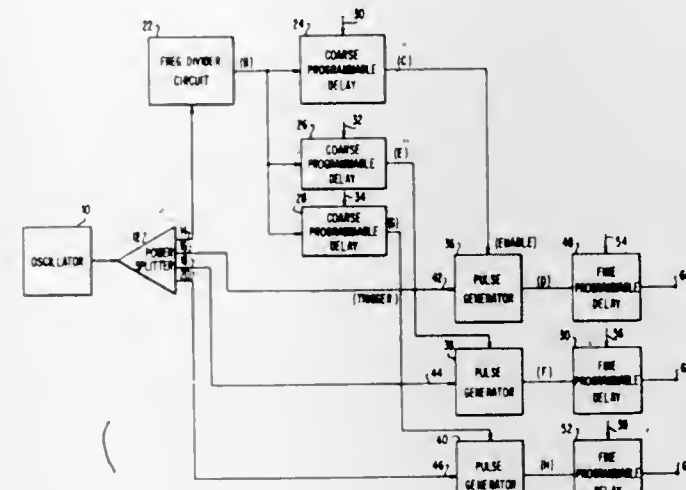
Stanley J. Grubel, and John F. Merrill, both of Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,257

Int. Cl. H03k 5/08; 1/00, 3/04

U.S. Cl. 328-29

4 Claims



A system for generating a pulse train whose constituent pulses occur synchronously with a reference transition of a high-frequency oscillator, which may be easily extended to a system for generating a plurality of such pulse trains, and includes a frequency divider circuit for generating pulses whose frequency is a percentage of the frequency of the oscillator, a delay circuit for delaying the pulse output of the frequency divider circuit, and a gated pulse generator for generating the constituent pulses of the pulse train whenever enabled by the output from the delay circuit and triggered by the reference transition. The timing of the constituent pulses may be further controlled by a second delay circuit at the output of the pulse-generating gate.

3,633,114

COUNTER CIRCUIT

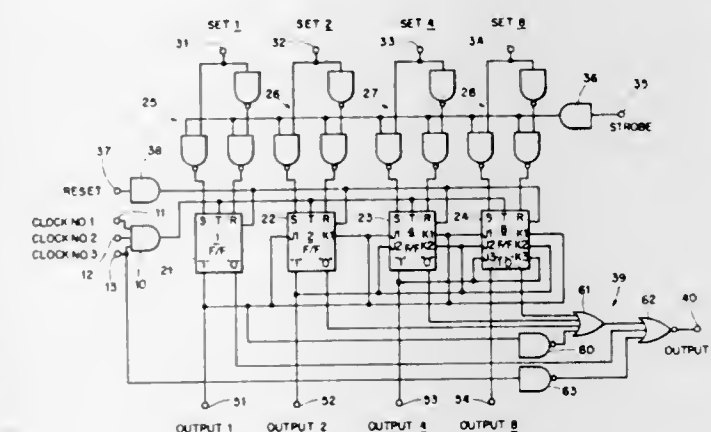
Suman H. Patel, Arlington, Mass., assignor to Sylvania Electric Products, Inc.

Filed Aug. 7, 1970, Ser. No. 61,919

Int. Cl. H03k 21/32

U.S. Cl. 328-48

9 Claims



Counter circuit including four bistable stages arranged to count upward through a recurring sequence of combinations of operating states of the bistable stages in response to clock pulses. The bistable stages can be set to any of the combina-

tions of operating states. The circuit includes an output section which produces an output signal a first delay period after the final clock pulse of a sequence is received and which terminates the output signal a second delay period shorter than the first delay period after the next clock pulse is received. Five countercircuits are cascaded in series with only a single AND gate as additional logic circuitry to provide a counter capable of counting through a count equal to five magnitudes of an individual counter circuit.

3,633,115

DIGITAL VOLTAGE CONTROLLED OSCILLATOR PRODUCING AN OUTPUT CLOCK WHICH FOLLOWS THE PHASE VARIATION OF AN INPUT CLOCK

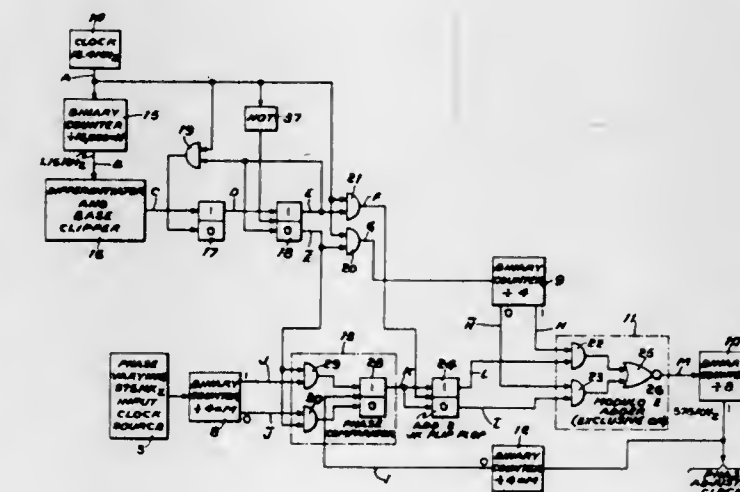
Marvin A. Epstein, Monsey, N.Y., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Apr. 22, 1970, Ser. No. 30,788

Int. Cl. H03k 5/00

U.S. Cl. 328-63

12 Claims



The digital VCO provides an output clock following the phase variation of an input clock where both the input and output clocks have the same average repetition frequency but rapid phase input clock variations are smoothed in the output clock. A local clock is produced having a repetition frequency equal to a given multiple L of the nominal repetition frequency of the output clock. A binary counter divides this local clock by a value N and through logic circuitry coupled to the binary counter and to the local clock provides a first clock signal having a repetition frequency equal to L times the nominal repetition frequency of the output clock with a missing pulse every N pulses and, in addition thereto, a second clock signal containing only, the missing pulses. A binary counter chain driven in an appropriate manner as described below by these clock signals provides the phase adjusted output clock with steps of 1/L period. The phase varying input clock and the phase adjusted output clock are each divided by a given factor M and phase compared by a clocked RS flip-flop thus, providing an input output phase comparison modulo M cycles. The output of this flip-flop is coupled to a JK flip-flop and is clocked by the missing pulse with the resultant output thereof being applied to a modulo-2 adder inserted between predetermined stages of the binary counterchain to bring about the desired phase adjustment of the output clock so as to follow the phase variation of the input clock. The binary counterchain is also driven by the first clock signal.

3,633,116

ELECTRICAL MEASURING SYSTEMS

Peter L. Richman, 22 Barberry Road, Waltham, Mass.

Filed May 22, 1970, Ser. No. 39,791

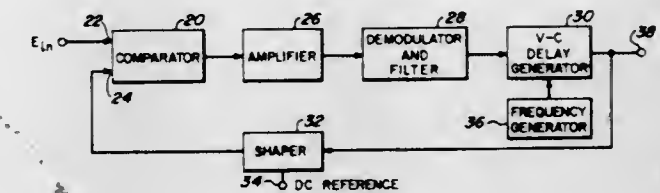
Int. Cl. G06g 7/20

U.S. Cl. 328-144

9 Claims

A system for measuring electrical power and including a pair of converters for providing a pair of output pulse trains,

the duration of the pulse being proportional to the means squared value of input signals to the converters. A circuit is included for generating a signal proportional to the dif-



ference between corresponding pulses; where the input signals to the converters are $E+I \cos \theta$ and $E-I \cos \theta$, the difference signal is essentially $E I \cos \theta$, the power sought.

3,633,117

SUPPRESSION OF A PHASE-SENSITIVE SPECTRAL COMPONENT FROM A SIGNAL

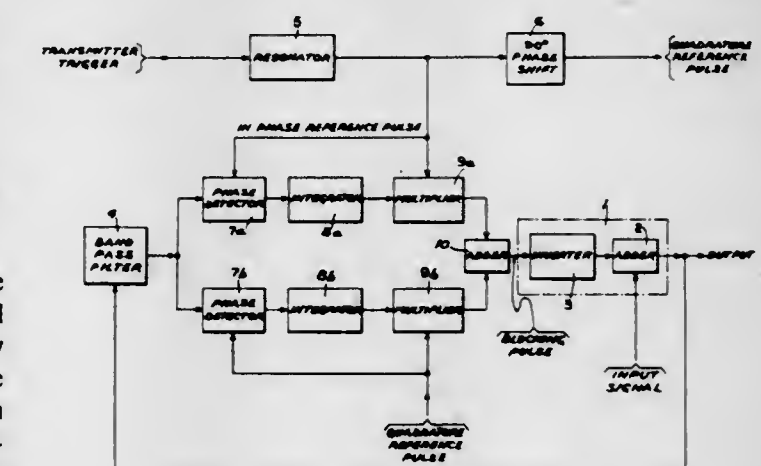
Robert A. Reilly, Jr., North Caldwell, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed July 29, 1970, Ser. No. 59,218

Int. Cl. H03b 1/04

U.S. Cl. 328-166

4 Claims



A method and apparatus for suppressing a phase-sensitive spectral component from a given signal. A phase and amplitude-sensitive blocking pulse is generated at the frequency of the spectral component. This blocking pulse is subtracted from the signal and the unsuppressed portion of the spectral component is used to adjust the phase and amplitude of the blocking pulse, so as to more completely eliminate the spectral component from the signal.

3,633,118

AMPLIFYING SURFACE WAVE DEVICE

Robert W. Means, Los Angeles, and Harper John Whitehouse, Hacienda Heights, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed July 22, 1970, Ser. No. 57,292

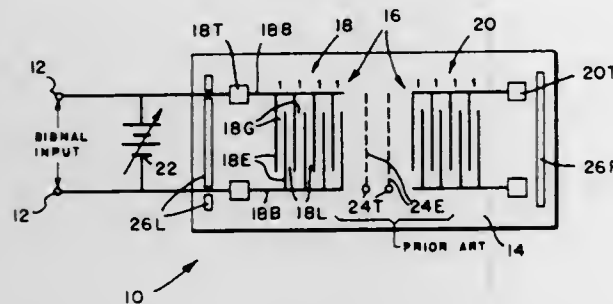
Int. Cl. H03f 3/04

U.S. Cl. 330-5.5

10 Claims

A surface wave device upon whose surface an acoustic wave may be made to propagate by the transduction of an electrical signal, which may be applied to the input of the device, comprising a substrate capable of propagating an acoustic surface wave, a conductive structure disposed upon the substrate, and a battery connected to the bus bars at the input to the surface wave device. The conductive structure consists of a pair of sets of linear electrodes, one set inter-

digitated with the other, and a pair of bus bars connected to opposite ends of the electrodes. Due to the use of the battery, the surface wave device is capable of amplification as well as transduction.



tery, the surface wave device is capable of amplification as well as transduction.

3,633,119

INTERMEDIATE-FREQUENCY AMPLIFIER WITH WIDE-RANGE CONTINUOUSLY VARIABLE BANDWIDTH SELECTION

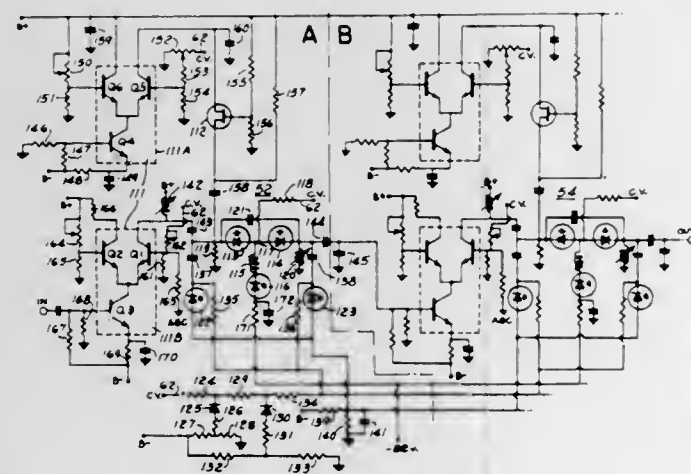
Michael S. Balbes, Rockville, Md., assignor to Microdyne Corporation, Rockville, Md.

Filed Dec. 24, 1969, Ser. No. 887,945

Int. Cl. H03F 3/16

U.S. Cl. 330-21

5 Claims



A multistage intermediate-frequency amplifier whose bandwidth, loading and gain-bandwidth product are controlled electronically. Interstage coupling filters utilize varactors in a circuit which allows the bandwidth to be varied by control of a single control voltage, while maintaining the center frequency of the band at a constant predetermined value. Related semiconductor circuits automatically control the coupling, shape-factor and band-pass symmetry to optimum values for the selected bandwidth, as by varying the coupling coefficients and amplifier load impedances from the same control voltage.

3,633,120

AMPLIFIER CIRCUIT

Carl R. Battjes, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Sept. 16, 1970, Ser. No. 72,661

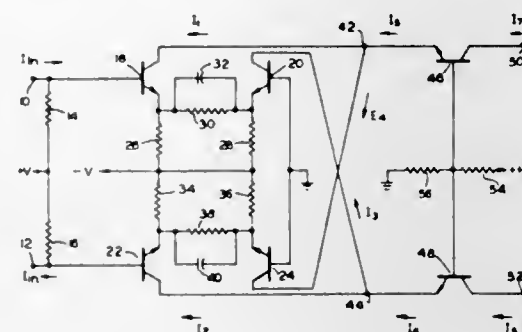
Int. Cl. H03F 3/68

U.S. Cl. 330-30 R

8 Claims

An amplifier circuit for increasing current gain at high frequencies includes first and second pairs of transistors,

wherein the outputs of the transistor pairs are coupled in parallel while a common input current is provided in series to



the four transistors. The circuit substantially doubles the current gain achieved at certain high frequencies.

3,633,121

GAMMA CONTROL CIRCUIT

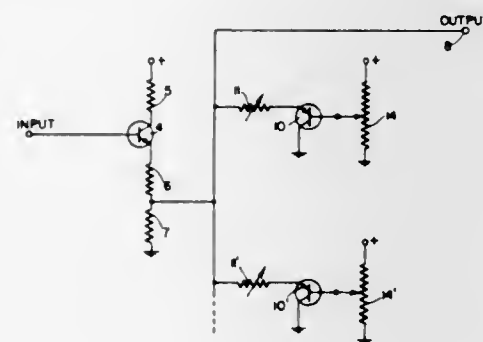
Wayne E. Brett, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Sept. 5, 1969, Ser. No. 855,613

Int. Cl. H03F 3/04

U.S. Cl. 330-40

5 Claims



A gamma control circuit providing transfer characteristics for an amplifier with constant linear slopes above and below well-defined breakpoints utilizes transistor switches biased to conduct at predetermined levels. The switches are connected in series with gamma correction impedances across the load impedance of the amplifier being controlled.

3,633,122

ACTIVE ALL-PASS NETWORK

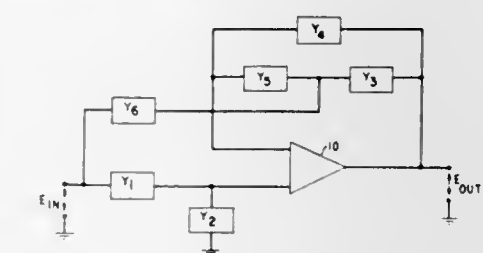
Felix J. Braga, Morristown, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Nov. 25, 1968, Ser. No. 778,728

Int. Cl. H03F 1/00

U.S. Cl. 330-69

4 Claims



A network is set forth which achieves a second-order all-pass function utilizing only one differential-type amplifier, two capacitors and four resistors. By utilizing both inputs to

the operational amplifier, the desired performance may be achieved.

3,633,123

POWER COMBINING OF OSCILLATORS BY INJECTION LOCKING

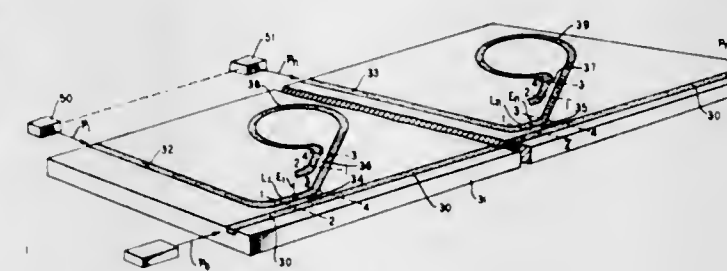
Enrique A. J. Marcatill, Rumson, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Aug. 19, 1969, Ser. No. 851,372

Int. Cl. H03b 3/06; H01s 3/10; H01p 7/00

U.S. Cl. 331-56

6 Claims



Injection-locking is employed to produce phase coherency among a plurality of otherwise free-running incoherent oscillators. The outputs from the injection-locked oscillators are successively coupled together by means of a succession of quadrature couplers whose transmission and reflection coefficients are a function of the amplitudes of the signals incident thereon. The output signal power derived from the last of said couplers is the sum of the powers of the individual oscillators.

3,633,124

LASER WITH FEEDBACK CIRCUIT FOR CONTROLLING RELAXATION OSCILLATION

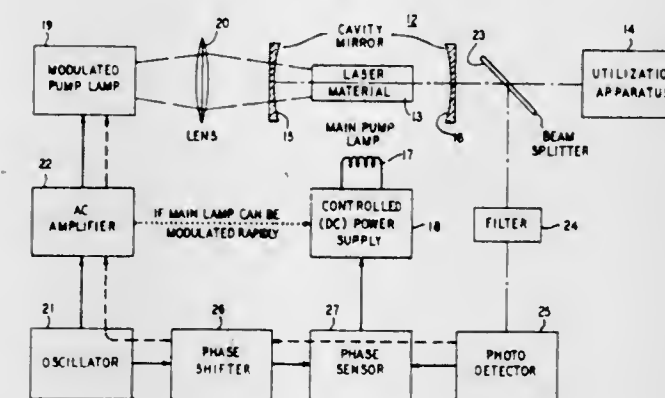
Hans Guenter Danielmeyer, Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 10, 1970, Ser. No. 45,193

Int. Cl. H01s 3/10

U.S. Cl. 331-94.5

6 Claims



There is disclosed an optically pumped solid-state laser with a dielectric crystal or glass host for the active medium. The pulse frequency, phase, height and width of relaxation oscillation pulsing are controlled by externally detecting the phase difference between a stable periodic perturbation of the pump light and the output pulse, then externally feeding back a signal to restore the laser output pulse phase to a fixed relationship to the phase of the perturbation. The perturbation can be provided by a small luminescent diode. Alternatively, the resonator loss can be modulated at the relaxation oscillation frequency by an acoustic cell in which the perturbations are scaled down by two or three orders of magnitude from those in an acoustic Q-switch. Moreover, relaxa-

tion oscillation pulsing of a single laser mode and frequency can be stimulated by employing the foregoing control technique and concurrently preventing spatial hole burning, specifically by varying the optical spacing between the ends of the laser rod and respective ones of the resonator mirrors simultaneously in inverse relationship.

3,633,125

GAS LASER WITH MEANS FOR SPECIFICALLY CREATING AND MAINTAINING TURBULENCE IN THE GASEOUS LASER MEDIUM

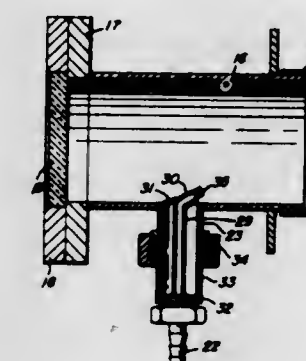
David R. Whitehouse, Weston, Mass., assignor to Raytheon Company, Lexington, Mass.

Continuation-in-part of application Ser. No. 625,732, Mar. 24, 1967, now abandoned. This application June 22, 1970, Ser. No. 48,494

Int. Cl. H01s 3/09, 3/22

U.S. Cl. 331-94.5

24 Claims



A gaseous laser having improved output characteristics comprising an elongated chamber containing a supply of a selected molecular gaseous medium, means for electrical discharge pumping or excitation of the gaseous medium for generation of output electromagnetic radiation, and means for creating turbulence within the gaseous medium for increasing uniformity of the temperature and the electrochemistry of the gaseous medium throughout the effective volume thereof.

3,633,126

MULTIPLE INTERNAL REFLECTION FACE-PUMPED LASER

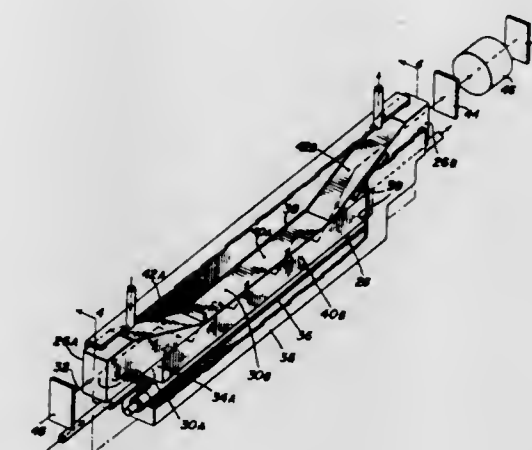
William S. Martin, Schenectady, and Joseph P. Chernoch, Scotia, both of N.Y., assignors to General Electric Company

Filed Apr. 17, 1969, Ser. No. 816,906

Int. Cl. H01s 3/04, 3/00

U.S. Cl. 331-94.5

10 Claims



A miniaturized face-pumped, face cooled laser device is described wherein wave front distortion is minimized by the

passage of a coherent beam of electromagnetic radiation through an elongated, rectangularly cross-sectioned laser body in an off-axial direction to effect multiple total internal reflections of the beam from fluid cooled, parallelly extending faces of the laser body. Because each ray of the coherent beam passes through substantially identical thermal environments during the reflective transmission of the beam through the laser body, the net distortion of the beam wave front is substantially reduced making the laser device particularly suitable for high-repetition rate, Q-switched operation. In a preferred embodiment, the beam is reflectively passed initially through only a portion of the cross-sectional area of the laser body to effect a first order compensation of beam distortion whereupon the beam is folded back one or more times along adjacent untraversed portions of the laser body for a second order compensation of beam distortion by additional averaging of the optical environment observed by the beam.

3,633,127

PULSED LASER DEVICE WITH IMPROVED DISCHARGE CIRCUIT

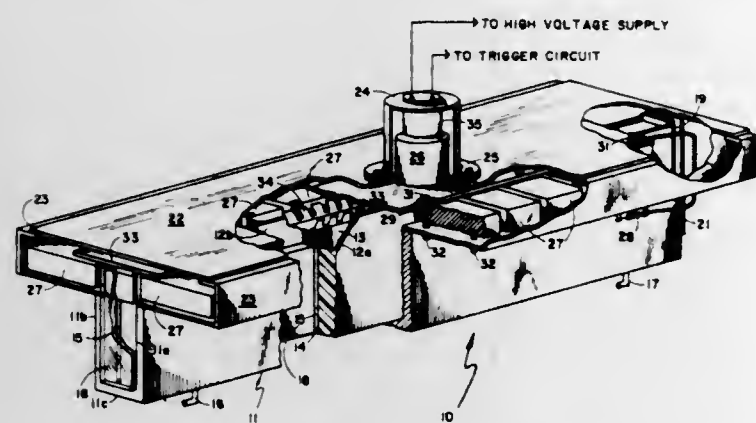
Robert F. Caristi, Everett, and Donald A. Leonard, Stoneham, both of Mass., assignors to Avco Corporation, Cincinnati, Ohio

Filed Nov. 17, 1969, Ser. No. 877,089

Int. Cl. H01s 3/09

U.S. Cl. 331—94.5

10 Claims



An improved discharge circuit for an electrically pumped, pulsed gas laser wherein a high-voltage driving electrical field is periodically applied in a crossfield geometry across a cavity. In the preferred embodiment a capacitor discharge circuit, including switching means, an energy storage capacitor and at least one secondary capacitor are carried by the means defining the laser cavity, the secondary capacitor being connected across the cavity.

3,633,128

RELAXATION OSCILLATOR WITH OUTPUT FREQUENCY SELECTIVELY SHIFTABLE BETWEEN TWO LIMITS

Ernesto G. Sevilla, Herkimer County, N.Y., assignor to The Singer Company, Rochester, N.Y.

Filed Nov. 5, 1970, Ser. No. 87,029

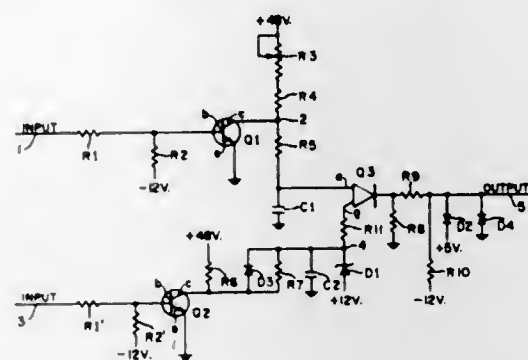
Int. Cl. H03k 3/35

U.S. Cl. 331—111

9 Claims

The circuit of the present invention discloses a relaxation oscillator comprising a programmable unijunction transistor which is so controlled that the output frequency may be smoothly shifted between two limits. A first transistor circuit and associated resistors control the charge and discharge rate of a capacitor which is coupled to the anode, or trigger point, of the programmable unijunction transistor. The charge and discharge time of the said capacitor controls, in part, the output frequency. A second transistor circuit and associated resistor control the charge and discharge rate of a second

capacitor coupled to the gate of the programmable unijunction transistor. The instantaneous magnitude of the potential of the gate of the programmable unijunction transistor is con-



trolled by said second capacitor; and the magnitude of the voltage at the gate determines the magnitude of the voltage required at the trigger point to render the programmable unijunction transistor conducting.

3,633,129

AUTOMATIC EQUALIZER UTILIZING A PREDETERMINED REFERENCE SIGNAL

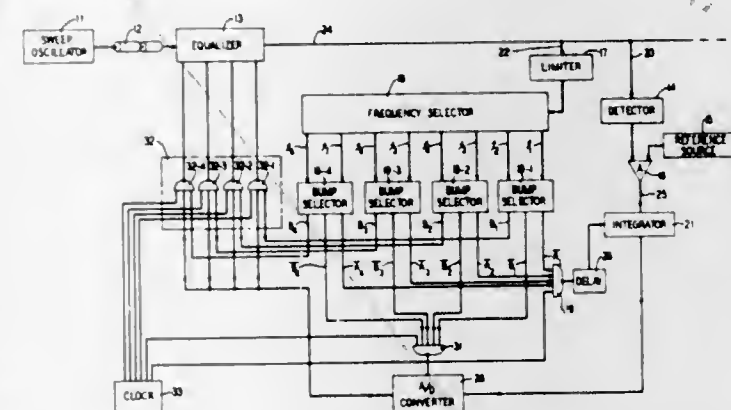
Chih-yu Kao, Lawrence; Carl Ferdinand Kurth, Andover, both of Mass., and Roderick Campbell MacLean, Atkinson, N.H., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 12, 1970, Ser. No. 80,073

Int. Cl. H04b 3/04

U.S. Cl. 333—18

11 Claims



An equalizer of a coaxial transmission system is automatically adjusted by applying a sweep signal to the equalizer and comparing the output of the equalizer with a predetermined reference signal to develop an error signal. The output signal of the equalizer is simultaneously converted into a train of pulses and applied to a frequency selector which generates signals upon the occurrence of predetermined frequencies in the equalizer output signal. In response to these generated signals, predetermined intervals of the error signal are integrated, converted to digital signals, and applied to the proper "memory" of the equalizer.

3,633,130

MULTICHANNEL ROTARY JOINT SUPPORTIVE OF ENERGY IN AT LEAST THREE MUTUALLY ORTHOGONAL CIRCULARLY SYMMETRIC WAVEGUIDE MODES SIMULTANEOUSLY

James S. Ajioka, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed July 15, 1970, Ser. No. 54,958

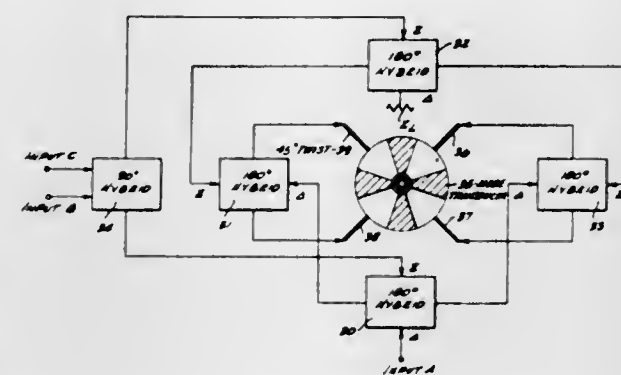
Int. Cl. H01p 1/06, 1/16

U.S. Cl. 333—21 A

9 Claims

An improved rotary joint for the transmission of high- and low-power electromagnetic wave energy between stationary

and rotatable apparatus. Three independently excited high-power channels are provided in a single circular or coaxial waveguide joint. One or more independent low-power chan-



nels can be provided in the same rotary joint by means of coaxial transmission lines located within the center of the high-power circular or coaxial waveguide.

3,633,131

WATER LOAD

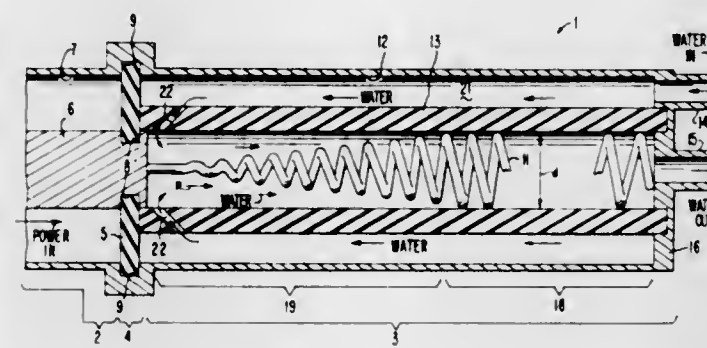
Richard B. Nelson, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Apr. 24, 1970, Ser. No. 31,710

Int. Cl. H01p 1/26; H03h 7/38, 7/30

U.S. Cl. 333—22 F

10 Claims



A radio frequency water load is disclosed having a loss section of transmission line. The loss section of transmission line includes a delay line portion for slowing the group velocity of wave energy traveling in the loss section. Conduits are arranged for directing a stream of wave-attenuative liquid through the loss section in wave-energy-exchanging relation with wave energy on the delay line for attenuating the wave energy, whereby the physical length of the loss section is reduced for a given amount of attenuation. In a preferred embodiment, the loss section is a section of coaxial line and the inner conductor is a helical delay line.

3,633,132

ENERGY-WEIGHTED DISPERSIVE ACOUSTIC DELAY LINE OF THE SURFACE WAVE TYPE

Pierre Hartemann, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Mar. 5, 1970, Ser. No. 16,875

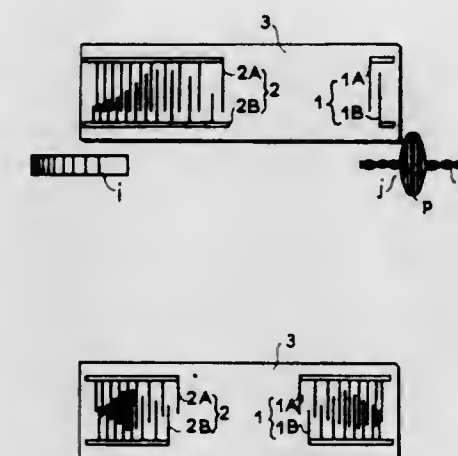
Claims priority, application France, Mar. 12, 1969, 6906977

Int. Cl. H03h 7/30, 9/00

U.S. Cl. 333—30 R

9 Claims

To provide an energy-weighted signal in which the amplitude of the secondary lobes in the signal are essentially suppressed, comb-shaped electrodes having interleaved teeth applied to a piezoelectric wafer equipped with two transducers are dimensioned that at least one of the electrodes has teeth of dissimilar length thus inherently producing weighting of the compressed signal. The tips of the comb-shaped elec-



trodes are arranged in accordance with desired mathematical weighting functions, e.g. a Gauss curve, the Taylor approxi-

3,633,133

NARROW BANDWIDTH MECHANICAL FILTER USING LARGE AREA COUPLING WIRES

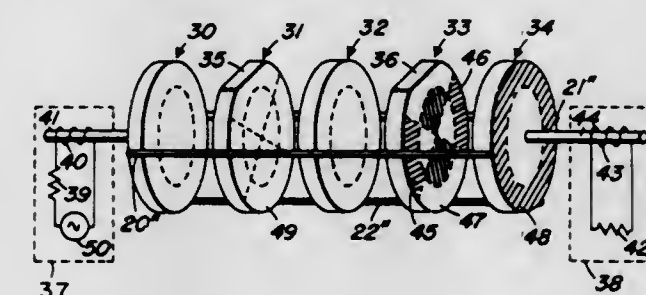
Donald L. Bisc, Tustin, Calif., assignor to Collins Radio Company, Dallas, Tex.

Filed Oct. 6, 1969, Ser. No. 864,087

Int. Cl. H03h 9/26

U.S. Cl. 333—71

1 Claim



A mechanical filter of the stacked disc-type using a diameter mode disc. A first coupling wire means connects all discs together and specifically is connected to points on the diameter mode disc perimeter which vibrate in a first phase. A second coupling wire means connects all discs together and specifically is connected to the diameter mode disc perimeter at a point whose phase of vibration is 180° removed from said first phase. The difference between the cross-sectional area of said first and second coupling wire means is the effective cross-sectional area of the total coupling wire means. Since bandwidth is proportional to the effective cross-sectional area of the coupling means, the filter has the desired narrow bandwidth and also substantial mechanical strength.

3,633,134

CRYSTAL BAND PASS FILTER CIRCUIT

Richard G. Barrows, Mount Prospect, and William G. Ahlen, Lombard, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Feb. 19, 1970, Ser. No. 12,799

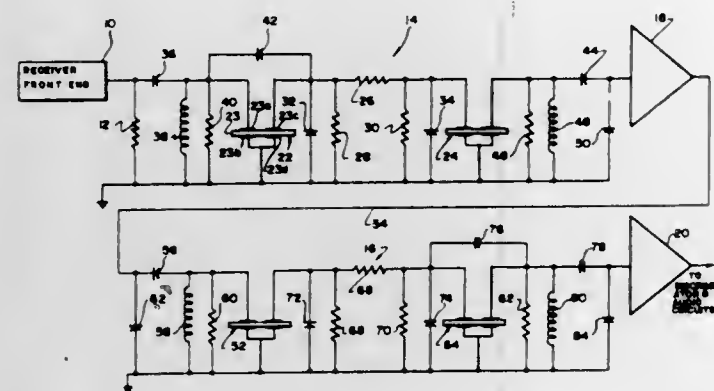
Int. Cl. H03h 9/00

U.S. Cl. 333—72

8 Claims

A band pass filter circuit including at least two stages of crystal filtering preceding each of a pair of integrated amplifier circuits. All of the crystal filters have the same resonant frequencies, and an impedance coupling network is provided

between each of the crystals and its associated utilization circuit to minimize the effects of reflected impedance variation.



Also a de-Qing network is provided between each pair of the crystal filters to prevent undesired ringing of the crystal.

3,633,135

ELECTROMAGNETIC RELAY

Sven Ake Olof Stromberg, Stockholm; Ake Gunnar Herbert Thurenus, Skarholmen, and Hans Erik Wallin, Stockholm, all of Sweden, assignors to Telefonaktiebolaget L.M. Ericsson, Stockholm, Sweden

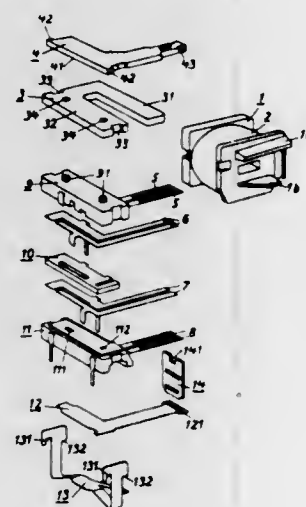
Filed May 15, 1970, Ser. No. 37,738

Claims priority, application Sweden, May 30, 1969, 7621/69

Int. Cl. H01h 51/06

U.S. Cl. 335-135

7 Claims



Electromagnetic relay having a flat magnet core and a flat armature. The armature movement takes place around one of the edges of the magnet core. A U-shaped spring-clip, by elastic deformation of its legs, fastens a spring set on the core in such a position that a spring set by turning of the armature is brought from a rest position to a work position. The legs of the spring-clip extend beyond the magnet core at its side turned from the springs set and are provided each with a notch in order to form a bearing for projections on the armature.

3,633,136

REED SWITCH WITH IMPROVED CONTACT AND END CAP STRUCTURE

Edward George Walsh, Galena, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 8, 1970, Ser. No. 44,363

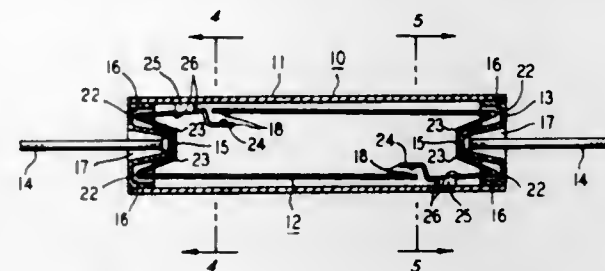
Int. Cl. H01h 1/66

U.S. Cl. 335-151

12 Claims

A sealed contact reed switch is disclosed in which the con-

tact springs include two sets of overlapping contacts, the ends of the encapsulating vessel are sealed with dimpled end



caps and the contact springs and external leads have portions positioned in pockets formed by the dimples in the end caps.

3,633,137

DEFLECTION YOKE-HOUSING ASSEMBLY

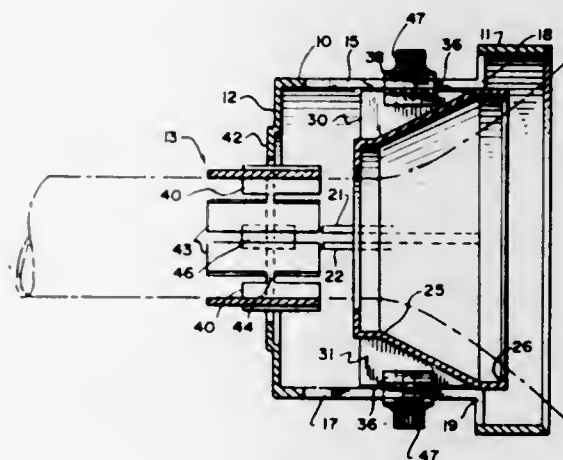
Orville D. Thurnell, Saint Charles, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 30, 1970, Ser. No. 23,814

Int. Cl. H01f 1/00

U.S. Cl. 335-212

14 Claims



A housing assembly for a toroid yoke used in a television receiver is formed with an inner core sheath made of non-magnetic material in the form of a truncated cone, with four locating fins located at equal distances about its periphery for facilitating locating of the beginning and termination of the windings of the yoke and for facilitating mounting of the core assembly within a main housing. The main housing is of substantially cylindrical configuration and has two guide channels for slidably engaging two of the support fins and two slots in which a slide clamp mounted on a corresponding fin on the yoke assembly is positioned for movement.

The housing further includes a reduced diameter portion integrally formed therewith and resiliently attached to the yoke housing for expansion and contraction to engage a range of different cathode-ray tube neck diameters.

3,633,138

TEMPERATURE-COMPENSATED PERMANENT MAGNET

Max Baermann, 506 Bensberg, Bezirk Cologne, Germany

Filed Nov. 19, 1969, Ser. No. 878,248

Claims priority, application Germany, Nov. 20, 1968, P 18 10 005.5

Int. Cl. H01f 1/00

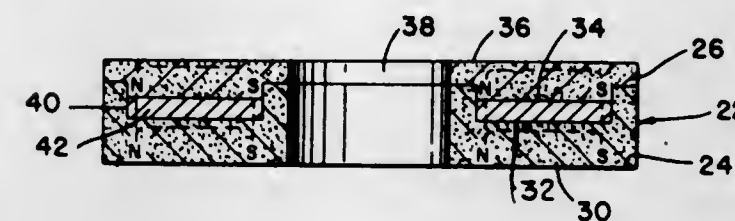
U.S. Cl. 335-217

7 Claims

A temperature-compensated permanent magnet comprising a generally thin, permanent magnet body having first and

second surfaces and magnetized to provide magnetic poles on at least one of the surfaces. Temperature-compensation

terior is wrapped with a shrink-type Mylar and the ends of the assembly are capped to confine the insulating resin during the curing and processing cycle, the Mylar acts as a posi-



means are carried by the body for maintaining a substantially constant magnetic flux. The magnet body is configured to have large surface areas and a relatively small thickness.

3,633,139

SOLENOID CONSTRUCTION

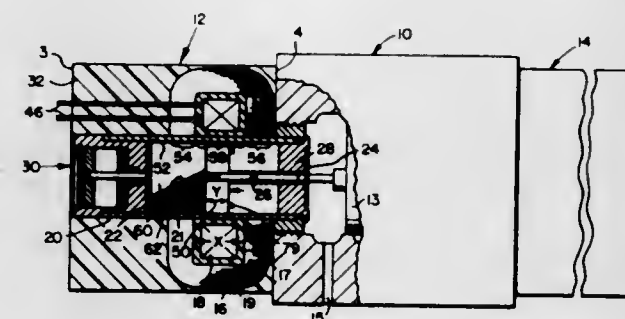
Richard Thompson, Fort Wayne, Ind., assignor to G. W. Lisk Company, Inc., Clifton Springs, N.Y.

Filed Apr. 20, 1970, Ser. No. 30,170

Int. Cl. H01f 3/00

U.S. Cl. 335-255

28 Claims



High-pressure and low-pressure AC push solenoid apparatus and method and pull solenoids of the armature in tube type for operating hydraulic valves. The solenoids include unique overall structural configurations and also improved armature tubes, armatures, push pins, yokes and a preferred range for the ratio of coil length to working gap lengths, providing high-force and stabilized operating temperatures.

3,633,140

DRY INSULATED TRANSFORMER

Glen W. Lake, and Myron D. Cooper, both of Charlottesville, Va., assignors to Chemetron Corporation, Chicago, Ill.

Continuation of application Ser. No. 780,335, Dec. 2, 1968, now abandoned. This application Aug. 26, 1970, Ser. No. 67,288

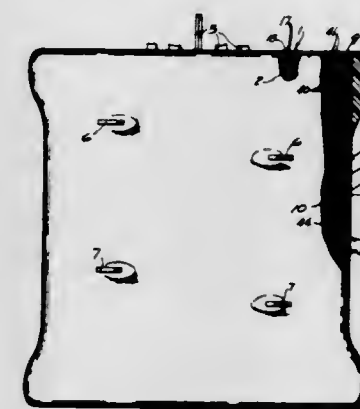
Int. Cl. H01j 27/32

U.S. Cl. 336-182

7 Claims

This disclosure includes a high-voltage dry-insulated transformer and to the method of constructing the transformer. The primary coil is a multiple-turn, multiple-layer winding constructed by alternately winding a coil layer and then insulation sheets or tape on a winding form. The insulation sheet is a nonwoven glass filament cloth which is impregnated with a semicured epoxy resin. A plurality of insulating cloth layers are wrapped about the primary coil to define the necessary intercoil insulation. The secondary coil is then similarly formed. The interlayer and intercoil insulating cloth extends beyond the axial end faces of the coils and the space is filled by wrapping of a corresponding tape between the two extended layers. The cloth is applied under tension and heat and the exterior of each layer is rolled to exclude air and cause the resin to flow into the voids and crevices. The ex-

An electrical bushing assembly including an insulating body member having an axial opening or bore, and first and second serially connected fuse members, each having a fuse tube with electrodes at the ends thereof, with the first and second fuse members being disposed in the axial bore of the insulating body member. A flexible insulating tubular member is disposed in a tight-fitting manner to cover the exposed electrodes at the intersection of the serially connected fuse members, and an insulating coating is disposed on the first fuse member, between the first fuse member and flexible insulating tubular member, such that the coating bridges the intersection of the fuse tube and electrode covered by the flexible insulating tubular member.



3,633,141

ELECTRICAL BUSHING ASSEMBLY

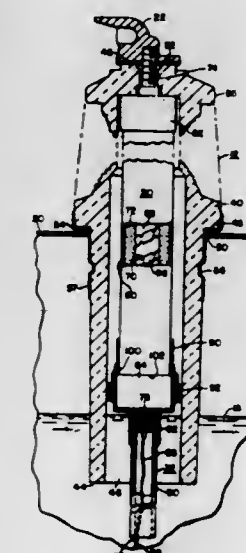
Donald J. Ristuccia, Athens, Ga., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1970, Ser. No. 75,181

Int. Cl. H01h 85/00

U.S. Cl. 337-224

4 Claims



3,633,142

TEMPERATURE-DEPENDENT SWITCHING DEVICE
Armand Bracht, No. 18, Rue Gerardmer, Mulhouse-Bourzwiller, France

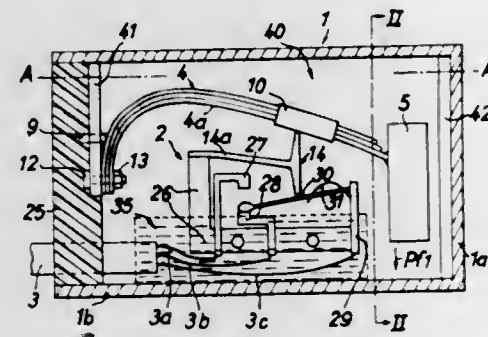
Filed Feb. 20, 1970, Ser. No. 13,133

Claims priority, application Germany, Feb. 26, 1969, P 19 09 605.0

Int. Cl. H01h 5/00, 37/04, 37/52

U.S. Cl. 337-334

12 Claims



A temperature-dependent switching device for cooperation with an electric switch and preferably constructed as a defrosting thermostat for refrigerators. A resilient bimetallic element is arranged in a sealed housing and acts upon the operating rod of a microswitch which is preferably constructed as a snap-action switch. The bimetallic element carries a weight which deflects said element more or less in accordance with the adjustable angular position of the housing.

3,633,143

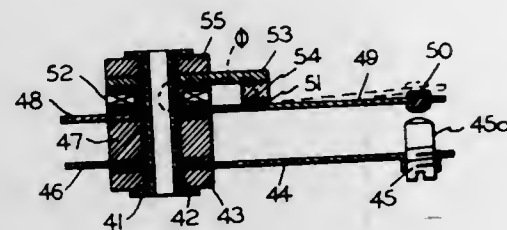
MAGNETICALLY CONTROLLED THERMAL RELAY
Koichi Yoshimura, Kadoma, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan
Original application Oct. 15, 1968, Ser. No. 767,710, now abandoned. Divided and this application Mar. 23, 1970, Ser. No. 22,015

Claims priority, application Japan, Oct. 16, 1967, 42/67090, 42/67091, 42/67092; Feb. 6, 1968, 43/8142, 43/8143; Feb. 7, 1968, 43/9297; Feb. 12, 1968, 43/10720

Int. Cl. H01h 37/52, 37/66

U.S. Cl. 337-366

5 Claims



An adjustable thermal relay for use in electric blankets, electric hair driers or electric room temperature controllers is provided with an exciting coil provided close to the reverse side of the surface of a moving contact plate of magnetic material, to induce a continuous magnetic force for attracting said moving contact plate. By increasing the exciting current in the exciting coil, a gap between a moving contact and a fixed contact is widened and therefore, the operating temperature at which the contacts of the thermal relay are switched on or off changes.

CASING FOR THE PHOTOELECTRIC CONDUCTIVE ELEMENT

Ichiro Yoshiyama, Hyogo-ken; Yoshiro Okishima, Aichi-ken, and Saburo Harada, Tokyo, all of Japan, assignors to Minolta Camera Kabushiki and Koto Denki Kabushiki Kaisha

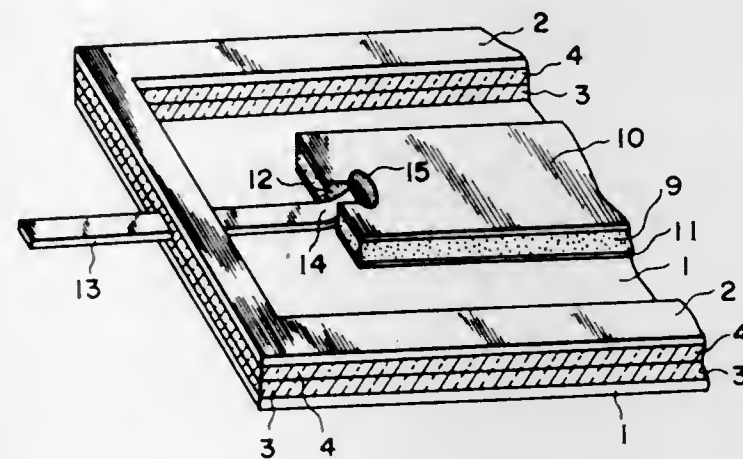
Filed Sept. 23, 1968, Ser. No. 761,654

Claims priority, application Japan, Sept. 27, 1967, 42/61684; Aug. 1, 1968, 43/65465

Int. Cl. H01c 7/08

U.S. Cl. 338-19

5 Claims



The purpose of the present invention is to make the thickness of the photoconductive semiconductor element body as flat and thin as possible so that it may easily be built into a camera or other instruments, and also to increase the resistance against vibration and shock. This photoconductive semiconductor element body of the present invention consists of a base frame onto which is attached fixedly an insulating thin plate with the photoelectric conductive layer on top and two cuts in its edge, and a window frame, with a transparent window, whose periphery comes on top of the base frame, and the lead material that makes contact with the photoelectric conductive layer at the said cuts and is closed and made airtight inside the base frame by a hard glass.

3,633,145

MULTIPLE SWITCH FOR ELECTRONIC MUSICAL INSTRUMENTS

Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

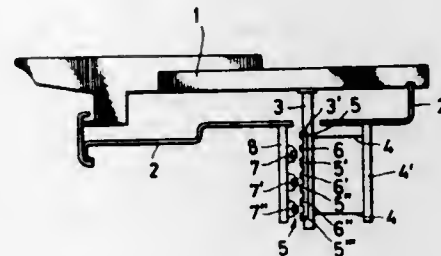
Filed June 30, 1969, Ser. No. 837,540

Claims priority, application Japan, July 5, 1968, 43/56706

Int. Cl. H01c 7/16

U.S. Cl. 338-69

4 Claims



A multiple switch for an electronic musical instrument comprising a multipolar magnet which has a plurality of magnetic poles arranged alternately opposite to each other, and plural pieces of magnetosensitive elements whose electric resistance varies according to the direction and the intensity of applied magnetic field, wherein each of said magnetosensitive elements is arranged between a pair of said magnetic

poles of said multipolar magnet and connected in the switching circuit of the electronic musical instrument, and the relative positions of said magnetic poles and said magnetosensitive elements are caused to change by one step under the action of the corresponding key, so that the electrical resistance of the magnetosensitive elements is varied and switching on-off actions are attained.

3,633,146

VARIABLE RESISTOR OF SLIDING TYPE

Nobuyuki Sasaki, Neyagawa; Shunzo Oka, Hirakata, and Tadashi Yano, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed June 22, 1970, Ser. No. 48,382

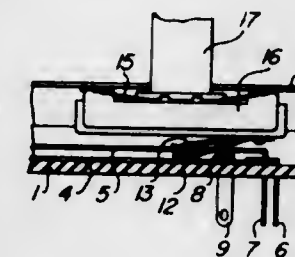
Claims priority, application Japan, June 27, 1969, 44/62366, 44/62367; July 9, 1969, 44/66839, 44/66840;

Aug. 8, 1969, 44/76418

Int. Cl. H01c 9/08

U.S. Cl. 338-178

6 Claims



A variable resistor of sliding type with switch means incorporated therein, which comprises a resistance element and a conductive element mounted on a dielectric base in parallel relation, a slider having a contactor which slides on the resistance element and the conductive element, and switch means adapted to break the electrical connection of the resistance element with an external circuit when the slider is close to either end of the dielectric base.

3,633,147

CONNECTOR FOR UNDERGROUND UTILITY APPLICATIONS

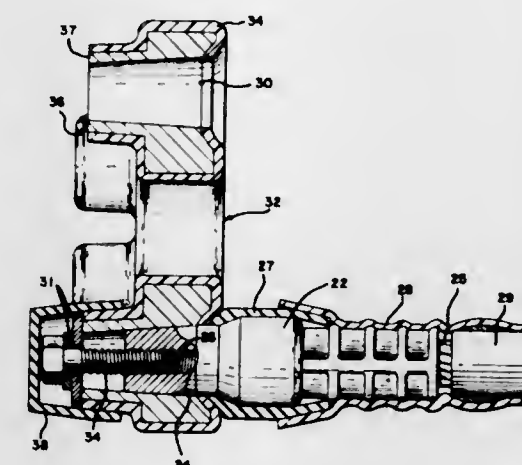
Mario Polidori, Pennsauken, N.J., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 27, 1970, Ser. No. 15,177

Int. Cl. H01r 31/08, 13/30

U.S. Cl. 339-19

9 Claims



The disclosure relates to an electrical connector of the type used in underground utility applications wherein a number of secondary cables may be terminated to a commoning plate and wherein any one of the cables may be detached from the commoning plate without disturbing the other cables. The connector comprises a commoning block

of electrically conducting material, preferably aluminum, having tapered holes therethrough, for receiving an electrical cable with connector thereon. The connector makes watertight fit with a reamed out portion of the commoning plate and is secured thereto, a watertight member being positioned on the opposite side of the commoning block to provide a watertight underground connection.

3,633,148

CURRENT-TRANSMITTING COUPLING BETWEEN ELECTRIC LINES

Oswald Willy Thorsman, Nykoping, Sweden, assignor to AB Thorsman & Co., Nykoping, Sweden

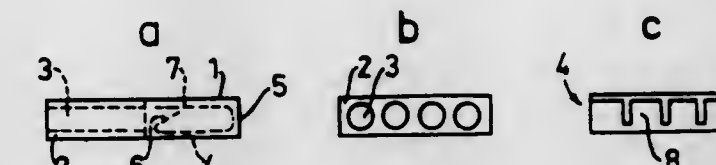
Filed June 25, 1969, Ser. No. 837,007

Claims priority, application Sweden, June 25, 1968, 8551/68

Int. Cl. H01r 9/08

U.S. Cl. 339-19

10 Claims



The present invention relates to a leaf spring clip for current-transmitting coupling between electric lines. The leaf spring is housed in a plastic casing, and is designed so that its free end can engage a based wire and hold said wire against another portion of the spring.

3,633,149

CONNECTOR AND ASSEMBLY FOR BASELESS ELECTRIC LIGHT BULBS

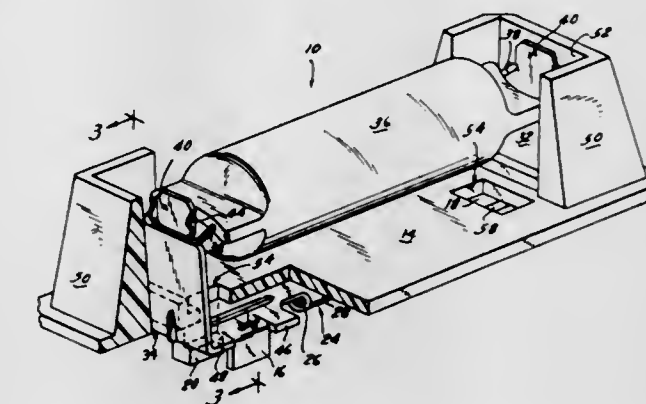
Frederick Jean Maltais, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 8, 1969, Ser. No. 864,723

Int. Cl. H01r 33/08, 11/22

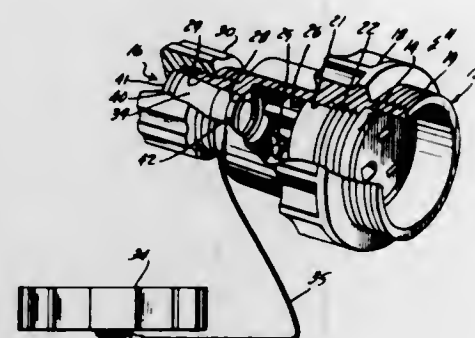
U.S. Cl. 339-52 R

17 Claims



An electrical connector and a housing assembly therefor for mounting "baseless" electric light bulbs of the type having filament terminals formed of a simple loop of wire at each end. The connector has an upstanding spring contact portion which supports at its free end one of the loop terminals of the bulb and retains the loop terminal thereon against spring tension by a catch projection. In the assembly two such connectors are sprung towards one another to electrically engage and mechanically support the bulb suspended therebetween.

3,633,150
WATERTIGHT ELECTRIC RECEPTACLE CONNECTOR
 Edward Swartz, 68 Hamilton Avenue, Haverhill, Mass.
 Filed Apr. 8, 1970, Ser. No. 26,689
 Int. Cl. H01r 13/44
 U.S. Cl. 339-36 5 Claims



A watertight receptacle including a receptacle connector having electrical contacts and a threaded body that mates with an existing watertight plug is provided. The receptacle body is internally threaded to receive in a watertight fitting a removable plug. The threaded internal area is positioned opposite an enlarged outer grip portion which is substantially identical in form to the screwcap of the mating plug to facilitate tightening to achieve a watertight connection.

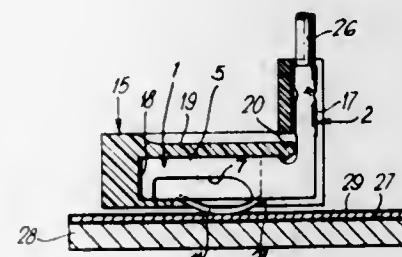
3,633,151
COMBINED MECHANICAL FASTENER AND ELECTRICAL CONNECTOR
 Paul F. Sensabaugh, Lynchburg, Va., assignor to General Electric Co.
 Filed May 28, 1970, Ser. No. 41,266
 Int. Cl. H01r 13/54
 U.S. Cl. 339-88 R 4 Claims



Two objects are mechanically fastened together by a first retaining plate that has locking members and that is attached to one object; and by a second retaining plate that has locking tabs for engaging the locking members and that is attached to the other object. The objects are mechanically fastened by positioning the tabs in the spaces between the locking members and rotating the two objects so that the tabs pass behind the locking members and mechanically fasten

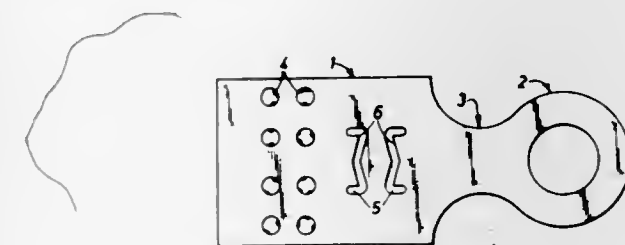
the two objects together. Contacts may be respectively positioned on the two objects for connecting electrical circuits when the two objects are fastened.

3,633,152
BOX EDGE ELECTRICAL CONNECTOR
 Alan William Ronald Podmore, St. Albans, Hertfordshire, England, assignor to AMP Incorporated, Harrisburg, Pa.
 Filed Dec. 17, 1969, Ser. No. 885,777
 Claims priority, application Great Britain, Dec. 21, 1968, 60,891/68
 Int. Cl. H05k 1/12; H01r 13/54
 U.S. Cl. 339-91 R 5 Claims



A connector suitable for making surface contact with a surface conductor of a ribbon-cable or printed circuit board has an open-sided boxlike configuration with a side of the box extended to give a contact edge. The contact edge is bowed and has a free end bent back into the box to reduce entanglement in harnesses. The connector is able to be fitted into a housing and secured to a surface of a panel.

3,633,153
TERMINAL FOR ALUMINUM WIRE
 Kamal Ahmed, Stanmore, England, assignor to A.M.P. Incorporated, Harrisburg, Pa.
 Filed May 15, 1970, Ser. No. 37,643
 Claims priority, application Great Britain, May 30, 1970, 27,540/69
 Int. Cl. H01r 11/20
 U.S. Cl. 339-97 C 2 Claims

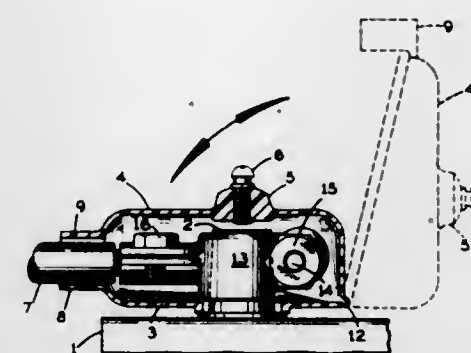


An electrical terminal for use with aluminum wire and having tines for gripping the wire insulation, and inwardly extending cutting edges for penetrating the insulation to contact the wire core.

3,633,154
HOUSING FOR BATTERY TERMINALS
 Hershey Glantz, 1401 S.W. 17 Terrace, Miami, Fla.
 Filed Feb. 3, 1970, Ser. No. 8,319
 Int. Cl. H01r 11/26, 13/57
 U.S. Cl. 339-116 1 Claim

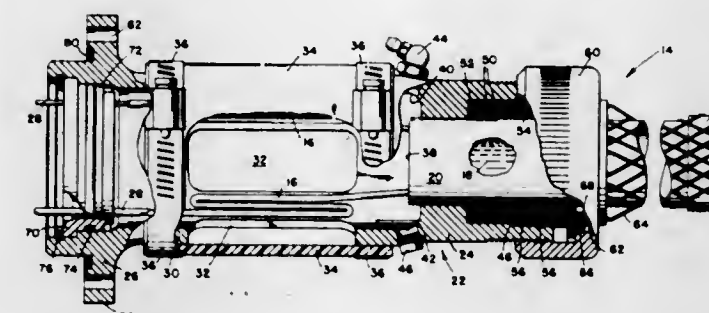
A plastic housing for enclosing a battery terminal and cable clamp having a sealed passageway for cable entry

therethrough including a hinged closure means. A fitting section having a base and a pair of longitudinally converging sides, each side being formed with an elongate aperture for



surrounding the terminal and cable clamp therein with corrosion repellent compound.

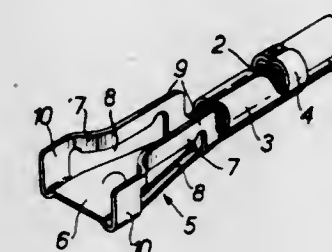
3,633,155
PRESSURE-BALANCED ELECTRICAL ASSEMBLY
 James W. Taylor, Pasadena, Calif., assignor to The United States of America as represented by the Secretary of the Navy
 Filed Apr. 13, 1970, Ser. No. 27,674
 Int. Cl. H01r 13/52
 U.S. Cl. 339-117 R 11 Claims



A pressure-balanced electrical assembly for a grease-filled nonhosing cable comprising: an elongated generally tubular housing; one end of the housing being adapted to sealably receive the cable; the other end of the housing being sealed and having a feed-through terminal extending therethrough for connection to the end of a cable lead; an intermediate portion of the housing being fluid-sealed and pressure-exposed to the ambient environment, said intermediate portion being capable of receiving said lead therethrough for connection to the feed-through terminal; and an opening into the intermediate portion of the housing for pressure filling said portion with a semiliquid.

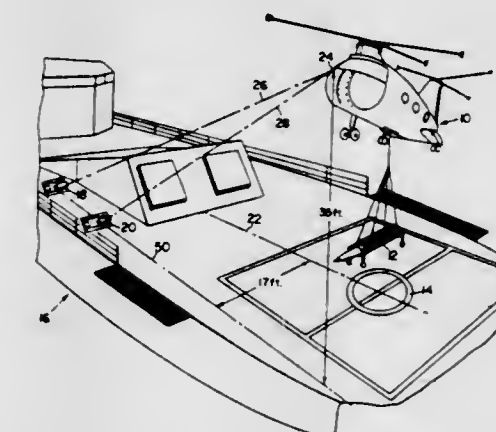
3,633,156
TAB RECEPTACLE
 Wladimiro Teagno, and Gianfranco D'Urso, both of Turin, Italy, assignors to AMP Incorporated, Harrisburg, Pa.
 Filed Apr. 8, 1970, Ser. No. 26,474
 Claims priority, application Italy, Apr. 29, 1969, 16219A/69
 Int. Cl. H01r 13/12
 U.S. Cl. 339-256 SP 16 Claims

A tab receptacle formed from a sheet metal blank and comprising a receptacle portion of generally channel cross



receiving a tab between the base and sides of the apertures remote from the base.

3,633,157
HELICOPTER VISUAL-POSITIONING AID
 Paul D. Schuh, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy
 Filed Feb. 16, 1970, Ser. No. 11,607
 Int. Cl. G08g 5/00
 U.S. Cl. 340-25 1 Claim

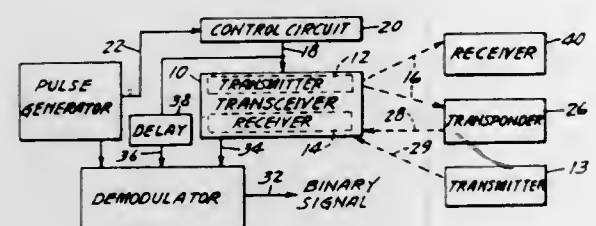


Apparatus for providing the pilot of a helicopter with a visual reference, including approach, positioning and hover data, to facilitate his maneuvering and maintaining the helicopter centered above a desired point such as the deck of a vessel at sea during Vertical Replenishment Operations, the structural configuration of the helicopter being such that the pilot can not see either the load suspended from the helicopter or the receiving area on the vessel's deck. The invention apparatus comprises two stabilized targets at separated deck locations, each target including a backboard and a central reference member which appears to the pilot to move across the backboard as the helicopter changes position. The respective optical axes of the targets intersect at a point where the helicopter should be in order to carry out the operation properly. Thus, by maintaining each reference member centered on its associated backboard, the pilot is assured of a correct position for hookup or disconnect of a load on the deck receiving area.

3,633,158
TRANSCIVER-TRANSPONDER-TYPE COMMUNICATIONS SYSTEM
 Jerome D. Heibel, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed Mar. 5, 1969, Ser. No. 804,577
 Int. Cl. G08g 1/09
 U.S. Cl. 340-34 15 Claims

A transceiver-demodulator combination in a transceiver-transponder-type communications system wherein a pulsed

beam of radiant energy is encoded to transmit information originating at a transceiver, and modulated by scanning a passive coded transponder with the beam to reflect to the transceiver information originating at the transponder. The information from the transponder is demodulated by producing in response to a pulsed clocking signal representative of the transmitted beam, a first-type signal response for each clocking pulse with which the reflected beam is coincident and a second-type signal response for each clocking pulse for



which there is no coincident reflected beam. Successive first-type responses and successive second-type responses are counted and a binary signal is produced in response to a comparison of successive counts whenever a first-type response immediately preceded by a second-type response is produced. The state of the binary signal is determined by the count of the immediately preceding successive second-type signal responses in relation to the count of the adjacent successive first-type signal responses preceding said immediately preceding second-type signal responses.

3,633,159

VEHICLE AIR CUSHION ACTUATION AND MONITORING CIRCUIT

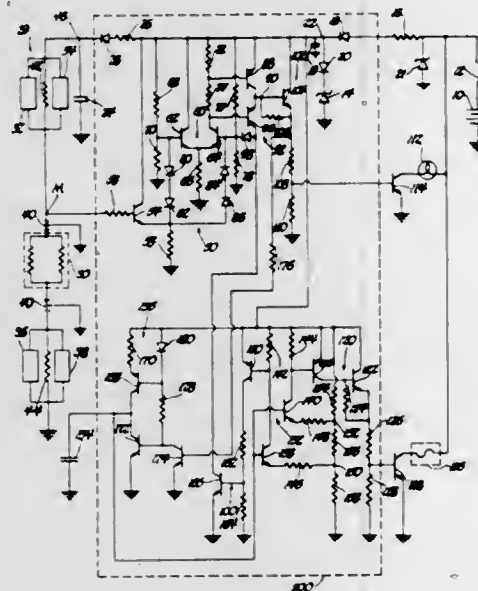
Ned E. Dillman, Galveston, and John Auzins, Kokomo, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 10, 1970, Ser. No. 88,404

Int. Cl. B60r 21/00

U.S. Cl. 340—52 H

4 Claims



A vehicle air cushion actuation and monitoring circuit for preventing injury to passengers in the event of a collision. The actuation circuit includes an electrically operated actua-

tor connected between first and second normally open acceleration-responsive switches which are in turn connected across a source of direct current firing potential. Resistors connected in parallel with the switches establish a reference potential at a junction between one of the switches and the actuator which is monitored by a detector which provides an output which energizes a lamp when the voltage at the junction rises above or drops below the reference potential by predetermined amounts. The output of the detector also activates a latch circuit which maintains the detector output. A capacitor is charged from a constant current source in response to an output from the detector and a double timing circuit responsive to the charging of the capacitor controls a latch interrupt circuit and a permanent recorder.

3,633,160

WARNING-LAMP PULSATOR

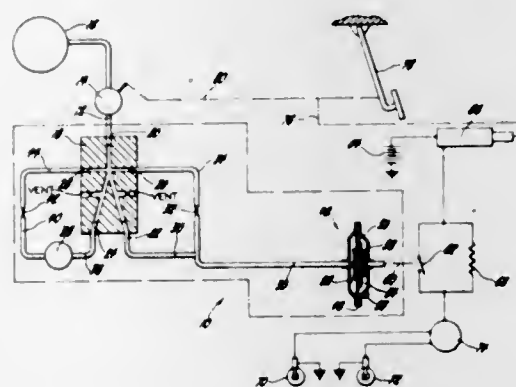
Edgar C. Paffrath, and Harold J. Burke, both of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of application Ser. No. 836,890, June 26, 1969, now abandoned. This application Nov. 10, 1969, Ser. No. 875,263

Int. Cl. B60q 1/44; H05b 39/09; F15c 1/08

U.S. Cl. 340—72

7 Claims



A warning-lamp flashing system in which a fluidic oscillator is used to open and close a switch in the warning-lamp circuit. The fluidic oscillator uses a bistable amplifier, a capacitor of predetermined volume, a servomotor having a volume of 10-15 percent of the capacitor volume and two fluid resistors to provide a timing device which causes the lamps to flash from a high intensity to a low intensity at a predetermined rate of approximately 5-7 c.p.s. whenever the warning system is activated by the operator.

3,633,161

ALL DIRECTIONAL WARNING DEVICE FOR SLOW-MOVING VEHICLES

Charles W. Price, Route 1, Iowa Falls, Iowa

Continuation-in-part of application Ser. No. 708,721, Feb. 27, 1968, now abandoned. This application Sept. 9, 1969, Ser. No. 856,347

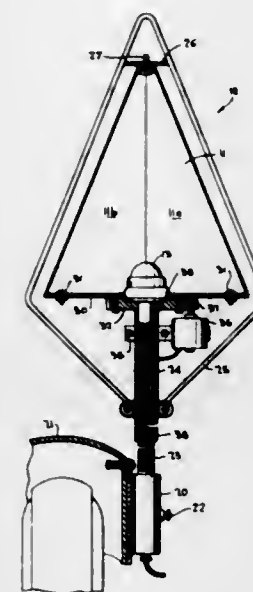
Int. Cl. G08b 5/30, 5/38

U.S. Cl. 340—133

10 Claims

A rotating beacon is provided which is in the shape of a pyramid having upwardly and inwardly extending corners defining a plurality of sides. The corners provide a discernible reduction in light thus giving a pattern of intermittent flashing of light from the side panels of the pyramid member upon rotation. The enclosed pyramid member tapers upwardly at an angle of substantially 20° directing either reflected or projected light in an upwardly and outwardly

direction. The bottom of the pyramid is enclosed with a reflective member and a gearwheel reinforcing the bottom



supports the pyramid member and allows the same to be rotated by an electric motor.

3,633,162

APPARATUS FOR CORRECTING AND INDICATING ERRORS IN REDUNDANTLY RECORDED INFORMATION

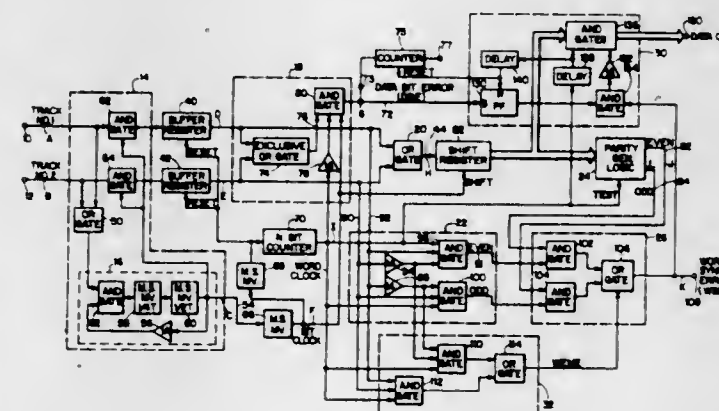
Heinz H. Findelsen, Milford, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 3, 1970, Ser. No. 60,683

Int. Cl. G06f 11/08; G06j 5/00

U.S. Cl. 340—146.1

17 Claims



Apparatus for recovering double-frequency-encoded information words redundantly recorded on two tracks of a magnetic medium, including means for separating clock bits and data bits of the information words to produce redundant data words and including means for combining the data words to produce a data word corrected for the absence of a data bit in one of the information words. Means for indicating dissimilarities in like position data bits in the redundant data words is also disclosed. Additionally, a word end marker comprising dissimilar parity bits in each of the information words is checked with the parity of the corrected data word and produces an error signal for any dissimilarities therebetween.

3,633,163

PLURAL LEVEL HIGH-SPEED SELECTION CIRCUIT

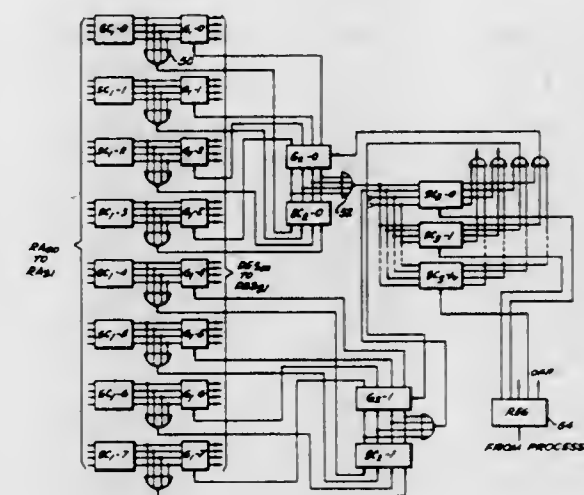
Hans P. Birchmeier, Sierra Madre, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Oct. 17, 1969, Ser. No. 867,298

Int. Cl. H04q 1/00, 5/00, 9/00

U.S. Cl. 340—147

5 Claims



There is described a selection circuit for selecting one among a number of contending input signals for completing a circuit to the selected one of the inputs. The selection is done on a multilevel basis. A plurality of selection circuits are arranged as separate modules in the first level with each module selecting one among a small group of the input signals. A second level of modular selection circuits in turn each select among a small group of the outputs of the first level selection circuits. If necessary, additional levels of modular selection circuits select among the outputs of the immediately lower level.

3,633,164

DATA COMMUNICATION SYSTEM FOR SERVICING TWO DIFFERENT TYPES OF REMOTE TERMINAL UNITS OVER A SINGLE TRANSMISSION LINE

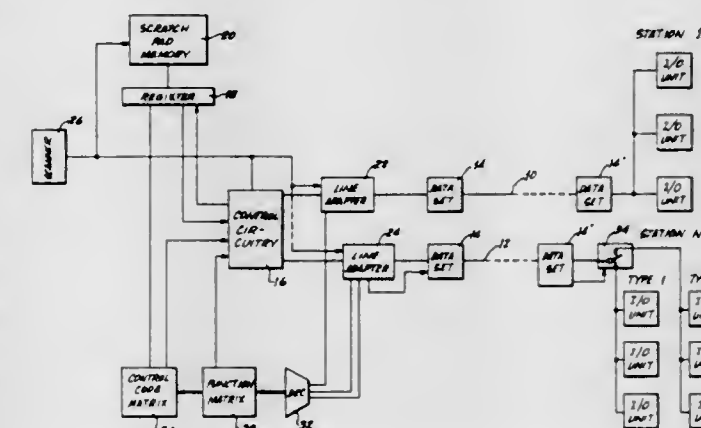
Donald P. Hynes, West Covina, and William H. Clopton, Pasadena, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Nov. 28, 1969, Ser. No. 880,772

Int. Cl. H04q 5/00

U.S. Cl. 340—147 R

2 Claims



There is described a data communication system by which a processor may selectively poll two different types of terminal units at a remote station. Special characters in the polling message, when sensed at the sending station, switch the line adapter and control circuit of the sending station to

transmit the polling message on the line in the required form for one or the other of the two types of terminal units. The data sets are arranged to transmit a control signal which operates a switch at the remote station to connect the designated type of terminal units to the line in response to the sensing of the particular special character associated with the polling message.

3,633,165

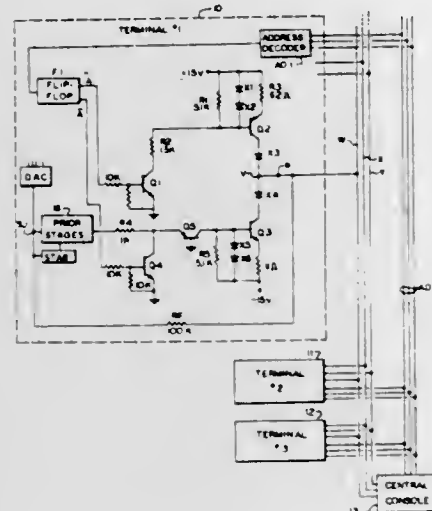
ANALOG DATA TRANSMISSION SYSTEM

Edward O. Gilbert, Ann Arbor, Mich., assignor to Applied Dynamics, Inc., Ann Arbor, Mich.

Filed Dec. 15, 1969, Ser. No. 885,035

Int. Cl. H04q 5/00, 11/00

U.S. Cl. 340-147



A multiplicity of remote analog signal-transmitting devices which time share a direct-current analog bus each include electronic switching within a feedback amplifier loop so that loop gain removes error due to switch voltage drop. Operation of the electronic switching when a given amplifier is not controlling the bus isolates the amplifier terminal connected to the bus from any power supply or signal voltages of the amplifier and allows the amplifier to present a high impedance load to any other signal-transmitting device then controlling the bus.

3,633,166

DATA TRANSMISSION METHOD AND SERIAL LOOP DATA TRANSMISSION SYSTEM

Jean L. Picard, St-Laurent-du-Var, France, assignor to International Business Machines Corporation, Armonk, N.Y.

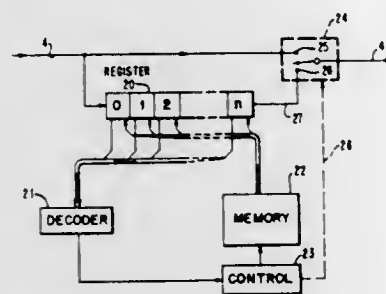
Filed May 5, 1970, Ser. No. 34,781

Claims priority, application France, May 16, 1969, 6915337

Int. Cl. H04q 5/00, 9/00, 11/00

U.S. Cl. 340-163

5 Claims



A method and system for transmitting data between a central control unit and a plurality of terminals arranged in a loop configuration in which each terminal includes a shift register and a two-position switch, the former short circuiting the terminal and the latter interposing the shift register in the

loop. When the central unit wants to know which terminals have data to transmit to it, it sends a B character on the loop, which is intercepted by the registers of all the terminals. The terminals which have data to transmit place their switch in its second position and load their register with their identification number. The central unit then sends a sequence of A characters which are intercepted by the terminals which have their switch in the second position and which shift the identification numbers from register to register and so forth to the central unit, thus enabling the central unit to determine which terminals have data to transmit.

3,633,167

SECURITY SYSTEM

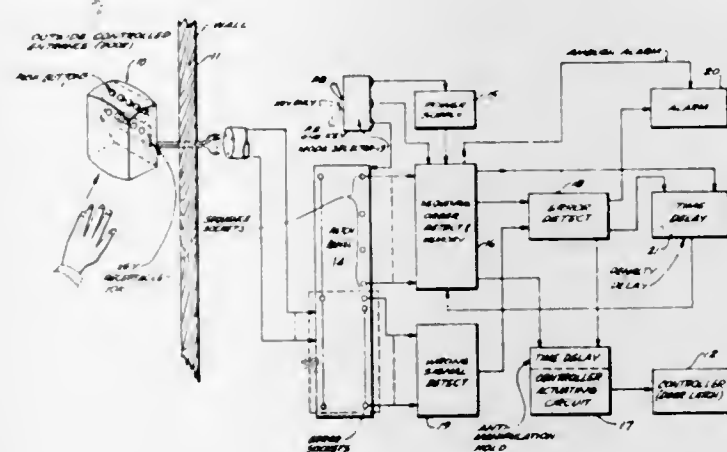
Robert A. Hedin, San Pedro, Calif., assignor to R. B. Phinzy, Anaheim, Calif.

Filed May 25, 1970, Ser. No. 40,324

Int. Cl. G05b 1/00; H01h 47/00

U.S. Cl. 340-164

10 Claims



A security system for controlling access to an area includes a lock responsive to a control for providing access to a secured area. The control includes means for sequentially generating a plurality of coded signals and circuitry responsive to the signals for operating the lock or an alarm. The lock is actuated to provide access to the secured area when the proper signals are sequentially generated in a predetermined manner. The alarm is actuated and entry to the secured area is denied when incorrect coded signals are generated or the sequence of the coded signals is improper. An ambush feature is provided by enabling the circuitry for operating the lock to simultaneously actuate the lock to provide access to the area and the alarm when predetermined coded signals are generated. The system further includes timer means which reset the circuitry to prevent access to the area when the proper coded signals are not sequentially generated in a predetermined time interval.

3,633,168

LINE CONTROL ADAPTER FOR A SYNCHRONOUS DIGITAL-FORMATTED MESSAGE-COMMUNICATIONS SYSTEM

Roy C. Dixon, Larry J. Hash, and Robert F. Steen, all of Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 9, 1971, Ser. No. 122,370

Int. Cl. H04q 9/00

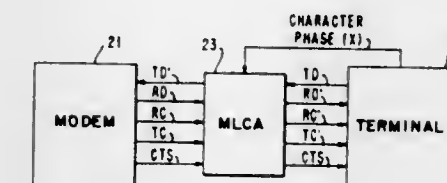
U.S. Cl. 340-167 R

7 Claims

A line adapter interposed between a terminal generating formatted digital messages and a transmission line, the message format containing control characters for activating some but not all of a plurality of commonly communicating terminals. The adapter includes means for continuously detecting control characters used by its corresponding terminal when in the receive mode, and means for selectively altering

chance data resembling control characters into noncontrol characters when in a transmit mode. Consequently, remote

sal-type. The samples are logically combined and weighted to provide a numeric digital output with reference to a threshold without analog reconversion.



TD - TRANSMITTED DATA
RD - RECEIVED DATA
RC - RECEIVED CLOCK
TC - TRANSMITTED CLOCK
CTS - CLEAR TO SEND

receiving terminals normally responsive to the control character code through their associated adapter fail to recognize the control character and remain off line.

3,633,169

DEMAND ACCESS DIGITAL-COMMUNICATIONS SYSTEM

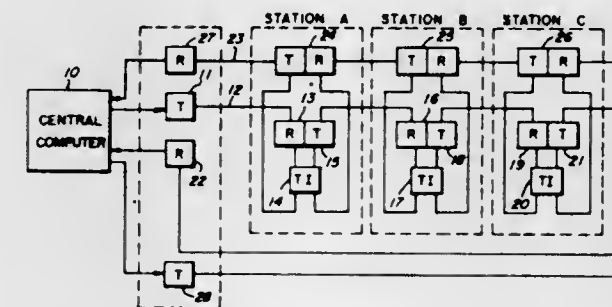
William J. Bickford, Weston, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed May 28, 1970, Ser. No. 41,344

Int. Cl. G06f 3/04

U.S. Cl. 340-172.5

28 Claims



This disclosure relates to a multiparty data-transmission system in which a central location controls the communication traffic in a transmission loop while at the same time permitting remote locations to independently request transmission privileges or "demand access" to the communications loop without interference or message overlap either with demand access requests originating at other remote locations or with other data which may be present on the transmission line, whether destined to or from the central location.

3,633,170

DIGITAL FILTER AND THRESHOLD CIRCUIT

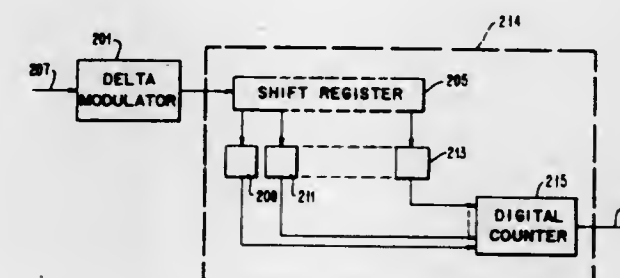
Gardner D. Jones, Jr., Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 9, 1970, Ser. No. 44,680

Int. Cl. H03b 1/00

U.S. Cl. 340-172.5

7 Claims



In a data receiver binary-coded analog signal samples are applied to the delay element of a digital filter of the transver-

3,633,172
MEANS FOR AND METHOD OF ADDRESS-CODED SIGNALING

Fritz Eggimann, Oberengstringen; Gustav Guanello, Zurich; Manfred Tiesmes, Nunsbaumen, and Ivan Wigdorovits, Zurich, all of Switzerland, assignors to Patenhold Patentverwertungs- & Elektro-Holding A.G., Glarus, Switzerland

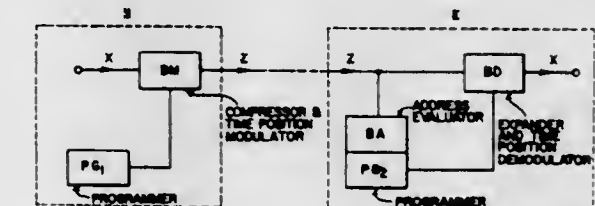
Filed Jan. 13, 1970, Ser. No. 2,492

Claims priority, application Switzerland, Jan. 15, 1969, 474/69

Int. Cl. H03k 7/00

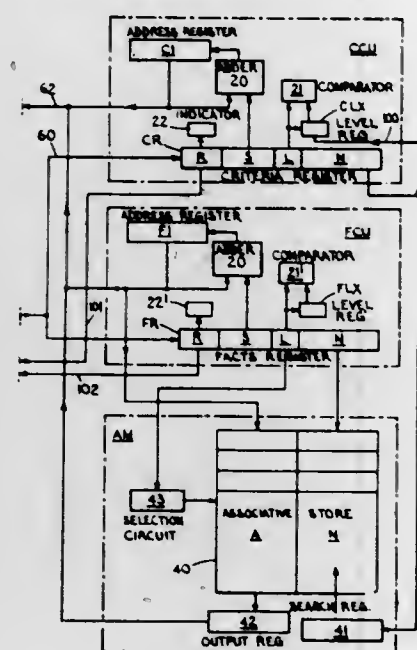
U.S. Cl. 340-172.5

12 Claims



In address-coded signaling, successive, contiguous and equal sections of an information signal at a transmitting sta-

the value. Two statements are compared and if predetermined parts of the two statements are the same, a part of one



statement, which defines a processing operation, is carried out.

3,633,180

ERROR-DETECTING CIRCUIT FOR GRAPHIC-PROGRAMMING MATRIX

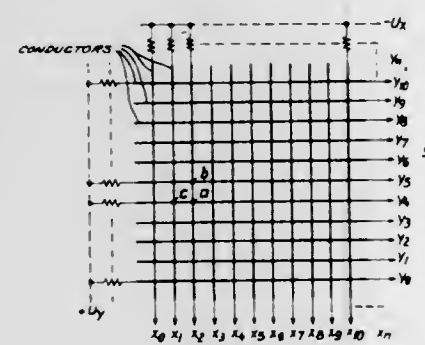
Wolfgang Pabst, Neu Isenburg, Germany, assignor to Licentia Patent-Verwaltungs G.m.b.H., Frankfurt am Main, Germany

Filed Nov. 17, 1969, Ser. No. 877,532

Int. Cl. G06F 3/00

U.S. Cl. 340—172.5

3 Claims



A circuit for indicating the erroneous simultaneous contacting of two adjacent intersections of a matrix composed of two sets of conductive strips disposed adjacent and at right angles to one another, which circuit includes a plurality of AND elements each connected to two adjacent, parallel conductive strips for producing an output signal when both strips have been simultaneously contacted, and a further logic element connected to the outputs of all of the AND elements for producing an error indication whenever an output signal is produced by one of the AND elements.

3,633,181

MULTIPLE TIMING LIST ARRANGEMENT

Michael F. Sikorsky, Neptune City, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 23, 1969, Ser. No. 887,517

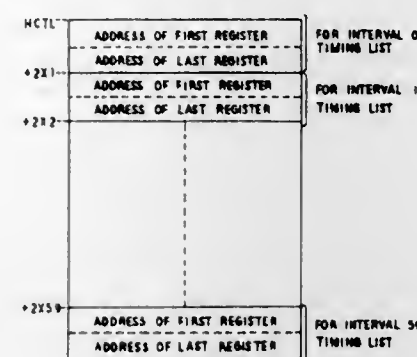
Int. Cl. G06F 7/02, 9/18, 15/46

U.S. Cl. 340—172.5

7 Claims

A program controlled timing arrangement for service circuit registers in a real-time processing system is disclosed.

Sixty timing lists and a modulo-60 counter for indexing the lists are provided. At 1-second intervals the registers on the list presently indexed by the counter are examined for timeout and the counter is incremented. A register requiring



timing is placed on a list in accordance with the required time interval and the calculated value of the counter at the termination of this interval. Facilities are also provided for interrupting and reinitiating timing without loss of unelapsed time.

3,633,182

CONTENT ADDRESSABLE MEMORY CELL

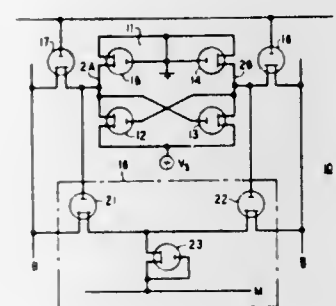
James T. Koo, Walnutport, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Aug. 26, 1969, Ser. No. 853,103

Int. Cl. G11c 11/40, 15/00

U.S. Cl. 340—173 AM

1 Claim



A content addressable memory cell constructed from nine field effect transistors is disclosed in which the content addressing function is achieved by two of the nine field effect transistors. A memory is also disclosed to illustrate how the cell may be utilized. A second content addressable memory cell similar to the first is disclosed to show how two independent users can access the same cell.

3,633,183

OPTICAL INFORMATION RECORDING WITH REAL-TIME DISPLAY AND ERROR CORRECTION

Richard O. Cobb, and James Lipp, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.J.

Filed Nov. 5, 1969, Ser. No. 874,172

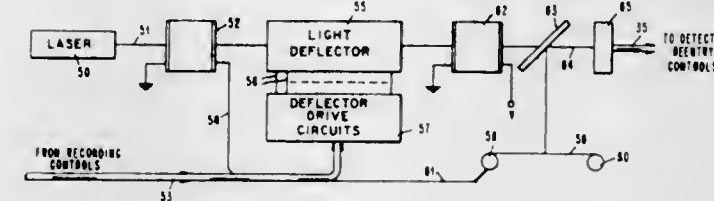
Int. Cl. G11c 13/04; G01d 3/02

U.S. Cl. 340—173 LT

4 Claims

A process and system for controlling the recording of information optically. Before the optical recording occurs, a real-time display of the information to be recorded is provided for operator monitoring. The ability to change the information by a light pen and/or a keyboard exists if the displayed information is incorrect. In the optical recording process, control is exercised over the light source, the posi-

tion of the light and the location of recording. Monitoring of the recorded information is simultaneously performed with single-wall domains in response to a magnetic field reorienting in the plane of the material. An auxiliary overlay element



the recording to indicate any error condition in the recording process.

3,633,184

MEMORY WIRING ARRANGEMENT WITH CHANGEABLE COMMON MODE REJECTION CIRCUIT LOOP

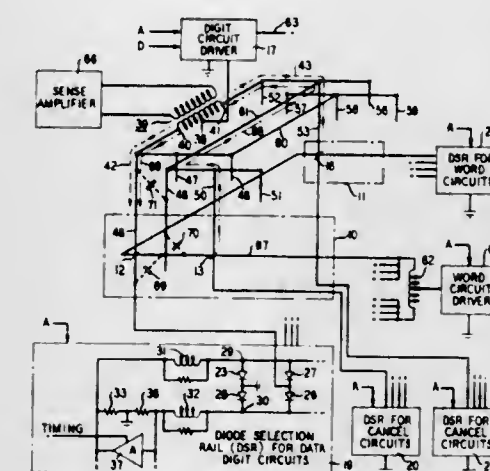
Philip A. Harding, Palos Verdes Peninsula, Calif., and George D. Kraft, Naperville, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed July 17, 1969, Ser. No. 842,591

Int. Cl. G11c 7/02

U.S. Cl. 340—174 DC

18 Claims



The electrical format of a common mode rejection digit circuit for a magnetic memory is changed for reading and writing memory operations by means of multilateral diode bridge switches. A memory word circuit is coupled through memory storage devices to a data digit circuit and two canceling digit circuits associated therewith. The sense of coupling to the canceling circuits is opposite to one another. During writing operations, the data circuit is operated with a canceling circuit which is coupled to the word circuit in opposite sense from the data circuit, and during reading the data circuit is operated with a canceling circuit which is coupled to the word circuit in the same sense as the data circuit to assure equality of opposed shuttle noises in the common mode rejection circuits.

3,633,185

SINGLE-WALL DOMAIN GENERATOR

Irynej Danykchuk, Morris Plains, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

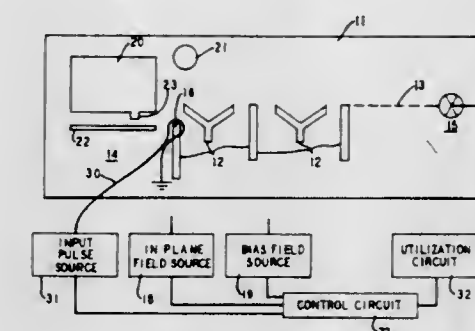
Filed May 22, 1970, Ser. No. 39,581

Int. Cl. G11c 21/00, 11/14

U.S. Cl. 340—174 TF

5 Claims

A magnetically soft overlay element on a material in which single-wall domains can be moved is designed to generate



is positioned with respect to the generator to allow domain interaction to enhance the generator margins.

3,633,186

TRANSDUCER ACCESSING MECHANISM UTILIZING CENTRIFUGAL FORCE

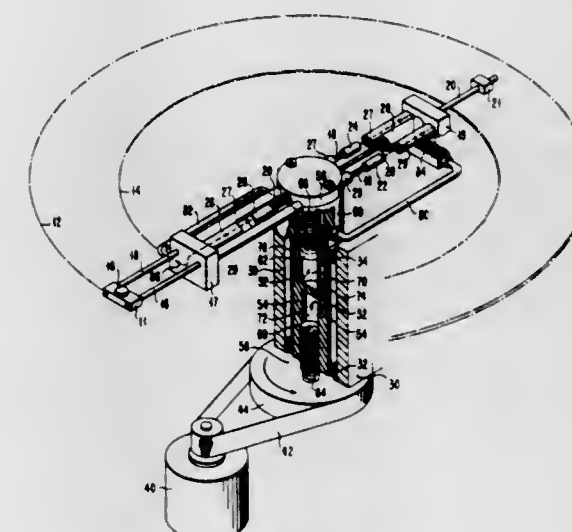
John J. Lynott, Los Gatos, and Robert C. Treseder, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 2, 1970, Ser. No. 51,831

Int. Cl. G11b 5/56, 21/08

U.S. Cl. 340—174.1 C

7 Claims



A servomechanism for rotating a magnetic head and accessing it from track to track. A rotating head is caused to scan one of a plurality of concentric tracks on a stationary disk. The net centrifugal force of the head and a larger counterweight mass is used to move the head from track to track and to adjust the rotational velocity to achieve a constant linear bit density.

3,633,187

METHOD AND APPARATUS FOR CERTIFYING MAGNETIC RECORDING TAPE

William B. Proctor, and Jerry R. Youngstrom, both of Sunnyvale, Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed July 25, 1969, Ser. No. 844,891

Int. Cl. G11b 27/36, 19/02

U.S. Cl. 340—174.1 B

13 Claims

A digital tape certifier method and apparatus is disclosed wherein certification digit signals are recorded on the tape at desired density for certification, the signals read and the tape stopped and backed up when an error is detected. An optical digital encoder mounted on the capstan drive measures the

dielectric spacer will result in a corona discharge. The discharge can be detected by an ionization detector which in turn can activate an alarm.

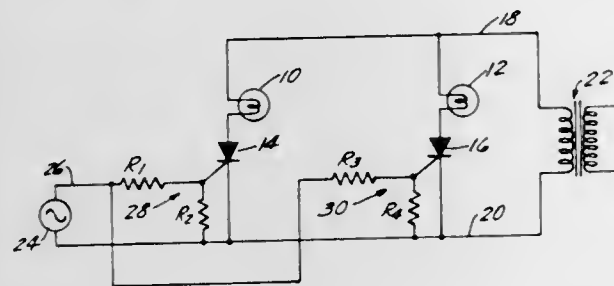
3,633,195

RECORD LEVEL INDICATOR CIRCUIT

David C. Menzel, Delwood, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed Nov. 6, 1969, Ser. No. 874,637
Int. Cl. G08b 5/36

U.S. Cl. 340-248 C

3 Claims



An incandescent indicator lamp is connected in series with an SCR across an AC electrical power source. The gate terminal of the SCR is coupled through a voltage dividing network to a lead which is connected to a recording amplifier for monitoring a communication signal. The voltage dividing network is set to cause the SCR to be triggered for enabling conduction, thereby enabling current flow therethrough to light the indicator lamp, whenever the amplitude of the monitored communication signal is of at least a predetermined record level.

3,633,196

SIGNAL LAMP MONITORING CIRCUIT

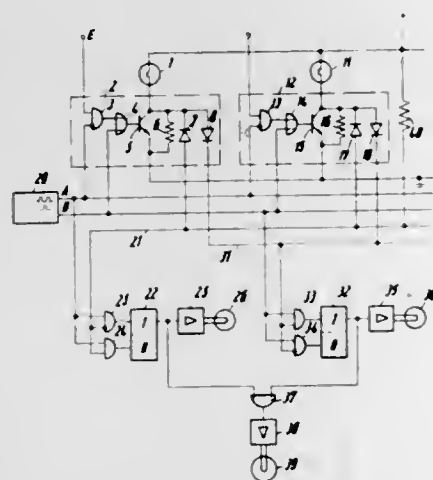
Erhard Winkler, Bern; Adrian Allemann, Welschenrort, and Max Oberholzer, Liebefeld, all of Switzerland, assignors to Hasler AG, Bern, Switzerland

Filed Nov. 25, 1969, Ser. No. 879,800
Claims priority, application Switzerland, Nov. 25, 1968, 17492/68

Int. Cl. G08b 21/00

U.S. Cl. 340-251

5 Claims



A circuit for monitoring the readiness for functioning of at least one DC operated signal lamp, the circuit comprising a pulse generator for supplying test pulses through a logic system to a switching transistor; the signal lamp being operated by the switching transistor when a signal voltage is applied to the transistor through the logic system. An indicating circuit is connected to the pulse generator and the

transistor to provide a fault indication if a voltage, which does not correspond to the switching state of the transistor determined by the test pulse, occurs on the connection between the lamp and the transistor during each test pulse.

3,633,197

LOOM OPERATION INDICATOR CIRCUIT

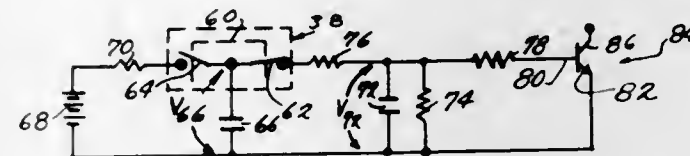
Frederick A. Dunlap, III, Clemson, S.C., assignor to Greenwood Mills, Greenwood, S.C.

Filed Apr. 26, 1968, Ser. No. 724,435

Int. Cl. G08b 23/00

U.S. Cl. 340-267 R

12 Claims



Determination of whether a textile machine, specifically a loom, is operating or not, is accomplished by the apparatus disclosed herein by means of sensing machine motion. A switch, either SPST, SPDT, or DPST, is mounted on the rocker shaft of the loom or other oscillating part of the loom essential to cloth production for oscillation therewith and is connected to remote RC circuitry which biases a transistor to an on state only while the switch is oscillating. A central computer senses the condition of the transistor for each of the looms so equipped in a mill, to produce information for management.

3,633,198

LOOM OPERATION INDICATOR CIRCUIT

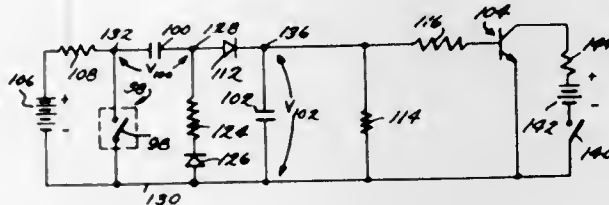
Lewis E. Cassaday, Greenwood, S.C., assignor to Greenwood Mills, Greenwood, S.C.

Filed Apr. 26, 1968, Ser. No. 724,389

Int. Cl. G08b 23/00

U.S. Cl. 340-267 R

7 Claims



The invention relates to apparatus for detecting motion of a moving part of a textile machine with a two terminal switch mounted on the moving part which alternately opens and closes when the part is in motion. In one circuit, two capacitors transiently charge when the switch is open and both discharge when the switch is closed. One of the capacitors automatically discharges after charging unless the switch is opening and closing so that this capacitor has a charge only when the part is moving. A transistor may be connected to this capacitor so that the transistor is conductive only when the capacitor has a charge and the part moving.

3,633,199

APPLIANCE THEFT PREVENTION ALARM SYSTEM

Stephen M. Curry, 5627 Monticello Ave., Dallas, Tex., and Philip A. Williams, 1624 Highland Road, Dallas, Tex.

Filed Oct. 2, 1969, Ser. No. 863,196

Int. Cl. G08b 13/14

U.S. Cl. 340-280

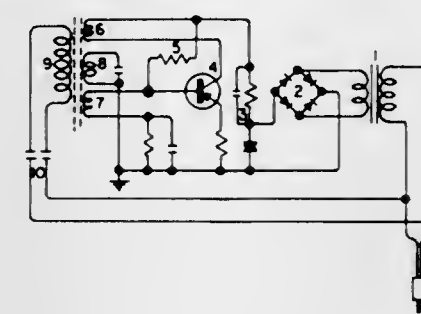
1 Claim

A theft prevention alarm system for use with an electrical appliance which includes a transmitter located within the ap-

pliance and which continuously generates an electrical signal of a predetermined frequency over the alternating current power supply lines. A receiver is connected to the alternating

a number of measuring pulses as the stored voltage level is discharged at a constant rate. The number of measuring pulses is equal to the decimal number magnitude of the stored level.

TRANSMITTER



current power supply and operates an alarm system when the electrical signal having the predetermined frequency can no longer be detected.

3,633,200

VERTICAL SCALE INDICATOR

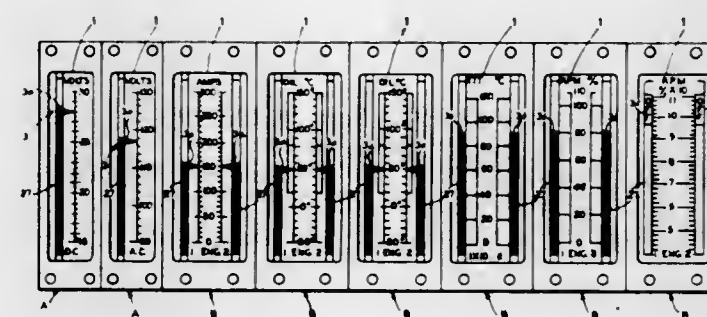
Victor D. Ellison, Waverly, and Casimer F. Remus, Tunkhannock, both of Pa., assignors to The Bendix Corporation

Filed Sept. 2, 1969, Ser. No. 854,483

Int. Cl. G08c 19/38; G08b 23/00

U.S. Cl. 340-317

16 Claims



A vertical scale indicator has a scale, and a pair of mechanism assemblies positioned side-by-side with indices on flexible bands moving along opposite sides of the scale to indicate conditions. Each mechanism assembly comprises a mounting plate having thereon a follow up with a pulley, a servomotor driving the follow up and pulley in one direction, and a return spring assembly with a drum driven in the opposite direction by a spring. The flexible band is connected to the pulley and the drum and is moved in one direction by the motor and in the opposite direction by the return spring assembly.

3,633,201

DIGITAL MEASURING APPARATUS

Donald L. Oesterlin, Roselle, Ill., assignor to Nuclear-Chicago Corporation, Des Plaines, Ill.

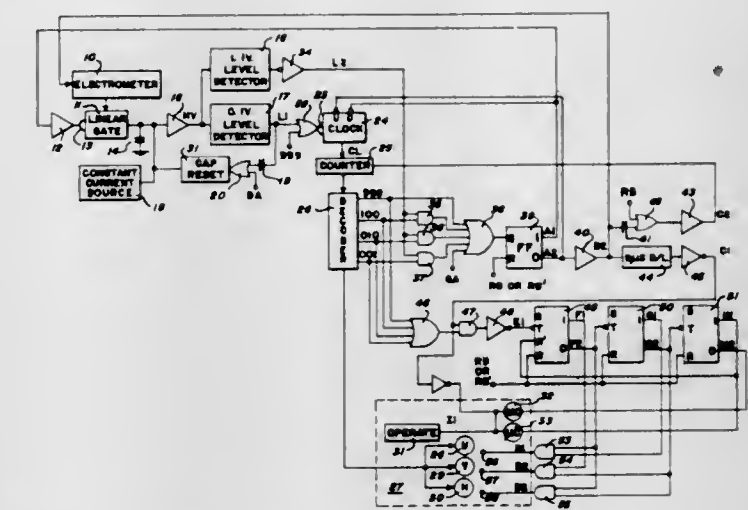
Filed Jan. 30, 1968, Ser. No. 701,734

Int. Cl. H03k 13/20

U.S. Cl. 340-347

10 Claims

Digital measuring apparatus employing automatic ranging analog to digital conversion circuitry. The ADC circuitry stores a voltage ramp of slope proportional to the unknown input signal during one or more ranging intervals depending upon the slope, until a voltage level proportional to the magnitude of the input signal is reached. The number of ranging intervals employed is signalled by ranging pulses which indicate the decimal range of magnitudes of the input signal and are used to produce an appropriate decimal point display. A decimal number display is generated by accumulating



ses is equal to the decimal number magnitude of the stored level.

3,633,202

SELF-CALIBRATING ANALOG-TO-DIGITAL CONVERTER

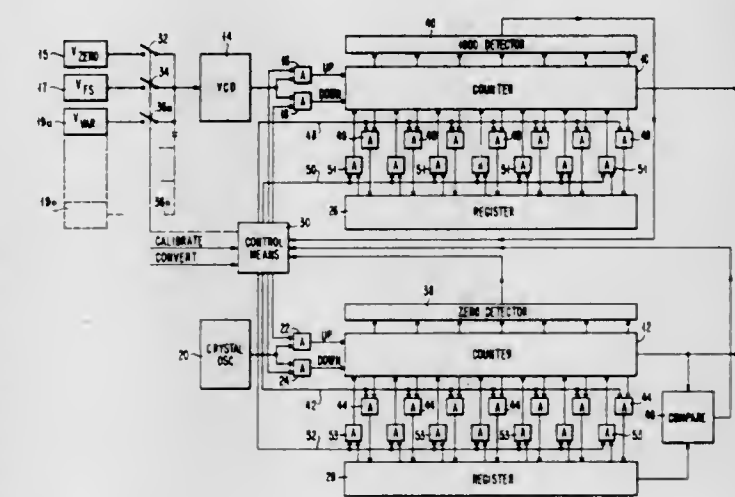
Paul A. Kuckein, Burlingame, and Francis E. Mueller, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,444

Int. Cl. H03k 13/02, 13/20; G01r 1/02

U.S. Cl. 340-347 AD

6 Claims



The method and apparatus for providing a self-calibrating ADC of the type which utilizes a voltage controlled oscillator in conjunction with a counting register to translate an analog signal into time domain. A second counting register, a fixed frequency pulse source, and zero and full scale reference voltages are used to generate span and zero calibration factors to any desired accuracy.

3,633,203

ANTENNA LOBBING SYSTEM

Donald E. Kreinheder, Inglewood, and Paul A. Shaw, Malibu, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 2, 1959, Ser. No. 796,705

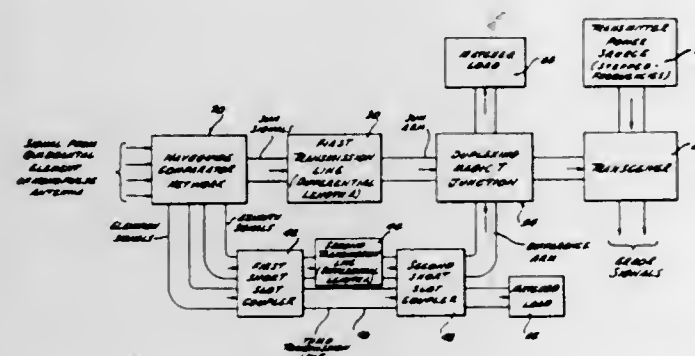
Int. Cl. G01s 9/22

U.S. Cl. 343-16 M

14 Claims

1. A monopulse system comprising: a monopulse antenna; a waveguide network coupled to the antenna and having sum, elevation and azimuth terminals; an energy-switching

system for elevation and azimuth signals and including a pair of short-slot couplers, one of which has two input terminals coupled to the azimuth and elevation terminals of the waveguide network, and the other of which has two output terminals providing outputs from the switching system, the two short-slot couplers being connected between individual remaining terminals by a pair of transmission lines having a selected length relationship with respect to each other; a microwave hybrid junction coupled to one output terminal of



the switching system; a transmission line coupling the sum terminal of the waveguide network to an input terminal of the hybrid junction and being of a selected length relationship with respect to the transmission lines in the switching system; and means for providing energy to be transmitted to the monopulse antenna in predetermined frequency steps which are selected with respect to the relative lengths of the transmission lines in the system.

3,633,204

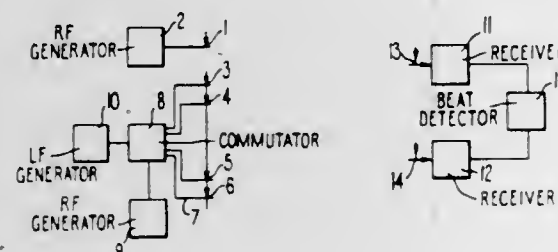
DISTANCE-MEASURING EQUIPMENT

Charles William Earp, London, and Francis Giles Overbury, Cuffley, both of England, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Dec. 2, 1969, Ser. No. 881,352
Claims priority, application Great Britain, Feb. 21, 1969, 9,534/69

Int. Cl. G01s 5/14

U.S. Cl. 343-112 D

9 Claims



The rhythmic spacing between two radiating antennas or the rhythmic spacing between two receiving antennas provide doppler-shifted signals which when measured in a receiver provide a measure of distance between the transmitting and receiving antennas. In a preferred embodiment, a beacon radiates a first frequency from a stationary antenna and a second frequency sequentially from a linear array of stacked antennas. At a receiver the signals received by each of a spaced antenna pair are separately processed to extract therefrom a first and second doppler frequency. The difference between said first and second doppler frequencies provides a measure of the distance. In another preferred embodiment, a first and second frequency are respectively radiated from a spaced pair of antennas. A first antenna coupled to a receiver provides a first beat frequency. A linear array of antennas sequentially coupled to said receiver provides a doppler shifted second beat frequency. The difference between said beat frequencies provides a measure of distance.

3,633,205
WIDEBAND INTERFEROMETER TYPE ANTENNA SYSTEMS

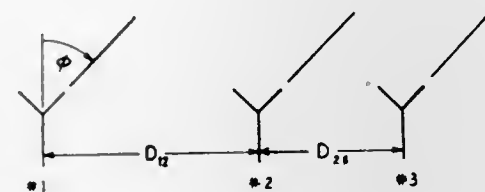
Tsze K. Lee, New Rochelle; Jeffrey N. Brooks, Bronx, and Ralph Logan, West Islip, all of N.Y., assignors to Loral Electronics Corporation, Bronx, N.Y.

Filed June 30, 1969, Ser. No. 837,386

Int. Cl. G01s 3/48

U.S. Cl. 343-113 R

2 Claims



Wideband interferometer systems each employing two fine channels, and means for synthesizing a coarse channel from signals received by said fine channels. One embodiment is adapted to be used in conjunction with a sophisticated computer on a time-sharing basis. The other embodiment includes simple truth table logic circuitry to provide a self-contained device.

3,633,206

LATTICE APERTURE ANTENNA

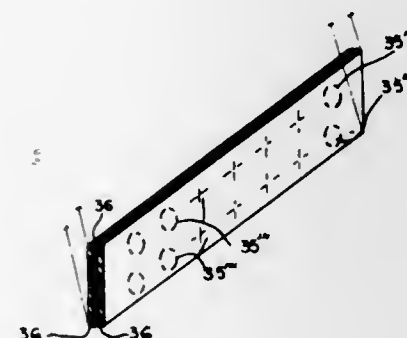
Edward Bellamy McMillan, 45 Renwick Avenue, Huntington, N.Y.

Filed Jan. 30, 1967, Ser. No. 612,696

Int. Cl. H01q 19/06

U.S. Cl. 343-754

19 Claims



This invention is an antenna composed of an electromagnetic wave transmission line radiation aperture and a lattice wall sandwich facing across the wave path. The sandwich is spaced between the aperture and the outer region of the antenna. An equivalency circuit of the sandwich having at least one section of two capacitive layers shunted across codirectional through-conductors and disposed across opposite ends of a network with a series inductance in one of the through conductors and two inductances each shunted from an opposite end of the series inductance to the other of the through-conductors. The sandwich has an inductive lattice layer having nonconducting magnetic wall areas of thickness represented by the series inductance. Nonconducting magnetic areas are apertures in the conducting electrical wall areas. The inductive lattice layer has on each of its two sides capacitive layers and there is a predetermined distribution of antenna coupling reactance across the face of each layer of the lattice wall sandwich.

3,633,207
MODULATED IMPEDANCE FEEDING SYSTEM FOR LOG-PERIODIC ANTENNAS

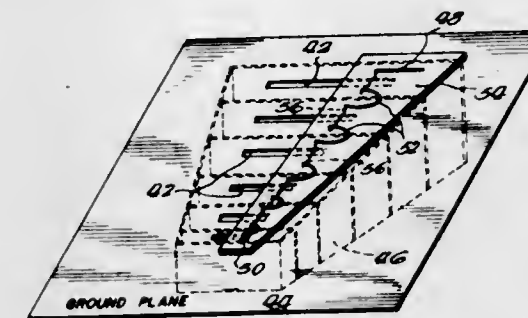
Paul G. Ingerson, Redondo Beach, Calif., and Paul E. Mayes, Champaign, Ill., assignors to University of Illinois Foundation, Urbana, Champaign County, Ill.

Filed Jan. 21, 1969, Ser. No. 792,399

Int. Cl. H01q 11/10

U.S. Cl. 343-770

9 Claims



A modulated impedance feeding system for log-periodic antennas including loading elements, a transmission line to couple energy to or from the elements, and impedance-modulating means for matching the image impedances of the transmission line and the loading elements in the regions of local reflections to realize essentially frequency independent performance. A log-periodic monopole array and a cavity backed slot array are provided, fed with a modulated impedance meandering line according to the invention. A log-periodically scaled directional coupler feed line for antenna arrays is provided, including in one embodiment thereof a coupler fed, log-periodic resonant V array.

3,633,208

SHAPED-BEAM ANTENNA FOR EARTH COVERAGE FROM A STABILIZED SATELLITE

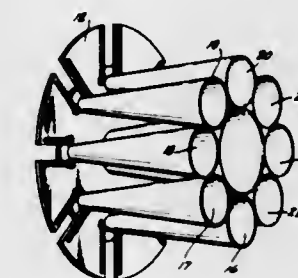
James S. Ajlola, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 28, 1968, Ser. No. 770,993

Int. Cl. H01q 13/00

U.S. Cl. 343-778

9 Claims



The apparatus of the present invention provides an antenna having a beam shaped for optimum earth coverage from a synchronous satellite. Due to the difference in range and atmospheric attenuation from a synchronous satellite to various points on earth, a conventional beam with maximum gain toward the center of the earth, is inefficient because it has the highest gain where the least gain is required. Since the paths tangential to the earth are longest and since they traverse through more atmosphere, the gain of the disclosed antenna is highest in this region and decreases to a minimum for the path normal to the earth. In addition, the beam pattern of the antenna has "flat portions" at the edge to allow for stabilization errors of the satellite whereby equal effective signal is provided over the entire portion of the earth covered by the antenna beam. The antenna generates a beam pattern that is rotationally symmetrical and has the capability of dual orthogonal polarization.

3,633,209
OFFSET PARABOLOID-PLANE REFLECTOR ANTENNA

Mostafa S. Affi, Troelstraan 114, Delft, Netherlands

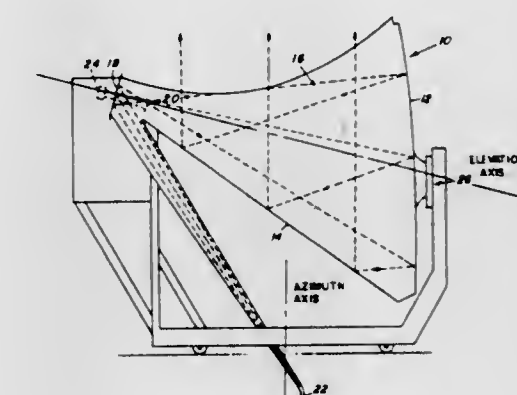
Filed Sept. 5, 1969, Ser. No. 855,570

Claims priority, application Netherlands, Sept. 6, 1968, 6812786

Int. Cl. H01q 19/14

U.S. Cl. 343-781

5 Claims



A microwave antenna assembly which includes a second reflector in the form of an asymmetrical portion of a paraboloid and a main reflector in the form of a generally flat planar surface which forms an acute angle with the second reflector. A radiating or receiving device is located at the focal point of the paraboloid spaced from but in proximity to the end of the main reflector remote from the second reflector.

3,633,210

UNBALANCED CONICAL SPIRAL ANTENNA

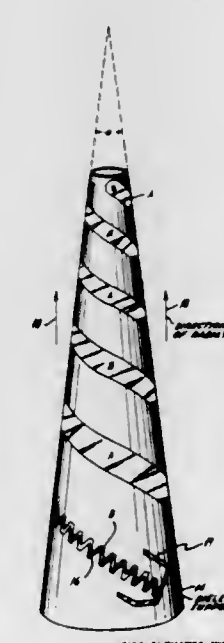
Charles Webster Westerman, Anaheim; William G. Scott, Orange, and William S. Wales, Long Beach, all of Calif., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed May 26, 1967, Ser. No. 641,841

Int. Cl. H01q 1/36

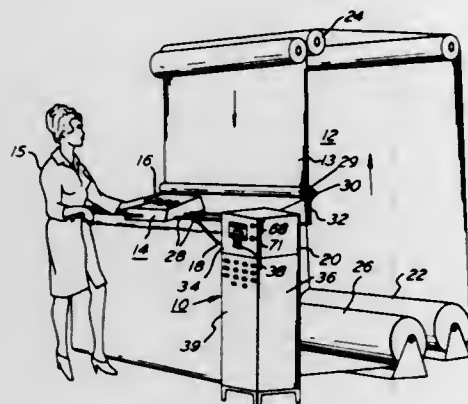
U.S. Cl. 343-895

10 Claims



A directional broadband antenna utilizing two dissimilar interleaved spiral radiators of conical configuration with radio equipment optionally housed in shield within dielectric conical support for radiators.

3,633,211
INSPECTION RECORDER MEANS
 Alfred Batzdorff, Langhorne, Pa., assignor to American Electronic Laboratories, Inc., Colmar, Pa.
 Filed Oct. 17, 1969, Ser. No. 867,257
 Int. Cl. D06h 3/02
 U.S. Cl. 346—14 20 Claims

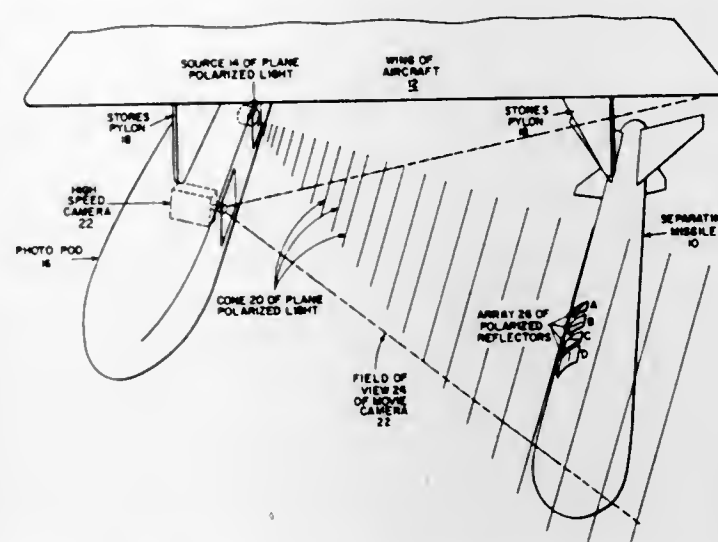


Inspection recorder means for recording defects in elongated sheet material traveling past an inspection station comprising measuring means for maintaining a current count of the length of material which travels past an inspection station, information coding means for providing a signal upon detection of a defect in said material as it passes said inspection station, and recording means making a record of each signal from said coding means together with the count of said measuring means at the respective time each signal is provided by said coding means. Said means also providing and recording total defects by type, group and also weighted number of defects by type and group, density of defects, and grading of the material.

3,633,212
SYSTEM FOR DETERMINING THE ORIENTATION OF AN OBJECT BY EMPLOYING PLANE-POLARIZED LIGHT
 Guy F. Cooper, 484 Rancho Drive, Ventura, Calif.
 Filed Oct. 15, 1970, Ser. No. 80,866
 Int. Cl. G01p 13/00 9 Claims

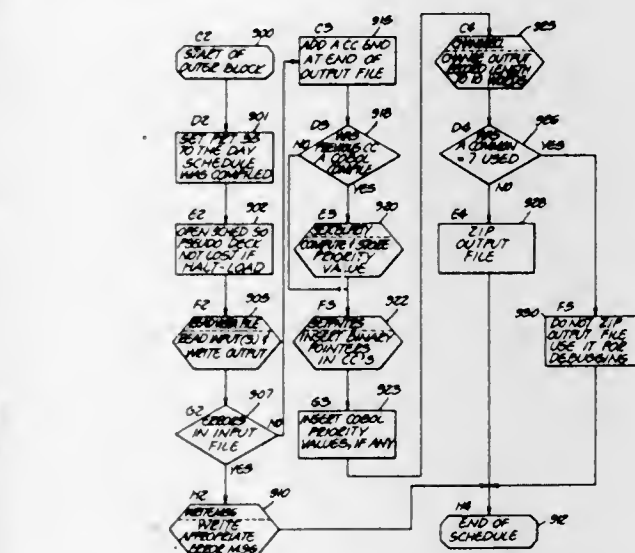
A system for ascertaining the positional characteristics of a moving object from a given viewing point. In one embodiment, the invention is employed to determine the attitude of a missile subsequent to its being launched from an aircraft. A plurality of specially oriented light-polarizing reflectors are attached to the missile surface, and observed by a viewing camera on the aircraft. A source of plane-polarized light on the aircraft illuminates the reflectors on the missile. The attitude of the latter with respect to this source determines the amount of illumination picked up by the camera from each reflector. Such data is then coordinated to yield the posi-

tional information desired. In another embodiment, the invention time-correlates a plurality of viewing cameras by



causing a time-coded reflection of light to be visible on the missile regardless of view angle.

3,633,213
SCHEDULE PROGRAM FOR REMOTE INPUT MANAGEMENT SYSTEM
 Frank E. Hublou, Richmond, and Timothy L. Lenox, San Leandro, both of Calif., assignors to Kaiser Aluminum & Chemical Corporation
 Filed Aug. 19, 1969, Ser. No. 806,918
 Int. Cl. G06f 9/18 20 Claims

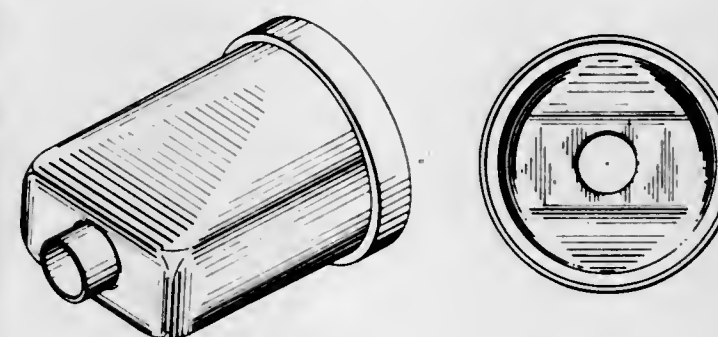


This invention is a digital program written in ALGOL. Its function is to schedule programs stored in a certain format for execution as ordered by the input at a remote terminal in a data processing system. It is part of a software system in a data processing system.

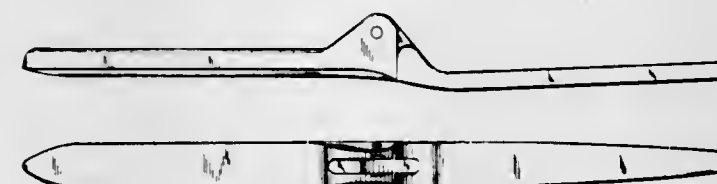
DESIGNS

JANUARY 4, 1972

222,793
BROOM HEAD
 Donald G. Ray, Winnsboro, Tex., assignor to All-American Manufacturing, Inc., Garland, Tex.
 Filed Apr. 30, 1970, Ser. No. 22,743
 Term of patent 14 years
 Int. Cl. D4—01
 U.S. Cl. D4—4



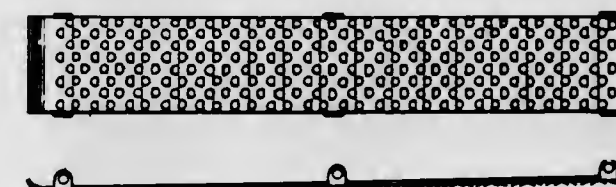
222,794
HANDLE FOR BRUSHES OR COMBS
 Joseph Vallis, Toronto, Ontario, Canada, assignor to Dent & Vallis, Toronto, Ontario, Canada
 Filed Aug. 4, 1970, Ser. No. 24,290
 Term of patent 14 years
 Int. Cl. D4—02
 U.S. Cl. D4—35



222,795
HANDLE FOR JAR AND BOTTLE OPENER
 Radoslav Kovacevic, 300 N. State St., Chicago, Ill. 60610
 Original design application May 26, 1969, Ser. No. 17,363.
 Divided and this application Feb. 18, 1970, Ser. No. 20,841
 Term of patent 14 years
 Int. Cl. D8—05
 U.S. Cl. D8—40



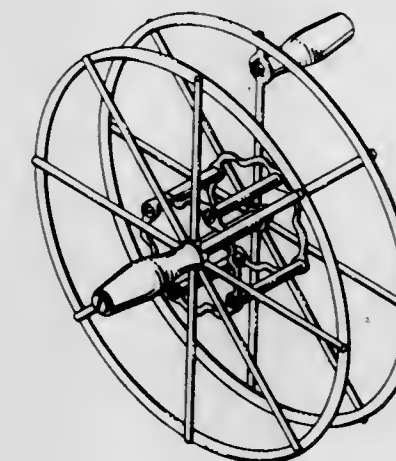
222,796
FILE
 James A. Coon, 929 Drever St., West Sacramento, Calif. 95691, and Elwin Theobald, 4631 Salona Way, Fair Oaks, Calif. 95628
 Filed July 22, 1970, Ser. No. 24,070
 Term of patent 14 years
 Int. Cl. D8—05
 U.S. Cl. D8—90



222,797
HANDLE GRIP
 Archie R. Fine, 2319 Judith 83705, and Charles T. Poin-dexter, 4023 Whitehead 83703, both of Boise, Idaho
 Filed Feb. 25, 1970, Ser. No. 21,606
 Term of patent 14 years
 Int. Cl. D8—07; D12—16
 U.S. Cl. D8—107



222,798
REEL
 Stanley T. Erickson, 7358 23rd Ave. NW., Seattle, Wash. 98107
 Filed Feb. 25, 1970, Ser. No. 21,616
 Term of patent 14 years
 Int. Cl. D8—99
 U.S. Cl. D8—222



222,799

UPSWEEP BRACKET

Edward E. Hughes III, Pittsburgh, Pa., assignor to Morrison Molded Fiber Glass Company, Bristol, Va.
 Filed July 13, 1970, Ser. No. 23,909
 Term of patent 14 years
 Int. Cl. D8—08

U.S. Cl. D8—234

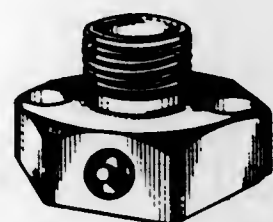


222,802

PRESSURE UNLOADER VALVE OR THE LIKE

John E. Siebel, 5563 W. Washington Blvd., Los Angeles, Calif. 90016
 Filed Apr. 23, 1970, Ser. No. 22,582
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—19



222,800

COMBINED BOTTLE AND CLOSURE THEREFOR

Robert J. Donoghue, 900 Windsor Ave., Windsor, Conn. 06095
 Filed Sept. 28, 1970, Ser. No. 25,241
 Term of patent 14 years
 Int. Cl. D9—01

U.S. Cl. D9—10

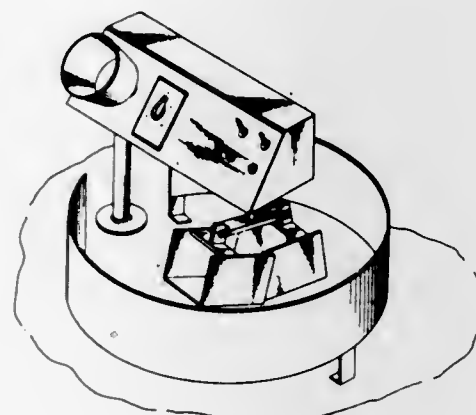


222,803

MACHINE FOR CENTRIFUGALLY CASTING DENTAL MATERIALS

Jorge E. Posca, Los Angeles, Calif. (726-728 W. Anaheim St., Wilmington, Calif. 90744)
 Filed Apr. 16, 1970, Ser. No. 22,474
 Term of patent 14 years
 Int. Cl. D24—03

U.S. Cl. D24—1

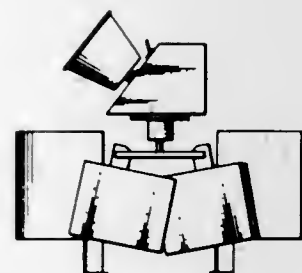


222,801

TELESCOPING HOLLOW FISH POLE

Lloyd J. Le Rose, Rte. 2, P.O. Box 2360, Wapato, Wash. 98951
 Filed Mar. 16, 1970, Ser. No. 21,917
 Term of patent 14 years
 Int. Cl. D22—05

U.S. Cl. D22—23

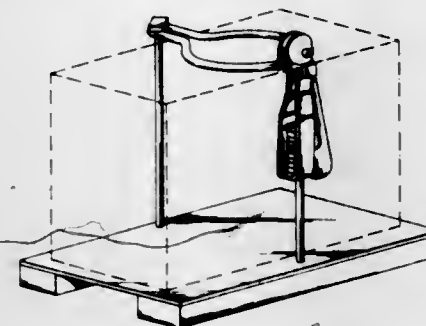


222,804

COMBINED HOLD DOWN CLAMP AND BASE SUPPORT FOR BATTERIES

Jacob J. Delzer, 3212 Fruitvale Blvd., Yakima, Wash. 98902
 Filed Feb. 25, 1970, Ser. No. 21,614
 Term of patent 14 years
 Int. Cl. D13—02

U.S. Cl. D26—6

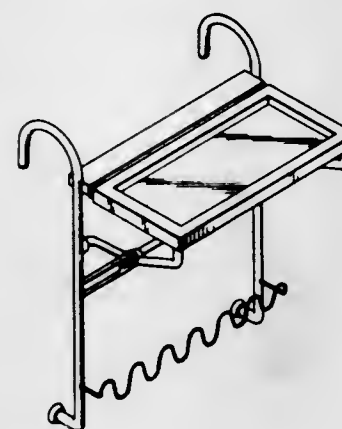


222,805

BABY CRIB ACCESSORY RACK

Joy M. Osborn, 131 K St. SW., Quincy, Wash. 98848
 Filed May 15, 1970, Ser. No. 23,017
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—3



222,806

CANOPIED TABLE AND CHAIRS

Marcus S. Wise, 518 Cromer Ave., Muncie, Ind. 47303
 Continuation-in-part of design application Ser. No. 12,967, July 30, 1968. This application Apr. 6, 1970, Ser. No. 22,258

Term of patent 14 years
 Int. Cl. D6—03

U.S. Cl. D33—14



222,807

INFLATABLE RIDING TOY

William F. Davis, 107 Brown St., Tecumseh, Mich. 49286
 Filed July 1, 1970, Ser. No. 23,800
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15

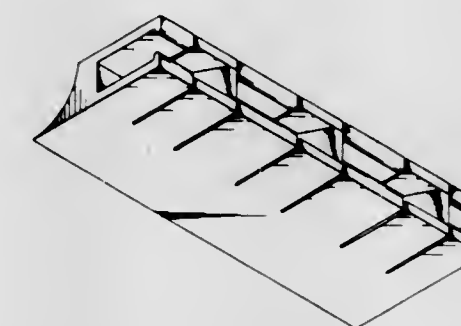


222,808

REPLACEABLE EDGE FOR POWER MOWER BLADES

Bruce W. Smith, 920 SE. Birch, College Place, Wash. 99324
 Filed Apr. 9, 1970, Ser. No. 22,357
 Term of patent 14 years
 Int. Cl. D15—03

U.S. Cl. D40—1

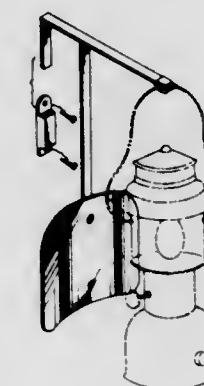


222,809

COMBINED LAMP HOLDER AND REFLECTOR OR SIMILAR ARTICLE

Richard L. Ford, 1710 Albumbaugh, Boise, Idaho 83704
 Filed May 14, 1970, Ser. No. 22,976
 Term of patent 14 years
 Int. Cl. D26—99

U.S. Cl. D48—4



222,810

EXTERIOR LIGHTING FIXTURE

Donald E. Husby, Fairview Park, Ohio, and Edmund L. Izzi, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation

Filed Apr. 21, 1970, Ser. No. 22,547

Term of patent 14 years

Int. Cl. D26—03

U.S. Cl. D48—31



222,813

THUMB PIANO

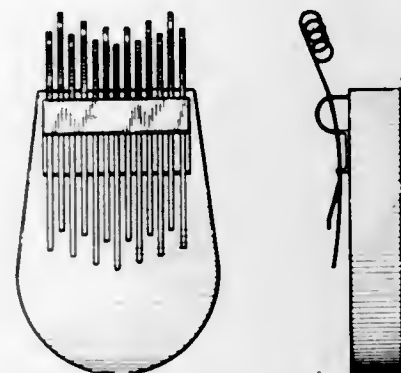
James B. Wilson, Chicago, Ill., assignor to Voice of The Flower, Ltd., Chicago, Ill.

Filed Feb. 6, 1970, Ser. No. 21,307

Term of patent 14 years

Int. Cl. D17—03

U.S. Cl. D56—1



222,814

RADIO

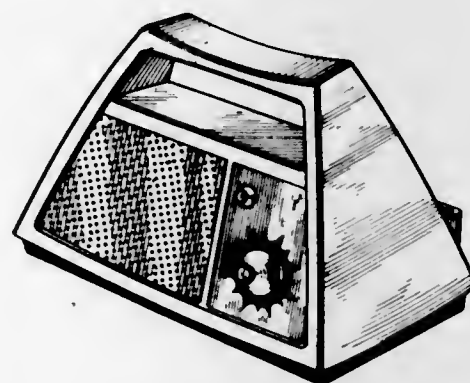
Howard S. Teller, Jr., Northbrook, Ill., assignor to Merchandising Aids, Inc., Schiller Park, Ill.

Filed July 23, 1970, Ser. No. 24,082

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D56—4



222,811

TAILORING GAUGE

Grace Auditors, 1860 Williamsbridge Road, Bronx, N.Y. 10461

Substituted for abandoned design application Ser. No. 14,906, Dec. 11, 1968. This application July 20, 1970, Ser. No. 24,038

Term of patent 7 years

Int. Cl. D10—04

U.S. Cl. D52—6



222,812

DECORATIVE FACING PLATE

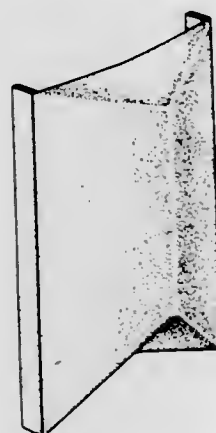
Patrick L. Zampetti, Cranford, N.J., assignor to Construction Specialties, Inc., Cranford, N.J.

Filed Dec. 30, 1969, Ser. No. 20,697

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D54—2



222,815

COMBINATION SPOTTING SCOPE, CARRYING CASE AND STOCK THEREFOR

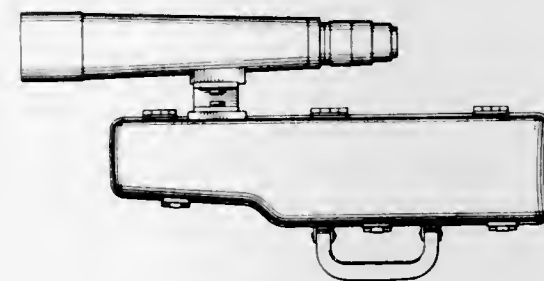
Donald J. Burris, Aurora, Colo., assignor to Redfield Co., Denver, Colo.

Filed May 6, 1970, Ser. No. 22,840

Term of patent 14 years

Int. Cl. D16—08; D3—01

U.S. Cl. D57—1



222,816

SAILBOAT HULL WITH RETRACTABLE KEEL

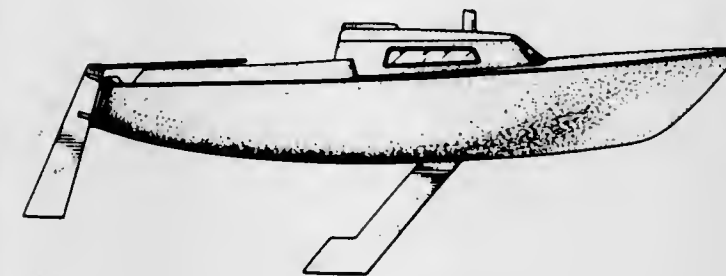
Charles William Lapworth, P.O. Box 1756, Newport Beach, Calif. 92663

Filed Dec. 5, 1969, Ser. No. 20,388

Term of patent 14 years

Int. Cl. D12—06

U.S. Cl. D71—1



222,817

PRODUCT DISPLAY TRAY

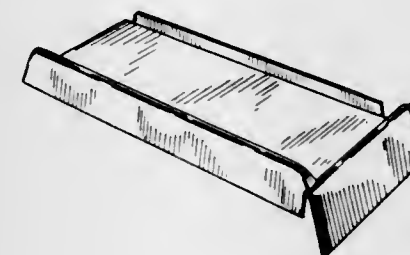
Kenneth M. Kenmotsu, Morton Grove, Ill., assignor to Chicago Display Company, Melrose, Park, Ill.

Filed Apr. 21, 1970, Ser. No. 22,541

Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D80—9



222,818

SELF CLEANING BRUSH

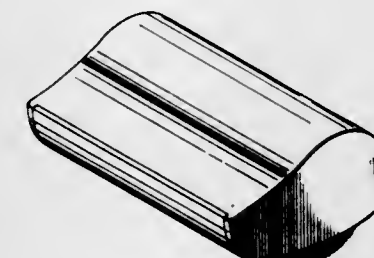
Tibor Horvath, 944 Ave. R, Brooklyn, N.Y. 11223

Filed July 22, 1970, Ser. No. 24,065

Term of patent 14 years

Int. Cl. D4—02

U.S. Cl. D86—13



222,819

REEL-STORAGE BOX

Marco Del Corno and Luigi Bandini Buti, Milan, Italy, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sept. 9, 1970, Ser. No. 24,907

Claims priority, application Italy Mar. 10, 1970

Term of patent 14 years

Int. Cl. D3—99

U.S. Cl. D87—1



222,820

SPEED CHANGE GEAR FOR BICYCLES

Norio Sato and Masashi Nagano, both % Shiman Industrial Co. Ltd., 77, 3-cho, Oimatsucho, Sakai, Japan

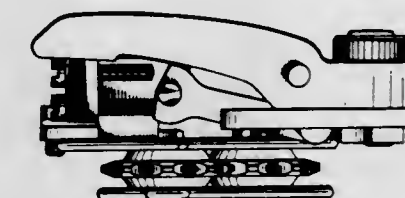
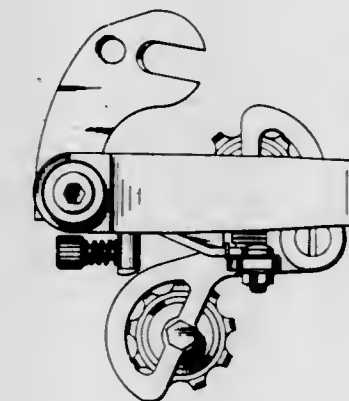
Filed Sept. 3, 1969, Ser. No. 18,976

Claims priority, application Japan Mar. 10, 1969

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D90—17



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 4TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- % Nippon Electric Company, Limited: See—
Uchida, Teiji; and Furukawa, Motoaki, 3,633,035.
% Nippon Electric Company, Ltd.: See—
Uchida, Teiji; and Furukawa, Motoaki, 3,633,034.
Aagaard, Einar Andreas, to U.S. Philips Corporation. Telecommunication exchange with time division multiplex. 3,632,883, Cl. 179-15.
AB Gylling & Co.: See—
Eriksson, Lars; and Godhan, Ali, 3,632,435.
AB Hydraul-Verken: See—
Eliasson, Kurt Arnold, 3,631,546.
Abbott, Colin E., to Mining & Chemical Products Limited. Thermoelectric device having parallel circuits interconnected at equal potential points. 3,632,451, Cl. 136-203.
Abbott Laboratories: See—
Crovetto, Aldo Joseph, 3,632,859.
Abell, Kendrick M. Test scoring method and apparatus. 3,631,611, Cl. 35-48.
Abex Corporation: See—
Novotny, Raymond J., 3,632,130.
Sarbach, Ronald A.; and Porter, Richard E., 3,633,026.
Acher, Heinz: See—
Traube, Klaus; and Acher, Heinz, 3,632,471.
Acker, Norbert Karl, to Scanner, Inc. Color code system. 3,632,993, Cl. 235-61.11.
Ackermann, Jacob; Bianchi, Gaudenzio; and Radici, Pierino, to Societa Italiana Resine S.p.A. Stabilized formaldehyde polymers containing poly-vinyl pyrrolidone and thiobisphenols. 3,632,686, Cl. 260-895.
Ackermann, Jacob: See—
Paleologo, Teo; and Ackermann, Jacob, 3,632,655.
Acres, Ronald C., to General Electric Company. Device for locking turbomachinery blades. 3,632,228, Cl. 416-221.
Adams, Ralph C.; and Anderson, John R., to Sybron Corporation. Method of operating and regenerating ion exchange apparatus. 3,632,506, Cl. 210-34.
Addor, Roger William; and Drabb, Thomas Walter, Jr., to American Cyanamid Company. Phenylthiovinyl phosphorothioates and their method of preparation. 3,632,862, Cl. 260-949.
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Lahrson, Allan E.; Hublou, Frank E.; Zuchowski, Richard C.; Vannucci, Robert J.; Lenox, Timothy L.; and Geary, David S., 3,633,176.
- Zumach, Gerhard; Holtschmidt, Hans; and Kuhle, Engelbert, to Farbenfabriken Bayer Aktiengesellschaft. 1,2,4-Thiadiazolium compounds. 3,632,815, Cl. 260-302.
- Zussman, Hyman William; and Hausermann, Heinrich, to Geigy Chemical Corporation. Bis-triazinylaminostilbene compounds. 3,632,491, Cl. 252-152.
- Zwagmakers, Johannes Maria Antonius: See—
Keizer, Volkert Govert; and Zwagmakers, Johannes Maria Antonius, 3,632,780.

LIST OF DESIGN PATENTEES

PATENTS WERE ISSUED ON THE 4TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (In accordance with city and telephone directory practice).

- All-American Mfg., Inc.: See—
Ray, Donald G., 222,798.
- Auditor, Grace. Tailoring gauge. 222,811, 1-4-72, Cl. D52-6.
- Burris, Donald J., to Redfield, Co. Combination spotting scope, carrying case and stock therefor. 222,815, 1-4-72, Cl. D57-1.
- Butt, Luigi B.: See—
DelCorno, Marco, and Butt, 222,819.
- Chicago Display Co.: See—
Kenmotsu, Kenneth M., 222,817.
- Construction Specialties, Inc.: See—
Zampetti, Patrick L., 222,812.
- Coon, James A., and E. Theobald. File. 222,796, 1-4-72, Cl. D8-90.
- Davis, William F. Inflatable riding toy. 222,807, 1-4-72, Cl. D84-15.
- DelCorno, Margo, and L. B. Butt, to Minnesota Mining and Mfg. Co. Reel-storage box. 222,819, 1-4-72, Cl. D87-1.
- Deizer, Jacob J. Combined hold down clamp and base support for batteries. 222,804, 1-4-72, Cl. D26-8.
- Dent & Vallis: See—
Vallis, Joseph, 222,794.
- Donoghue, Robert J. Combined bottle and closure therefor. 222,800, 1-4-72, Cl. D9-10.
- Erickson, Stanley T. Reel. 222,798, 1-4-72, Cl. D8-222.
- Fine, Archie R., and C. T. Poindexter. Handle grip. 222,797, 1-4-72, Cl. D8-107.
- Ford, Richard I. Combined lamp holder and reflector or similar article. 222,809, 1-4-72, Cl. D48-4.
- Horvath, Tibor. Self cleaning brush. 222,818, 1-4-72, Cl. D86-13.
- Hughes Edward E., III, to Morrison Molded Fiber Glass Co. Upsweep bracket. 222,799, 1-4-72, Cl. D8-234.
- Husby, Donald E., and E. L. Izzi, to Westinghouse Electric Corp. Exterior lighting fixture. 222,810, 1-4-72, Cl. D48-31.
- Izzi, Edmund L.: See—
Husby, Donald E., and Izzi, 222,810.
- Kenmotsu, Kenneth M., to Chicago Display Co. Product display tray. 222,817, 1-4-72, Cl. D80-9.
- Kovacevic, Radoslav. Handle for jar and bottle opener. 222,795, 1-4-72, Cl. D8-40.
- Lapworth, Charles W. Sailboat hull with retractable keel. 222,816, 1-4-72, Cl. D71-1.
- DeRoue, Lloyd J. Telescoping hollow fish pole. 222,801, 1-4-72, Cl. D22-23.
- Merchandising Aids, Inc.: See—
Teller, Howard S., Jr., 222,814.
- Minnesota Mining and Mfg. Co.: See—
DelCorno, Marco, and Zutl, 222,819.
- Morrison Molded Fiber Glass Co.: See—
Hughes, Edward E., III, 222,799.
- Nagano, Masashi: See—
Sato, Norio, and Nagano, 222,820.
- Osborn, Joy M. Baby crib accessory rack. 222,805, 1-4-72, Cl. D83-8.
- Polindexter, Charles T.: See—
Fine, Archie R., and Polindexter, 222,797.
- Posca, Jorge E. Machine for centrifugally casting dental materials. 222,803, 1-4-72, Cl. D24-1.
- Ray, Donald G., to All-American Mfg., Inc. Broom head. 222,798, 1-4-72, Cl. D4-4.
- Redfield, Co.: See—
Burris, Donald J., 222,815.
- Sato, Norio, and M. Nagano. Speed change gear for bicycles. 222,820, 1-4-72, Cl. D90-17.
- Siebel, John E. Pressure unloader valve or the like. 222,802, 1-4-72, Cl. D23-18.
- Smith, Bruce W. Replaceable edge for power mower blades. 222,808, 1-4-72, Cl. D40-1.
- Teller, Howard S., Jr., to Merchandising Aids, Inc. Radio. 222,814, 1-4-72, Cl. D56-4.
- Theobald, Elwin: See—
Coon, James A., and Theobald, 222,796.
- Vallis, Joseph, to Dent & Vallis. Handle for brushes or combs. 222,794, 1-4-72, Cl. D4-35.
- Voice of the Flower, Ltd.: See—
Wilson, James B., 222,813.
- Westinghouse Electric Corp.: See—
Husby, Donald E., and Izzi, 222,810.
- Wilson, James B., to Voice of the Flower, Ltd. Thumb piano. 222,813, 1-4-72, Cl. D56-1.
- Wise, Marcus S. Canopied table and chairs. 222,806, 1-4-72, Cl. D83-14.
- Zampetti, Patrick L., to Construction Specialties, Inc. Decorative facing. 222,812, 1-4-72, Cl. D54-2.

ISSUED JANUARY 4, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

3R	CLASS 2	2018	3,631,579	713	3,631,646	3,631,700	51R	3,631,769	CLASS 107	
6		211	3,631,577	745	3,631,648	3,631,701	53DP	3,631,770	3,631,819	
153		407	3,631,580			3,631,702		3,631,771	CLASS 108	
	CLASS 3	408	3,631,581	3	3,631,649	3,631,704			2	3,631,820
1.1		419	3,631,582	42	3,631,650	3,631,703			152	3,631,821
		420.5	3,631,583	123	3,631,651	3,632,027	1	3,631,772	CLASS 110	
	CLASS 4	434	3,631,584	124D	3,631,652	3,631,705	1.1	3,631,773	8A	3,631,823
149		470.3	3,631,585	378	3,631,653	3,631,706	4.5	3,631,774	8C	3,631,822
172		474.3	3,631,586			3,631,707		3,631,775	14	3,631,824
172.19		481	3,631,587	133	3,631,655		10CE	3,631,778	CLASS 111	
	CLASS 5	487	3,632,319	159	3,631,654	3,631,708	10CT	3,631,777	11	3,631,825
81		488	3,631,588	257	3,631,656	3,631,709	10C	3,631,776	CLASS 112	
93		588	3,631,589	348	3,631,657	3,631,710	11R	3,631,780	141	3,631,826
99R		596	3,631,590			3,631,712	11.5R	3,631,779	CLASS 114	
	CLASS 7		3,631,591	11.3	3,631,658	3,631,713	14	3,631,781	29	3,631,827
1G		604	3,631,592	11.9	3,631,659	3,631,711	31CA	3,631,782	39	3,631,828
	CLASS 8	610	3,631,593	15.9	3,631,660	3,631,714	31FL	3,631,783	29	3,631,829
		624	3,631,594	364	3,631,661	3,631,715	42	3,631,784	43.5	3,631,830
2.5		3,632,291		13	3,631,662	3,631,716	44	3,631,785	50	3,631,831
4		3,632,288	CLASS 30	34HS	3,631,664	3,631,717	64R	3,631,787	74R	3,631,832
7		3,632,289		34TT	3,631,663	3,631,718			CLASS 115	
10.1		3,632,290	CLASS 32	77.45	3,631,665	3,631,719	1.4	3,632,337	38R	3,631,833
		3,632,292		160	3,631,666	3,631,720	29	3,632,338	14	3,631,834
34		3,632,293	CLASS 33	162	3,631,667	3,631,721	36.1	3,632,339	CLASS 117	
54.2		3,632,294				3,631,722	64	3,632,340	1.7	3,632,364
111		3,632,295	IR	7	3,631,668	3,631,723	66HD	3,632,341	3.4	3,632,365
115.5		3,632,296	42	28D	3,631,669	3,631,724	68	3,632,342	4	3,632,366
116.2		3,632,297	46AT			3,631,725	88	3,632,343	12	3,632,367
120		3,632,298	174F			3,631,726	91	3,632,344	16	3,632,368
128		3,632,299	179.5			3,631,727	95	3,632,345	17.5	3,632,369
172		3,632,300	180R			3,631,728	100	3,632,346	19	3,632,370
176		3,632,301				3,631,729	107	3,632,348	21	3,632,371
177AB		3,632,302	CLASS 34	39.18	3,631,670		123	3,632,349	34	3,632,372
	CLASS 9			39.36	3,631,673	194			34	3,632,373
8R		3,631,551	9	39.65	3,631,674	3,631,730			35.5	3,632,374
8		3,631,550	10	39.66	3,631,675	3,631,732	40D	3,631,788	36.2	3,632,375
	CLASS 10		8R	54.6A	3,631,676	3,631,733	58	3,631,789	36.8	3,632,376
89	</td>									

161ZB	3,632,427	171	3,631,899	15BA	3,632,884	157	3,632,936	120	3,632,958	CLASS 236	
201	3,632,429	CLASS 139		15BT	3,632,882	160	3,632,937	125R	3,632,959	20	3,632,040
	3,632,430	196	3,631,900	15A	3,632,885	167A	3,632,938	131R	3,632,960	CLASS 239	
	3,632,431	273A	3,631,901	27FF	3,632,886	168R	3,632,939	160	3,632,961	128	3,632,041
212	3,632,432	CLASS 140		32	3,632,888	172A	3,632,940	200	3,632,962	130	3,632,042
	3,632,433	92.1	3,631,902	41A	3,632,889	182	3,632,941		3,632,963	146	3,632,043
	3,632,434	CLASS 141		81C	3,632,890	9	3,632,479	209	3,632,964	288.5	3,632,044
	3,632,435	1	3,631,903	100.1R	3,632,891	CLASS 201		211	3,632,965	307	3,632,045
213	3,632,436	351	3,631,904	100.11	3,632,892	CLASS 202		214	3,632,966	318	3,632,046
215	3,632,437	CLASS 144		100.2B	3,632,893	169	3,632,480	216	3,632,967	533	3,632,047
	3,632,438	3D	3,631,905	100.2E	3,632,894	CLASS 203			3,632,968	547	3,632,048
	3,632,439	34F	3,631,906	100.2P	3,632,895	11	3,632,481	222	3,632,969	590	3,632,049
218	3,632,440	CLASS 146		100.2R	3,632,896	56	3,632,482	229	3,632,970	676	3,632,050
	3,632,441	106	3,631,907	100.2Z	3,632,897	CLASS 204		230	3,632,971	7.1	3,633,020
219	3,632,442	133	3,631,908		3,632,898	1T	3,632,483	231	3,632,972	8.2	3,633,021
227	3,632,443	182R	3,631,909	107R	3,632,899	2	3,632,484	233	3,632,973	8.3	3,633,022
228	3,632,444	CLASS 148		111	3,632,900	16	3,632,485	301	3,632,974	10	3,633,023
		6.14A	3,632,452	119R	3,632,901	33	3,632,486	335	3,632,975	52R	3,633,024
47	3,631,835	6.15R	3,632,453	170.2	3,632,902	34	3,632,487	368	3,632,976	103B	3,633,025
415	3,631,836	11.5R	3,632,454	CLASS 180		67	3,632,488	370	3,632,977	8	3,632,051
504	3,631,837	12.4	3,632,455	32	3,631,936	72	3,632,489	377	3,632,978	CLASS 241	
637	3,631,838	CLASS 119		79.2B	3,631,937	141	3,632,490	447	3,632,979	CLASS 242	
		20	3,631,839	121	3,631,938	159.14	3,632,491	464	3,632,980	67.4	3,632,052
51.12	3,631,840	19	3,632,458	CLASS 182		192	3,632,492	466	3,632,981	71.8A	3,632,053
57	3,631,841	38	3,631,910	2	3,631,939	195C	3,632,493	469	3,632,982	86.5R	3,632,054
149	3,631,842	CLASS 151		148	3,631,940	249	3,632,494	499	3,632,983	107.4	3,632,055
		216	3,631,911	155	3,631,941	263	3,632,495	501	3,632,984		3,632,056
25L	3,631,843	CLASS 152		CLASS 187		290F	3,632,496	530	3,632,985	CLASS 220	
97B	3,631,844	239	3,631,912	1	3,631,942	297R	3,632,497	2.3A	3,632,008	3A	3,632,009
117A	3,631,845	353	3,631,913	264D	3,631,943	3	3,631,969	5A	3,632,010	129	3,632,061
26	3,631,846	CLASS 156		CLASS 188		45.31	3,631,970	9F	3,632,011	147R	3,632,062
		3	3,632,459	CLASS 191		52R	3,631,971		3,632,012	149R	3,632,063
CLASS 127		175	3,632,460	12.2A	3,632,906	57R	3,631,972	22.3	3,632,013	CLASS 244	
3	3,632,445	257	3,632,461	CLASS 192		65B	3,631,973	44R	3,632,014	13	3,632,064
41	3,632,446	345	3,632,462	3R	3,631,944	65	3,631,973	69	3,632,015	17.11	3,632,065
CLASS 128		2R	3,631,847	CLASS 161		82	3,631,975	97R	3,632,016	136	3,632,067
2.05D	3,631,850	9	3,632,464	3.51	3,631,945	60	3,632,500	CLASS 221		151	3,632,066
2.05R	3,631,848	54	3,632,465	3.58	3,631,946	CLASS 208		33	3,632,017	CLASS 245	
	3,631,849	67	3,632,466	4A	3,631,947	139	3,632,501	CLASS 222		8	3,632,068
2.06R	3,631,851	167	3,632,467	4B	3,631,949	310	3,632,502	CLASS 246		182A	3,632,026
3	3,631,852	173	3,632,468	4C	3,631,948	74R	3,631,976	CLASS 248		56	3,632,069
79	3,631,853	CLASS 162		8C	3,631,951	74	3,631,977	68	3,632,070	74PB	3,632,071
90	3,631,854	53F	3,632,469	70.17	3,631,952	400.7	3,632,023	150	3,632,072	75NH	3,632,073
208	3,631,855	98	3,631,954	CLASS 164		402.11	3,632,024	169	3,632,073	77.5CR	3,632,074
295	3,631,856	112	3,631,914	CLASS 193		472	3,632,025	346	3,632,074	77.5TB	3,632,075
318	3,631,857	266	3,631,915	43D	3,631,955	559	3,632,026	354P	3,632,075	78SC	3,632,076
346	3,631,858	282	3,631,916	CLASS 195		95	3,632,028	371	3,632,076	78UA	3,632,077
419P	3,631,860	410	3,631,918	1.7	3,632,473	CLASS 223		400	3,632,077	78.5BB	
		CLASS 130		29	3,632,474	95	3,632,028	CLASS 249		85.5	3,632,078
6	3,631,861	1	3,631,919	31	3,632,475	CLASS 224		183	3,632,078	92.1	3,632,079
27L	3,631,862	4	3,631,920	37	3,632,476	CLASS 226		189	3,632,079	92.8AC	
30	3,631,863	22	3,631,921	81	3,632,477	CLASS 227		41.9S	3,633,027	93.1	3,632,080
CLASS 131		151	3,631,922	139	3,632,478	CLASS 228		50	3,633,028	94.2	3,632,081
10.5	3,631,864	167	3,631,923	CLASS 197		3	3,632,030	65R	3,633,029	94.7N	3,632,082
140	3,631,865	CLASS 166		1A	3,631,956	187	3,632,031	71.5R	3,633,030	94.9R	3,632,083
210	3,631,866	19	3,631,924	151	3,631,957	CLASS 229		106S	3,633,031	125	3,632,084
261B	3,631,867	134	3,631,925	CLASS 198		4	3,632,034	199	3,633,032	140	3,632,085
		CLASS 132		20	3,631,959	54	3,632,035	214	3,633,033	145A	3,632,086
39	3,631,868	91	3,631,869	33AB	3,631,960	CLASS 235		205	3,633,034	152	3,632,087
CLASS 134		643	3,631,929	37	3,631,961	61.11B	3,632,991	207	3,633,035	209R	3,632,088
3	3,632,447	804	3,631,930	41	3,631,962	61.11D	3,632,990	233.3R	3,632,089	239.3T	3,632,089
86A	3,632,448	807	3,631,931	81	3,631,963	61.11E	3,632,992	239.57	3,632,090	240A	3,632,090
135S	3,632,449	CLASS 136		127	3,631,964	61.11J	3,632,993	240G	3,632,091	240J	3,632,091
203	3,632,450	807	3,631,931	131	3,631,965	61.11K	3,632,994	240J	3,632,092	243C	3,632,092
CLASS 137		6	3,631,932	153	3,631,966	61.11L	3,632,995	243C	3,632,093	247.1	3,632,093
15	3,631,870	57	3,631,933	181	3,631,967	61.11M	3,632,996	247.5R	3,632,094	247.5R	3,632,094
54	3,631,871	58	3,631,934	230	3,631,968	61.11N	3,632,997	247.5R	3,632,095	247.5R	3,632,095
56	3,631,872	CLASS 176		CLASS 200		61.11P	3,632,998	247.5R	3,632,096	247.5R	3,632,096
81.5	3,631,873	19	3,632,470	4	3,632,907	61.11Q	3,632,999	247.5R	3,632,097	247.5R	3,632,097
	3,631,874	36	3,632,471	11TC	3,632,908	61.11R	3,633,000	247.5R	3,632,098	247.5R	3,632,098
	3,631,875	84	3,632,472	16C	3,632,910	61.11S	3,633,001	247.5R	3,632,099	247.5R	3,632,099
	3,631,876	CLASS 177		16D	3,632,911	61.11T	3,633,002	247.5R	3,632,100	247.5R	3,632,100
	3,631,877	174	3,631,935	24	3,632,912	61.11U	3,633,003	247.5R	3,632,101	247.5R	3,632,101
	3,631,878	CLASS 178		38CA	3,632,913	61.11V	3,633,004	247.5R	3,632,102	247.5R	3,632,102
	3,631,879	5.6	3,632,863	42R	3,632,914	61.11W	3,633,005	247.5R	3,632,103	247.5R	3,632,103
	3,631,880	5.8R	3,632,864	42T	3,632,915	61.11X	3,633,006	247.5R	3,632,104	247.5R	3,632,104
	3,631,881	6	3,632,865	42T	3,632,916	61.11Y	3,633,007	247.5R	3,632,105	247.5R	3,632,105
	3,631,882	6.5	3,632,866	42T	3,632,917	61.11Z	3,633,008	247.5R	3,632,106	247.5R	3,632,106
	3,631,883	6.8	3,632,867	42T	3,632,918	61.11A	3,633,009	247.5R	3,632,107	247.5R	3,632,107
	3,631,884		3,632,868	42T	3,632,919	61.11B	3,633,010	247.5R	3,632,108	247.5R	3,632,108
	3,631,885		3,632,869	42T	3,632,920	61.11C	3,633,011	247.5R	3,632,109	247.5R	3,632,109
	3,631,886		3,632,870	42T	3,632,921	61.11D	3,633,012	247.5R	3,632,110	247.5R	3,632,110
	3,631,887		3,632,871	42T	3,632,922	61.11E	3,633,013	247.5R	3,632,111	247.5R	3,632,111
	3,631,888		3,632,872	42T	3,632,923	61.11F	3,633,014	247.5R	3,632,112	247.5R	3,632,112
	3,631,889		3,632,873	42T	3,632,924	61.11G	3,633,015	247.5R	3,632,113	247.5R	3,632,113
	3,631,890		3,632,874	42T	3,632,925	61.11H	3,633,016	247.5R	3,632,114	247.5R	3,632,114
	3,631,891		3,632,875	42T	3,632,926	61.11I	3,633,017	247.5R	3,632,115	247.5R	3,632,115
	3,631,892		3,632,876	42T	3,632,927	61.11J	3,633,018	247.5R	3,632,116	247.5R	3,632,116
	3,631,893		3,632,877	42T	3,632,928	61.11K	3,633,019	247.5R	3,632,117	247.5R	3,632,117
	3,631,894		3,632,878	42T	3,632,929	61.11L	3,633,020	247.5R	3,632,118	247.5R	3,632,118
	3,631,895		3,632,879	42T	3,632,930	61.11M	3,633,021	247.5R	3,632,119	247.5R	3,632,119
	3,631,896		3,632,880	42T	3,632,931	61.11N	3,633,022	247.5R	3,632,120	247.5R	3,632,120
	3,631,897		3,632,881	42T	3,632,932	61.11O	3,633,023	24			

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44	3,632,197	33	3,632,218	150	3,632,239	211	3,632,758	CLASS 425	292	3,632,261	
60	3,632,198		CLASS 415		CLASS 424	230	3,632,760	4	3,632,241	302	3,632,262
103	3,632,199	72	3,632,219	3	3,632,735	248	3,632,761	77	3,632,242	324	3,632,263
109	3,632,200	112	3,632,220	5	3,632,736	249	3,632,762	78	3,632,243	326	3,632,264
	CLASS 355	115	3,632,221		3,632,737	251	3,632,763	79	3,632,244		3,632,266
3	3,632,201	119	3,632,222		3,632,738	263	3,632,765	113	3,632,463	348	3,632,267
	3,632,202	144	3,632,223	19	3,632,739	267	3,632,766	130	3,632,245	362	3,632,268
8	3,632,203	149	3,632,224	28	3,632,740		3,632,767	135	3,632,246	365	3,632,269
27	3,632,204	168	3,632,225	37	3,632,742	278	3,632,768		3,632,247	378	3,632,270
53	3,632,205	211	3,632,227	45	3,632,743	288	3,632,769	151	3,632,249	387	3,632,272
68	3,632,206		CLASS 416	69	3,632,744		3,632,770	155	3,632,250	392	3,632,273
85	3,632,207	220	3,632,228	89	3,632,741	291	3,632,764	157	3,632,251	395	3,632,274
108	3,632,208		CLASS 417		3,632,745	300	3,632,759	166	3,632,254	405	3,632,275
	CLASS 356	50	3,632,229	93	3,632,746	302	3,632,771	168	3,632,255	415	3,632,276
37	3,632,210	225	3,632,230		3,632,747	311	3,632,772	205	3,632,253	438	3,632,277
41	3,632,211	295	3,632,231	115	3,632,748	313	3,632,773		3,632,254	450	3,632,278
45	3,632,212	300	3,632,232	118	3,632,749	319	3,632,774		3,632,255		3,632,279
74	3,632,213	375	3,632,233	120	3,632,750		3,632,778		3,632,256	470	3,632,280
106	3,632,214	390	3,632,234	123	3,632,751	320	3,632,783		3,632,257		3,632,281
114	3,632,215	439	3,632,235	177	3,632,752	322	3,632,775		3,632,258		3,632,282
	3,632,216	471	3,632,236		3,632,753	324	3,632,777		3,632,259		3,632,283
176	3,632,217	536	3,632,237	180	3,632,754	330	3,632,779	222	3,632,257	60	3,632,284
203	3,632,226		CLASS 418	200	3,632,755		3,632,780	223	3,632,258	116	3,632,285
209	3,632,209	15	3,632,238		3,632,757	342	3,632,781	245	3,632,259	264	3,632,286
	CLASS 402	131	3,632,240	209	3,632,756	346	3,632,782		3,632,260	284	3,632,287
										350	3,632,287
											CLASS 444
										I	3,633,213

CLASSIFICATION OF DESIGNS

D 4— 4	222,793	222	222,798	D24— 1	222,803	D40— 1	222,808	D56— 1	222,813	D80— 9	222,817
35	222,794	234	222,799	D26— 6	222,804	D48— 4	222,809	4	222,814	D86— 13	222,818
D 8— 40	222,795	D 9— 10	222,800	D33— 3	222,805	31	222,810	D57— 1	222,815	D87— 1	222,819
90	222,796	D22— 23	222,801	14	222,806	D52— 6	222,811	D71— 1	222,816	D90— 17	222,820
107	222,797	D23— 19	222,802	D34— 15	222,807	D54— 2	222,812				

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1 : 3,631,737	3,632,067	3,632,873	3,633,212	3,633,030	3,632,277
3,632,139	3,632,078	3,632,898	3,633,213	3,633,050	3,633,141
2 : 3,631,977	3,632,084	3,632,900	7 : 3,632,069	3,633,060	14 : 3,632,893
4 : 3,631,645	3,632,108	3,632,902	8 : 3,631,878	3,633,088	15 : 3,632,730
3,631,836	3,632,110	3,632,919	3,631,971	3,631,666	16 : 3,631,568
3,632,080	3,632,144	3,632,934	3,632,124	3,632,082	17 : 3,632,262
3,632,170	3,632,147	3,632,937	3,632,694	3,632,181	3,631,566
3,632,973	3,632,193	3,632,945	3,632,776	3,632,183	3,631,580
3,633,002	3,632,196	3,632,962	3,632,962	3,632,289	3,631,584
3,631,989	3,632,197	3,632,994	3,631,587	3,632,313	3,631,609
3,631,539	3,632,199	3,632,995	3,631,595	3,632,507	3,631,615
3,631,540	3,632,200	3,632,998	3,631,623	3,632,570	3,631,628
3,631,551	3,632,209	3,633,024	3,631,708	3,632,586	3,631,641
3,631,592	3,632,216	3,633,038	3,631,709	3,632,598	3,631,653
3,631,611	3,632,235	3,633,042	3,631,711	3,632,601	3,631,676
3,631,613	3,632,299	3,633,044	3,631,876	3,632,636	3,631,699
3,631,617	3,632,330	3,633,045	3,631,886	3,632,643	3,631,727
3,631,631	3,632,337	3,633,052	3,631,892	3,632,675	3,631,734
3,631,640	3,632,368	3,633,053	3,631,951	3,632,705	3,631,736
3,631,678	3,632,391	3,633,061	3,631,958	3,632,744	3,631,762
3,631,682	3,632,428	3,633,064	3,632,039	3,632,831	3,631,811
3,631,728	3,632,432	3,633,065	3,632,063	3,632,840	3,631,817
3,631,745	3,632,441	3,633,078	3,632,161	3,632,856	3,631,833
3,631,747	3,632,446	3,633,079	3,632,230	3,632,856	3,631,869
3,631,758	3,632,465	3,633,080	3,632,243	3,632,140	3,631,895
3,631,760	3,632,470	3,633,087	3,632,243	3,632,519	3,631,895
3,631,783	3,632,473	3,633,087	3,632,304	3,632,923	3,631,910
3,631,789	3,632,478	3,633,091	3,632,305	3,632,996	3,631,953
3,631,792	3,632,482	3,633,095	3,632,312	3,633,036	3,632,016
3,631,803	3,632,488	3,633,096	3,632,387	3,631,658	3,632,025
3,631,804	3,632,494	3,633,104	3,632,388	3,631,830	3,632,070
3,631,818	3,632,496	3,633,105	3,632,466	3,631,847	3,632,071
3,631,835	3,632,500	3,633,118	3,632,476	3,631,990	3,632,090
3,631,843	3,632,502	3,633,130	3,632,489	3,632,066	3,632,121
3,631,845	3,632,513	3,633,131	3,632,541	3,632,072	3,632,125
3,631,851	3,632,515	3,633,133	3,632,620	3,632,085	3,632,134
3,631,884	3,632,547	3,633,155	3,632,632	3,632,089	3,632,145
3,631,891	3,632,556	3,633,157	3,632,638	3,632,112	3,632,201
3,631,919	3,632,597	3,633,163	3,632,646	3,632,138	3,632,208
3,631,930	3,632,622	3,633,164	3,632,676	3,632,152	3,632,237
3,631,938	3,632,692	3,633,167	3,632,763	3,632,204	3,632,254
3,631,964	3,632,703	3,633,173	3,632,822	3,632,273	3,632,268
3,631,976	3,632,755	3,633,176	3,632,842	3,632,855	3,632,271
3,631,978	3,632,756	3,633,184	3,632,872	3,632,878	3,632,274
3,631,984	3,632,772	3,633,186	3,632,877	3,632,950	3,632,283
3,631,993	3,632,773	3,633,187	3,632,921	3,633,068	3,632,315
3,632,023	3,632,781	3,633,189	3,632,926	3,633,101	3,632,339
3,632,037	3,632,800	3,633,202	3,632,932	3,633,154	3,632,357
3,632,044	3,632,817	3,633,203	3,632,935	3,631,820	3,632,364
3,632,064	3,632,841	3,633,207	3,632,961	3,631,853	3,632,386
	3,632,871	3,633,208	3,632,966	3,631,863	3,632,457
		3,633,210	3,633,000	3,631,933	3,632,464

3,632,479	3,632,972	3,632,499	3,632,261	3,631,942	3,631,674
3,632,503	3,633,005	3,632,607	3,632,269	3,631,987	3,631,675
3,632,514	3,633,029	3,632,619	3,632,280	3,632,019	3,631,677
3,632,524	3,633,048	3,632,720	3,632,297	3,632,021	3,631,684
3,632,525	3,633,097	3,632,761	3,632,300	3,632,024	3,631,685
3,632,535	3,633,119	3,632,768	3,632,306	3,632,030	3,631,687
3,632,630	3,633,174	3,632,791	3,632,310	3,632,047	3,631,735
3,632,633	25 : 3,631,598	3,632,793	3,632,318	3,632,088	3,631,748
3,632,659	3,631,607	3,632,794	3,632,325	3,632,106	3,631,797
3,632,668	3,631,694	3,632,795	3,632,346	3,632,109	3,631,798
3,632,678	3,631,774	3,632,813	3,632,367	3,632,162	3,631,800
3,632,693	3,631,775	3,632,828	3,632,389	3,632,179	3,631,802
3,632,709	3,631,776	3,632,852	3,632,408	3,632,182	3,631,837
3,632,752	3,631,780	3,632,949	3,632,416	3,632,187	3,631,915
3,632,783	3,631,826	3,632,958	3,632,436	3,632,192	3,631,922
3,632,802	3,631,860	3,632,980	3,632,468	3,632,210	3,631,935
3,632,814	3,631,870	3,632,991	3,632,484	3,632,214	3,631,937
3,632,835	3,631,881	3,633,007	3,632,497	3,632,217	3,631,996
3,632,839	3,631,896	3,633,008	3,632,506	3,632,252	3,632,005
3,632,859	3,631,897	3,633,020	3,632,516	3,632,290	3,632,017
3,632,875	3,631,937	3,633,056	3,632,522	3,632,296	3,632,035
3,632,876	3,631,970	3,633,057	3,632,545	3,632,338	3,632,046
3,632,916	3,632,003	3,633,158	3,632,557	3,632,340	3,632,049
3,632,918	3,632,022	3,633,160	3,632,560	3,632,342	3,632,096
3,632,938	3,632,052	3,633,165	3,632,571	3,632,348	3,632,136
3,632,979	3,632,163	27 : 3,631,601	3,632,572	3,632,359	3,632,154
3,632,981	3,632,195	3,631,635	3,632,588	3,632,370	3,632,176
3,632,985	3,632,231	3,631,858	3,632,604	3,632,373	3,632,185
3,632,985	3,632,285	3,631,879	3,632,609	3,632,376	3,632,191
3,633,031	3,632,288	3,631,899	3,632,616	3,632,390	3,632,203
3,633,043	3,632,341	3,631,921	3,632,621	3,632,430	3,632,221
3,633,055	3,632,354	3,631,932	3,632,635	3,632,444	3,632,223
3,633,070	3,632,355	3,631,939	3,632,642	3,632,448	3,632,224
3,633,094	3,632,356	3,632,053	3,632,647	3,632,449	3,632,228
3,633,121	3,632,404	3,632,054	3,632,652	3,632,454	3,632,245
3,633,134	3,632,412	3,632,101	3,632,669	3,632,483	3,632,248
3,633,137	3,632,413	3,632,146	3,632,691	3,632,491	3,632,259
3,633,201	3,632,505	3,632,198	3,632,715	3,632,508	3,632,260
3,631,591	3,632,521	3,632,211	3,632,739	3,632,512	3,632,272
3,631,650	3,632,539	3,632,212	3,632,749	3,632,527	3,632,279
3,631,688	3,632,595	3,632,278	3,632,750	3,632,538	3,632,286
3,631,741	3,632,680	3,632,377	3,632,751	3,632,582	3,632,311
3,631,814	3,632,696	3,632,379	3,632,760	3,632,591	3,632,319
3,631,815	3,632,710	3,632,606	3,632,765	3,632,608	3,632,326
3,631,816	3,632,786	3,632,734	3,632,770	3,632,683	3,632,328
3,631,890	3,632,867	3,632,759	3,632,775	3,632,690	3,632,329
3,631,917	3,632,971	3,632,788	3,632,787	3,632,697	3,632,360
3,632,010	3,633,010	3,632,844	3,632,797	3,632,704	3,632,392
3,632,087	3,633,015	3,632,944	3,632,811	3,632,735	3,632,396
3,632,174	3,633,017	3,632,967	3,632,825	3,632,754	3,632,410
3,632,241	3,633,028	3,632,997	3,632,832	3,632,767	3,632,414
3,632,397	3,633,049	3,633,195	3,632,837	3,632,774	3,632,467
3,632,440	3,633,051	28 : 3,631,705	3,632,851	3,632,778	3,632,510
3,632,578	3,633,089	3,633,075	3,632,853	3,632,808	3,632,511
3,632,712	3,633,093	29 : 3,631,541	3,632,858	3,632,826	3,632,563
3,632,748	3,633,106	3,631,578	3,632,862	3,632,880	3,632,566
3,632,779	3,633,110	3,631,823	3,632,865	3,632,882	3,632,615
3,632,823	3,633,114	3,631,841	3,632,866	3,632,886	3,632,650
3,632,850	3,633,116	3,631,973	3,632,869	3,632,901	3,632,658
3,632,864	3,633,125	3,632,095	3,612,879	3,632,917	3,632,679
3,632,914	3,633,127	3,632,128	3,632,888	3,632,920	3,632,708
3,632,940	3,633,129	3,632,159	3,632,889	3,632,922	3,632,717
3,633,111	3,633,150	3,632,317	3,632,905	3,632,951	3,632,724
3,633,139	3,633,162	3,632,411	3,632,955	3,632,952	3,632,726
3,633,159	3,633,169	3,632,424	3,632,984	3,632,965	3,632,753
19 : 3,631,542	26 : 3,631,175	3,632,425	3,633,001	3,632,992	3,632,784
3,631,861	3,631,549	3,632,531	3,633,004	3,633,003	3,632,796
3,631,931	3,631,571	3,632,661	3,633,014	3,633,011	3,632,845
3,632,158	3,631,575	3,632,662	3,633,021	3,633,039	3,632,909
3,632,251	3,631,583	3,632,758	3,633,107	3,633,040	3,632,941
3,632,803	3,631,585	3,632,792	3,633,108	3,633,047	3,632,990
3,633,112	3,631,604	3,632,829	3,633,117	3,633,100	3,633,013
3,633,161	3,631,703	3,632,978	3,633,122	3,633,113	3,633,016
20 : 3,631,991	3,631,713	3,633,012	3,633,123	3,633,115	3,633,026
3,632,029	3,631,740	3,633,124	3,633,126	3,633,126	3,633,136
3,632,165	3,631,744	3,633,147	3,633,128	3,633,128	3,631,602
3,631,599	3,631,746	3,633,181	3,633,171	3,633,171	3,631,983
3,631,716	3,631,763	3,633,185	3,633,177	3,633,177	3,632,213
3,632,033	3,631,822	3,633,193	3,633,193	3,633,193	3,632,264
3,632,701	3,631,852	35 : 3,632,150	3,633,183	3,633,183	3,632,287
3,632,982	3,631,918	36 : 3,631,543	3,633,191	3,633,191	3,632,415
3,632,983	3,631,941	3,631,544	3,633,192	3,633,192	3,632,418
22 : 3,631,928	3,631,967	3,631,548	3,633,194	3,633,194	3,632,540
3,632,298	3,632,042	3,631,622	3,633,205	3,633,205	3,632,702
3,632,626	3,632,055	3,631,634	3,633,206	3,633,206	3,632,713
3,632,777	3,632,056	3,631,648	3,631,560	3,631,560	3,632,731
3,632,799	3,632,057	3,631,706	3,631,606	3,631,606	3,632,804
3,632,848	3,632,058	3,631,723	3,631,652	3,631,652	3,632,986
23 : 3,631,855	3,632,132	3,631,732	3,631,654	3,631,654	3,633,098
3,632,250	3,632,133	3,631,772	3,631,657	3,631,657	3,631,857
3,632,406	3,632,135	3,631,790	3,631,672	3,631,672	3,632,008
24 : 3,631,567	3,632,155	3,631,791	3,631,679	3,631,679	3,632,137
3,631,725	3,632,157	3,631,832	3,631,702	3,632,083	3,633,041
3,631,729	3,632,166	3,631,840	3,631,707	3,632,099	3,633,120
3,631,824	3,632,168	3,631,868	3,631,720	3,632,331	3,631,545
3,632,036	3,632,169	3,631,955	3,631,761	3,632,363	3,631,579
3,632,081	3,632,220	3,632,038	3,631,782	3,632,421	3,631,581
3,632,189	3,632,238	3,632,092	3,631,785	3,632,422	3,631,589
3,632,249	3,632,255	3,632,119	3,631,786	3,632,548	3,631,597
3,632,266	3,632,275	3,632,130	3,631,796	3,632,999	3,631,600
3,632,295	3,632,308	3,632,171	3,631,848	3,633,036	3,631,616
3,632,375	3,632,365	3,632,184	3,631,856	3,633,168	3,631,625
3,632,631	3,632,399	3,632,186	3,631,865	3,633,170	3,631,632
3,632,725	3,632,400	3,632,233	3,631,874	3,631,929	3,631,647
3,632,740	3,632,458	3,632,253	3,631,889	3,632,043	3,631,655
3,632,834	3,632,480	3,632,256	3,631,902	3,631,902	3,631,686

3,631,689	3,632,361	3,632,816	3,633,198	3,632,234	3,632,469
3,631,696	3,632,393	3,632,833	47 : 3,631,555	3,632,369	3,632,493
3,631,697	3,632,426	3,632,846	3,631,624	3,632,438	3,633,151
3,631,704	3,632,427	3,632,892	3,631,639	3,632,495	3,631,712
3,631,710	3,632,434	3,632,928	3,631,685	3,632,624	3,631,726
3,631,714	3,632,439	3,632,939	3,632,409	3,632,637	3,631,849
3,631,846	3,632,450	3,632,954	3,632,417	3,632,640	3,632,336
3,631,862	3,632,453	3,633,009	3,632,463	3,632,657	3,633,099
3,631,880	3,632,461	3,633,033	3,632,481	3,632,660	3,633,140
3,631,908	3,632,485	3,633,046	3,632,861	3,632,707	3,632,550
3,631,914	3,632,487	3,633,073	3,632,953	3,632,836	3,632,553
3,631,916	3,632,504	3,633,092	3,633,084	3,632,870	3,632,654
3,631,974	3,632,517	3,633,149	3,631,563	3,632,933	3,632,687
3,632,004	3,632,520	3,633,182	48 : 3,631,576	3,632,959	3,632,824
3,632,013	3,632,523	3,633,188	3,631,605	3,632,969	3,631,646
3,632,018	3,632,533	3,633,200	3,631,626	3,632,970	3,631,730
3,632,027	3,632,564	3,633,211	3,631,660	3,633,199	3,631,834
3,632,034	3,632,579	44 : 3,631,667	3,631,893	49 : 3,631,940	3,631,877
3,632,050	3,632,581	3,631,801	3,631,924	3,632,041	3,631,980
3,632,059	3,632,596	3,631,829	3,631,925	3,631,614	3,631,995
3,632,074	3,632,627	3,632,104	3,631,926	3,631,619	3,632,006
3,632,094	3,632,644	3,632,380	3,631,926	3,631,812	3,632,077
3,632,097	3,632,664	3,632,964	3,631,927	3,631,828	3,632,102
3,632,117	3,632,667	45 : 3,631,552	3,631,957	3,631,850	3,632,122
3,632,143	3,632,673	3,631,630	3,631,975	3,631,859	3,632,153
3,632,148	3,632,677	3,631,733	3,632,065	3,631,894	3,632,164
3,632,175	3,632,714	3,632,314	3,632,076	3,631,994	3,632,378
3,632,222	3,632,716	3,632,383	3,632,129	3,632,020	3,632,395
3,632,284	3,632,764	3,632,420	3,632,151	3,632,020	3,632,628
3,632,309	3,632,769	3,632,700	3,632,172	3,632,129	3,632,843</

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PATENT OFFICE NOTICES

Numbers for Which no Patents Have Issued

The Calendar Year 1970 Index of Patents will be available from the Superintendent of Documents, Government Printing Office in the very near future. Beginning with this year's Index, Part II "Subjects of Inventions" will list each patent number for which no patent was issued during the year. The 1970 Index will also include all the patent numbers for the years 1920 through 1969 for which no patents issued.

ROBERT J. RISH,
Acting Assistant Commissioner
for Administration.
Dec. 13, 1971.

Changes in Patent Front Page

Changes in the front page format of patents inaugurated August 4, 1970 will become effective with the issue of patents on January 18, 1972. They relate mainly to the sequence and grouping of data items and to various features of typography. The revised format is illustrated in a specimen which appears below.

Data elements presented on the front page are accompanied by a number which appears in brackets. They are the "ICIREPAT Numbers for Identification of Data" (INID) which have been adopted internationally for use on patents and published applications to facilitate the use of such documents.

The definitions of INID numbers for data elements which appear in U.S. patents are set forth below:

- [15] "Number of an examined patent, inventor's certificate or like granted or approved document."
[21] "Number as assigned to the application. . . ."

- [22] "Date(s) of filing of application(s)."
[30] "Convention priority data."
The separate elements comprising such data—i.e., application number, filing date, and country—are not individually coded on U.C. patents. Only the generic INID number is used.
[45] "Date of publication by printing or similar process of a patent or like approved document."
[51] "International Patent Classification (preferably preceded by "Int. Cl.")"
[52] "Domestic or national classification."
[54] "Title of the invention."
[56] "List of prior art documents, if separate from the text of the document."
[57] "Abstract or claim."
[58] "Field of search."
[60] "Reference to other applications filed or documents issued in the same country, to which the document is legally related."
This generic INID number is used when the relationship of the patent to other applications is due both to [62] division and [63] continuation.
[62] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to division(s)."
[63] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to continuation(s)."
[72] "Name(s) of inventor(s) if known to be such."
[73] "Name of grantee(s) if other than applicant or inventor."

Dec. 21, 1971. R. J. RISH,
Acting Assistant Commissioner
for Administration.

SPECIMEN

United States Patent

Clark et al.

[15] 3,624,090

[45] Nov. 30, 1971

[54] PREPARATION OF PYRIDINE

- [72] Inventors: Duncan Clark, Norton-on-Tees; Percy Hayden, Norton-on-Tees; Alan Bell, Runcorn; John Edward Colchester, Runcorn, all of England

- [73] Assignee: Imperial Chemical Industries Limited, London, England

- [22] Filed: Apr. 7, 1969

- [21] Appl. No.: 817,251

Related U.S. Application Data

- [60] Continuation-in-part of Ser. No. 669,733, Sept. 22, 1967, abandoned, which is a division of Ser. No. 493,231, Oct. 5, 1965, abandoned.

- [30] Foreign Application Priority Data
Apr. 7, 1965 Great Britain.....14,778/65

- [52] U.S. Cl.260/83.7 R, 252/431, 260/94.2 M
[51] Int. Cl.C08d 1/32, C08f 1/56, C08f 15/04
[58] Field of Search.....260/94.2 M, 83.7, 665; 252/431, 431 P

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Primary Examiner—Henry R. Jiles
Assistant Examiner—Cecilia M. Shurko
Attorney—Cushman, Darby & Cushman

[57] ABSTRACT

There is provided a process for preparing pyridine wherein substituted or unsubstituted glutaraldehydes or precursors thereof are reacted in the liquid phase with ammonium ions in the presence of molecular oxygen and cupric ions and in a medium comprising an alkanolic acid. The alkanolic acid preferably has up to 6 carbon atoms in the alkyl group, such as acetic acid. The cupric ions may be supplied in the form of a salt such as cupric acetate. Conveniently, the reaction temperature is up to 150° C. and the partial pressure of oxygen is at least 0.5 atmospheres.

10 Claims, No Drawings

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

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- 2,831,700. (See 2,791,463.)
2,841,411. (See 2,791,463.)
2,857,196. (See 2,791,463.)
2,871,056. (See 2,791,463.)
2,912,252. (See 2,791,463.)
2,963,810. (See 2,791,463.)
2,972,175. (See 2,791,463.)
2,975,938. (See 2,791,463.)
2,981,153. (See 2,791,463.)
2,990,194. (See 2,791,463.)
3,004,772. (See 2,791,463.)
3,024,042. (See 2,791,463.)
3,052,941. (See 2,791,463.)
3,060,191. (See 2,791,463.)
3,112,040. (See 2,791,463.)
3,128,117. (See 2,791,463.)
3,141,697. (See 2,791,463.)
3,141,698. (See 2,791,463.)
3,177,002. (See 2,791,463.)
3,177,004. (See 2,791,463.)
3,192,377. (See 2,791,463.)
3,196,267. (See 2,791,463.)
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3,205,002. (See 2,791,463.)
3,211,313. (See 2,791,463.)
3,216,758. (See 2,791,463.)
3,219,362. (See 2,791,463.)
3,226,153. (See 2,791,463.)
3,235,285. (See 2,791,463.)
3,237,004. (See 2,791,463.)
3,261,070. (See 2,791,463.)
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3,340,719. (See 2,791,463.)
3,363,803. (See 2,791,463.)
3,383,005. (See 2,791,463.)
3,396,260. (See 2,791,463.)
3,387,729. (See 2,791,463.)
3,398,922. (See 2,791,463.)
3,448,998. (See 2,791,463.)

Certificates of Correction for the Week of Jan. 11, 1972

D. 220,887	3,580,320	3,588,706	3,593,316
3,004,858	3,580,902	3,589,020	3,593,521
3,414,534	3,580,922	3,589,596	3,593,794
3,464,986	3,582,041	3,589,633	3,593,874
3,467,861	3,582,225	3,589,703	3,593,993
3,503,899	3,582,467	3,589,737	3,594,064
3,509,726	3,583,034	3,589,781	3,594,322
3,523,105	3,583,488	3,590,038	3,595,188
3,523,108	3,583,486	3,590,107	3,595,194
3,524,718	3,583,493	3,590,136	3,595,247
3,528,991	3,583,596	3,590,176	3,595,359
3,532,778	3,583,846	3,590,381	3,595,367
3,535,292	3,583,922	3,590,460	3,595,603
3,535,857	3,583,999	3,590,701	3,595,633
3,545,726	3,584,128	3,590,747	3,596,026
3,546,267	3,584,500	3,591,155	3,596,181
3,547,917	3,584,708	3,591,315	3,596,465
3,547,922	3,584,894	3,591,510	3,596,783
3,549,732	3,585,136	3,591,566	3,596,826
3,557,127	3,585,169	3,591,594	3,596,874
3,558,792	3,585,187	3,591,694	3,597,248
3,561,426	3,585,242	3,592,035	3,597,375
3,562,278	3,585,295	3,592,074	3,597,379
3,567,685	3,585,296	3,592,108	3,597,565
3,572,760	3,585,877	3,592,317	3,597,611
3,574,156	3,586,628	3,592,430	3,598,084
3,576,143	3,586,923	3,592,454	3,598,477
3,576,857	3,587,336	3,592,593	3,598,577
3,577,261	3,587,358	3,592,699	3,599,199
3,578,473	3,587,637	3,592,730	3,599,783
3,578,634	3,587,717	3,592,969	3,600,322
3,578,669	3,587,725	3,592,995	3,600,343
3,579,487	3,587,927	3,593,054	3,600,393
3,579,502	3,588,136	3,593,067	3,601,079
3,579,550	3,588,147	3,593,176	3,602,613
3,580,050	3,588,687	3,593,284	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 28, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-13-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oro and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-02-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pre-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-13-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	10-12-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-06-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	4-28-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Engines; Radio-Active Material.	6-01-70
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ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-11-71
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DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	10-26-70
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AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Trolley; Printing; Typewriters; Stationery; Information Dissemination.	11-05-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	12-28-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	11-02-70

Expiration of patents: The patents within the range of numbers indicated below expire during January 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 660, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 85th Congress, approved August 23, 1944 (58 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 263. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,508,434 to 2,700,763, inclusive
Plant Patents..... Numbers 1,539 to 1,844, inclusive

REISSUES

JANUARY 11, 1972

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,264

METHOD OF MAKING SPHERULES OF A CRYSTALLINE NUCLEAR FUEL CARBIDE

Harold G. Sowman, Maplewood, and James R. Johnson, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Original No. 3,163,609, dated Dec. 29, 1964, Ser. No. 256,238, Feb. 5, 1963, which is a division of Ser. No. 96,081, Mar. 16, 1961. Application for reissue Aug. 20, 1965, Ser. No. 484,785

Int. Cl. G21c 21/02

U.S. Cl. 264-5

27 Claims

Method of producing nuclear carbide spherules wherein nuclear particles, of carbide or other composition, are heated in an isolating medium such as carbon to the fusion temperature to produce spherules. When starting with non-carbide particles enough carbon is included to form the carbide. The spherules are then given a pyrolytic carbon coating.

27,265

APPARATUS FOR AUTOMATICALLY COPYING LINES

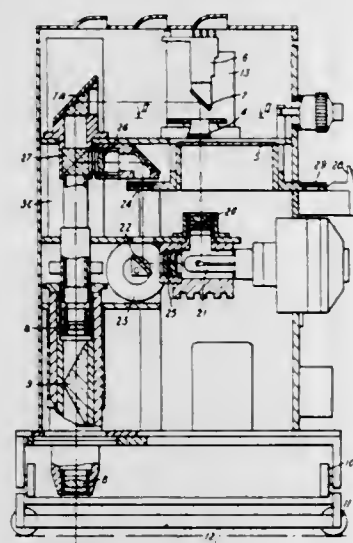
David Scarth Ritchie, Glasgow, and Thomas McPherson Glass, Edinburgh, Scotland, assignors to Barr and Stroud Ltd., and D-Mac Limited, both of Glasgow, Scotland, Great Britain, fractional part interest to each

Original No. 3,323,414, dated June 6, 1967, Ser. No. 373,607, June 3, 1964. Application for reissue Aug. 13, 1968, Ser. No. 785,817

Int. Cl. B41b 13/00; B43m 13/18

U.S. Cl. 95-12

30 Claims



Lines are drawn by a beam of light projected from a movable housing onto a photosensitive material. A dove prism rotates the beam according to its direction of movement, and means are provided to vary the intensity of

the beam in response to variations in its velocity with respect to the photosensitive material, thereby providing correct exposure along the length of a line. The housing also carries apparatus for projecting symbols onto the photosensitive surface.

27,266

STUDS FOR TIRES

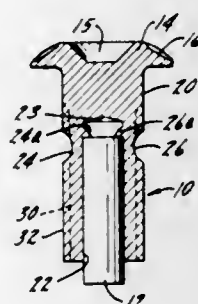
Clarence J. Smith, Rockford, Ill., assignor to The Shaler Company, Waupun, Wis.

Original No. 3,404,718, dated Oct. 8, 1968, Ser. No. 542,075, Apr. 12, 1966. Application for reissue July 24, 1969, Ser. No. 853,561

Int. Cl. B60c 11/16

U.S. Cl. 152-210

9 Claims



A tire stud including a body section and a hard, wear-resistant pin; the body section has an elongated shank, an enlarged head joined to one end of the shank and a socket in the shank. The pin is generally cylindrical and is sized for clearance with the socket. Means are provided which project inwardly within the socket to frictionally engage and hold the pin within the socket at a pre-selected distance from the enlarged head, and the pin is thereafter permanently secured to the shank by swaging the shank into frictional engagement therewith.

27,267

RETRACTABLE HAIR DOLL

Vera D. Lillienstern, Purchase, N.Y., assignor to Mattel, Inc., Hawthorne, Calif.

Original No. 3,477,170, dated Nov. 11, 1969, Ser. No. 626,096, Mar. 27, 1967. Application for reissue June 16, 1970, Ser. No. 46,842

Int. Cl. A63h 11/00

U.S. Cl. 46-135

16 Claims

A doll or the like of the class having a hollow head and body provided with a lock of hair arranged in protruding relation through an opening in the head, is provided with weight or spring power means within the

JANUARY 11, 1972

U. S. PATENT OFFICE

469

body for exerting force to retract the lock of hair inwardly through the opening, and with releasable means



for resisting retraction of the lock of hair through the opening.

27,268

METHOD AND APPARATUS FOR REMOVING MOILE

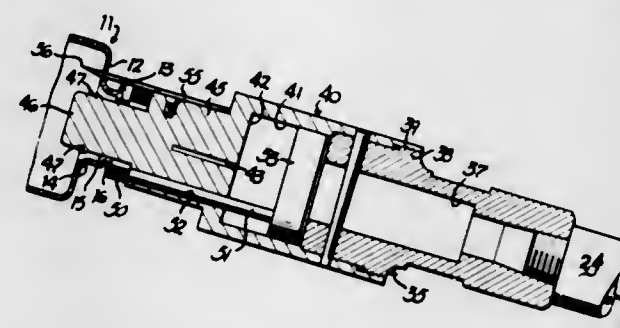
Carl E. Denlinger, Maumee, Ohio, assignor to Owens-Illinois, Inc.

Original No. 3,383,964, dated May 21, 1968, Ser. No. 508,942, Nov. 22, 1965. Application for reissue May 19, 1969, Ser. No. 835,863

Int. Cl. B23b 1/00, 3/04

U.S. Cl. 82-47

10 Claims



Apparatus for and method of removing a waste portion of "moile" from the finish of a plastic bottle. A ring-shaped waste portion is removed from the mouth opening of a container by inserting a mandrel axially into the waste portion sufficiently to engage a cutter therewith, the cutter and the container are relatively rotated to sever the waste portion from the mouth opening, the mandrel is withdrawn, and the severed waste portion or "ring" is discharged from the mandrel. Apparatus is provided for carrying out these method steps, the apparatus including a cutting means extending axially alongside but radially spaced from the mandrel for engaging the moile, and means on the mandrel for engaging the ring to insure joint mandrel-ring displacement from the finished mouth.

27,269

LATEX COMPOSITIONS

Verle A. Miller, Dover, Del., assignor to Standard Brands Chemical Industries, Inc., Dover, Del.

No Drawing. Original No. 3,256,234, dated June 14, 1966, Ser. No. 288,466, June 17, 1963, which is a division of Ser. No. 752,429, Aug. 1, 1958, which in turn is a continuation of Ser. No. 724,310, Mar. 22, 1968. Application for reissue Feb. 17, 1970, Ser. No. 9,133

Int. Cl. C08f 1/13, 15/40

U.S. Cl. 260-29.7

6 Claims

A latex composition having enhanced adhesiveness comprising an aqueous dispersion of a copolymer produced

by the emulsion polymerization of monomeric material in an aqueous acid medium. The monomeric material contains from about 0.5% to about 5% by weight of a copolymerizable monoolefinically unsaturated dicarboxylic acid; from about 15% to about 70% by weight of at least one monoolefinic monomer, i.e. methyl methacrylate or styrene, and the remainder consists essentially of a conjugated butadiene. This copolymer contains free carboxylic acid groups in its polymer chain.

27,270

NULL TYPE COMPARISON REFLECTOMETER WHEREIN NULLING IS ACCOMPLISHED BY MOVING THE LIGHT DETECTOR

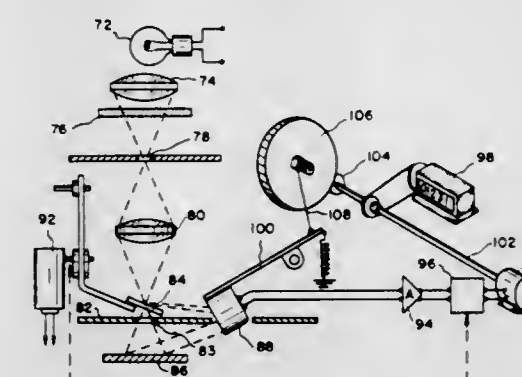
Paul J. Selgin, Bethel, Conn., assignor to Neotec Corporation, Rockville, Md.

Original No. 3,463,596, dated Aug. 26, 1969, Ser. No. 533,034, Mar. 9, 1966. Application for reissue Apr. 17, 1970, Ser. No. 29,652

Int. Cl. G01n 21/48

U.S. Cl. 356-211

25 Claims



A device for measuring light reflectance or light transmittance in order to obtain color data on both opaque and transparent surfaces. The device utilizes a single photocell or photosensitive element which is activated by the entire light beam reflected from the standard and the test surface in alternate sequence. The device locates the standard and test surfaces approximately equidistant to the photosensitive surface and in close proximity thereto, thereby improving the accuracy of the device.

27,271

METHOD AND COMPOSITION FOR STABILIZING INCOMPETENT SAND CONTAINING FORMATIONS

Bobby G. Harnsberger and Joy T. Payton, Houston, Tex., assignors to Texaco Inc., New York, N.Y.

No Drawing. Original No. 3,429,373, dated Feb. 26, 1969, Ser. No. 723,935, Apr. 24, 1968. Application for reissue Feb. 25, 1970, Ser. No. 14,250

Int. Cl. C04b 7/00; E21b 33/13, 43/02

U.S. Cl. 166-276

22 Claims

Composition and method of treating an oil-containing incompetent formation to prevent the movement of unconsolidated sand particles in a well bore by forming a [slurry] treating composition of sand, cement and a sufficient amount of a petroleum oil fraction containing an oil wetting agent therein to oil wet the sand and cement particles, suspending the [oil wet sand and cement particles] formed treating composition in an aqueous carrier medium, injecting the aqueous suspension against the unconsolidated formation at a pressure effective to force the [suspension] treating composition into contact with the unconsolidated formation, contacting the placed treating composition [suspension] with an aqueous surface active agent solution to water wet the cement particles, permitting the cement to set and form a permeable cement and recovering oil through the cement.

27,272
METHOD OF DETERMINING DIRECTION AND VELOCITIES OF FLUID FLOW INTO A WELL BY MEANS OF RADIOACTIVE TRACER INTRODUCTION INTO THE WELL

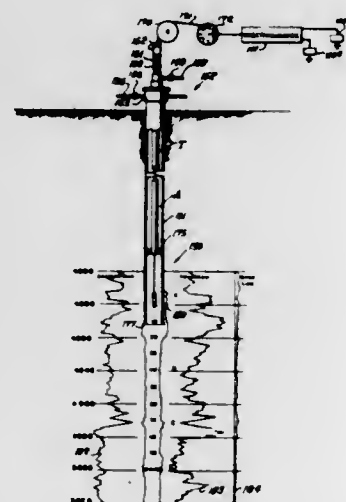
Marcus Conway Young, Odessa, Tex., assignor to Cardinal Surveys Company, Odessa, and Well Reconnaissance, Inc., Dallas, Tex., fractional part interest to each

Original No. 3,406,284, dated Oct. 15, 1968, Ser. No. 390,590, Aug. 19, 1964. Application for reissue Apr. 6, 1970, Ser. No. 26,177

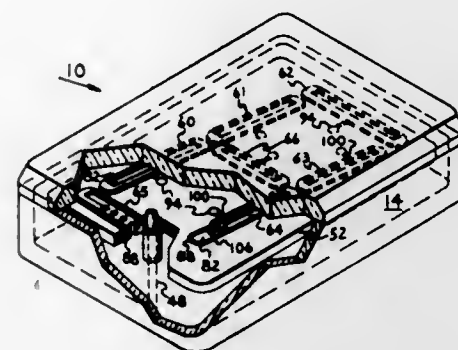
Int. Cl. G01v 5/00

U.S. Cl. 250—43.5 FC

16 Claims



trode arrangement which, in one embodiment, comprises a plurality of anode electrodes in each channel with a



cathode, the anodes being connected in groups and each group having a separate energizing terminal.

27,274
ORAL HYGIENE APPARATUS

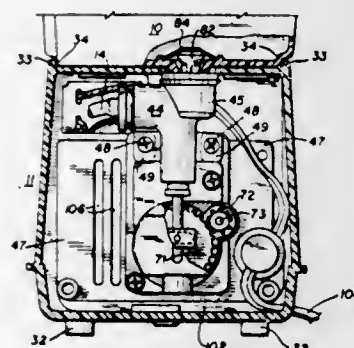
John W. Mattingly, Fort Collins, Colo., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Original No. 3,393,673, dated July 23, 1968, Ser. No. 412,954, Nov. 23, 1964. Application for reissue Apr. 23, 1970, Ser. No. 31,424

Int. Cl. A61h 9/00

U.S. Cl. 128—66

29 Claims



1. The method of investigating in a well the flow of water introduced in the well and into earth formations penetrated by the well including: introducing water at a constant rate for a predetermined period of time sufficiently long to cause stabilization of water flow into the earth formations and during the investigation; positioning a detector device in the well above the expected locations of outward flow of water into the earth formations; introducing a quantity of tracer material into the well a predetermined distance above the detector device; determining by the output of the detector device the period of time required for the tracer material to move past the detector after its introduction into the well; and then moving the detector device successively in the well and through the tracer material as it moves downwardly in the well to determine locations of outward flow of the tracer material from the well.

27,273
ELECTRO-OPTICAL INDICATOR DEVICES WITH MULTIPLE ANODES FOR EACH CELL

George A. Kupsky, Hunterdon County, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Original No. 3,260,880, dated July 12, 1966, Ser. No. 115,128, June 6, 1961. Application for reissue July 11, 1968, Ser. No. 747,025

Int. Cl. H01j 61/06, 61/66

U.S. Cl. 313—109.5

54 Claims

A gas-filled display tube having a viewing window and including an insulating plate having a plurality of channels which can be grouped to represent different characters. A cold cathode electrode is seated within each channel, and energizing means are provided for energizing one or more cathodes to exhibit cathode glow and to thereby display a character. The energizing means includes an anode elec-

An oral hygiene appliance comprises a motor pump unit for producing a pulsating stream of water and a cover for the unit which may be inverted to act as a water reservoir, a gravity biased valve is provided in the outlet of the reservoir so that the reservoir will retain water. When the cover is inverted as [the] a reservoir it is placed in position registering with the inlet of the pump and the valve is opened automatically when the reservoir is seated in position on the pump unit. The pump unit comprises three chambers, an inlet chamber, a piston cylinder and a pump chamber the latter two being at right angles to one another; an intake valve is located in the pump chamber and is mounted in a streamlined support. Mounting ears integral with the pump body are provided for mounting the pump unit and one of the ears is integral with the walls of the pump chamber and cylinder and reinforces these portions as well as acting as a support for the pump.

PATENTS

GRANTED JANUARY 11, 1972

GENERAL AND MECHANICAL

3,633,214

SUSPENSION DEVICE FOR HARD HAT

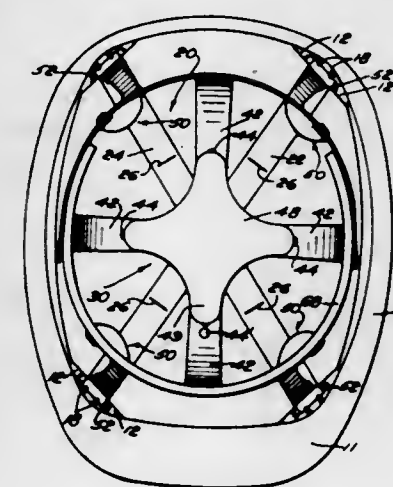
William E. Newcomb, Warwick, R.I., assignor to Welsh Manufacturing Company

Filed Mar. 12, 1970, Ser. No. 18,839

Int. Cl. A42b 3/00

U.S. Cl. 2—3 A

4 Claims



A safety hat having a main suspension and an auxiliary suspension, the main suspension being detachably engaged at a plurality of locations around its periphery by U-shaped linking members which are themselves releasably engaged in slots formed along the inner wall of the hat. The auxiliary suspension is positioned between the main suspension and the crown of the hard hat with the U-shaped linking members supportably attaching the auxiliary suspension to the inner walls of the hat at the slots formed therealong.

3,633,215

ARTICLE OF CLOTHING

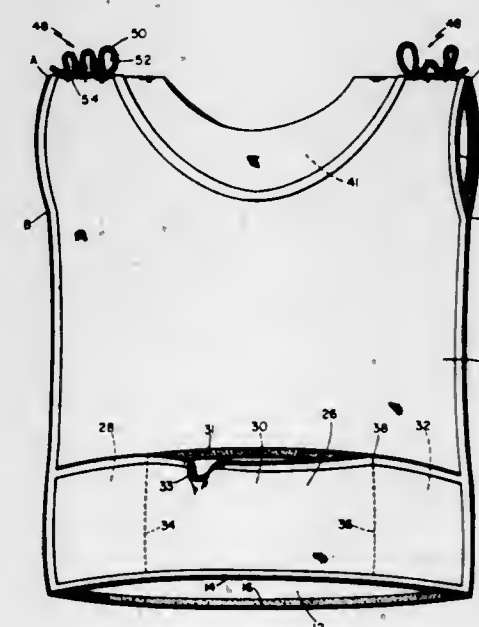
Bernadine J. Richards, 9 West Street, Plymouth, Mass., and Bernadette T. O'Neill, 62 Ludam St., Lowell, Mass.

Filed Aug. 27, 1970, Ser. No. 67,350

Int. Cl. A41d 1/22

U.S. Cl. 2—105

4 Claims



A sleeveless, waist-length garment having sealing means for sealing the waist and arm openings and having a drawcord disposed about the neck opening.

3,633,216

SURGICAL GLOVE

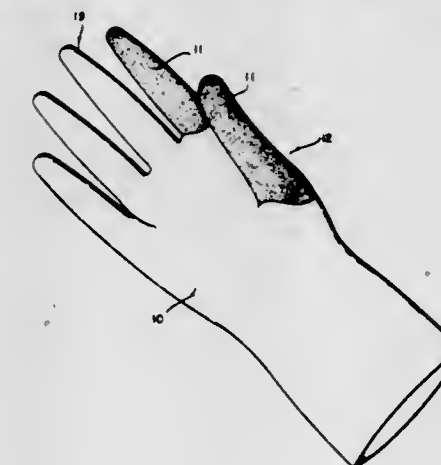
George J. Schonholtz, 11310 Old Club Road, Rockville, Md.

Filed Dec. 11, 1970, Ser. No. 97,539

Int. Cl. A41d 19/00

U.S. Cl. 2—168

7 Claims



A rubber surgical glove formed of relatively thin material to provide maximum tactility and ease of manipulation having at least one entire finger portion made with a double thickness to prevent puncture and the passage therethrough of contamination.

3,633,217

ELECTROMAGNETIC ENERGY CONVERTER FOR PULSING AN IMPLANTABLE BLOOD PUMP

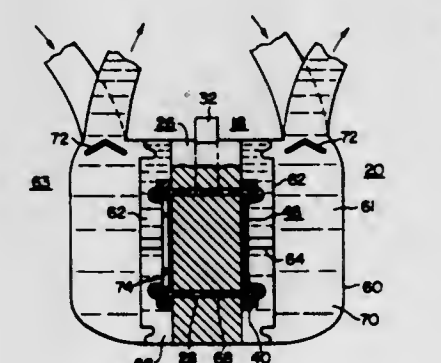
Joseph R. Lance, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 1, 1969, Ser. No. 838,156

Int. Cl. A61f 1/24; F15b 7/00

U.S. Cl. 3—1

13 Claims



In an artificial heart system suitable for permanent implantation within a human body, electrical power from an external source including a portable battery pack and a converter is transmitted across the intact chest wall through adjacent radio frequency induction coils, or a skin tunnel transformer, and converted to pulsatile blood-pumping power by means of an artificial heart package containing an electrical power conditioner and control subsystem, an electromagnetic energy converter, and the artificial ventricles and components of a blood pump. The energy converter comprises a magnetohydrodynamic solenoid which converts electrical power

to alternating Lorentz forces in a low-temperature liquid metal working fluid. The alternating Lorentz hydraulic forces generated in the liquid metal are used to alternately compress the ventricles of a biventricular blood pump.

3,633,218

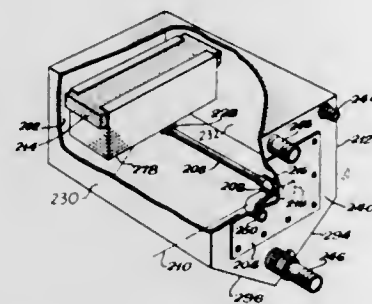
SHIPBOARD RECIRCULATION SEWAGE SYSTEM

Robert D. Lekberg, 4040 W. 123d Street, Alsip, Ill.
Continuation-in-part of application Ser. No. 729,774, May 16, 1968, now Patent No. 3,579,646. This application Aug. 24, 1970, Ser. No. 66,270

Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

12 Claims



Recirculation sewage system for shipboard use having a holding tank which enables the toilet flushing liquid to be recycled following removal of sizable particulate matter therefrom in the tank. The discharge from the toilet is received as incoming waste in the tank, wherein the heavier solids settle out from the moving liquid. The liquid moves in the tank through an interposed screen in a path to the inlet of a float-supported swinging suction pipe in the tank. The pipe withdraws, as the toilet flushing water, only from a surface layer and the interposed screen, which can be movable or fixed, screens out other solids from the thus decanted liquid. Screening is by a screen wall fixed in the liquid path in one embodiment, or by a screen basket carried by the float so as to move with the suction pipe in an interposed position across the inlet.

3,633,219

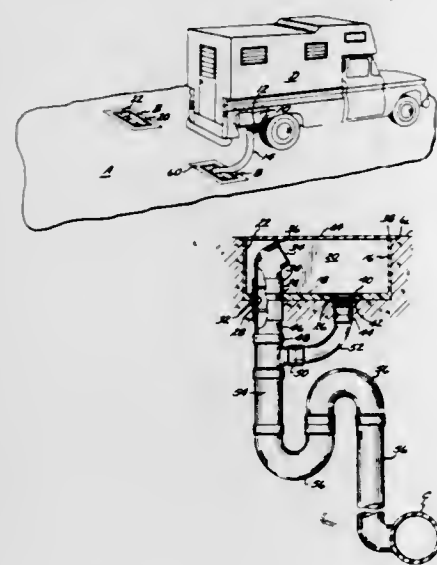
PREFABRICATED WASTE-RECEIVING UNIT

Paul W. Byrd, 12262 Harbor Blvd., Garden Grove, Calif.
Filed Aug. 20, 1970, Ser. No. 65,596

Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

10 Claims



A prefabricated waste-receiving unit that is particularly adapted for installation in travel trailer and recreation parks

and other areas in which vehicles containing living quarters are situated, and the unit capable of being connected to existing sewer facilities. The units are longitudinally aligned and spaced, with each unit serving a particular area in which a camper, trailer or the like may be temporarily parked.

3,633,220

ELECTRIC TOILET

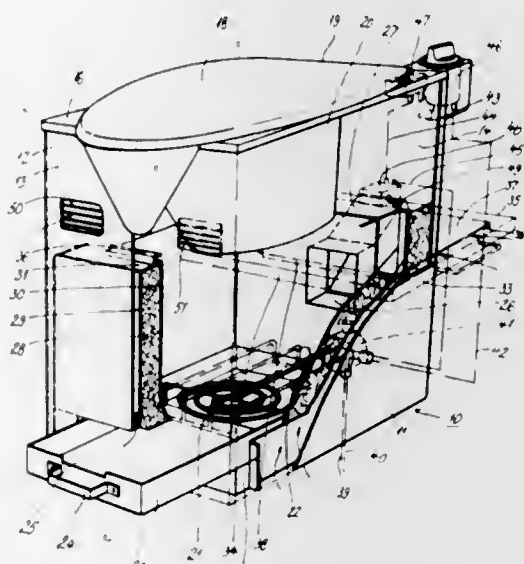
Goran Emil Lagstrom, Essingeren 72c, Stockholm, Sweden
Filed Dec. 9, 1969, Ser. No. 883,400

Claims priority, application Sweden, Dec. 12, 1968, 17034/68

Int. Cl. A47k 11/02

U.S. Cl. 4-131

3 Claims



An electric toilet of the kind which presents a vertical shaft of being inserted between both chambers can be divided into a lower compartment, the combustion chamber, containing an electric heat source and a grid, and into an upper compartment, the seat cone compartment housing a seat cone extending downwardly below the toilet seat, the bottom and sidewalls of the combustion compartment being heat insulated by a suitable insulating material and the combustion compartment or chamber communicating with an upright exhaust gas flue and further presenting a removable ash box, in which the external insulation of the combustion chamber of the electric toilet is at least partly shielded by columns of air which, for the purpose of creating conditions for a sufficiently good cooling of exposed parts by natural draught and for preheating air supplied to the combustion chamber, communicate freely at their bottom ends with the ambient air and open at their top ends into the seat cone compartment and via the latter, in the operative position of the plate, communicate with the combustion chamber through apertures, spaces or the like having a limited flow area as compared with said flue and preferably arranged either in the plate or in the wall of the combustion chamber or formed between the plate and the latter.

3,633,221

DECORATED FORMED ARTICLES AND METHOD OF MAKING SAME

Charles J. Addison, Bolton, and Joseph Diamond, Simsbury, both of Conn., assignors to Coleco Industries, Inc., Hartford, Conn.

Filed Apr. 1, 1969, Ser. No. 811,955

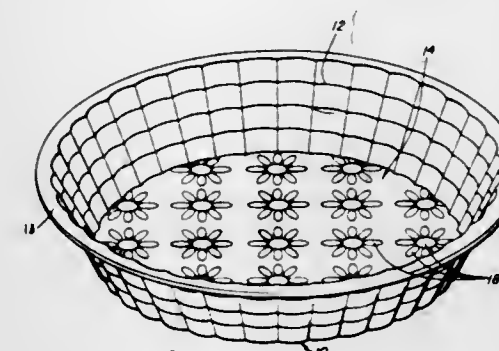
Int. Cl. B32b 7/14, 27/32; E04h 3/16

U.S. Cl. 4-172

7 Claims

A decorated article is formed of a laminate of a sheet material and a film bonded thereto. The film has a decorative

pattern on the inner surface thereof, and the elements of the pattern have a multiplicity of discontinuities therein at which



the sheet material and film are in surface contact and bonded together.

3,633,222

DEVICE FOR HOLDING A CHILD IN A RECLINING POSITION TO FACILITATE HAIR SHAMPOOING

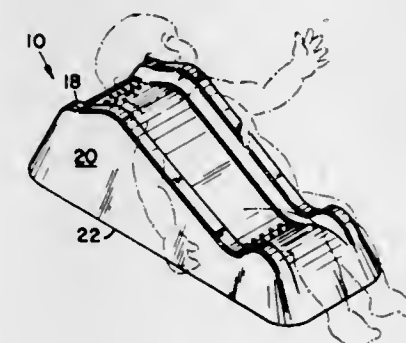
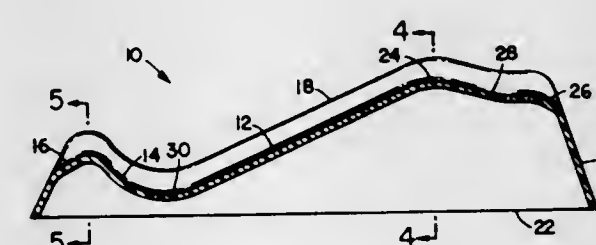
Rose K. Greenfield, 511 17th Avenue, San Francisco, Calif.

Filed July 13, 1970, Ser. No. 54,484

Int. Cl. A47k 3/12; A47c 7/02

U.S. Cl. 4-185

4 Claims



A body support for retaining a small child on its back in a reclining position for bathing and for washing its hair comprising a one-piece member adapted to rest on the bottom of the washing tub. A central supporting portion of the member is generally sloped with sidewall portions and oppositely sloped end portions that combine to retain the child in comfort and security. The sloped end portion at the higher end of the central member supports the child's head as its hair is being washed and allows the head to be tilted so that soapy water will not flow into the child's eyes and over his body.

3,633,223

PLUMBING FIXTURE

Rudolf Killias, Am Galtberg, Switzerland, assignor to Albert Lins, Kusnacht, Switzerland

Filed July 13, 1970, Ser. No. 54,155

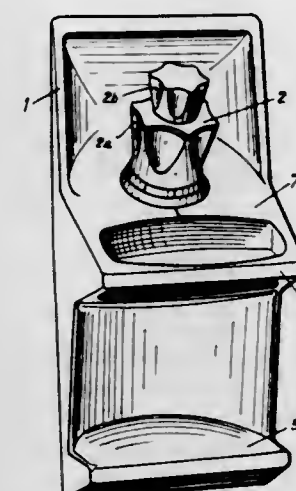
Int. Cl. E03c 1/04

U.S. Cl. 4-192

10 Claims

A sanitational or plumbing fixture comprising a body member intended to be built in or inset in a wall opening for covering the latter, this body member including means

providing a handgrip for a user and means providing a soap dish. The body member further incorporates a carrying or supporting surface having an opening, with a water-mixing valve piercingly extending through such opening. The water-mixing valve possesses an adjustment knob for regulating the



total quantity of outflowing water and an adjustment knob for regulating the temperature of such water. These adjustment knobs are located above the aforementioned supporting surface and the mixing valve unit is mounted in such opening of the supporting surface.

3,633,224

TRUNDLE-TYPE BED

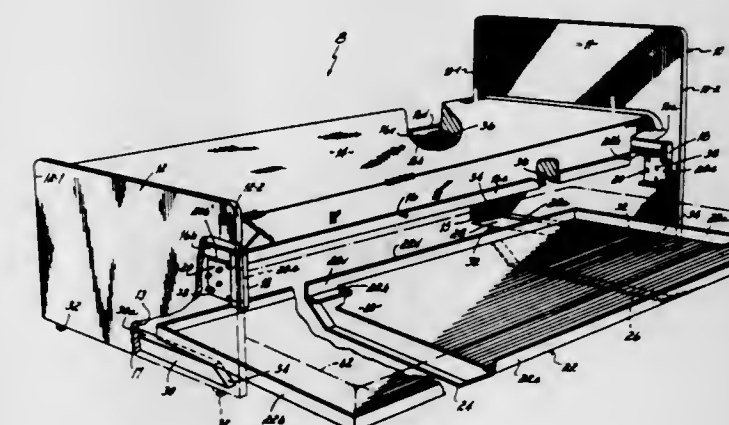
Curtis E. Millier, 6088 Stirrup Rd., Cincinnati, Ohio

Filed Dec. 10, 1970, Ser. No. 96,919

Int. Cl. A47c 17/06, 17/00, 19/00

U.S. Cl. 5-8

2 Claims



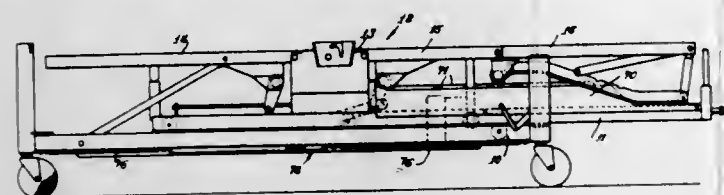
a bed having a headboard and footboard held in operation position by a rectangular mattress-supporting bedframe. The bedframe is detachably secured at its corners to the headboard and footboard by identically configured clamp plates. A second rectangular mattress support, or storage shelf, is positioned below the upper mattress-supporting bedframe, and is movable between a stored position underneath the upper mattress-supporting bedframe and an unstored or use position on the floor and laterally displaced from the upper mattress-supporting bedframe. Cam ledge support members extend along the lower region of the inner surface of both the headboard and footboard, and function to elevate the lower mattress support, or storage shelf, from a position resting on the floor in the unstored position to a position slightly spaced from the floor in the stored position, permitting the bed to be moved around without the lower mattress support dragging on the floor.

3,633,225

DOUBLE INSULATED ELECTRIC HOSPITAL BED
Francis J. Burst, and James S. Adams, both of Batesville, Ind., assignors to Hill-Rom Company Inc., Batesville, Ind.
Filed Feb. 19, 1970, Ser. No. 12,806
Int. Cl. A61g 7/00; H01b 3/00

U.S. Cl. 5-63

4 Claims



This application discloses an electric hospital bed in which the motor and electric switches are insulated from the casing of the motor in the usual manner and in which the motor casing and electrical connections thereto are insulated from the frame of the bed to prevent damaging electric shocks from the motor thereof reaching a patient in the bed, even though an improperly grounded commercial electric circuit is encountered.

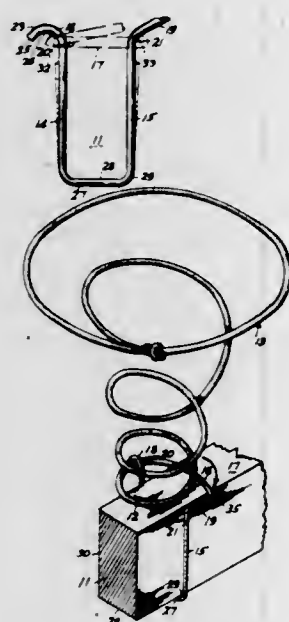
3,633,226

INSTALLATION AND CLIP FOR ANCHORING FURNITURE SPRING

Daniel Krakauer, Great Neck, N.Y., assignor to Kay Manufacturing Corp., Brooklyn, N.Y.
Filed June 1, 1970, Ser. No. 42,234
Int. Cl. A47c 23/04

U.S. Cl. 5-263

7 Claims



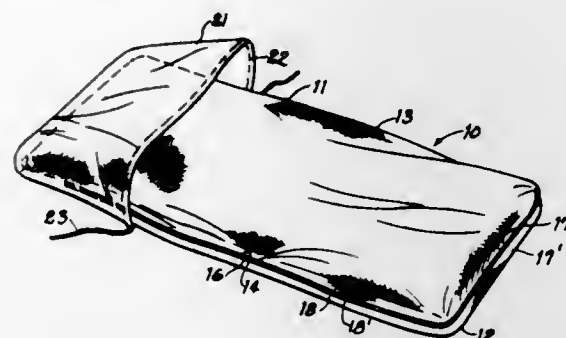
A cone spring is anchored to the top of a wooden bedding or furniture slat of rectangular cross section by a generally U-shaped preformed wire clip. Each leg of the clip has an outstanding finger at its upper end. One or both fingers may be straight and at least one straight finger is inclined upwardly and makes an angle greater than 90° with its leg. Such finger serves, in cooperation with the bottom turn of the spring, to lock said turn to the top of the slat by its camming action progressively as the turn is inserted between the fingers and the top of the slat and the spring is rotated. The bottom turn ends in a straight tip portion tangent to the remainder of the turn. A high and wide entrance space results, into which the turn may be speedily and dependably inserted to reach under the fingers and over the slat top.

3,633,227

COMBINATION SLEEPING BAG AND BOLSTER HOOD
Carol A. Tegeler, New Haven, Mo., assignor to Kellwood Company, St. Louis, Mo.
Filed July 23, 1970, Ser. No. 57,690
Int. Cl. A47g 9/08

U.S. Cl. 5-343

1 Claim



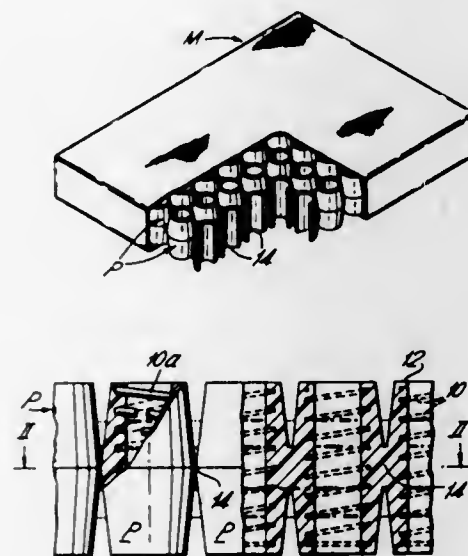
A sleeping bag having an attached bolster hood which may be folded under the bag when the same is used for sleeping purposes but which may otherwise be so positioned that the bag full width may be rolled therein for storage, within a protective covering, the entire assembly also forming a bolster.

3,633,228

SPRING UPHOLSTERY ASSEMBLY
Milton Zysman, Toronto, Ontario, Canada, assignor to Foamcoil Services S.A., Fribourg, Switzerland
Filed Apr. 22, 1970, Ser. No. 30,890
Int. Cl. A47c 25/00, 27/22; F16f 3/10

U.S. Cl. 5-353

9 Claims



A pocket spring upholstery assembly comprised of helical springs each encapsulated in a shell of flexible foam plastic and all mutually interconnected by an integral web of the same material. The web has a thickness less than the axial heights of the springs permitting independent movement between the springs under normal load.

3,633,229

CAMPERS D. U. O.

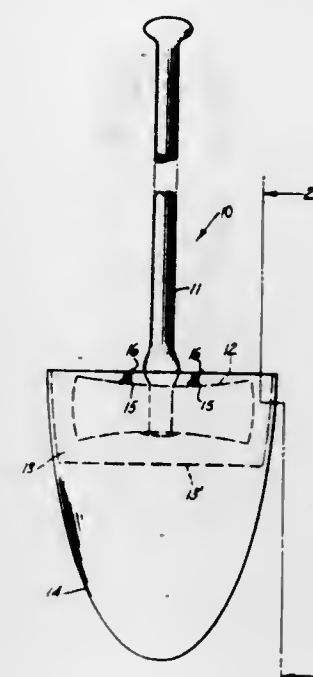
Frederick W. Brantz, Box 323, Boyes Hot Spring, Calif.
Filed June 24, 1970, Ser. No. 49,231
Int. Cl. B25b 7/22

U.S. Cl. 7-14.55

2 Claims

A combination tool for use by campers and the like. This device consists of a scoop portion, the upper portion of

which receives the ax blade, the ax handle serving as a han-



die both for the ax blade and the scoop portion of the device.

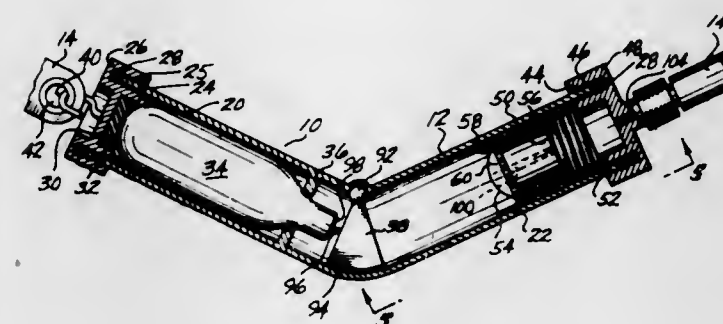
3,633,230

INFLATING DEVICE

Paul F. Horton, 5040 30th South, Seattle, Wash.
Filed Apr. 23, 1970, Ser. No. 31,240
Int. Cl. B63c 9/08

U.S. Cl. 9-345

10 Claims



An angular casing of substantially V-shape comprising a pair of tubular arms joined at one end. One of said arms holding a compressed gas cartridge such that the frangible end portion of the cartridge is disposed near the juncture of the arms, and the other arm including a spring-loaded plunger held in the compressed position by a trigger mechanism. A pivotal striker is provided at the junction of the tubular arms, such that triggering of the plunger causes the striker to pivot against the frangible surface of the compressed gas cartridge to release the gas therefrom. The entire inflation device is adapted to be connected to, and communicate with, an inflatable bladder to form a circular life-preserving collar.

3,633,231

SCRUBBING APPARATUS FOR VEHICLE-WASHING STATIONS

Uberto Capra, Vicenza, Italy, assignor to Societa Ceccato & C. S.p.A., Vicenza, Italy
Continuation-in-part of application Ser. No. 814,261, Apr. 8, 1969, now abandoned. This application Nov. 5, 1969, Ser. No. 874,355

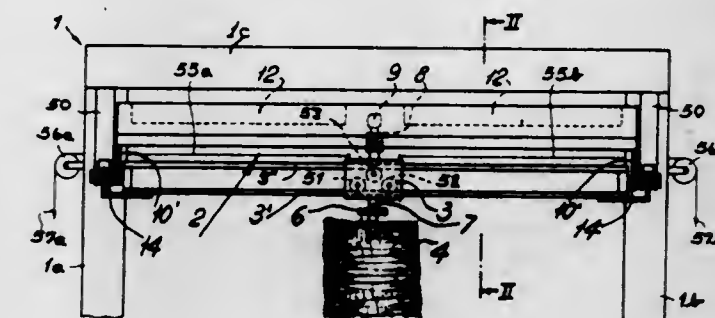
Int. Cl. B60s 3/06

U.S. Cl. 15-21 E

17 Claims

One or more scrubbing brushes, rotatable about generally vertical axes, are suspended from respective carriages dis-

placeable across the path of a vehicle on a portal frame movable with reference to that vehicle. The carriages are horizontally biased toward the center of the frame and are guided in a structure which is limitedly swingable about a transverse axis above the vehicle so that a traction roller on the brush shaft engages a friction surface on the guide struc-



ture to drive the carriage outwardly, against its biasing force, at certain stages of operation. A deflector engageable by an idler roller on the same shaft prevents contact between the traction roller and the friction surface at other times, this deflector being displaceable by a servomechanism if two oppositely movable brush carriages are provided.

3,633,232

SCRAPER MECHANISM FOR APPARATUS UTILIZED IN CLEANING COKE OVEN DOORS

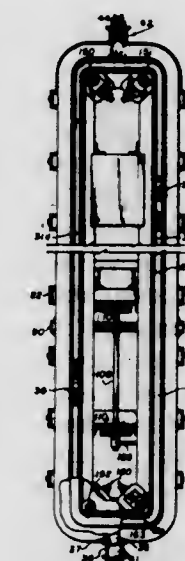
Charles D. McCullough, Metropolis, Ill., and Leo G. Schroeder, New Hyde Park, N.Y., assignors to Wilputte Corporation

Filed July 18, 1969, Ser. No. 842,857

Int. Cl. C10b 43/04

U.S. Cl. 15-93

1 Claim



A scraper mechanism employed in apparatus for scraping undesired substances formed on a coke oven door during a coking operation, said apparatus including a frame having a pair of endless tracks in spaced relationship to each other and being of substantially rectangular configuration and a guide rail connected to the frame and being of the same contour as the endless tracks. The scraper mechanism includes a shaft having rollers located near each end thereof for travel over its respective endless track, a pair of rollers extending from the shaft and movable along opposing sides of the guide rail to permit the scraper means to travel smoothly and freely of any side pressures, a scraper head including a front section and a rear section, and a scraper blade connected to said scraper head for scraping the undesired substances formed on the coke oven door.

3,633,233

CARRIAGE ASSEMBLY FOR APPARATUS UTILIZED IN CLEANING COKE OVEN DOORS

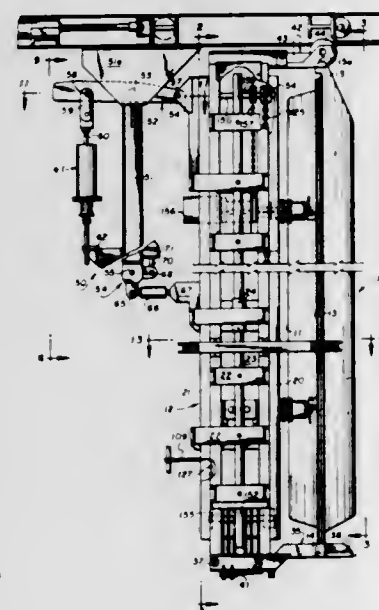
Charles D. McCullough, Metropolis, Ill., and Leo G. Schroeder, New Hyde Park, N.Y., assignors to Wilputte Corporation

Filed July 18, 1969, Ser. No. 842,858

Int. Cl. C10b 43/04

U.S. Cl. 15-93

5 Claims



In apparatus for scraping undesired substances formed on the flange surface area of a coke oven door during a coking operation and which apparatus includes a door cleaner head having a scraping means thereon for scraping said undesired substances, a carriage assembly is provided for supporting said cleaner head. The carriage assembly includes a frame and a pair of self-aligning counterbalance arms each having a first portion pivotally connected to the cleaner head and a second portion pivotally connected to the frame. A pair of spring-loaded supporting units are pivotally connected to a third portion of the counterbalance arms and extend normally at an angle of approximately 90° therefrom. Bearing units are cooperatively associated with each of the pivotal connections of the first, second and third portions of the counterbalance arms for permitting the cleaner head to assume any desired oriented position with respect to the oven door, the carriage assembly automatically supporting the cleaner head in any such desired oriented position.

3,633,234

PAINT BRUSH HAVING SUPPLEMENTAL RESERVOIR

Erik Henningsen, Milwaukee, Wis., assignor to EZ Painter Corporation

Filed Feb. 10, 1970, Ser. No. 10,253

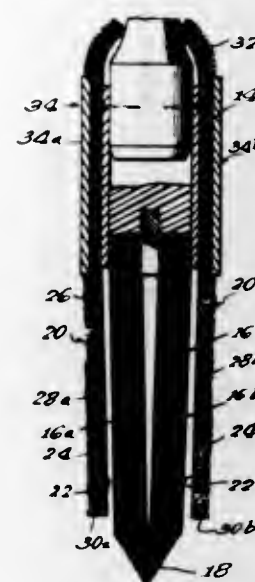
Int. Cl. A46b 1/100, 1/104

U.S. Cl. 15-114

7 Claims

An improvement in bristle-type paint brushes with a rectangular cross section in the nature of a supplemental reservoir therefor, characterized by the provision of generally short pile fabric on a flexible or resilient backing positioned adjacent the opposite faces of the bristle bundle, with the fibrous elements of the pile normally extending transversely

to the extent of the brush bristles or slightly tilted in the



direction of the free end of the bristles.

3,633,235

WIRE BRISTLE FOR USE IN MAKING BRUSHES AND BROOMS

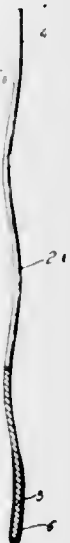
Cedo Draca, 2165 Barnes Street, St. Laurent, Montreal 388, Quebec, Canada

Filed June 16, 1969, Ser. No. 833,495

Int. Cl. A46d 1/00

U.S. Cl. 15-159 A

6 Claims



The present invention relates to wire bristles for brooms and brushes in which the improvement lies in providing a wear resistant metal coating of substantial thickness at the end portion of the wire only thereby increasing the life of the bristle while avoiding undue stiffening of the bristle.

3,633,236

ROTARY BRUSH CORE CONSTRUCTION WITH INTEGRAL TANGS

Donald E. Scruggs, Chino, Calif., assignor to Industrial Brush Company, Pomona, Calif.

Filed July 23, 1970, Ser. No. 57,569

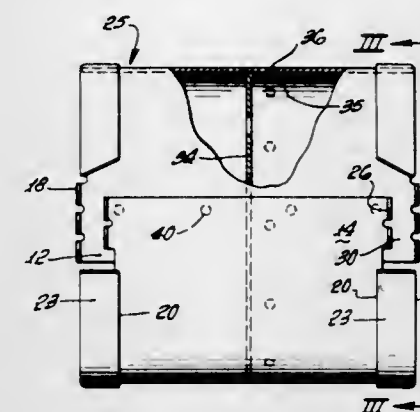
Int. Cl. A46b 3/16

U.S. Cl. 15-182

9 Claims

A core construction for a brush roll means formed from a blank of sheet stock material and providing integral tang

means on the blank for securement of opposite ends of a vehicle. The windshield-wiping apparatus includes a wiper having an elongated arm and a wiper blade assembly carried by the arm at its upper end and an actuating mechanism for reciprocating the wiper across the windshield between first and second positions. The actuating mechanism includes a dual cam track arrangement for guidably supporting the windshield wiper and which causes the wiper to be moved vertically while simultaneously being generally horizontally reciprocated whereby the resultant path of movement of the wiper blade assembly is linear and transversely across the windshield.



brush strip member.

3,633,237

TOOTH AND GUM SCRUBBER

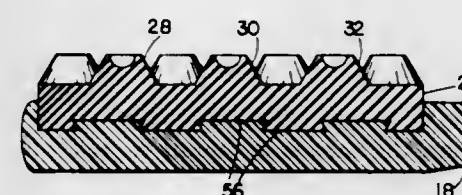
Reginald G. Bagube, 1030 N. Patron Street 0103, Santa Ana, Calif.

Filed Nov. 24, 1969, Ser. No. 879,036

Int. Cl. A46b 1/00; A61h 7/00

U.S. Cl. 15-188

2 Claims



A tooth and gum scrubber incorporating the scrubbing unit at the end of a handle which may be actuated by a conventional toothbrush handle. The scrubbing unit includes a number of cup-shaped receptacles for cleanser material projecting in substantially like direction from a base with which they are integrally formed. The cleanser receptacles and the base are formed of a flexible, resilient material.

3,633,238

WINDSHIELD WIPER APPARATUS

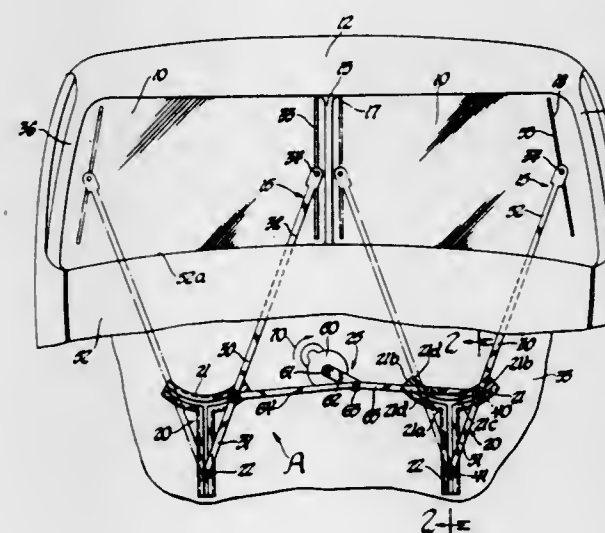
Eric G. Parker, Ketterling, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 12, 1970, Ser. No. 79,822

Int. Cl. A471 1/03; B60s 1/32

U.S. Cl. 15-250.21

4 Claims



In a preferred form, this disclosure relates to a windshield wiper apparatus for wiping a windshield of an automotive

**3,633,239
PUSHBUTTON VACUUM SELECTOR**

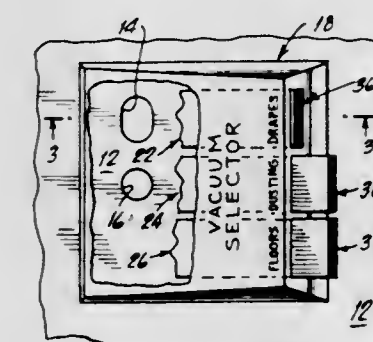
Carl E. Meyerhoefer, Little Neck, N.Y., assignor to The General Signal Corporation, New York, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,197

Int. Cl. A471 9/00

U.S. Cl. 15-327 R

6 Claims



A slide valve pushbutton vacuum selector for use in a vacuum cleaner to choose between low, intermediate and high suction. The selector closes or opens selectively two vent openings in the vacuum chamber enclosure of the vacuum cleaner by means of three interlocked slide valves which are double hinged such that the pushbutton ends of the valves point at an angle to the surface having the vent openings in order to facilitate access and ease of operation of the pushbutton selector.

3,633,240

SURFACE CLEANING APPARATUS

Bengt Olog Crener, Taby, and Stig Carl-Oskar Ernolf, Sollen-tuna, both of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Feb. 12, 1970, Ser. No. 10,763

Claims priority, application Sweden, Feb. 13, 1969, 1973/1969

Int. Cl. A471 1/134

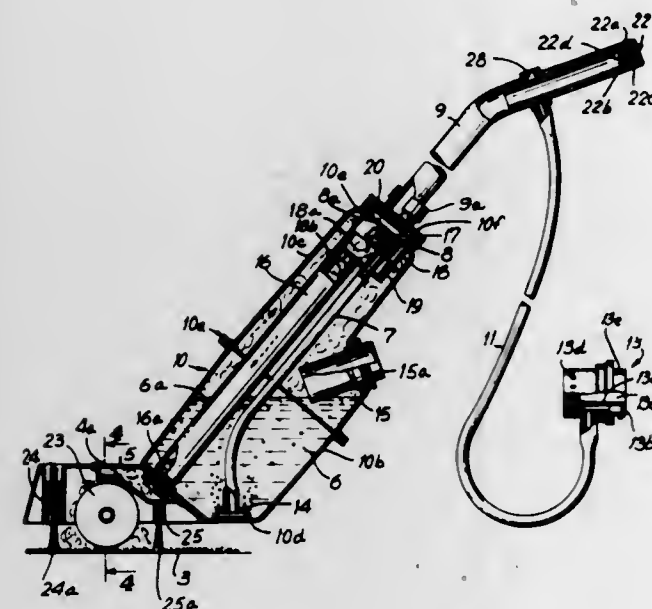
U.S. Cl. 15-321

3 Claims

Our invention relates to surface-cleaning apparatus having a housing which is adapted to hold a body of liquid that generates foam when air bubbles therethrough. A surface-contacting member, which is carried by the housing and is movable over a surface, functions to distribute foam. Air under pressure is delivered from a source of supply to the inlet of an air line which is located exteriorly of the housing. The outlet of the air line is located within the housing at its bottom and connected to a device to form air bubbles which rise through the body of liquid to generate foam. Foam is conducted through a passageway from the upper part of the housing to the surface-contacting member. A conventional household suction cleaner can be conveniently used as the source of supply of air under pressure. In order to generate

foam in the apparatus which is relatively dry and not excessively moist, the air inlet end of the air line is connected to the blowing end of suction cleaner by a coupling which may be referred to as a bypass valve and functions to divert and

from a matted condition to a normal and attractive loose condition.



bleed to the atmosphere a major portion of the air discharged from the blowing end of the suction cleaner. In this way the rate at which air under pressure is delivered to the bottom of the housing through the air line will be correct to generate foam that is relatively dry.

3,633,241

VACUUM CLEANER NOZZLE

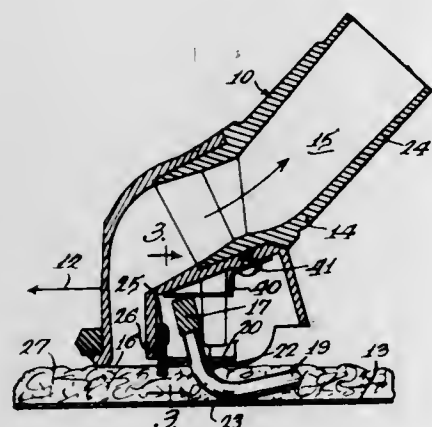
Joseph F. Schmitz, and James R. Hilmanowski, both of Paul, Minn., assignors to Whirlpool Corporation

Filed Apr. 10, 1969, Ser. No. 814,948

Int. Cl. A47I 9/06

U.S. Cl. 15-364

7 Claims



A vacuum cleaner nozzle movable back and forth over a rug of the long pile or shag-type in which the nozzle is provided with a pile rake with means for mounting the rake adjacent the entrance to the nozzle but exteriorly of the air passage from the entrance for movement of the teeth toward and away from the entrance on the normal back and forth movement of the nozzle, the means for mounting comprising confining means for rather loosely confining the rake ends on the nozzle so that the back-and-forth movement of the nozzle will cause the rake teeth to dig into the pile thereby resulting in aiding removal of dirt from the rug and lifting of the pile

An item of furniture which incorporates self-containing elevating means, the means including a jack which is movable between a raised and a lowered position, the jack at its lower end including caster wheels so that when the jack is lowered, the furniture can be moved within a room.

3,633,243

SPECTACLE FRAME

Anton Dietrich; Alois Wagner, both of Munich; Paul Stutz, Alten-Erding, and Martin Obster, Hohenbrunn-Riemeling, all of Germany, assignors to Optische Werke G. Rodenstock, Munich, Germany

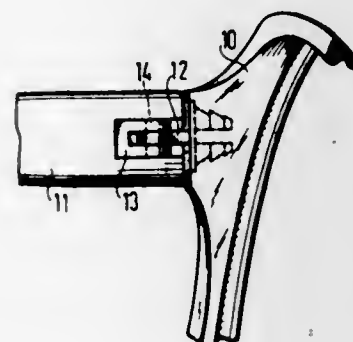
Filed Apr. 22, 1970, Ser. No. 30,686

Claims priority, application Germany, June 26, 1969, G 69 25 299.9

Int. Cl. G02c 5/22

U.S. Cl. 16-128 A

9 Claims



The temple pieces of a spectacle frame are secured to lens rims of thermoplastic synthetic resin composition by a hinge assembly of which one element is partly embedded in the associated rim. It is a unitary metal piece having a baseplate portion from which an eye or barrel projects. The embedded portion consists of two transversely spaced barbed pins of partly rounded trapezoidal cross section which are inserted into blind, round bores of the rim while heated well above the softening temperature of the resin composition.

3,633,244

HINGE CONSTRUCTION

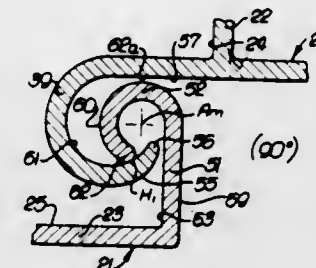
Abraham Grossman, 9339 Rhea Avenue, Northridge, Calif.

Filed Nov. 25, 1968, Ser. No. 778,673

Int. Cl. E05d 1/04

U.S. Cl. 16-178

5 Claims



A hinge construction for use, by way of example, in a fenestration construction for pivotally supporting a closure member along an edge of a window opening and allowing the closure member to be pivoted through 180° without interference with adjacent structure. The hinge construction comprises two mating or interfitted extruded hinge members having a cross-sectional shape whereby the members may be assembled by relative longitudinal slidable engagement and thereafter cannot be disassembled throughout pivotal movement of one of the hinge members with respect to the other.

3,633,245

APPARATUS FOR MAKING AND DISPENSING COHERENT MASSES OF A BULK MATERIAL

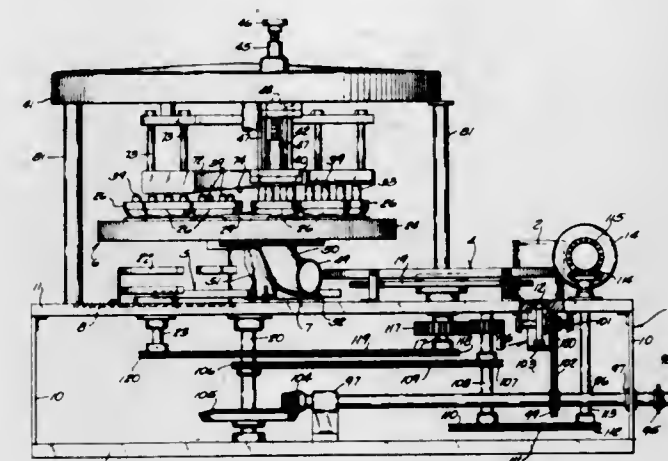
Frank Partos, Milwaukee, Wis., assignor to Packaging Research Corp., Wauwatosa, Wis.

Filed Apr. 28, 1969, Ser. No. 819,891

Int. Cl. A22c 7/00

U.S. Cl. 17-32

18 Claims



A machine for forming a bulk product into coherent masses, and more particularly to a machine for making meatballs and depositing the meatballs in a can or container. The ground meat is pumped into a fixed feeding head and a turret, having a series of cavities in its under surface, is mounted for rotation above the head. Plungers are slidable within the cavities and as each set of cavities is rotated to a position above the feeding head, meat is discharged upwardly into the cavities. A stop is located above the turret and the upper ends of the plungers engage the stop to accurately measure the amount of meat fed into each cavity.

As the turret rotates, the upper end of the plungers ride against a cam that acts to move the plungers downwardly to eject the meatballs into cans located beneath the cavities.

A knife is mounted to wipe against the lower surface of the turret and aids in separating the meatballs from the turret and depositing the same in cans.

3,633,246

CYLINDER COVER FASTENING DEVICES

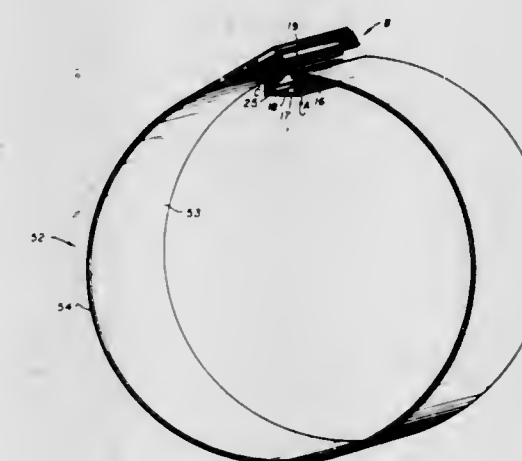
Alan D. Kirkpatrick, 5 Warren Place R. D. #4, Newfoundland, N.J.

Filed Feb. 9, 1970, Ser. No. 9,609

Int. Cl. B41f 1/28

U.S. Cl. 24-19

6 Claims



A fastening device for releasably securing a cover on a cylinder is provided. In one embodiment the device is adapted to fit snugly in a slot milled in a cylinder. In yet another embodiment the fastening device is adapted to be mounted on the periphery of the cylinder, thereby permitting the cover to freewheel around the cylinder circumference.

3,633,247

PERFORATED STRAP CLOSURE FOR BAGS

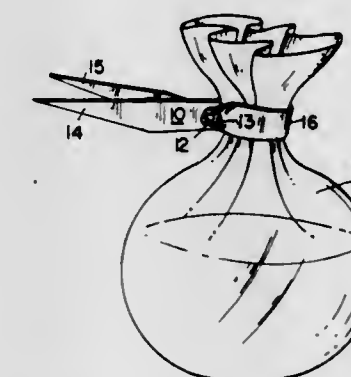
William J. Clayton, Fairport, N.Y., assignor to Mobil Oil Corporation

Filed May 8, 1970, Ser. No. 35,779

Int. Cl. B65d 63/00

U.S. Cl. 24-30.5 PB

8 Claims



A device for easily, quickly, and securely closing flexible bag structures comprising an elongated strap made of resilient material having at least two longitudinally spaced apart perforations. The strap has an end portion of configuration adapted for insertion into and pulling through a perfora-

tion in said strap spaced apart from another perforation intermediate said end portion and the perforation through which the end portion is inserted to form a noose. In use, such as for closing the gathered mouth of a bag, a positive lock is provided upon further pulling of said end portion until the intermediate perforation interlocks with the perforation through which the end portion is inserted.

3,633,248 CABLE ANCHOR

Robert Speedie, 130 Alexandra Street, East St. Kilda, Victoria, Australia

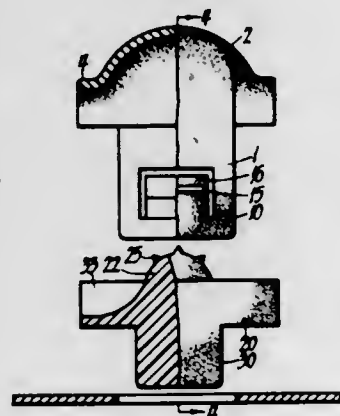
Filed Mar. 18, 1970, Ser. No. 20,789

Claims priority, application Australia, Mar. 24, 1969, 52424

Int. Cl. A44b 21/00; F16g 11/00

U.S. Cl. 24-73 AP

8 Claims



A cable anchor for resisting pull through of a cable held by the anchor when tensional forces are applied to the cable. The anchor comprises a housing part and wedging means. In use, if tension is applied to the cable the wedging means moves under the housing part with the cable, and increasingly wedgingly engages the cable to resist such movement.

3,633,249 CLIP FOR BELT BUCKLE

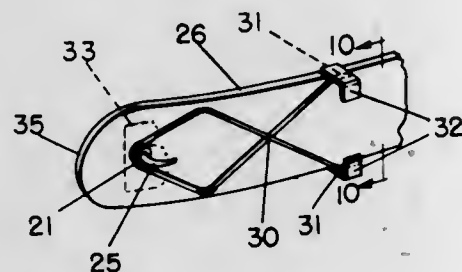
John G. Neshelm, 3300 West 69th, Anchorage, Alaska

Filed Dec. 16, 1969, Ser. No. 885,477

Int. Cl. A44b 11/25

U.S. Cl. 24-77 R

3 Claims



A spring steel clip adapted to secure a belt buckle to a belt of the type worn to hold up pants, the clip having a closed loop 22 engageable with a hook 25 on the back of a belt buckle 27 and free end portions 24 and 32 engageable with the free end of the belt.

3,633,250 MECHANICAL CONNECTOR SYSTEM INCLUDING BIFURCATE HINGED CONNECTOR MEANS

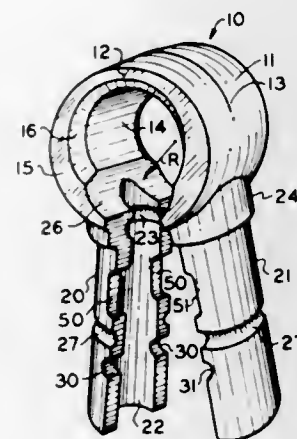
Russell H. Romney, 3259 Bon View Drive, Salt Lake City, Utah

Continuation-in-part of application Ser. No. 750,521, Aug. 6, 1968, now abandoned. This application Mar. 2, 1970, Ser. No. 15,785

Int. Cl. A44b 21/00

U.S. Cl. 24-81 CR

14 Claims



A connector system for securing a first physical object to a second is based primarily on a one-piece bifurcate connector having a first or head axis and a second or leg axis generally transverse to the first. The connector per se comprises a plastic hinged loop element flexible enough to open and pass astride the first object, and bifurcate leg elements in continuation of the loop, adapted to be closed together along the second axis to engage the second object. Plural cooperating notches, grooves, or cutouts are formed between the legs to engage between them pin, key or other detent means projecting from the second object and preferably parallel to the first axis. Annular grooves or other surfaces of revolution also may be formed inside or outside the legs, as closed, to permit rotation of the second object about its own axis.

3,633,251 DRAPERY HANGER

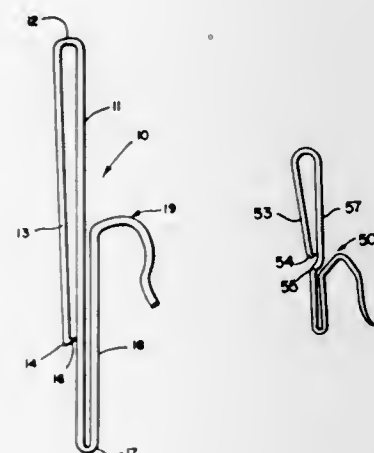
Sadie Gass, 1119 Lincoln Street, Hollywood, Fla.

Continuation-in-part of application Ser. No. 826,817, May 22, 1969. This application Nov. 3, 1970, Ser. No. 86,550

Int. Cl. A44b 13/00

U.S. Cl. 24-84

9 Claims



A drapery hanger having a main leg with a lower bight portion with which a hook is integral, the main leg having an

upper bight having a clamping leg integral with it, the clamping leg having a barb at its lower end adjacent the main leg.

3,633,252 APPLIANCE FOR LINEAR BODIES

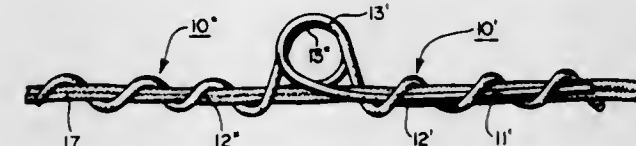
Harrison L. Williams, Euclid, and Clarence E. Smrekar, Cleveland, both of Ohio, assignors to Preformed Line Products Company, Cleveland, Ohio

Filed Oct. 15, 1969, Ser. No. 866,678

Int. Cl. F16g 11/00; B61s 21/00

U.S. Cl. 24-123 C

5 Claims



A dead end device for a cable of noncircular cross section, such as a figure eight or dumbbell-type cable, comprises a first elongated leg portion nominally straight over its full length and adapted to be positioned along a longitudinal recess of the cable. A second elongated leg portion is helically preformed and adapted to concomitantly be applied about the linear body and the straight leg portion in tightly encircling relation therewith to effect a secure frictional gripping of the cable by the combined gripping action of the straight leg portion and the helically preformed leg. A bight portion integral with both legs completes the structure of the appliance. Other features are disclosed.

3,633,253 TWIST-TYPE SPRING CLIP

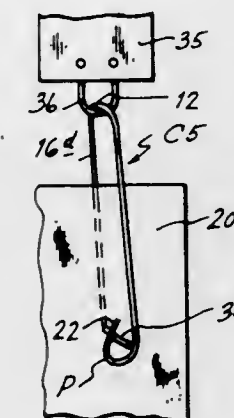
Fred S. Ellis, 2062 Bogart Avenue, Bronx, N.Y.

Filed June 9, 1969, Ser. No. 831,634

Int. Cl. A44b 21/00; B42f 1/02

U.S. Cl. 24-261 PC

1 Claim



Spring clips have elongated generally U-shaped forms with arms terminating in loops. The arms are spaced to permit free insertion of sheets into the clips. Then the clips are turned 180°. The arms and loops are then urged toward each other by tension exerted at the bight of the clip. Prongs can be formed instead of loops to pierce the paper. The clips can be provided with handles.

3,633,254 PIPE CLAMP

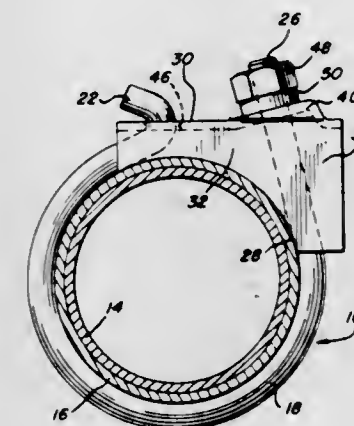
Edward Hoglund, 1020 Lois Avenue, Park Ridge, Ill., and Bertil Stadel, 480 Krollwood Drive, Wood Dale, Ill.

Filed June 25, 1970, Ser. No. 49,867

Int. Cl. B65d 63/00

U.S. Cl. 24-276

11 Claims



A pipe clamp formed of two parts, one being a heavy wire provided with a hook at one end and having the other end threaded, a sheet metal coupling of generally channel-shaped cross section having a first opening adjacent one end for the hook and a second opening generally adjacent the opposite end, the threaded end being straight and passing through the second opening, the coupling having a surface formed thereon which is arranged at an acute angle relative to its length, and the straight portion being angled to pass through the surface so that the hook and straight end are angularly quite close together, constriction being effected at a tangent, less than 90° relative to the principal surface of the coupling, and the coupling having inner edges of arcuate configuration to engage the pipes being connected together.

3,633,255 TOW-CRIMPING APPARATUS

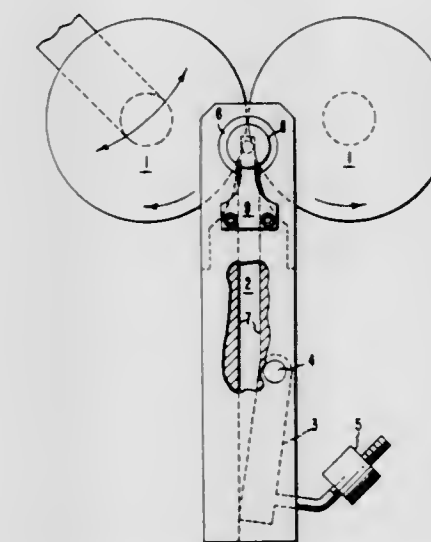
Oscar La Rue Price, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 23, 1970, Ser. No. 21,971

Int. Cl. D02g 1/12

U.S. Cl. 28-1.6

1 Claim



A tow-crimping apparatus that includes a pair of crimper rolls associated with a crimper chamber and guides on each

side of the rolls to control the path of the tow advancing from the nip of the rolls to the chamber wherein the improvement comprises forming the guides from graphite to increase wear life of the guides without causing wear to the rolls or staining of the tow.

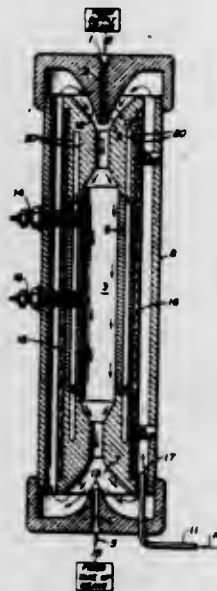
3,633,256

ORIENTATION DRAWING CHAMBER FOR FIBERS
William C. Mallonee, Chapel Hill, and Samuel R. Averette, Wilson, both of N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Aug. 15, 1969, Ser. No. 850,452
Int. Cl. D02J 1/22

U.S. Cl. 28-71.3

3 Claims



A recirculating gas chamber for drawing fiber is comprised of a longitudinally disposed inner chamber defined by an inner tubular jacket having flared throats forming a venturi at each end with heating means for the chamber, a generally cylindrical outer jacket surrounding the inner jacket extending to within the flared throats of the inner jacket and spaced apart therefrom, and fiber entry and exit channels extending to within the flared throats, whereby the outermost of the inner jacket and the inner lining of the outer jacket are cooperatively shaped to provide a recirculating passage for a gaseous medium cocurrent with fiber movement through the inner chamber and countercurrent of fiber movement between the inner jacket and the outer jacket.

3,633,257

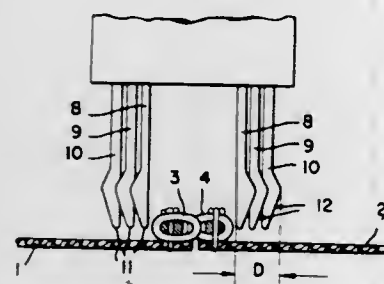
METHOD OF MAKING A SLIDE-FASTENER STRINGER
Helmut Heimberger, Essen, Germany, assignor to Opti-Holding AG, Glarus Schweiz, Germany

Filed May 14, 1969, Ser. No. 824,524
Claims priority, application Germany, May 15, 1968, P 17 60 414.7

Int. Cl. D05b 23/00, 35/00

U.S. Cl. 28-77

3 Claims



A slide-fastener stringer having a pair of coupling elements mounted, for intermeshing upon movement of a slider

therealong, upon juxtaposed edges of respective support tapes. The support tapes are each provided with a longitudinal row of openings for cooperation with the needle mechanism of an apparatus designed to attach the stringer to a garment or other fabric. The openings are formed by pushing back at least one warp thread extending parallel to the coupling element by thrusting a wedge-shaped needle or lance into the weave. A plurality of such lances may be provided in transversely staggered longitudinally spaced relation to force back the warp thread in successive stages.

3,633,258

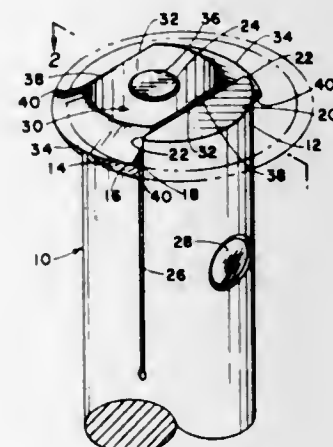
INSERT TOOL HOLDER AND CUTTING TOOL THEREFOR

Ernest B. Szabo, 4301 Lincoln Boulevard, Marina Del Rey, Calif.

Filed May 22, 1970, Ser. No. 39,709
Int. Cl. B26d 1/12

U.S. Cl. 29-105

10 Claims



A longitudinally extending tool holder rotatable about a longitudinal axis thereof has a transversely extending cutting tool pocket at an end thereof, said pocket terminating transversely inwardly in a longitudinally extending pocket wall transversely across the tool holder and terminating at its extremities in outwardly angled clamping shoulders. A transversely extending cutting tool has symmetrical, transversely opposite, arcuate, cutting side edges separating symmetrical, opposite, clamping side edges. The clamping side edges have outwardly angled extremities matching the clamping shoulders of the tool holder pocket wall so that the cutting tool may be positioned with a center opening thereof over an offset tool clamping pin within the tool pocket and selective adjustment of either the clamping pin or the holder pocket wall will clamp the pocket wall clamping shoulders against the angled extremities of a tool clamping side edge securing the cutting tool on the tool holder. The symmetry of the cutting tool provides the same reversible either or both of longitudinally and transversely with the same clamping securement on the tool holder.

3,633,259

COATING METHOD

Klaus Kalevi Nikanen, Karhula, Finland, assignor to A. Ahlstrom Osakeyhtiö, Noormarkku, Finland

Filed Apr. 4, 1969, Ser. No. 815,262

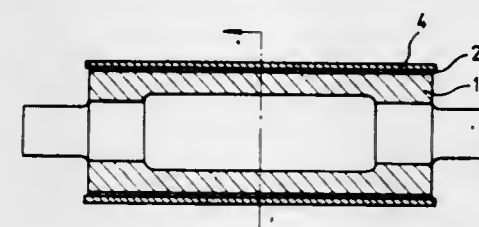
Claims priority, application Finland, Oct. 28, 1968, 3058/68
Int. Cl. B21d 53/12

U.S. Cl. 29-148.4 D

14 Claims

The roller body to be coated is enveloped by a material layer which thereafter is enveloped with another surface

layer, the surface layer being brought into fused condition, for instance, by welding and when cooling it causes the



material layer to contract around the roller body, after which the surface layer can be removed.

3,633,260

METHOD OF FORMING A SPACER-EXPANDER

Frank G. Warrick, Muskegon, Mich., assignor to Sealed Power Corporation, Muskegon, Mich.

Filed May 21, 1970, Ser. No. 39,264

Int. Cl. B23p 15/06

U.S. Cl. 29-156.6

16 Claims



A method of making a spacer-expander for a dual rail piston oil ring of the type disclosed in U.S. Pat. No. 3,477,732. The spacer-expander is formed by progressively blanking a strip of flat metal stock to repetitively form successive incremental sections containing two marginal bands, a transverse strut and two legs extending in oppositely offset relation parallel to said strut. The legs are bent to their final inclined relationship with the bands while the strip is still flat. Then the strip is progressively bent into a channel configuration by progressive zone bending of the struts. Further features are set forth in the annexed description.

3,633,261

SHEATHING TOOL

Fritz Grabe, Duisberg-Wanheimerort, Germany, assignor to Vereinigte Draht- und Kabelwerke Aktiengesellschaft Berlin und Duisburg, Berlin, Germany

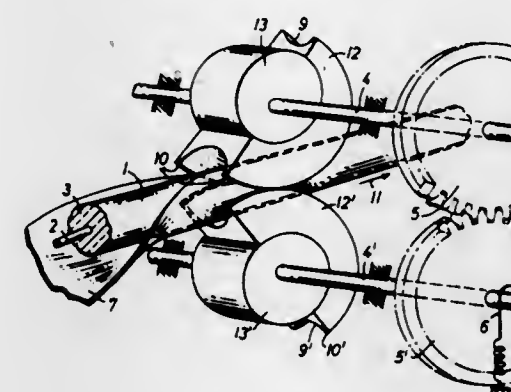
Filed Apr. 22, 1970, Ser. No. 30,861

Claims priority, application Germany, Apr. 25, 1969, P 19 22 143.3

Int. Cl. B23p 19/04

U.S. Cl. 29-202.5

13 Claims



A sheathing tool for continuously forming a band-shaped foil into a sheath around a moving strand material having a

circular cross section, the tool being composed of a matrix having a circular cross section the diameter of which automatically varies to accommodate fluctuations which may occur in the diameter of the strand material. The matrix is constituted either by two rollers fastened to rotatably mounted shafts and having their peripheral edges contacting, each roller being provided with a semicircular cross section groove the diameter of which varies around the circumference of the roller, or by two identical ring segment pieces having eccentric inner diameters and attached to the outer surfaces of cylindrical rollers eccentrically fastened to the rotatably mounted shafts so that the peripheral edges of the pieces are concentric with the shafts and are always contacting. In both embodiments, the shafts are urged in a direction which tends to decrease the diameter of the matrix opening.

3,633,262

MAKING AND INSTALLING A COLLECTOR PLATE ASSEMBLY

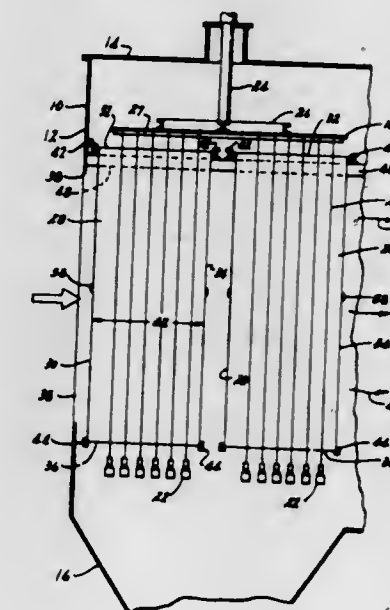
Phillip L. Van Huffel, Detroit; Harold J. Raines, Pleasant Ridge, and Clement L. Martzoff, Detroit, all of Mich., assignors to American Standard Inc., New York, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,182

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26

U.S. Cl. 29-157 R

9 Claims



A method of fabricating an industrial electrostatic precipitator comprising the steps of forming a complete collector plate assembly outside of the precipitator gas box, and lowering the collector plate assembly as a unit into the box until the assembly comes to rest on a framework previously built into the box.

3,633,263

METHOD OF MAKING TIRE-WEIGHTING DEVICE

Roy Hoeksema, 2413 South Mayflower Ave., Monrovia, Calif.

Filed June 27, 1969, Ser. No. 837,173

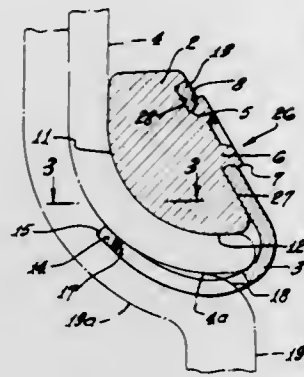
Int. Cl. B23p 17/00

U.S. Cl. 29-412

4 Claims

Method of forming a wheel-balancing weight by extruding lead through a forming die, shaping the body to have wheel rim congruency, extruding a lug on the weight while forming

a recess therearound and staking a clip to the weight by layers of wires of the nonloosened end of the rope protruding from the socket with simultaneous clamping of the end of the rope around the perimeter and with subsequent squeezing it



deflecting the lug thereover with the clip located in the recess.

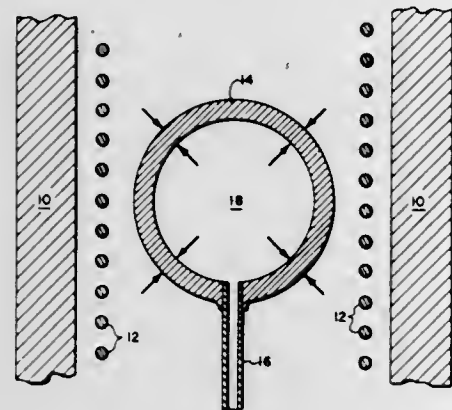
3,633,264

ISOSTATIC FORGING

Paul J. Gripshover, Charles B. Boyer, and George H. Harth, III, all of Columbus, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio
Filed Nov. 3, 1969, Ser. No. 873,179
Int. Cl. B23p 17/00

U.S. Cl. 29-421

3 Claims



A process for forging hollow bodies comprising preforming the hollow body, sealing the internal cavity of the body, applying isostatic fluid pressure to the interior and exterior surfaces of the body prior to final deformation, and increasing the pressure on one of the surfaces relative to the opposing surface to plastically deform the body to predetermined dimensions.

3,633,265

METHOD OF SECURING SPIRAL-LAY WIRE ROPES IN TAPERED SOCKET

Vitaly Petrovich Lyashenko, ulitsa Batumskaya, 36, kv. 45; Gennady Nikolaevich Kuvaev, ulitsa Furmanova, 2, kv. 9., and Boris Petrovich Bagiel, ulitsa Noginskaya, 43, kv. 5, all of Dnepropetrovsk, U.S.S.R.

Filed Mar. 18, 1970, Ser. No. 20,739

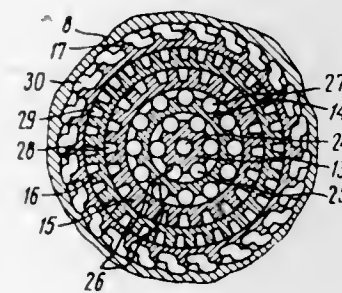
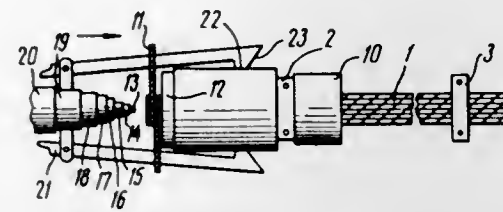
Int. Cl. B23p 25/00

U.S. Cl. 29-461

2 Claims

The present method of securing the end of a spiral-lay wire rope in a tapered socket consists in simultaneous forcing of a set of conical rings with wedge-shaped spiral ribs between the

layers of wires of the nonloosened end of the rope protruding from the socket with simultaneous clamping of the end of the rope around the perimeter and with subsequent squeezing it in the socket wherein the process of squeezing is effected with a force sufficient for attaining the yield point of the material of conical rings until said material fills the gaps between the wires.



3,633,266

METHOD OF SOLDERING ALUMINOUS COMPONENT

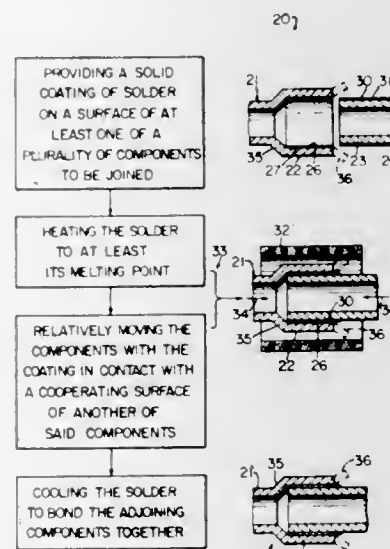
Glen A. Taylor, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed June 5, 1969, Ser. No. 830,595

Int. Cl. B23k 1/20, 31/02

U.S. Cl. 29-488

20 Claims



3,633,267

METHOD OF DIFFUSION BONDING HONEYCOMB COMPOSITE STRUCTURES

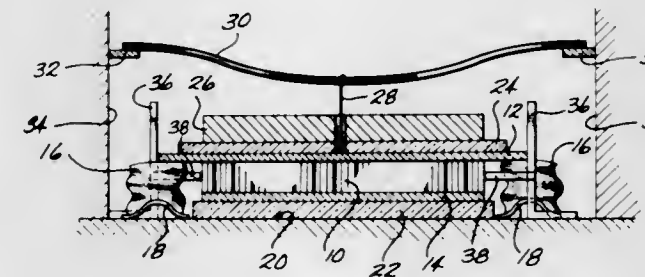
Czeslaw Deminet, Kent; James W. Patten, Seattle, and Hendrik H. Van der Mark, Bellevue, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 27, 1968, Ser. No. 787,408

Int. Cl. B23k 31/02

U.S. Cl. 29-493

12 Claims



A method of diffusion bonding fragile metallic honeycomb-type cellular core to metallic face sheets without crushing the core and providing a controlled atmosphere sealed within the core cell spaces. At least one face sheet is initially spaced apart from the core in a furnace as a controlled atmosphere is formed in the furnace and its temperature elevated causing the spacers to yield and the face sheets to assume surface contact with the core. Compressive force applied through a yieldable media to the face sheets and the core diffusion bonds them and seals the controlled atmosphere within the core cell spaces.

3,633,268

METHOD OF PRODUCING ONE OR MORE LARGE INTEGRATED SEMICONDUCTOR CIRCUITS

Reiner Engbert, Taltelm, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm am Danube, Germany

Filed June 2, 1969, Ser. No. 829,233

Claims priority, application Germany, June 4, 1968, P 17 64 426.7

Int. Cl. B01j 17/00; H01l 7/00

U.S. Cl. 29-574

10 Claims



The disclosure relates to a method of producing one or more integrated semiconductor circuits in which the usable basic circuits on a semiconductor wafer are connected together and the useless basic circuits bypassed. For this, a conductive path mask is produced photographically from at least two individual masks one of which represents the con-

ductive paths to a usable basic circuit and another of which represents the paths necessary to bypass a useless basic circuit.

3,633,269

METHOD OF MAKING CONTACT TO SEMICONDUCTOR DEVICES

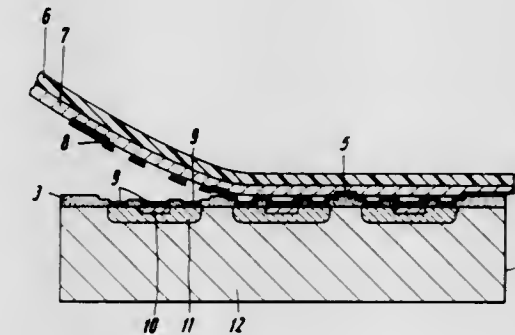
Alfred Bachmeyer, Schwaigern, Germany, assignor to Telefunken Patentverwertungsgesellschaft MbH, Ulm (Danube), Germany

Filed June 24, 1969, Ser. No. 836,107

Int. Cl. B01j 17/00; H01l 5/00

U.S. Cl. 29-578

10 Claims



The disclosure relates to a method of making contact with semiconductor devices by applying a metal layer, e.g. nickel or aluminum, onto an insulating layer, e.g. silicon dioxide, on the semiconductor material and onto the surface of the semiconductor material itself through windows in the insulating material and removing the part of the metal layer applied to the insulating layer by means of an adhesive strip, the metal layer having been treated, during or after its application, by heat to render it more firmly bonded to the semiconductor material than to the insulating layer.

3,633,270

ANODE ARRAY TECHNIQUES

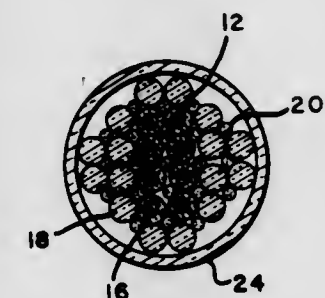
Bagdasar Deradoorian, Detroit, Mich., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Sept. 23, 1969, Ser. No. 860,346

Int. Cl. B33p 17/00

U.S. Cl. 29-592 R

4 Claims



A multianode array is formed by prefusing thin sheaths of glass to Kovar rods and stacking the sheathed rods together with glass cane. The structure is then fused to form a continuous matrix by processing under high temperature and pneumatic pressure to form a solid billet from which anode stems are sliced for use with photomultipliers and other varied components.

3,633,271

SEMICONDUCTOR DEVICES

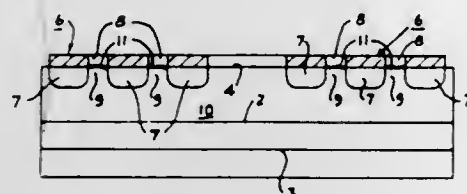
Clifford Victor Miles, and John M. Garrett, both of London, England, assignors to Westinghouse Brake English Electric Semi-Conductors Limited, London, England
Filed July 15, 1968, Ser. No. 744,660

Claims priority, application Great Britain, July 20, 1967, 33,412/67

Int. Cl. B01J 17/00; H01L 7/24

U.S. Cl. 29—590

9 Claims



A multijunction, multilayer semiconductor device is formed by alloying the surface of a body of semiconductor material with a material which contains an impurity and includes gaps or perforations therein so that an emitter zone is formed in the body which includes corresponding perforations therein into which project or extend portions of the zone adjacent the emitter zone. The exposed surfaces of the adjacent zones which project into the emitter zone are abraded.

3,633,272

METHOD OF TRANSPOSING SHEET CONDUCTORS

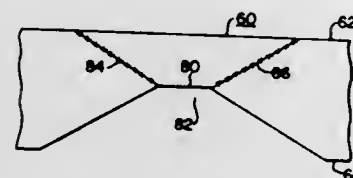
Frank W. Benke, Sharon, Pa., and Gary E. Utto, Niles, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application July 5, 1968, Ser. No. 742,723, now Patent No. 3,587,169. Divided and this application Sept. 24, 1970, Ser. No. 75,127

Int. Cl. H01F 7/06

U.S. Cl. 29—602

3 Claims



Methods of radially transposing radially adjacent electrically conductive sheet materials in an electrical winding, which include forming notches in opposite edges of the conductors to be transposed and directing each conductor through the notch in the other. The notches are formed, while increasing the cross-sectional area of the conductor adjacent the notch, by folding back a section of conductor to form a notch, and electrically joining certain of the edges of the folded section to the surface of the adjacent sheet material. The transposition is performed by directing each sheet through the notch in the other, and changing the relative positions of the supply roll of sheet material.

3,633,273

METHOD OF CONSTRUCTING ELECTRICAL WINDINGS

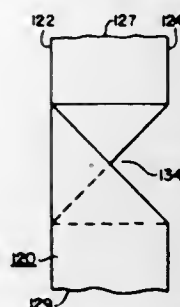
Garlington C. Wilburn, and George P. Michel, both of South Boston, Va., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application July 5, 1968, Ser. No. 742,722, now Patent No. 3,546,644. Divided and this application Mar. 16, 1970, Ser. No. 19,628

Int. Cl. H01F 7/06

U.S. Cl. 29—602

12 Claims



Methods of forming a notch in the edge of sheet conductors to transpose the relative radial positions of sheet conductors in an electrical winding. The methods include folding the sheet material in a predetermined manner to provide a notch without cutting the material, and cutting, folding and joining the sheet materials to simplify the formation of the notch, while minimizing the amount of conductive material removed from the sheet.

3,633,274

METHOD OF MAKING MAGNETIC HEAD DEVICE

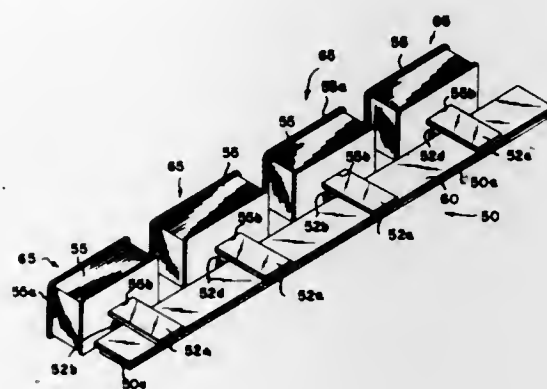
John J. Miyata, Monterey Park, Calif., assignor to The National Cash Register Company, Dayton, Ohio

Original application July 13, 1966, Ser. No. 564,912, now Patent No. 3,504,134, dated Mar. 31, 1970. Divided and this application Mar. 24, 1969, Ser. No. 809,722

Int. Cl. H01F 7/06

U.S. Cl. 29—603

5 Claims



A method of constructing a magnetic head device comprised of a high-permeability hairpin core with a coil winding closely coupled to a leg of the core, which includes the steps of shaping a single integral strip of a very high-permeability magnetic alloy into the general form of a hairpin, annealing the hairpin core to optimize its magnetic properties, inserting a prewound coil on a leg of the hairpin and then securing together the end portions of the hairpin legs to form a gap interface.

3,633,275

CONDUIT SAW

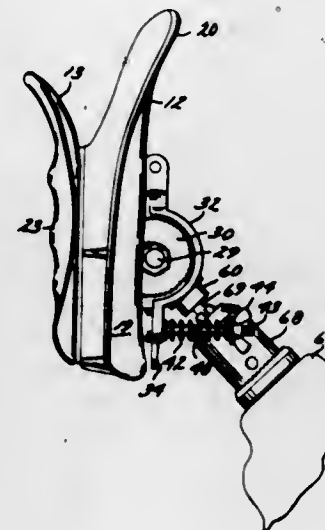
Elmer R. Hutchinson, North Hollywood, Calif., assignor to Elmer Dudek, Costa Mesa, Calif., a part interest

Filed July 3, 1969, Ser. No. 838,821

Int. Cl. B23d 47/08

U.S. Cl. 30—90.3

4 Claims



A device for cutting conduit having a pair of jaws having opposed recesses to form an elongated opening to receive the conduit and which jaws are hinged along one side thereof along one side of said opening; said device having hinged thereto a saw blade holder carrying a saw blade for movement between a position where said saw blade is not in said opening and a second position where said saw blade is well within said opening; said saw blade holder having a spring resiliently urging one end of said holder so as to resiliently urge said saw blade into any conduit in the device when the jaws are closed; said device having provision to removably receive rotary power from a common portable drill motor held by the operator.

3,633,276

CHEESE CHEDDARING METHOD

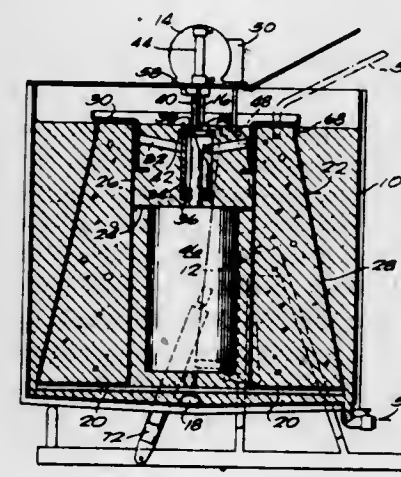
Dayle D. Winnie, Kiel, Wis., assignor to Stoelting Brothers Company, Kiel, Wis.

Original application Aug. 1, 1968, Ser. No. 749,365, now Patent No. 3,518,760, dated July 7, 1970. Divided and this application Jan. 21, 1970, Ser. No. 8,109

Int. Cl. A01J 25/00

U.S. Cl. 31—89

6 Claims



Prepared whey and curd are transferred to the cheddaring machine to place the curd in the perforate downwardly

diverging annular screen enclosure within the vat (FIG. 1). The screen is rotated and a mixer keeps the curd moving upwardly to obtain uniform dispersion of the curd and facilitate removal of air and gases. After filling the mixer is removed and whey drained while rotation continues at a slower rate. The vat is tilted (FIG. 2) so the now-knitting curd is manipulated to aid whey expulsion and work the cheese as required in cheddaring. Tilting to the FIG. 3 position compresses the curd previously on the upper surface and knits the curd while the converging annulus further compresses and works the curd. Finally (FIG. 4) the ring closure is pulled back and a knife fixed across the opening to cut the curd as it moves down and out. By reason of the rotation of the screen the curd comes out in a continuous ribbon for conveyance to further process stations.

3,633,277

ORTHODONTIC UPRIGHTING SPRINGS FOR TIPPING AND UPRIGHTING TEETH

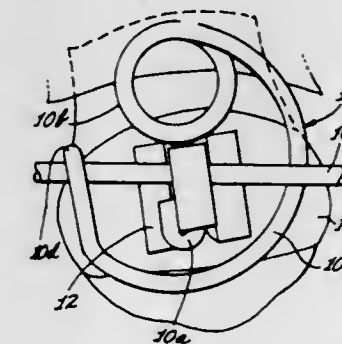
Myron Reichel, Village of Cross Keys, Baltimore, Md.

Filed June 24, 1970, Ser. No. 49,467

Int. Cl. A61c 7/00

U.S. Cl. 32—14 A

3 Claims



An improved spring assembly is provided for use in orthodontia and which serves to carry out the principle of Begg's Orthodontic Technique in the free tipping and pure uprighting of the canines and first or second premolars. The assembly of the invention includes a spring which is configured into a combined helical and Archimedes spiral, and which is used in conjunction with a slotted bracket mounted on the tooth, and the usual arch wire, with the arch wire being held in the slot of the bracket by one of the actuating arms of the spring.

3,633,278

MICROMETER ADOPTED TO SERVE AS A LINEAR MEASURING TOOL

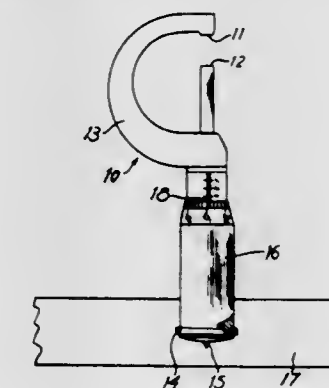
Benjamin Ron, 10 Sanhedrin St., Tel Aviv, Israel

Filed May 7, 1970, Ser. No. 35,388

Int. Cl. G01b 3/18, 5/00, 7/04

U.S. Cl. 33—167

2 Claims



A measuring wheel with circumference 100 times larger than the distance change caused by a single revolution of a

micrometer's rotary handle to which the measuring wheel is fit to be attached. The circumference of the wheel is frictionally engageable to work surface.

The combination of the wheel attached to micrometer's rotary handle adapts the micrometer to serve as a linear roller measuring device.

3,633,279

TIRE-MEASURING APPARATUS

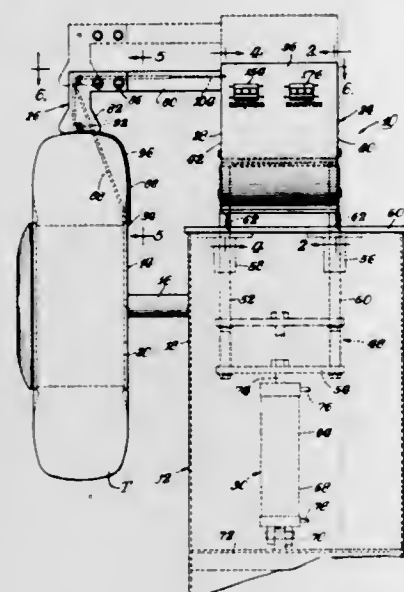
James D. Frazier, and John F. Randolph, Jr., both of Lima, Ohio, assignors to National-Standard Company, Niles, Mich.

Filed Apr. 20, 1970, Ser. No. 30,227

Int. Cl. G03b 1/64

U.S. Cl. 33—174 R

11 Claims



Apparatus for measuring the tire parameters of a tire carcass supported on a drum including a sensor member disposed above the drum and movable up and down toward the drum by a carriage unit. A length of chain extends from one side of the drum about a chain sprocket carried on the lower end of the sensor member to the carriage unit where its end is coupled to a slack takeup device. When the carriage unit is moved downwardly until the sensor member engages the tire carcass, the chain is displaced by virtue of its engagement with the tire carcass and this displacement is measured by a measuring device carried by the carriage unit to indicate the bead-to-bead length of the tire carcass. Also, a second measuring device carried by the carriage unit measures the distance between the center of the drum and the point of engagement of the sensor member with the crown of the tire carcass to measure the outside diameter of the tire carcass.

3,633,280

METHOD AND APPARATUS FOR DETERMINING THE ORIENTATION OF A BOREHOLE

Henry P. Lichte, Jr., Houston, Tex., assignor to Sperry Sun Well Surveying Company, Sugar Land, Tex.

Filed Dec. 30, 1969, Ser. No. 889,205

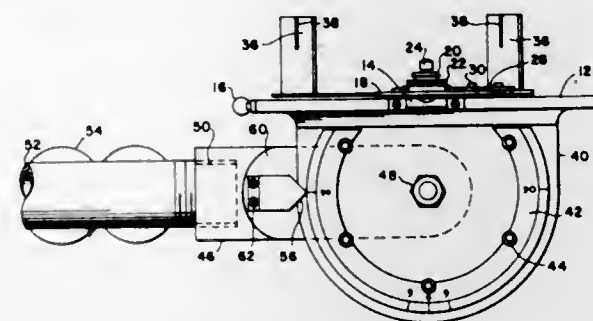
Int. Cl. E21b 47/02

U.S. Cl. 33—205

3 Claims

The particular embodiment described herein as illustrative of one form of the invention utilizes an instrument for measuring azimuthal direction between a rod extending into a borehole and a reference marker having a known position. The angle of inclination between the rod and a horizontal reference is also measured. The instrument is then rotated 180° and measurements again made, which measurements

are averaged with the first readings to give an error-free indication of borehole orientation.



3,633,281

PROCESS AND APPARATUS FOR HANDLING WORKPIECES WHICH HAVE A LARGE SURFACE AREA RELATIVE TO THEIR THICKNESS

Hilmar Vits, Langenfeld, Germany, assignor to Maschinenfabrik VITS GmbH, Langenfeld, Germany

Filed Feb. 4, 1970, Ser. No. 8,656

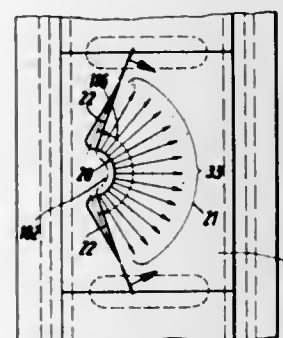
Claims priority, application Germany, Feb. 13, 1969, P 19 07

083.7

Int. Cl. B01k 5/00

U.S. Cl. 34—1

20 Claims



The workpieces are contacted at least on one side with a gaseous and/or vaporous fluid and are at least maintained in a floating condition during treatment of the workpiece. The fluid is transformed into source flows which are distributed over the workpiece surface contacted by the flowing fluid. The source flows are expanded so that they have divergent radial jets extending from said source in a top plan view taken onto said workpiece surface contacted by the flowing fluid. A slight convexity toward said workpiece is imparted to said divergent radial jets in a view taken at right angles to the first-mentioned direction of view and the direction of flow and parallel to a center plane of the workpiece. The radial jets which are convex toward the workpiece are subsequently transformed into a plane flow, which is parallel to the center plane of the workpiece.

3,633,282

LIQUID-REMOVING APPARATUS AND METHOD

Robert R. Candor, 5940 Munger Rd., Dayton, Ohio, and James T. Candor, 5440 Cynthia Lane, Dayton, Ohio

Continuation-in-part of application Ser. No. 769,155, Oct. 21, 1968, which is a continuation-in-part of application Ser. No. 748,298, July 29, 1968, now Patent No. 3,491,456, which is a

continuation-in-part of application Ser. No. 696,639, Jan. 9, 1968, now abandoned, which is a continuation-in-part of

application Ser. No. 639,354, May 18, 1967, now Patent No. 3,405,452, which is a continuation-in-part of application Ser.

No. 532,266, Mar. 7, 1968, now Patent No. 3,330,136, which is a continuation-in-part of application Ser. No. 219,587, Aug.

27, 1962, now Patent No. 3,238,750. This application Mar.

17, 1969, Ser. No. 807,539

Int. Cl. B01k 5/00

U.S. Cl. 34—1

26 Claims

This disclosure relates to apparatus and methods for making paper sheet material and the like sheet material, wherein

a paper sheet or the like producing moisture bearing slurry supply means feeds its slurry to a portion of a belt means to produce a moisture bearing paper web material on such portion of the belt means. Said web material is fed from said belt portion to a web drying section wherein the web has its



moisture gradually removed by other portions of the belt means in cooperation with electrostatic electrode means. The electrode means may include relatively large and relatively small electrode means to produce moisture removing nonuniform electrostatic fields. Various parts of previous paper making apparatus may be modified to remove the moisture.

3,633,283

DRYING APPARATUS

Abraham Rudolph Mishkin, and William Stephen Symbolik, both of Marysville, Ohio, assignors to Societe D'Assistance Technique Pour Produits Nestle S. A., Lausanne, Switzerland

Original application June 28, 1968, Ser. No. 741,039. Divided

and this application Jan. 6, 1970, Ser. No. 5,999

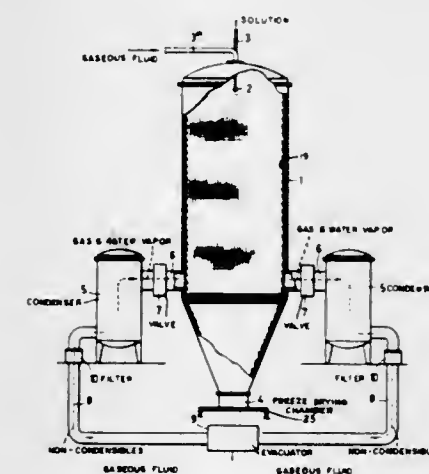
Int. Cl. F26b 21/06

Claims priority, application Switzerland, July 6, 1967, 9569/67;

Oct. 9, 1967, 14068/67

U.S. Cl. 34—73

4 Claims



Drying of liquids is disclosed in which the liquid is sprayed, together with a gaseous fluid such as steam, into a low-pressure zone to cause freezing of the liquid in small particle form, and the frozen particles are then freeze-dried. The liquid may be a biological solution, fruit juice or tea or coffee extract. Apparatus for effecting such drying comprises a freezing chamber, a two fluid nozzle simultaneously spraying liquid and gas into the chamber, a vacuum system with condensers for maintaining a low pressure within the chamber and a freeze-drying chamber.

3,633,284
WEB DRYING
Stephen Anthony Rodwin, Montreal, Quebec, Canada, assignor to Dominion Engineering Works, Limited, Quebec, Canada

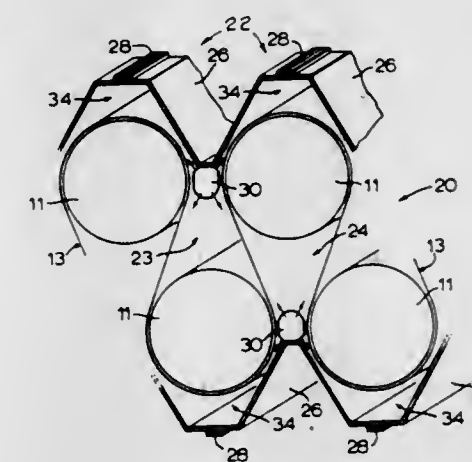
Filed June 17, 1970, Ser. No. 46,980

Claims priority, application Canada, July 7, 1969, 56,304

Int. Cl. F26b 11/02

U.S. Cl. 34—114

6 Claims



A paper drier of the conventional drying cylinder-type is provided with air pressure caps, to obviate the need of the presser felts, while pocket ventilation is provided and web wrap angle is increased; together with the provision of improved cap-sealing arrangements.

3,633,285

LASER MARKSMANSHIP TRAINER

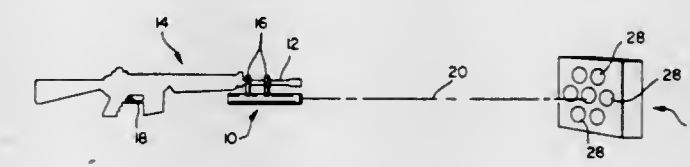
Cleatus R. Sensney, Salinas, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Mar. 9, 1970, Ser. No. 17,788

Int. Cl. F41c 27/00; F41g 3/26

U.S. Cl. 35—25

9 Claims



A laser transmitting device for marksmanship training. The device is readily mountable to the barrel of a firearm and transmits a light beam upon the actuation of the firing mechanism of the firearm. The laser device is triggered in response to an acoustical transducer which detects sound energy developed by the firing mechanism of the firearm, and means are provided to prevent false triggering of the device by extraneous sounds. The light beam is detected by a target having a plurality of light detectors, whereby an indication of the accuracy of the aim may be obtained.

3,633,286

STENCIL-DRAWING TOY

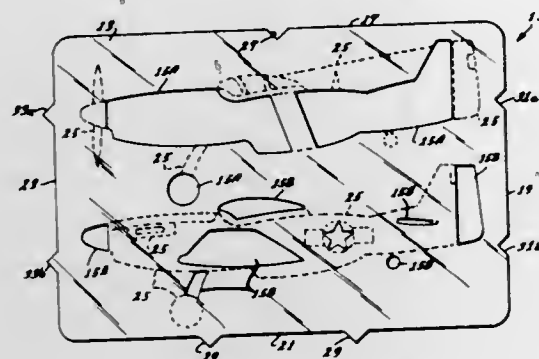
Donald J. Maurer, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Sept. 3, 1969, Ser. No. 854,992

Int. Cl. B43I 13/20

U.S. Cl. 35-26

9 Claims



A toy using a stencil having a plurality of composite stencil openings, each defining different features of predetermined composite designs. The stencil also includes means for guiding the overlaying of the openings in predetermined relationships to produce a desired design. The overlaying guidance may take the form of outlines on the stencil of completed designs not provided by the outlines of the openings. Also, irregularities such as tabs and notches in the outer edges of the stencil may be used for overlaying registration. Further, a frame having a stencil accepting aperture dimensioned to removably hold the stencil in a desired position while allowing rectilinear repositioning may be utilized. The frame and stencil may also include means including coded indexing positions for properly locating the stencil in the frame and for indicating which of the stencil openings are to be used.

3,633,287

NUMERICAL BASE SYSTEMS TEACHING DEVICE

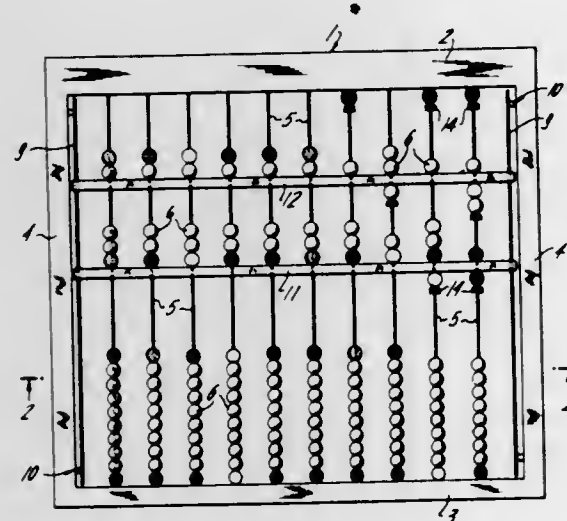
Fitz A. Squires, and Sophie Squires, both of 444 Beach 54 Street, Arverne, N.Y.

Filed May 6, 1970, Ser. No. 35,054

Int. Cl. G06c 1/00

U.S. Cl. 35-33

2 Claims



A device for teaching numerical base systems comprises a frame, a plurality of vertically disposed rods, a plurality of

counters mounted on each of the rods to form parallel rows, and means removably mounted within the frame for separating the counters into at least two groups of equal counters in each row. For example, by providing the device with 15 counters in each row and mounting two separator bars on the rods to separate the counters in each row into groups of 10, three and two, radices of 10, three and two can be simultaneously compared in order to almost instantaneously teach pupils the principles of base systems other than radix 10.

3,633,288

BASE NUMERAL GAME DEVICE

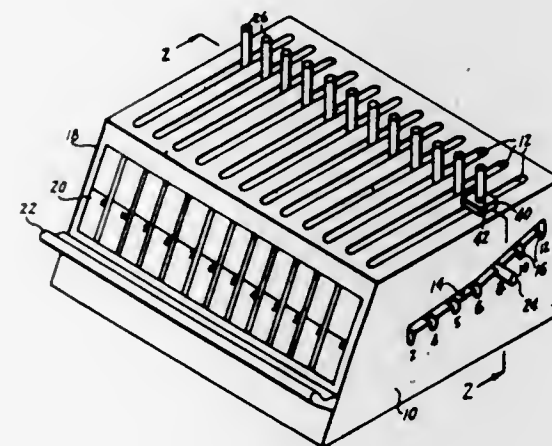
Richard G. Le Francis, 3413 Buccaneer Circle, Sacramento, Calif.

Filed Sept. 25, 1970, Ser. No. 75,344

Int. Cl. G09b 19/02

U.S. Cl. 35-31 R

6 Claims



A device having longitudinal slots at the top thereof with vertical rods protruding through the slots to a height dependent on the positioning of a horizontal master control rod from which the vertical rods extend, the device also having an inclined longitudinal slot on each side thereof with stepped grooves therein for the desired positioning of the master control rod.

3,633,289

RECORDING DEVICE OF STUDENT LEARNING PROCESS

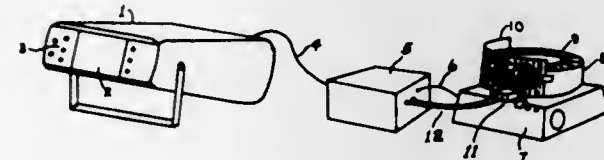
Jack W. Hannah, 700 Grace Street, Mansfield, Ohio

Filed Nov. 12, 1969, Ser. No. 875,718

Int. Cl. G09b 5/00

U.S. Cl. 35-48 R

12 Claims



A branched teaching machine that selects frames for presentation to the student in accordance with individualistic responses is connected to the remote control of a rotatable slide projector and causes the slide projector to move either forward or reverse in step with its search for the frame to be selected and presented. As the frame is presented, a slide in the slide projector may also be shown. As a primary feature

3,633,292

SELF-PROPELLED LOADER

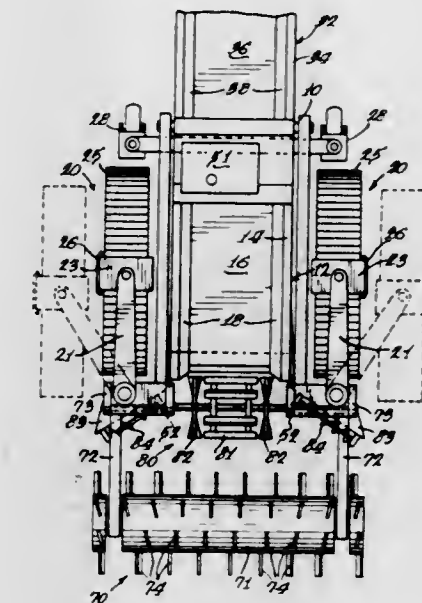
Raymond M. Ulrich, Roanoke, Ill., assignor to Ulrich Foundation, Inc., Roanoke, Ill.

Filed Feb. 27, 1969, Ser. No. 802,794

Int. Cl. E02f 3/78, 5/26

U.S. Cl. 37-112

9 Claims



Self-propelled earth materials loader comprising a frame, conveyor belt means mounted on said frame having a forward end and a rearward discharge end, a pair of arms swingably mounted on said frame adjacent the forward end and to opposite sides of said belt means, a pair of ground-engaging vehicle drive means turnably mounted on said arms, means for controllably swinging said arms, turning said drive means and operating said belt means and said drive means, and loading means forwardly of the forward end of said belt means for loading earth materials onto said belt means; said arms being swingable and said drive means being turnable to dispose said drive means in any of a plurality of positions parallel to, normal to and at inclinations to the axis of the belt means to accommodate a variety of loading operations.

3,633,290

SNOW BLOCKS INVENTION

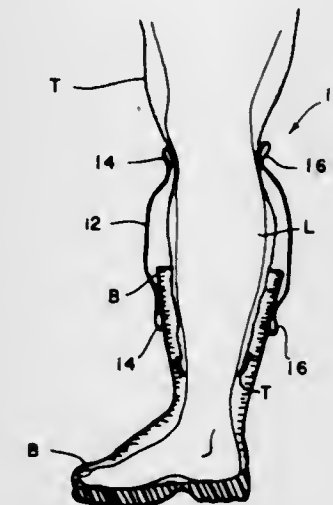
Thomas J. Rubeling, Route #1, New Windsor, Md.

Filed Aug. 11, 1970, Ser. No. 62,956

Int. Cl. A41b 17/00

U.S. Cl. 36-2 R

1 Claim



A boot top guard for preventing snow and the like from entering the boot, comprising a flexible tubular body having annular constrictive means at each end; a preferred embodiment is completely symmetrical top-for-bottom and inside out, so that it is impossible for a wearer to put the guard on his leg incorrectly.

3,633,291

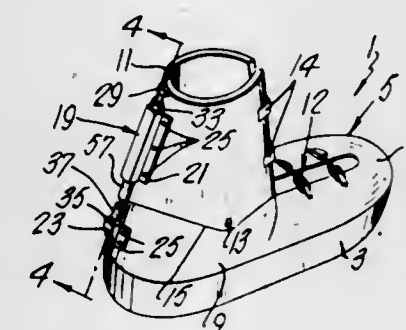
SKI BOOT HAVING A PIVOTED TOP

Domenico Caporicci, 2327 Gold Street, Ville St. Laurent, Quebec, Canada

Filed Apr. 6, 1970, Ser. No. 25,909

Int. Cl. A43b 00/00

U.S. Cl. 36-2.5 AL



A ski boot having a top which can pivot toward and away from the toe of the boot. Means are provided for adjusting the angular position of the top of the boot relative to the lower part of the boot.

3,633,293

LOADING AND UNLOADING EQUIPMENT FOR MOTOR SCRAPER

Pierre Lajoie, 40 rue de la Vacquiniere, Montigny Les Metz, France

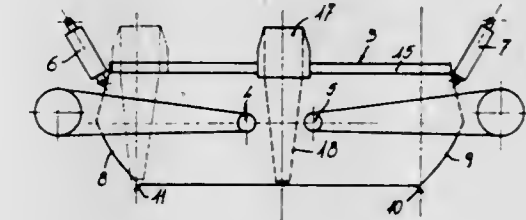
Filed Aug. 6, 1969, Ser. No. 847,950

Claims priority, application France, Aug. 6, 1968, 50279

Int. Cl. B60p 1/16; E02f 1/00

U.S. Cl. 37-127

6 Claims



An earth scraper is provided with a bucket adjustable mounted between two tractor units for loading and unloading operations in either direction. The bucket is provided with a

movable transverse partition supported and guided by a pair of outwardly turned channel shaped flanges on either side of the bucket and the drive mechanism for moving the partition is protectively disposed within the channel shaped flanges.

3,633,294

CLEANING REMINDER

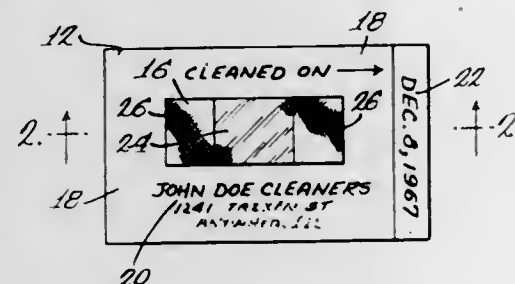
Warren L. Burmeister, 922 Forest Avenue, Wilmette, Ill.

Filed Jan. 8, 1968, Ser. No. 696,333

Int. Cl. A44c 3/00

U.S. Cl. 40-2 R

4 Claims



A patch of paper or cloth adapted to be attached to a fabric material, one portion of the face thereof having a soil receptive surface and another portion of the face thereof having a soil resistant surface.

3,633,295

ROTATING TIRE DISPLAY

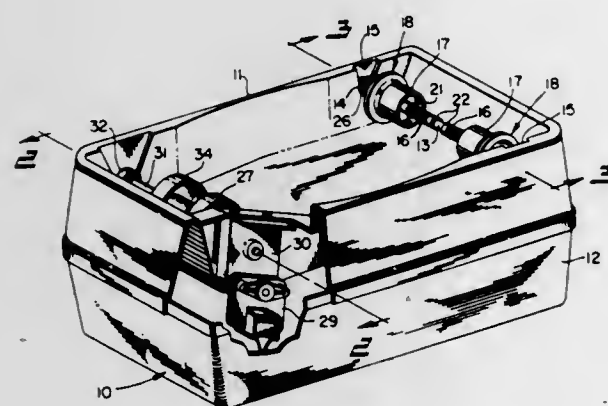
Edward J. Stropkay, Chesterland, Ohio, assignor to Product Design & Manufacturing Corp., Willoughby, Ohio

Filed June 2, 1969, Ser. No. 829,675

Int. Cl. G09f 1/102

U.S. Cl. 40-33

5 Claims

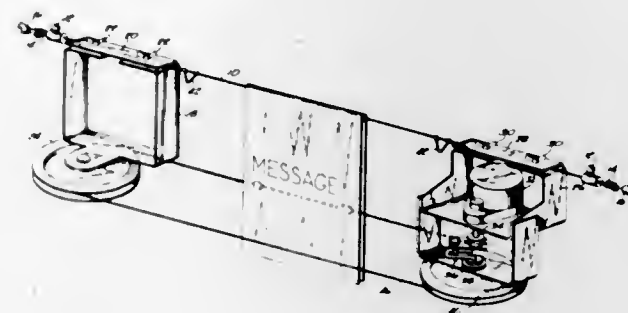


A base housing supports an automobile tire in upright condition on a drive roller which is driven by an electric motor to rotate the tire, an idler roller aligned with the drive roller, and two follower rollers in alignment and spaced circumferentially of the tire relative to the drive and idler rollers. Guide rollers associated with the follower rollers engage the sides of the tire tread, with the follower and guide rollers adjustable under spring biasing for centering of the tire in the display.

3,633,296
DISPLAY DEVICE
Henry D. Brenner, Fords, N.J., assignor to Hanksraft Company, Reedsburg, Wis.
Filed Jan. 9, 1970, Ser. No. 1,798
Int. Cl. G09f 1/116

U.S. Cl. 40-53

6 Claims

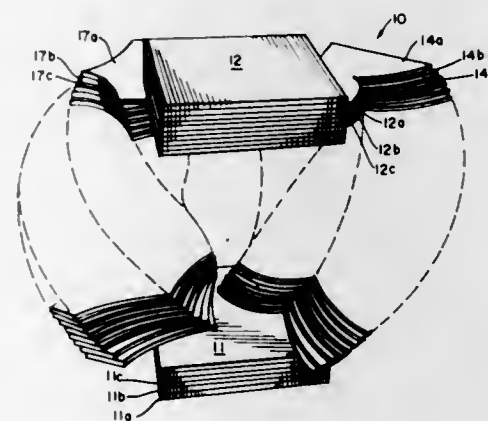


A fine cable is stretched taut between suitable supports with a bracket at one end supporting a nondirectional AC motor driving a drive pulley and a bracket at the other end supporting an idler pulley. A suitable message is supported on a plastic tube slidable on the cable and is connected to a line running around the pulleys. A simple spring is fixed on the cable adjacent each bracket so the traveling message strikes the spring with the resultant impact being fed back to the motor and causing reversal of the motor direction. Therefore, the message travels back and forth on the cable.

3,633,297
MOVABLE DISPLAY DEVICE
Willi Gutmann, 8155 Oberhasli, Switzerland
Filed July 9, 1969, Ser. No. 840,219
Int. Cl. G09f 1/106

U.S. Cl. 40-67

1 Claim

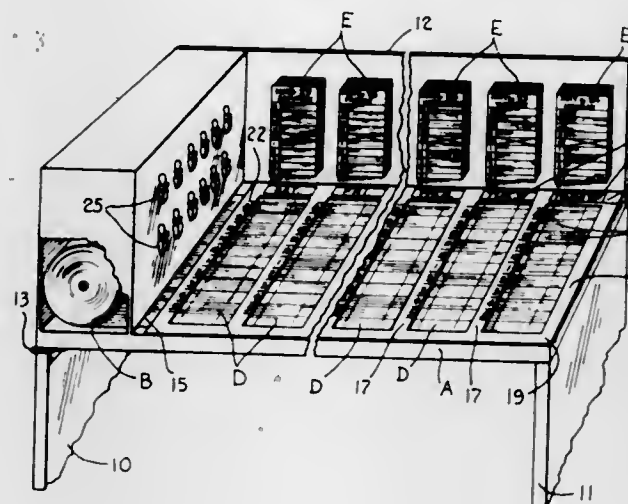


A display device is disclosed comprising a series of flat platelike members arranged in stacked relation and secured to a common pivotal axis. A plurality of axes may be juxtaposed and the respective plates of different axes arranged in different geometric relationships.

3,633,298
CONTINUOUS APPOINTMENT CALENDAR
Robert C. Grier, Jr., 108 W. Seven Oaks Drive, Greenville, S.C.
Filed Feb. 19, 1970, Ser. No. 12,768
Int. Cl. G09f 1/129

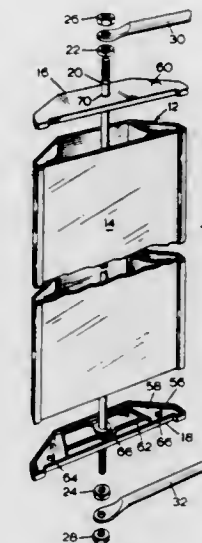
U.S. Cl. 40-82

3 Claims



An apparatus for scheduling events, such as appointments, so that the appointments for a given predetermined period of time are readily available. Information, such as an appointment, is placed on a continuous roll of lined paper which passes under a frame member that divides the paper into a plurality of columns. Within each column the appointments of a particular day are recorded. Positioned on a back panel above each column are a group of dated information receiving members of corresponding days and successive weeks.

the longer edges of the mirror glass extending longitudinally of the mirror. The support includes curved ribs for resiliently biasing the mirror outwardly against inner surfaces of front flanges to lock the mirror in place in the support. End caps

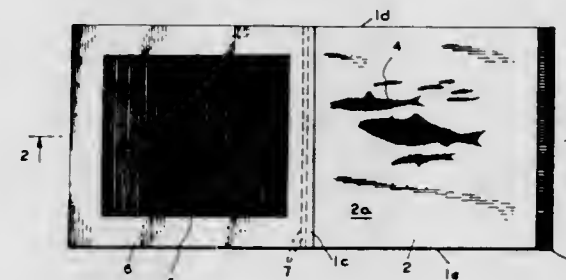


are provided which are adapted to contain the mirror within the support and a tie rod extends through the caps for receiving nuts to hold the end caps in place on the support. Further nuts are provided for engaging on the ends of the tie rod to attach the mirror to a truck or the like.

3,633,301
APPARATUS FOR CREATING A THREE-DIMENSIONAL PICTURE
Andre Calabuig, Tokyo, Japan, assignor to Asahi Stereorama Co., Ltd., Tokyo, Japan
Filed Nov. 4, 1969, Ser. No. 873,846
Claims priority, application Japan, Feb. 28, 1969, 44/17666; 44/17667; 44/17668
Int. Cl. G09f 1/12

U.S. Cl. 40-160

8 Claims



A vehicle-mounted portable advertising device adapted for use on the top, fender or trunk lid of an automobile, truck etc. which is an improvement in the currently used vehicle top signs.

3,633,300
DRIVING MIRROR
Julius Polzner, Downsview, Ontario, Canada, assignor to Newark Tool & Machine Limited, Weston, Ontario, Canada
Filed July 8, 1970, Ser. No. 53,265
Int. Cl. G09f 1/12

U.S. Cl. 40-152

7 Claims

A driving mirror including an extruded support for gripping the longer edges of a rectangular mirror glass with

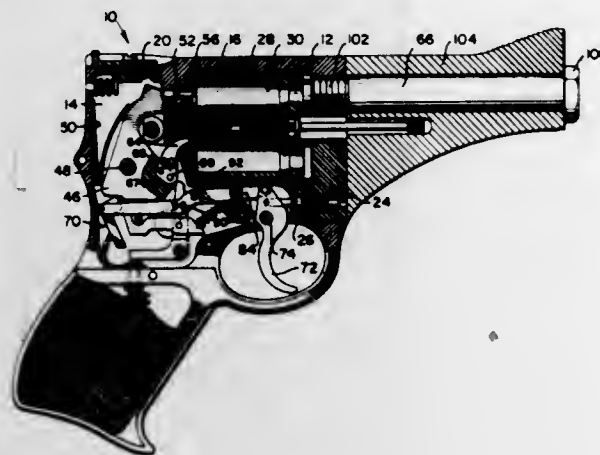
An apparatus creates a three-dimensional picture by selectively positioning a single lenticular sheet over a number of figure sheets having linear form three-dimensional figures thereon. The figure sheets are positioned on a baseplate. A frame member is hinged to said baseplate and has positioned therein the lenticular sheet. The frame member pivots around the baseplate until the lenticular sheet overlies the figure sheet. Alignment means ensure the proper alignment of the figure sheet and the lenticular sheet. Resilient means may be provided to urge the figure sheet against the lenticular sheet.

3,633,302
CYLINDER MECHANISM FOR REVOLVER-TYPE FIREARMS

Karl R. Lewis, 77 Olney Road, Wethersfield, Conn.
Filed Feb. 27, 1970, Ser. No. 15,070
Int. Cl. F41c 1/00

U.S. Cl. 42-62

13 Claims



A revolver-type of firearm includes a frame having a cylinder recess, a barrel located at the forward end of the frame, a crane pivotally connected to the frame and a cylinder rotatably mounted on the crane and normally received in the cylinder recess. A spring-biased extractor is slidably mounted in the cylinder and includes a cartridge rim-engaging member and a ratchet located at the rear end of the cylinder. A spring-biased detent element positioned in the frame cooperates with a detent recess in the center of the ratchet to resiliently hold the rear end of the cylinder in position relative to the frame. A hand operated by the hammer acts upon the ratchet to rotate the cylinder to bring succeeding cylinder chambers into alignment with the barrel each time the hammer is moved from a fired to a cocked position and the spring-biased ball yields, if necessary, to allow a slight lateral movement of the cylinder to accommodate any mechanical mismatch or interference between the hand and the ratchet. A thumb operated latch on the crane releasably locks the crane to the frame.

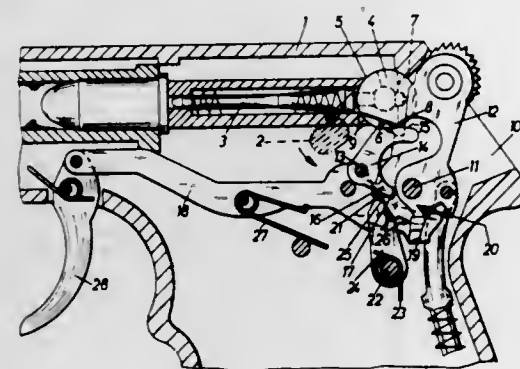
3,633,303
FIRING PIN SAFETY DEVICE

Villi Volkmar, Ulm (Danube), and Georg Zanner, Horvelsingen Kr. Ulm, both of Germany, assignors to Carl Walther Sportwaffenfabrik, Ulm, Germany
Filed Mar. 31, 1970, Ser. No. 24,169
Claims priority, application Germany, Apr. 19, 1969, P 19 19 943.0

Int. Cl. F41c 17/04

U.S. Cl. 42-70 F

4 Claims



A safety shaft, pivotable between lock and release position extends transverse to the firing pin to expose the end of the

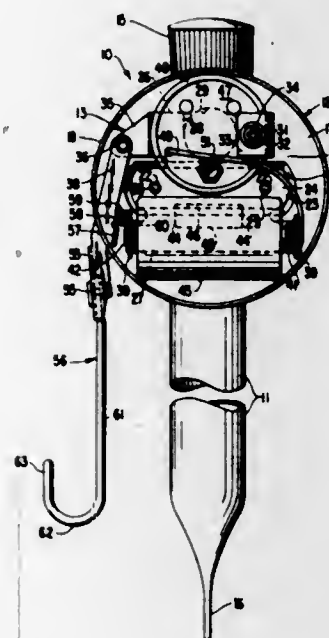
firing pin when in the release position and having its outer surface engaging the hammer when in the lock position to prevent the hammer from striking the firing pin. An intermediate lever has one end engageable by the safety shaft when it is moved to the lock position so that pivoting of the intermediate lever causes a tab on its other end to move the trigger rod from operative engagement with the lower end of the hammer. At the same time, the tab end of the intermediate lever engages a hammer lever to move the hammer lever from engagement with a notch on the hammer. The trigger may thus be actuated when the safety is in the lock position but will not cause the hammer to strike the firing pin.

3,633,304
FISHING ROD HOLDER AND ALARM

Virgil T. Brazell, Albuquerque, N. Mex., assignor to Silas E. McAfee, Albuquerque, N. Mex., a part interest
Filed May 15, 1970, Ser. No. 37,697
Int. Cl. A01k 97/12

U.S. Cl. 43-17

2 Claims



A fishing rod holder and alarm including a support post carrying a signal and battery support housing. The housing has a dependent, laterally swingable rod support and signal actuator arm disposed at one side thereof to lie along the side of the support post remote from the water for actuation by a pull on the line substantially at right angles to the rod. The pull on the line moves the arm toward the support post to minimize the likelihood of a disassociation of the rod from the holder.

3,633,305
HARNESS FOR FISHING BOBBER

Winston C. Grubb, 506 8th Ave., N.E., Grand Rapids, Minn.
Filed May 14, 1970, Ser. No. 37,204
Int. Cl. A01k 93/00

U.S. Cl. 43-44.92

5 Claims

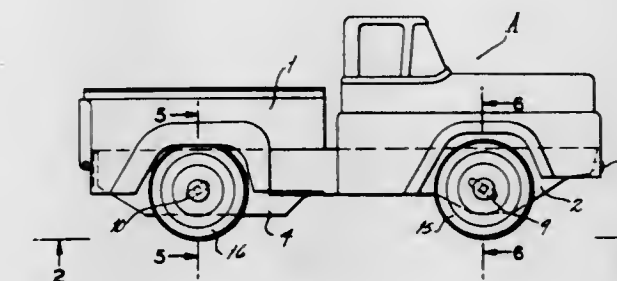
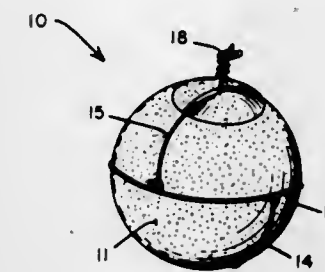
Fishing bobber means comprising, in combination, a spherical float means and a harness adapter for retaining the float means and for releasable attachment of the bobber means to a fishing line. The harness adapter comprises a generally circular closed ring, and a pair of semicircular segments disposed at right angles to the ring. One of the segments is

3,633,307
TOY VEHICLE

Charles H. Steuber; Robert L. Cremer, both of Neosho, Mongolia, and Jerry D. Wood, Plainfield, N.J., assignors to Buddy L. Corporation, New York, N.Y.
Filed Mar. 9, 1970, Ser. No. 17,579
Int. Cl. A63h 11/10

U.S. Cl. 46-201

6 Claims



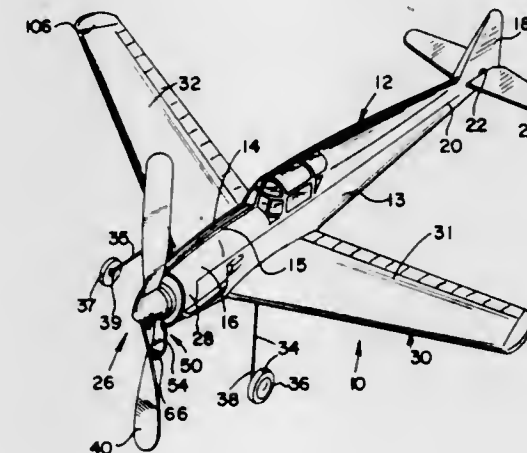
the ring and fixed segment. The float means is generally spherical in configuration, and at least a portion of its diameter exceeds the diameter of the ring and segments so as to provide for locking engagement of the float means within the harness adapter.

3,633,306
MODEL AIRPLANE

Lawrence H. Conover, Toddville, Iowa, assignor to Comet Model Hobbycraft Corp., Chicago, Ill.
Filed Oct. 29, 1969, Ser. No. 872,037
Int. Cl. A63h 27/00

U.S. Cl. 46-76

14 Claims

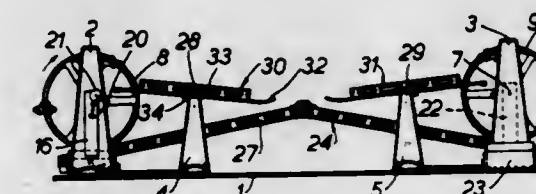


The model airplane is of the type formed of a thin sheet of plastic material. A propeller assembly including an engine-noise-simulating member is mounted at the forward end of the airplane. The propeller assembly is connected to a rubber band which is secured within the fuselage of the airplane and extends from the forward end thereof. The noise-simulating member is releasably mounted on the propeller assembly and includes a portion which extends into the path of rotary movement of the propeller to engage the propeller for simulating an engine noise when the propeller is rotating. Each wing of the airplane has a box-shaped strengthening spar secured to the underside thereof. Each spar has sidewalls and a bottom wall which tapers inwardly of the associated wing toward the tip of the wing. The bottom wall of each strengthening spar has a landing-gear-mounting portion for releasably holding a landing gear strut to the strengthening spar.

3,633,308
TOY INCLUDING A TRACK FOR TOY CARS
Tse T. Yang, Kowloon, Hong Kong, assignor to Hoi Yuen Manufacturing Company Limited, Kowloon, Hong Kong
Filed May 11, 1970, Ser. No. 36,202
Int. Cl. A63h 19/24

U.S. Cl. 46-243 M

9 Claims



A toy comprises a track approximating in shape to a letter X disposed in a vertical plane, and five cars which run on the track. At each end of the track is a lifting wheel which operates automatically to lift cars from the lower end of a lower branch of the track up to the upper end of the upper branch of the track thereabove, so that the cars move in a path approximating to a figure eight disposed in a vertical plane.

3,633,309

TOY CAR WITH COIL TRACK THEREFOR

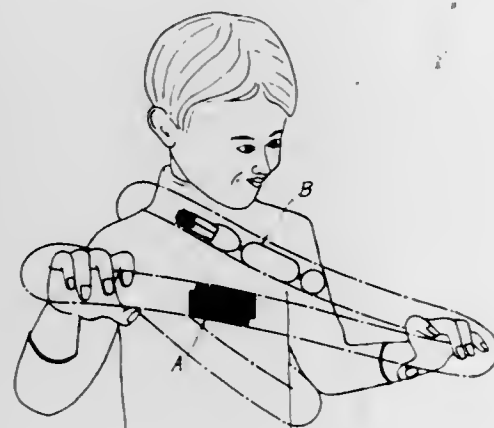
Shinoda Yoshie, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan

Filed Nov. 12, 1970, Ser. No. 88,694

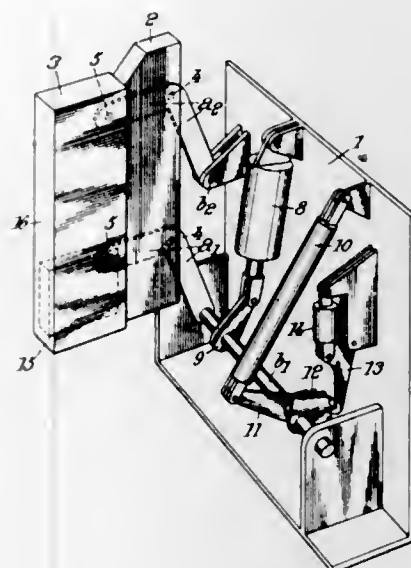
Int. Cl. A63h 19/10

U.S. Cl. 46-243 M

9 Claims



whose width need then be only slightly greater than the width of the retracted barrier. The gate is actuated by bellcrank



levers driven in one direction by an electromagnet and in the other direction by an elastic return device.

This invention pertains to a toy comprising, in combination, a track in the form of a coil and a powered car adapted to travel along and within the coil track. The car is provided with cogged wheels which are driven by a self-contained motor and arranged to be meshed with the coil track, thereby driving the car along said track.

3,633,310

REGULATION OF IRRIGATION WATER

Burton B. Sandford, Placentia, Calif., assignor to Union Oil Company, Los Angeles, Calif.

Filed Aug. 27, 1969, Ser. No. 853,531

Int. Cl. E02d 3/12

U.S. Cl. 47-58

7 Claims

A method for improving the irrigation of highly permeable surface soils is described wherein the soils are contacted with an effective amount of an aqueous solution of a partially hydrolyzed polyacrylamide to reduce the water permeability of the soil without rendering the soil impermeable to water-flow. The invention has application for irrigation of sandy and highly permeable soils which experience a rapid loss of water from the root zone following irrigation by drainage or percolation, as well as rapid evaporation and drying by movement of the water to the surface. The soils are contacted with a solution having a concentration of about 0.0001 to about 1 weight percent of a polyacrylamide having from 5 to about 80 percent of its amide groups hydrolyzed to carboxylic acid groups. This treatment is performed periodically or annually so as to reduce the permeability of the soil to subsequent irrigation waters.

3,633,311
GATE

Charles Ulmann, Paris, France, assignor to Etablissements Georges Klein & Cie, Paris, France

Filed June 5, 1969, Ser. No. 830,637

Claims priority, application France, June 7, 1968, 154240

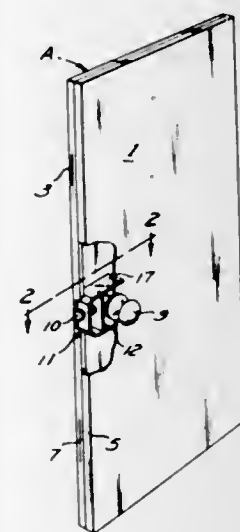
Int. Cl. E01f 13/00

U.S. Cl. 49-35

12 Claims

The gate comprises a casing supporting a barrier extendable and retractable transversely to the direction of the passage passing through the gate. The barrier has two telescopic elements which, in the extended position, extend across the passage; in the retracted position, one of these elements fits inside the other and they both fit inside the casing,

A reinforced lock mounting for a sheet metal door which can be set to accommodate locks of several different backset dimensions and which will prevent excessive movement of the latch bolt of any lock in any direction.



3,633,313

GARAGE DOOR OPENER

Lucien Lafontaine, 637 Place Fleury, Montreal, 357, Canada

Filed May 19, 1969, Ser. No. 827,479

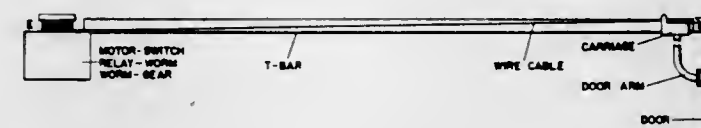
Int. Cl. E05f 15/12

U.S. Cl. 49-199

2 Claims

A mechanism for operating a door including a reversible electric motor, a rotatable shaft connected therewith, with the shaft having a given rotational speed, a worm having a bore extending the entire length thereof, with the shaft being slidably received therein, key means provided in said bore for

locking the shaft into rotational engagement with the worm, a worm gear in working engagement with the worm, a worm gear in working engagement with the worm and having a given rotational speed proportioned to the rotational speed of the shaft, door closure actuating means operatively con-



nected with the worm gear, limit switch means electrically connected to the motor and disposed in a region adjacent the worm, and switch actuating means mounted on the worm and contacting the limit switch means when the rotational speed of the worm gear varies from the given rotational speed of the worm.

3,633,314

RETRACTABLE FRONT DOOR STOP

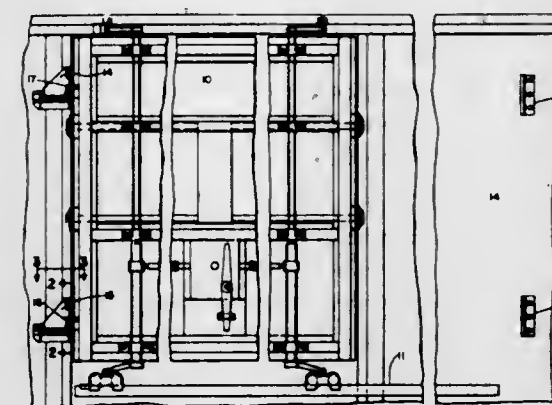
Thorvald Madland, Arlington Heights, Ill., assignor to The Youngstown Steel Door Company, Cleveland, Ohio

Filed Feb. 18, 1970, Ser. No. 12,242

Int. Cl. E05d 15/10

U.S. Cl. 49-209

2 Claims



This invention is a front door stop arranged to retract inside the clearance limits of a railroad car when the car's plug-type door is in a closed position. When the plug door is in open position, the front door stop is designed to extend beyond the clearance limits of the car so as to present a striking surface to effectively limit the travel of the door along the door track. The retractable front doorstop is also used to position the door for lateral movement into the door opening in the car side.

3,633,315

CLOSURE CONTROLLER

Leo J. Lorenz, Farmington, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.

Filed Nov. 2, 1970, Ser. No. 86,244

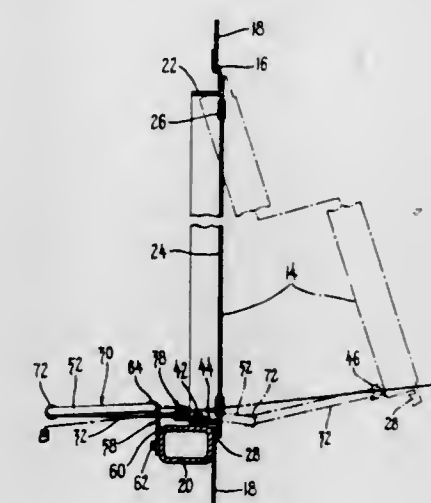
Int. Cl. E05f 11/28

U.S. Cl. 49-345

6 Claims

An awning-type window is hinged at its upper edge to a support structure adjacent an opening. A closure controller is provided to control the opening and closing of the window and to latch the window in both the open and closed positions. The closure controller comprises an overcenter toggle linkage including a pair of U-shaped rods having their open ends facing each other. One end of each rod is journaled in a cylindrical sleeve mounted on each of the window and the support structure and their opposite ends are coaxially jour-

naled in a cylindrical sleeve comprising a handle. In the closed position of the window, the handle is located over-center below a line through the axes of the other pivots with the links interlocked. To open the window, the handle is



rotated upwardly and outwardly to a window-extended position wherein the handle again is overcenter. A stop tab mounted integrally with the window pivot engages the bottom leg of that link to limit the overcenter movement.

3,633,316

HINGE AND WEATHERSEAL STRUCTURE FOR A GLASS PANEL

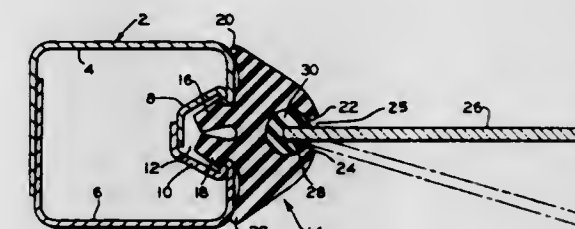
John W. Belser, Port Clinton, Ohio, assignor to The Standard Products Company, Cleveland, Ohio

Filed May 18, 1970, Ser. No. 38,109

Int. Cl. E05d 5/16

U.S. Cl. 49-384

5 Claims



A glass panel is hingedly mounted for swinging movement about a structure which serves as a hinge and also as a weatherstrip. The glass panel has a substantially linear edge to which is bonded a cylindrical element, the edge of the glass panel extending into the cylindrical element for a substantial portion of a diameter. A resilient element which serves as a weatherstrip is mounted in any suitable manner on the frame, and is provided with a socket which presents a circular cross section. The cylindrical element on the linear edge of the glass panel fits into the socket thus provided in the weatherstrip, and the glass panel is thus swingable relative to the weatherstrip and frame about the axis of the cylindrical element.

3,633,317

CLIP FOR COMBINATION WEATHERSTRIP AND SASH BALANCE UNITS

Thomas P. Koebel, Homewood, Ill., assignor to Zegers, Incorporated

Filed July 1, 1970, Ser. No. 51,529

Int. Cl. E05d 13/12

U.S. Cl. 49-430

6 Claims

A clip device for removably securing, as a unit, a pair of combination weatherstrip and sash balance units to window

frames in which a pair of the clip devices are employed in connection with each sash balance unit, and each clip device is in the form of a strip of metal or the like having its ends hooked over to engage the side edges of the respective sash balance units, and the strip is formed to define a finger extending lengthwise of its middle portion and includes a reinforced spur element adapted to engage one sidewall of the



dado groove. The clip device is also formed to define a prong at the end thereof that is disposed adjacent the blind stop, and the spur element is so shaped that when the clip device finger is pressed to force the spur element into the dado groove, the spur element cams the strip in the direction of the blind stop to embed the prong in same, and the spur element, once pressed into the dado groove, resists withdrawal to maintain the clip device firmly anchored to the jamb.

3,633,318

APPARATUS FOR GRINDING ELONGATED ROLLING-UP MATERIAL, PARTICULARLY METAL WIRE

Virgilio Olivetto, Viale Druso, 52 G, Bolzano, Italy

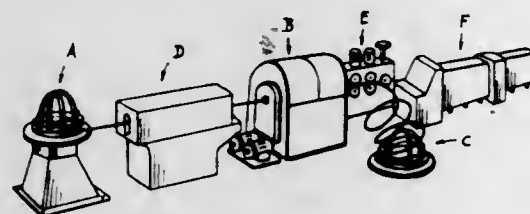
Filed Apr. 10, 1969, Ser. No. 815,118

Claims priority, application Italy, Nov. 15, 1968, 829196/68

Int. Cl. B24b 3/00, 5/00

U.S. Cl. 51-90

4 Claims



This disclosure relates to an apparatus for grinding material having a circular cross section which is wound in reels or rolls, said apparatus comprising a fixed framework, a rotating unit mounted on said framework for rotation about an axis parallel to the direction of advancement of the material to be ground, and a pair of grinding wheels rotatably supported by said rotating unit.

A machine tool for machining workpieces along a closed variable-curvature contour and including a grinding wheel. The machine tool comprises a grinding head with a swinging driving frame which carries a grinding wheel and a follower of a profiling attachment interacting with a profile form mounted coaxially with the workpiece being machined.

3,633,319 BELT GRINDING MACHINE

Guido Maag, St. Gall-Winkeln, Switzerland, assignor to Ulrich Steinemann AG Maschinenfabrik, St. Gall, Switzerland

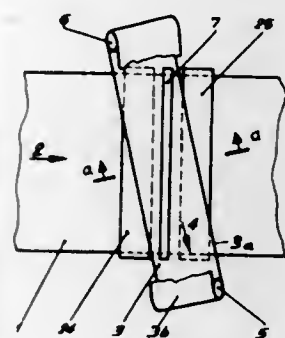
Filed Apr. 21, 1970, Ser. No. 30,377

Claims priority, application Switzerland, Apr. 25, 1969, 6336/69

Int. Cl. B24b 21/08

U.S. Cl. 51-139

7 Claims



A belt grinding or sanding machine of the type incorporating at least one endless grinding belt guided by at least two rollers and a clamping bar or pressure beam located diagonally at the inside of the grinding belt between such rollers and serving to press such grinding belt against the workpiece. According to important aspects of the invention, the aforementioned at least two rollers are arranged at the region of the respective ends of the clamping bar, with the respective axis of such rollers being inclined in opposite direction with respect to one another. Such imparts a predetermined curvature to the grinding belt. The clamping bar is arranged in the lengthwise direction of such predetermined curvature of the grinding belt.

3,633,320

MACHINE TOOL FOR MACHINING WORKPIECES ALONG A CLOSED VARIABLE-CURVATURE CONTOUR

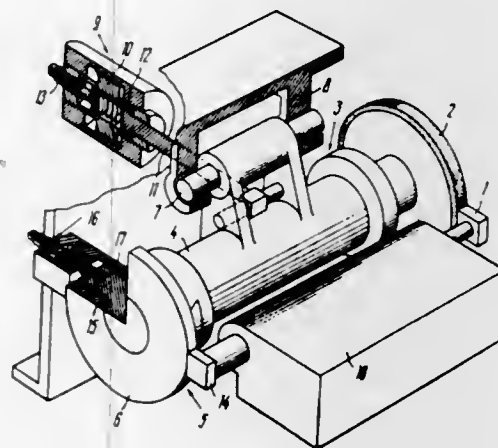
Mark Davydovich Fild, Smirnovskaya ul., 4a, kv. 65, and Leonid Grigor'evich Dibner, Menzhinskogo, 9, kv. 19, both of Moscow, U.S.S.R.

Filed Nov. 15, 1968, Ser. No. 776,172

Int. Cl. B24b 5/00, 17/02

U.S. Cl. 51-161

3 Claims



A specific feature of the invention is the connection of the swinging frame with the drive and the means for moving the profile follower, thus allowing the swinging frame with the grinding wheel and the profile follower to be automatically moved towards and away from the workpiece being machined and the profile form. Another distinctive feature is the swinging of the frame and the constant force with which the grinding wheel is pressed to the workpiece during the machining process. The invention makes it possible to achieve machining accuracy of 0.01 mm.

3,633,321

FLEXIBLE GATE FOR A VIBRATORY FINISHING MACHINE

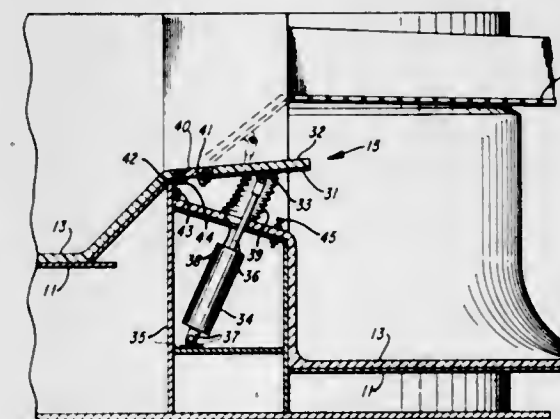
William E. Rise, Portage, Mich., assignor to Roto-Finish Company, Kalamazoo, Mich.

Filed July 21, 1970, Ser. No. 56,797

Int. Cl. B24b 31/06

U.S. Cl. 51-163

11 Claims



A vibratory finishing machine having a generally toroidal chamber for receiving finishing media and articles to be finished is provided with a pivotable ramp means in said chamber. The ramp means is adapted to deflect the finishing media and the articles to a separator means therefor and comprises a planar member at least a portion of which is free flexing.

3,633,322

METHOD FOR TREATING THE FLANGES OF CONTAINERS

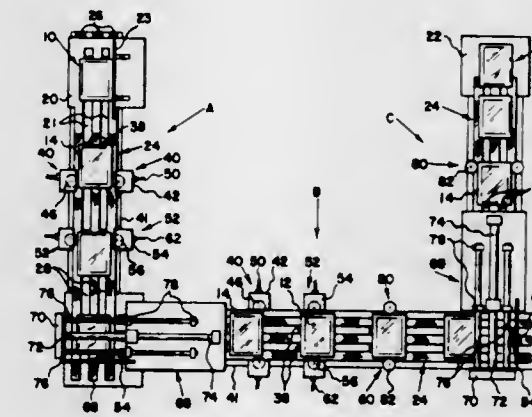
Richard James Morcom, West Hartford, Conn., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 13, 1968, Ser. No. 784,297

Int. Cl. B24b 1/00, 7/00, 9/00

U.S. Cl. 51-323

12 Claims



Containers of synthetic plastic material having an outwardly extending flange about at least a portion of their

periphery are subjected to an abrading operation along the outer edge of the flange and then to a brushing operation along the surface of the flange adjacent to the outer edge. To avoid contamination of the interior of the container by the abraded and other plastic particles, desirably air or other gas is caused to flow outwardly across the surfaces of the flange during the abrading and brushing steps.

3,633,323

PREFABRICATED ROOM CELL IN PARTICULAR A BATHROOM

Karl Tage Birger Eriksson, Hagastigen, 1, S-660 01, Ed, and Ernst Osten Reimer Eriksson, Angshovsvagen, 1, S-660 01 Ed, both of Sweden

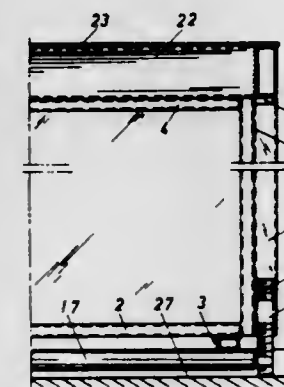
Filed May 28, 1969, Ser. No. 828,472

Claims priority, application Sweden, July 11, 1968, 9545/68

Int. Cl. E04h 1/12

U.S. Cl. 52-34

3 Claims



A prefabricated bathroom, called a room cell, for inserting in the shell of a building, and provided with a bath and/or hand bowl and a waste water pipe extending through the floor of the cell. The main object of the invention is to provide a prefabricated room cell, in particular a bathroom of the kind mentioned, which is light and easy to transport and which is able to withstand the pressure of superimposed room cells. The object aimed at has been achieved in that below the framework there is disposed a support frame provided with a floor plate and which during transport of the prefabricated room cell is releasably affixed to the base frame of the framework by threaded bolts, and on the building site is installed in the reversed position, i.e. with the floor plate uppermost on the framework, where it is then used as a casting mould.

3,633,324

CARAVAN

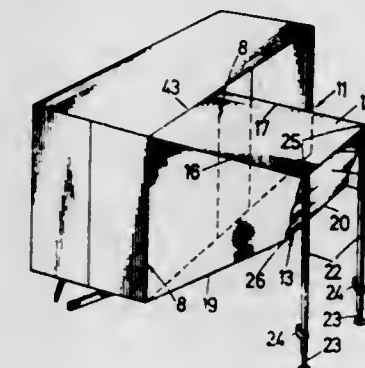
Jacques Cuyllits, Brussels, Belgium, assignor to S.A. Ateliers Belges Reunis, Petit-Enghien, Belgium

Filed Apr. 10, 1970, Ser. No. 27,261

Int. Cl. E04b 1/344, 1/347; B60p 3/34

U.S. Cl. 52-66

12 Claims



This disclosure relates to a caravan of the type having one or a plurality of retractable rooms which project relative to

the caravan side walls, when said caravan is stopped, in such a way as to increase the living space thereof without increasing the caravan dimension when said caravan is hauled.

3,633,325

BUILDING STRUCTURE CANTILEVERED FROM VERTICAL CENTRAL SUPPORT

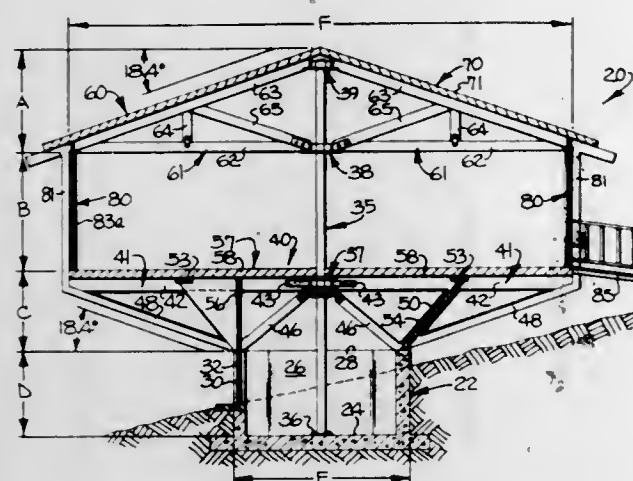
Guy A. Bartoll, 2914-C St. Mark Road, Winston-Salem, N.C.

Filed June 1, 1970, Ser. No. 42,055

Int. Cl. E04b 1/34; E04b 1/00; E02d 27/32

U.S. Cl. 52-73

16 Claims



A building structure adapted to be supported on a relatively small area, and which comprises a central support column extending substantially for the full height of the building structure, a foundation wall concentrically surrounding the lower portion of the central column and extending upwardly above ground level, a floor including a number of radially extending floor trusses secured in cantilevered fashion to the central column and foundation wall and floor decking supported by said floor trusses, a roof disposed above the floor and including a number of radially extending roof trusses secured to said column and roof decking covering the roof trusses, and a plurality of vertical posts extending between the floor and roof adjacent the radially outer end portions thereof.

3,633,326

PORTABLE SHELTER AND METHOD FOR CONSTRUCTING THE SHELTER

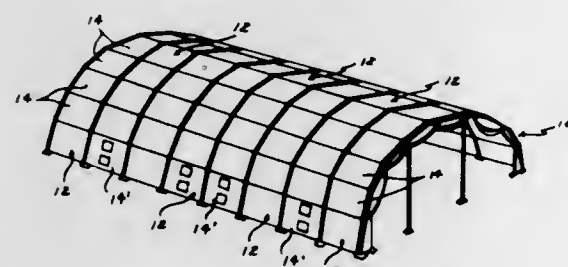
John R. McKnight, Cincinnati, Ohio; Joseph M. Ballay, Pittsburgh, Pa.; Lawrence L. Fabbro, River Vale, N.J., and James M. Alexander, Cincinnati, Ohio, assignors to The United States of America as represented by the Secretary of the United States Air Force

Filed Sept. 14, 1970, Ser. No. 71,815

Int. Cl. E04b 1/32

U.S. Cl. 52-86

4 Claims



A structure for shelters and hangers having a plurality of panel sections wherein honeycomb panels are secured to a

beam supports. The I-beams are shaped to give a predetermined arch shape to the structure. Knuckle joint links are secured to the ends of the I-beams at the top and bottom. In constructing the shelters the top links of adjacent beams are first connected together. The panels are then raised until the bottom links can be secured together. Additional panels are added in the same manner until the arch is completed. Adjacent arch spans are connected by space bars. All of the joints are sealed with sealing members held with hook and pile fasteners. The spaces between arch spans are sealed with flashing held by draw ropes.

3,633,327

HIGH STRENGTH WALL STRUCTURE WITH SILL AND HEADER MEMBERS

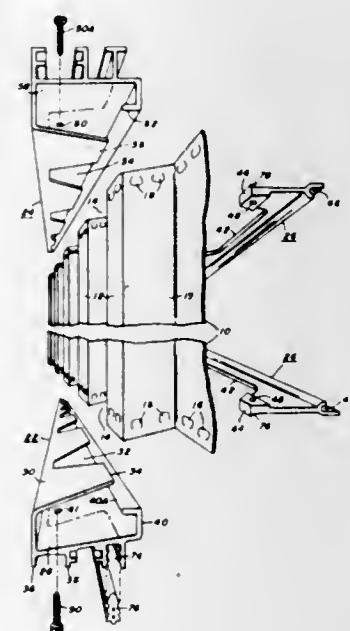
James D. Kilgenschmidt, Allegheny Township, Westmoreland County, and Billie C. Merkin, Pittsburgh, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed June 16, 1970, Ser. No. 46,634

Int. Cl. E04c 3/04, 5/03

U.S. Cl. 52-300

3 Claims



A wall structure including at least one sheet metal panel having a profile of raised and valley portions extending between two opposed ends of the panel. Sill and header members having tongue and notched portions, corresponding to the raised and valley portions of the panel, are disposed on the opposed ends of the panel with the tongues and notches of the sill and header members engaging one side of the panel. A clamping member for both the sill and header members, and having tongues and notches corresponding to the raised and valley portions of the panel, is disposed to engage the other side of the panel in interlocking engagement with the panel and with the sill and header members.

3,633,328

PRESSURIZED STORAGE TANK

John J. Closner, Douglaston, N.Y.; Morris Schupack, and Eugene W. Marlowe, both of Stamford, Conn., assignors to Preload Company, Inc., Garden City, N.Y.

Filed Oct. 17, 1968, Ser. No. 768,379

Int. Cl. E04c 3/26

U.S. Cl. 52-224

8 Claims

A prestressed concrete storage reservoir is provided for holding liquified gases. To increase the quantity of ambient gas stored in the reservoir and to permit a warmer than normal liquification temperature, the gas is stored under a substantial pressure. The structure is characterized by a prestressed sidewall system with the roof and floor systems

ties together by a plurality of vertically prestressed columns, these combined systems being substantially independent of

3,633,330

METHOD FOR PACKING BAGS

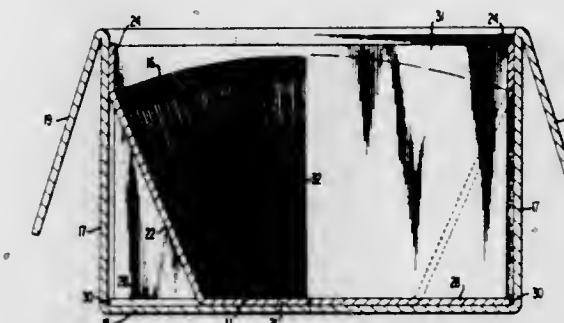
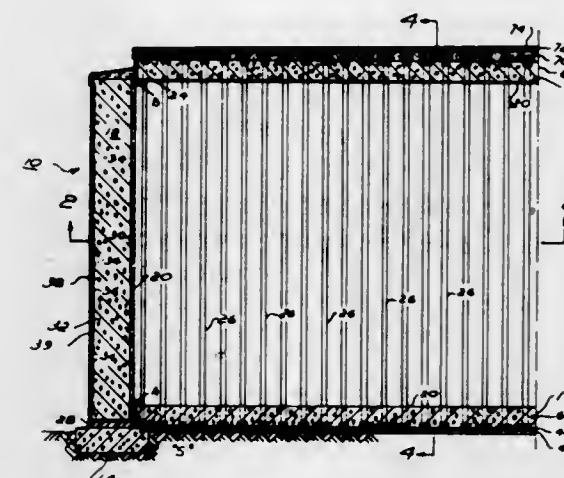
Edwin Clifton Leonard, Richmond, Va., assignor to Eskimo Pie Corporation, Richmond, Va.

Original application May 23, 1968, Ser. No. 731,507, now Patent No. 3,580,470. Divided and this application July 16, 1970, Ser. No. 62,755

Int. Cl. B65b 13/00, 35/50

U.S. Cl. 53-24

4 Claims



the sidewall whereby the combined systems may move substantially structurally free of the sidewall.

3,633,329

APPARATUS FOR AUTOMATED REFUSE COMPACTING AND DISPOSAL

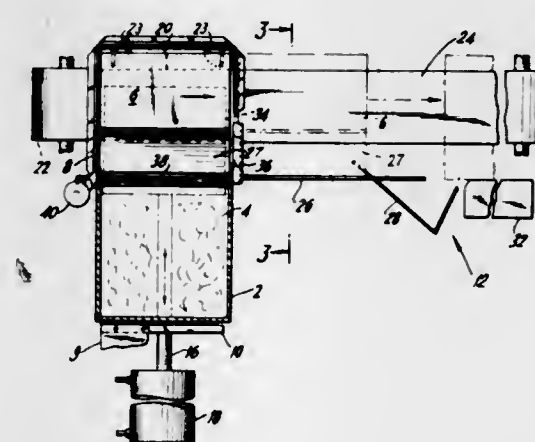
Emanuel Nadler, 126 East 61st Street, New York, N.Y.

Filed Apr. 15, 1970, Ser. No. 28,617

Int. Cl. B65b 1/24

U.S. Cl. 53-24

23 Claims



Apparatus for automated refuse disposal by compacting refuse, collected at the bottom of a chute, into a disposable carton and disposing of the same. The apparatus basically comprises a chute, a hopper for collecting refuse, means for positioning a carton in a compacting station, a ram to compact the refuse in the carton, means for removing the filled carton, and a system of electric controls for the automatic operation of the apparatus.

3,633,331

PACKAGING MACHINE

Erwin Reichlin, Bergstrasse, Walchwil, Switzerland

Filed Apr. 30, 1970, Ser. No. 33,263

Claims priority, application Switzerland, May 7, 1969, 6995/69

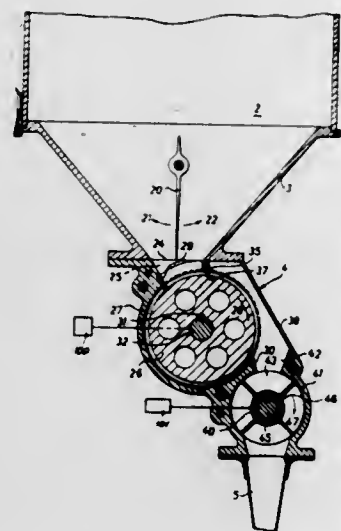
Int. Cl. B65b 9/12; G01f 1/24

U.S. Cl. 53-51

8 Claims

A packaging machine for the fabrication, filling and closing at all sides of sealed flat packages formed of heat-sealable material and for packaging granulate, fibrous, or foliated pourable material, comprising an infeed container for the material to be packaged, a quantity-dosing device, a sealing station for forming the packages from at least one continuously infeed band and a cutting station for cutting the interconnected or coherent band which is equipped with sealing seams. According to the invention the dosing device embodies a predosing mechanism equipped with an adjustable vane for regulating the pouring height of the material upon a dosing wheel having an infinite drive. Arranged after the dosing wheel is a vane or impeller wheel driven by an indexing mechanism and equipped with a horizontal shaft, this impeller wheel serving as a portioning dosing device. Further, in order to manufacture the packages at the sealing station composed of two heatable sealing rollers, there is introduced

from two sides a respective band member which is scanned by photocell means and which are regulated to travel in



synchronism with one another by adjustment or control means.

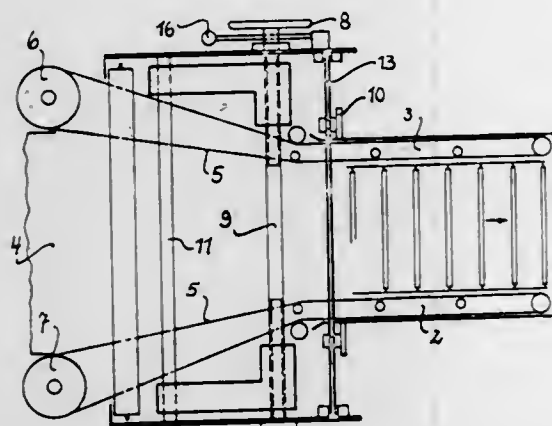
3,633,332

MACHINE FOR COVERING MATTRESSES MADE OF FOAMED MATERIAL, RUBBER, POLYESTER AND THE LIKE

Josef Rosler, Turbinenstrasse 10, 68 Mannheim 41, Germany
Filed July 24, 1970, Ser. No. 57,956
Int. Cl. B65b 63/02

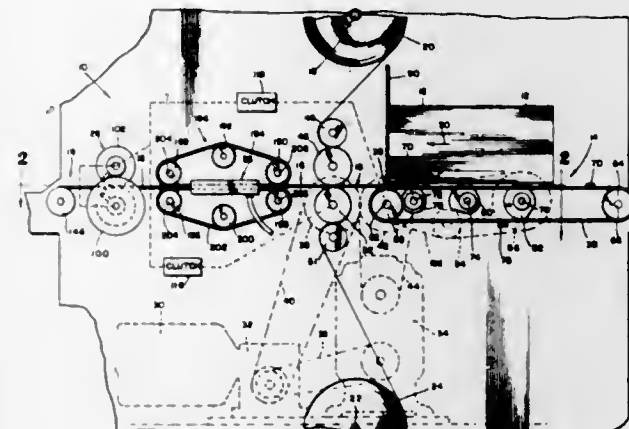
U.S. Cl. 53-125

1 Claim



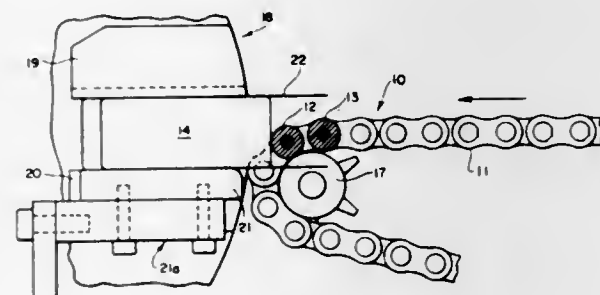
A machine for covering mattress cores of foamed material, rubber and polyester featuring two perpendicularly disposed drive belts whose width corresponds to the height of the mattress and which converge in the direction of travel of the mattress, the disposition of the aforementioned drive belts permitting the mattress core to be compressed throughout its width enabling fabric to be pulled up on the nozzle without difficulty as sticking of the mattress core to the inside of the nozzle during the covering process is prevented. Furthermore, laterally disposed drive belts are employed such that the corners of the mattress core leave the nozzle first and thereby fill out the corners of the cover fabric in the correct position eliminating time-consuming adjustment and beating into desired shape and appropriate height and width adjustments make it possible for the same machine to cover mattress cores of different widths and thicknesses.

3,633,333
FEEDER AND JACKET APPLICATOR
Alfred H. Schlemmer, and Melvin A. Pearson, both of Indianapolis, Ind., assignors to Ralph Hamill, Indianapolis, Ind.
Filed Feb. 3, 1970, Ser. No. 8,333
Int. Cl. B65b 9/02, 51/20
U.S. Cl. 53-182 14 Claims



Apparatus for feeding and jacketing articles comprising means for serially feeding such articles to a pathway for movement therealong with predetermined spaces between adjacent articles, means for feeding a strip of plastic under such articles as they move along the pathway, means for feeding another strip of plastic over such articles as they move along the pathway and means for heat sealing and joining the plastic strips to provide a plastic film jacket for each such article. The side edges of the plastic strips are continuously heat-sealed together to provide a sleeve in which the articles are disposed and the plastic film strips are intermittently joined together within the spaces between the articles. The means which joins the plastic strips in the spaces between the articles also serves to separate the strips at those points. The side edges of the strips may be continuously sealed together by means of a hot wire or by means of heated air jets which serve to urge the strips together and to melt the strips.

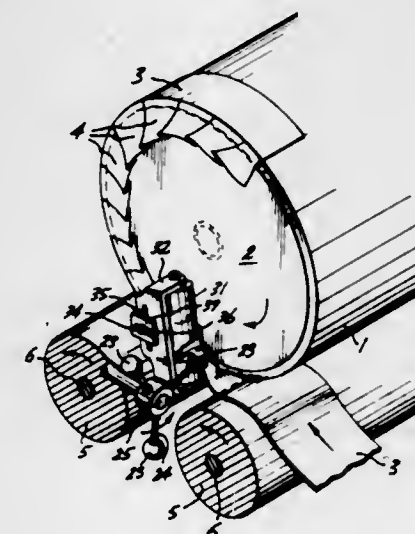
3,633,334
PUSHING MEANS FOR USE IN A WRAPPING MACHINE
Andrew W. Anderson, West Caldwell, N.J., assignor to Scandia Packaging Machinery Company, North Arlington, N.J.
Filed Apr. 9, 1970, Ser. No. 26,929
Int. Cl. B65b 11/32; B65g 19/22, 37/00
U.S. Cl. 53-234 7 Claims



A pusher assembly used in combination with a wrapping machine to insure firm seating in a package-receiving means and insure an improved application of an adhesive or solvent material to the wrapping material. An engaging means including a primary pushing means and an auxiliary pushing means contacts the following side of at least one package being fed into the wrapping machine. The auxiliary pushing

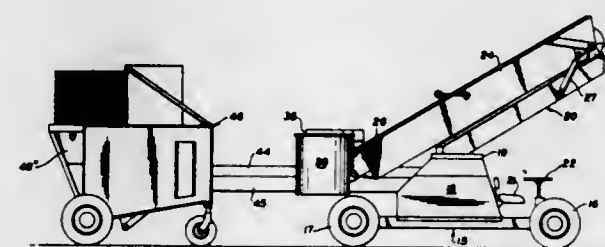
means is disposed behind the primary pushing means. The engaging means and the package are moved along a path to a wrapper-sheet-applying station. The primary pushing means is effective to urge the package into a receiving means and the auxiliary pushing means is effective to insure a firm seating of the package in place within the receiving means. In more specific embodiments of this invention, a stationary liquid-applying device is disposed adjacent the receiving means. In this instance, the auxiliary pushing means is further effective to insure an additional thorough application of liquid from the liquid-applying device to the wrapper sheet which is being placed on the package.

3,633,335
ROLL END CAPPER
Meder Johnson, Bellevue, Wash., assignor to James Brinkley Co., Inc., Seattle, Wash.
Filed Aug. 29, 1969, Ser. No. 854,151
Int. Cl. B65b 49/12
U.S. Cl. 53-380 8 Claims



A strip for securing a protective disk on a paper roll end has one edge portion encircling a roll margin. The other strip portion is folded inwardly over the disk margin and tucked during rotation of the paper roll, first, by flicking portions of the strip edge with circumferentially spaced balls of a whirling rotor and, then, by creasing the inwardly folded edge portions with a follower presser roller.

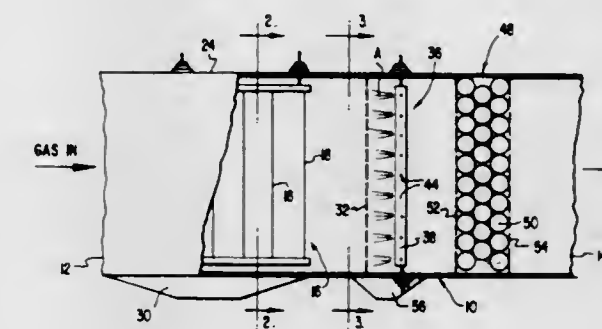
3,633,336
FRUIT-PICKING APPARATUS
Dietrich G. Rempel, Akron, Ohio, assignor to Rempel Enterprises, Inc., Akron, Ohio
Filed Feb. 26, 1970, Ser. No. 14,591
Int. Cl. A01d 90/00
U.S. Cl. 53-391 15 Claims



A fruit-picking apparatus comprising an articulated hollow boom having an extensible upper arm containing coextensi-

ble conveyor means for conveying fruit into the top of an upwardly inclined lower arm regardless of the inclination of said upper arm, the bottom of said lower arm being rotatably mounted on the vehicle over a throat into which the fruit is discharged. The upper arm has a circular picker-supporting bucket at its outer end with an outer annular fruit-receiving trough arranged to discharge fruit onto the conveyor means in the upper arm. The supporting vehicle has rearwardly extensible conveyor means conveying fruit rearwardly from the throat to a container supported on the vehicle in horizontal fruit-receiving position, and means are provided for depositing a filled container on the ground and supporting an empty container in fruit-receiving position forwardly of said deposited container, the operations of manipulating the picker bucket and the fruit collecting and depositing means being controlled at the picker-supporting bucket. The method of picking comprises fully picking the entire spherical halves of opposed pairs of trees in adjacent rows, all the picking being done from the outer end of the articulated extensible boom rotatably mounted on the vehicle when at a central location radially of the four trees, conveying fruit from all parts of the tree halves through the boom to the forward part of the vehicle, conveying fruit rearwardly of the vehicle to a collecting basket, and successively depositing filled baskets on the ground in a line between the tree rows while the vehicle is at said central location, so as to be in position to be picked up by a collection vehicle passing linearly between the tree rows.

3,633,337
GAS-HANDLING METHOD AND APPARATUS
Alan B. Walker, West Allenhurst, and Herbert J. Hall, Skillman, both of N.J., assignors to Research-Cottrell, Inc., Bridgewater Township, Somerset County, N.J.
Filed Apr. 25, 1969, Ser. No. 819,227
Int. Cl. B03c 3/00
U.S. Cl. 55-4 6 Claims



A method and apparatus for preventing deposition, on oppositely charged or grounded surfaces of heat exchangers, catalyst beds and the like, of gas stream carried charged particles issuing from electrostatic precipitators by neutralizing the effect of the charge on the particles downstream of the electrical precipitator particle collecting zone.

3,633,338
GAS METHOD AND APPARATUS FOR DRYING
Carl W. Zahn, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Mar. 6, 1970, Ser. No. 17,082
Int. Cl. B01d 53/00; C07c 9/02
U.S. Cl. 55-31 6 Claims

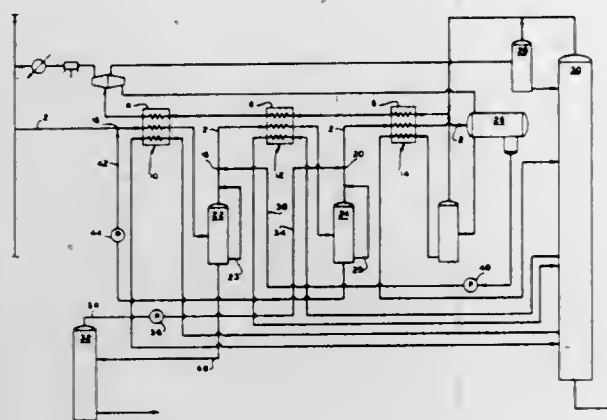
An improved method and apparatus for drying a gas stream by stagewise injecting and removing streams of drying agents into and from said gas stream. The drying agent

streams flow generally concurrently relative to the flow direction of the gas stream for relatively contacting the

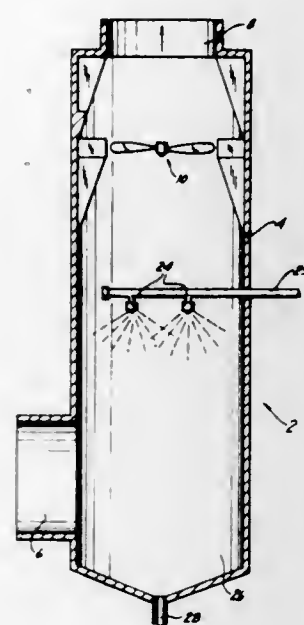
3,633,340
PROCESS FOR THE PURIFICATION OF OIL-LADEN AIR
 Robert H. Illingworth, Madison, N.J., assignor to The Evening News Publishing Company, Newark, N.J.
 Filed Jan. 27, 1970, Ser. No. 6,211
 Int. Cl. B01d 47/06

U.S. Cl. 55-84

12 Claims



dryest portion of the gas with the dryest portion of the drying agent stream.

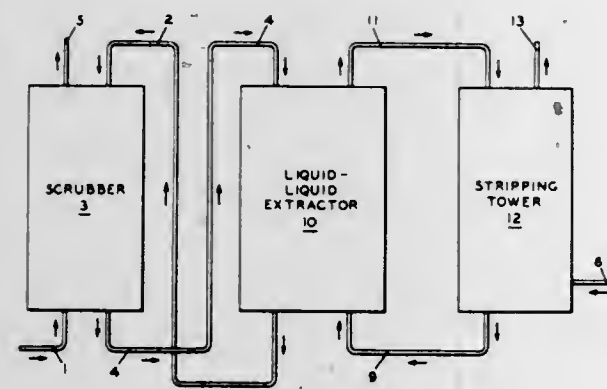


3,633,339
RECOVERY OF SULFUR DIOXIDE FROM A SULFUR DIOXIDE-CONTAINING AQUEOUS AMMONIUM PHOSPHATE SOLUTION

Tadeusz K. Wiewiorowski, and John Ross Vincent, both of New Orleans, La., assignors to Freeport Minerals Company, New York, N.Y.

Filed Nov. 18, 1968, Ser. No. 776,387
 Int. Cl. C01b 17/56, 17/60; B01d 11/04
 U.S. Cl. 55-37

9 Claims



A process for the removal of sulfur dioxide from gas streams by stripping with an aqueous ammonium phosphate solution. A process for the removal of the sulfur dioxide from the aqueous solution by liquid-liquid extraction with an immiscible organic amine solution. Next, recovering the sulfur dioxide from the organic solution by vacuum or steam distillation.

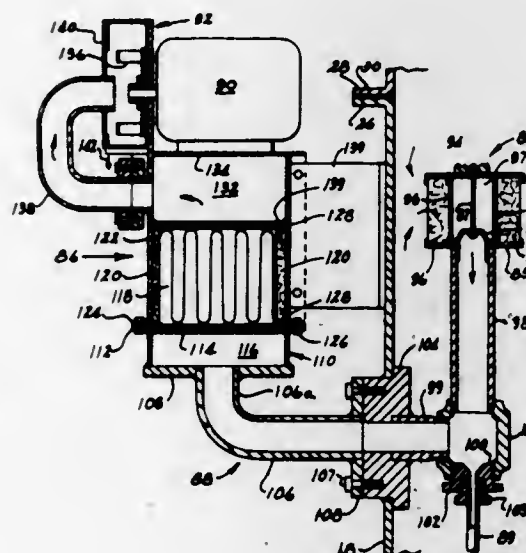
Oil-laden air from machine shops and kitchens and the like is purified by scrubbing with an aqueous solution of a nonionic wetting agent as the air is drawn through a spray chamber. In such a process, entrained oily matter often constituting a health and fire hazard is removed from the air.

3,633,341
OIL MIST ELIMINATOR FOR A FLUID DRIVE
 Henry J. Langlois, Detroit, Mich., assignor to American Standard Inc., New York, N.Y.

Filed June 3, 1970, Ser. No. 42,966
 Int. Cl. B01d 19/00

U.S. Cl. 55-186

9 Claims



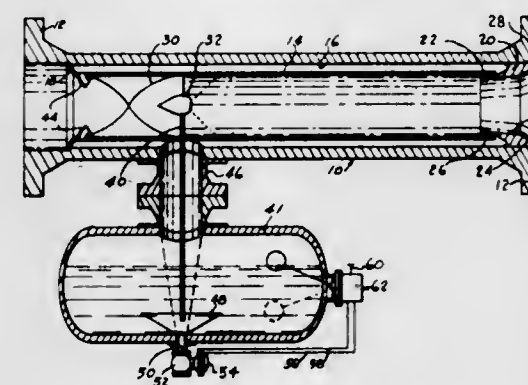
A fluid drive wherein the runner and impeller assemblies are disposed within a nominally closed tank which defines an oil sump. A fan-filter unit assembly is provided for drawing oil mist from the tank interior through the filter unit, whereby a partial vacuum is established within the tank interior which prevents the mist from leaking into the surrounding atmosphere through small joints in the housing and

protruding shafts. The fan-filter unit comprises an oil coalescing device in an upstream portion of the fan-filter unit and a fine mesh filter for trapping fine oil mist droplets which pass through the coalescing device without undergoing coalescence. The coalescing device and fine mesh filter are interconnected by a conduit which has a drain line for draining the coalesced oil droplets into an oil sump.

3,633,342
APPARATUS FOR SEPARATING WATER AND PARTICULATE MATERIAL FROM FLOWING GASES
 Vernon C. H. Richardson, 5312 Brae Burn, Houston, Tex.
 Filed May 23, 1969, Ser. No. 827,330
 Int. Cl. B01d 45/16

U.S. Cl. 55-228

2 Claims



An in-line dehydrating and particle removing apparatus for use in gas lines. The apparatus comprises a tubular body adapted to be connected into a gas flow line and including means responsive to the flow of gas therethrough for imparting a swirling or spiralling movement to the gas to cause the separation therefrom of liquid and finely divided solid particles by centrifugal action. Means is also provided for spraying a suitable liquid, such as a glycol, or the like, into the flowing gas in response to a reduction of pressure therein to absorb water from the gas and to coat finely divided particles in the gas to cause separation of the same by centrifugal action. The apparatus includes means responsive to the flow of gas therethrough for causing removal of the separated materials from the gasline and means for separating solid particles from the materials thus removed and returning the liquid portion thereof to the flowing gas for reuse in the separation of further water and particles.

3,633,343
AUTOMOTIVE EXHAUST FILTER
 Walter J. Mark, 3044 Oregon Avenue, St. Louis Park, Minn.
 Filed July 7, 1969, Ser. No. 839,565
 Int. Cl. B01d 50/00

U.S. Cl. 55-316

4 Claims



A device for filtering and collecting noxious gases and particulate solids produced from the combustion of an internal combustion engine preferably in the form of a muffler or the like having a generally annular elongate housing provided with an inlet and outlet. The structure includes as an essen-

tial element a helical flow-directional member disposed axially through the housing for directing flow of exhaust gases and other products generally radially outwardly and forwardly. A filter sleeve medium surrounds the axially disposed helical member and is preferably of a predetermined substantially star cross-sectional shape extending longitudinally throughout the greater part of the length of the housing and delivering to a final secondary filter medium which includes replaceable transversely disposed elements through which exhaust gases must pass before being discharged from the device. The secondary filter medium, as well as the filter sleeve, is also preferably replaceable.

3,633,344
APPARATUS FOR CENTRIFUGAL SEPARATION OF TWO-PHASE MIXTURES

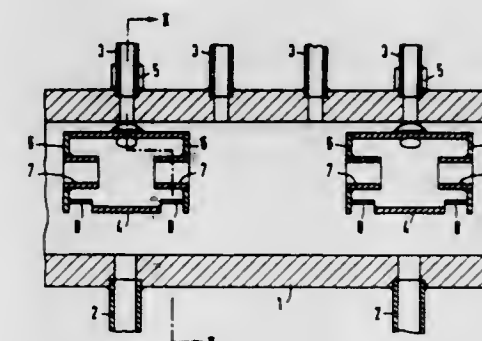
Gunter Blank, Erlangen, and Erwin Kramer, Furth, both of Germany, assignors to Siemens Aktiengesellschaft
 Continuation of application Ser. No. 774,981, Nov. 12, 1968, now abandoned. This application Aug. 28, 1970, Ser. No. 67,987

Claims priority, application Germany, Nov. 21, 1967,

P 15 76 879.3
 Int. Cl. B01d 45/12

U.S. Cl. 55-349

7 Claims



A vessel, such as the horizontally extending collector in a forced-flow steam generator, communicates with drain pipes extending from the vessel bottom downwardly and with gas outlet lines extending upwardly from the top of the vessel. Tubular structures are mounted inside the vessel and have their interior communicate with respective supply conduits for the mixture to be supplied. The mixture supply conduit of each tubular structure enters in a tangential direction at about the middle of the structure. The ends of the structure are covered. The water separated by centrifugal action from the steam inside each tubular structure can drain through lateral slots in the bottom of the structure. The separated gas passes out of the ends of the structure through respective stub tubes.

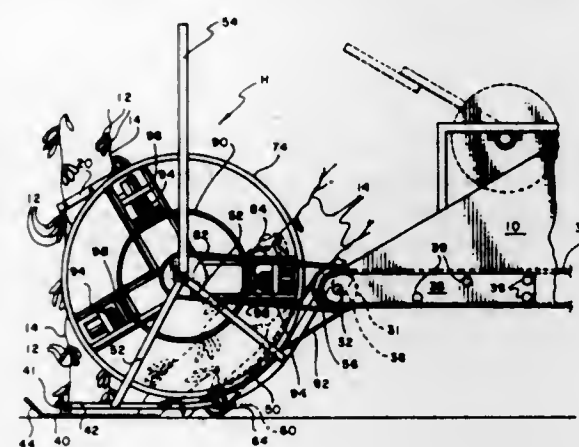
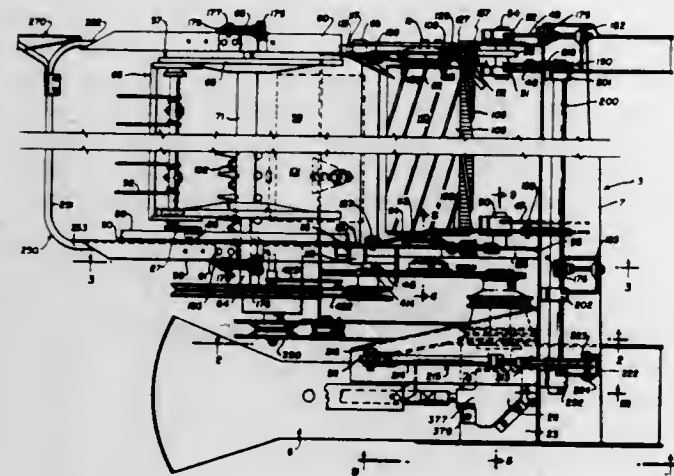
3,633,345
DRIVE ELEMENTS FOR HARVESTERS
 Thomas J. Scarnato, Barrington, and Peter J. Peacock, Western Springs, both of Ill., assignors to International Harvester Company, Chicago, Ill.
 Filed Feb. 5, 1970, Ser. No. 9,022
 Int. Cl. A01d 43/10

U.S. Cl. 56-14.1

6 Claims

A harvesting machine for hay or the like which comprises a frame and a harvester subframe pivotally mounted on the frame and a drive input coaxial with the axis of pivot. The drive input is through an overrunning clutch to a sprocket to drive a chain which drives an upper crushing roller through an overrunning clutch and then driving a countershaft drive for the reel. The chain returns back-wrapped on a drive element of the lower roller and then extends to its initial run under the input drive sprocket. The input drive also drives through a pulley coaxial with the pivot axis a belt which drives a pulley on the drive train of a mower. The chain is

held tight when the rollers are separated and closed by a tightener which is mounted with the movable roller on a ward edge of the catching means and apply force on plants a short distance above the ground in a direction toward the catching means and opposite to the direction of movement of the mobile support, thereby breaking off the plants at about



common support so that as the distance from the input to the roller increases or decreases the chain is proportionately straightened or bowed.

3,633,346

SICKLE BAR MOWER

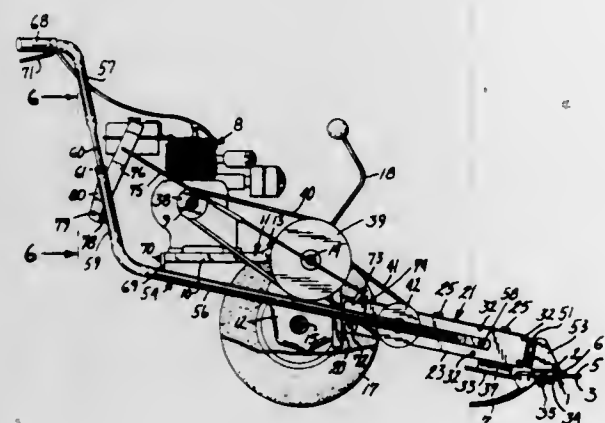
Thomas J. McMullen, 810 Cromwell Avenue, St. Paul, Minn.

Filed Oct. 6, 1970, Ser. No. 78,508

Int. Cl. A01d 35/00

U.S. Cl. 56—17.6

7 Claims



A transmission housing, having aligned drive shafts mounting drive wheels at its opposite sides, carries a base member on the rear end of which is mounted a drive motor, and to the front end of which is secured mounting means for an output shaft for operating a reciprocating sickle or cutter bar. A frame comprises a pair of laterally spaced elongated frame members having front end portions connected to the output shaft mounting means, rear ends providing handles, and intermediate portions rigidly anchored to the base member to provide a rigid structure.

3,633,347

MEANS FOR HARVESTING SOYBEAN PLANTS

John H. Haeblerle, 3426 East Central, Wichita, Kans.

Filed Mar. 30, 1970, Ser. No. 23,883

Int. Cl. A01d 45/22

U.S. Cl. 56—130

6 Claims

Catching means extend forwardly from mobile support such as a combine header, aligned with soybean plants growing in rows, and plant-engaging means located adjacent to the catching means insert in the rows forwardly of the for-

ward edge of the catching means and apply force on plants a short distance above the ground in a direction toward the catching means and opposite to the direction of movement of the mobile support, thereby breaking off the plants at about

3,633,348

CORNPICKER HEAD WITH REVERSIBLE ROTOR BLADES

Bobby Joe Sears, Hoopston, and Olin L. Looker, Milford, both of Ill., assignors to FMC Corporation, San Jose, Calif.

Filed Mar. 25, 1970, Ser. No. 24,043

Int. Cl. A01d 45/02

U.S. Cl. 56—104

2 Claims



Identical square blade sleeves welded up in overlapping fashion are bolted to straight cylindrical shafts by inner end and central bolts, to provide end-to-end reversible blade assemblies.

3,633,349

BLADE FOR FLAIL-TYPE MOWING MACHINES AND THE LIKE

Bernard C. Mathews, Box 70, Crystal Lake, Ill.

Filed Feb. 17, 1970, Ser. No. 12,095

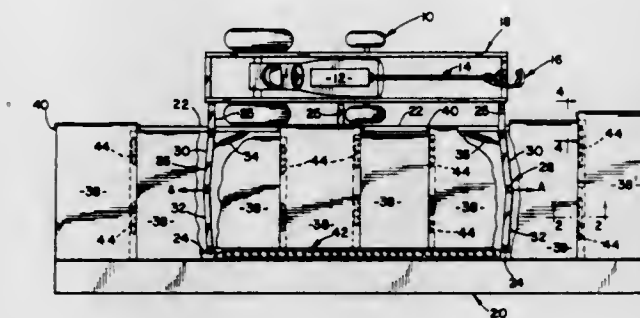
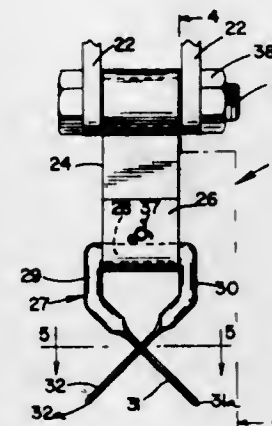
Int. Cl. A01d 55/20

U.S. Cl. 56—294

11 Claims

The blade is connected to the blade-mounting pin of the rotor by a link, which is a steel strip disposed in a plane parallel to the rotor axis, and having a U-type open loop at its outer end. The blade has a shank disposed in the link, two 90° side arms, and diagonal arm extensions. The extensions each have cutting edges facing both forwardly and rearwardly which cross each other to provide a combined cutting

edge equal in width to the overall width of the blade member. The extensions are angularly offset to provide a clearance at the crossing point. The shank is maintained in



the open loop of the link by a removable keeper pin and cotter pin which permits reversal of the blade to provide fresh cutting edges.

fastener means are engageable and disengageable in response to extension and retraction respectively of the apron.

3,633,350

GRAIN LIFTER ADJUSTING DEVICES

Gunter Schumacher, Haus Nr. 51, 5231 Eichelhardt, Germany

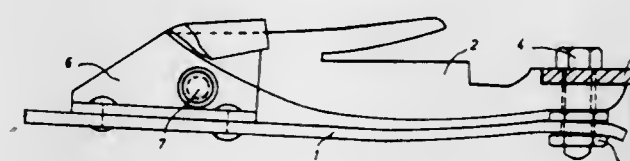
Filed July 30, 1970, Ser. No. 59,441

Claims priority, application Germany, Aug. 4, 1969, P 19 39 650.0

Int. Cl. A01d 55/13

U.S. Cl. 56—313

9 Claims



A grain-cutting assembly having a grain lifter provided with the possibility of adjustment thereof. A holder has a finger engaging and extending forwardly therefrom with a bolt extending forwardly therefrom with a bolt extending through the holder and finger and carrying a nut for fixing the finger to the holder. An elongated springy arm of a grain lifter is supported by the finger for limited movement with respect thereto and has a rear end at the region of the bolt. An adjusting structure is provided for selectively adjusting the elevation of the rear end of the arm at the bolt, so that the pointed front end of the grain lifter can in this way have its elevation adjusted.

3,633,351

FRUIT HARVESTER APRON

Harold G. Meitl, Clarendon Hills, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Feb. 19, 1970, Ser. No. 12,796

Int. Cl. A01g 19/06

U.S. Cl. 56—329

3 Claims

A fruit harvester including a fruit-catching apron extensible beneath a tree to be harvested and retractable for transport. The apron includes a plurality of roller-mounted webs arranged with their edges in overlapping relation to provide a continuous surface when extended for catching fruit.

3,633,352

SPLICER FOR NONWOVEN FIBERS

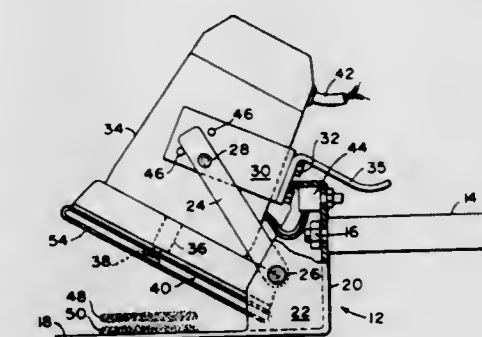
Thomas E. Marriner, RFD, Tyngsboro, Mass.

Filed Dec. 19, 1969, Ser. No. 886,583

Int. Cl. B65h 69/06, 69/08

U.S. Cl. 57—22

9 Claims



Apparatus having opposable, relatively oscillating surfaces between which the overlapped ends of bundles of fiber strands or slivers are placed for splicing. The splice produced is characterized by the tangling of generally parallel fibers resulting from the action of a component of the oscillation transverse to their direction, and also from the presence of crimp in the fibers.

3,633,353

APPARATUS FOR ELIMINATING VAPOR AND CONDENSATE FROM DRAWING ARRANGEMENTS

Arthur Wurml, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland

Filed May 13, 1970, Ser. No. 36,910

Claims priority, application Switzerland, May 13, 1969, 7440/69

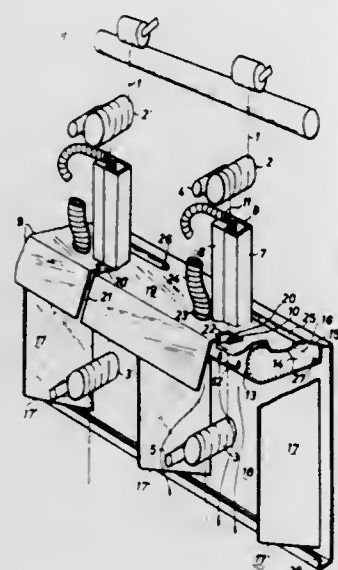
Int. Cl. D02j 13/00; D01h 5/00

U.S. Cl. 57—55.5

18 Claims

The suction hood is mounted to receive condensate from the bloc heater either indirectly via the rooflike cover (FIG. 1) or directly (FIG. 2). The received condensate leaves the

suction hood via drain openings adjacent the backwall so as to flow downwardly without contacting the draw rolls. The combined with hands, both said indications and said hands having different colors on the undersides thereof so that a



vapor is eliminated by suction from above and below the block heater via the tubes and hood.

3,633,354

WORLD-TIME INDICATOR TIMEPIECE

Ewald Stemmler, Ispringen, Germany, assignor to Durrow GmbH, Pforzheim, Germany

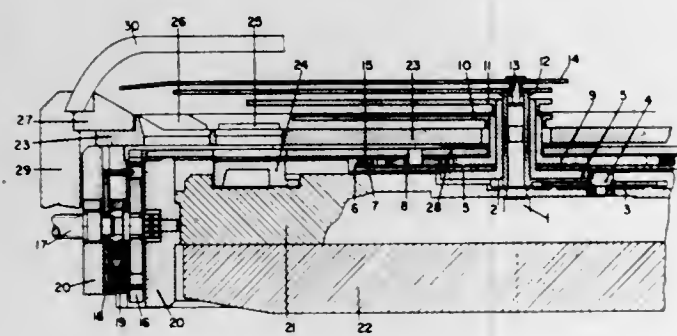
Filed June 17, 1970, Ser. No. 46,991

Claims priority, application Germany, June 30, 1969, P 19 33 049.5

Int. Cl. G04b 19/22

U.S. Cl. 58—43

6 Claims



3,633,355

WATCH CRYSTAL AND HANDS WITH REFLECTIVE MIRROR DIAL

Taketoshi Sakata, Tokyo, Japan, assignor to Sakata Watch Co., Ltd., Tokyo, Japan

Filed May 27, 1970, Ser. No. 41,000

Claims priority, application Japan, July 5, 1969, 44/63829

Int. Cl. G04b 39/00, 19/06

U.S. Cl. 58—91

8 Claims

Transparent or translucent watchglasses provided with indications—such as graduations of hours, minutes and the like



reflective dial face reflects the contrasting color of the undersides to the wearer to prevent parallax reading errors.

3,633,356

MECHANISM FOR DETACHABLY ATTACHING A TIMEPIECE MOVEMENT TO A WATCH CASING, ESPECIALLY THE MIDDLE RING THEREOF

Seizo Kitazima, and Tetuya Yasuda, both of Tokyo, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

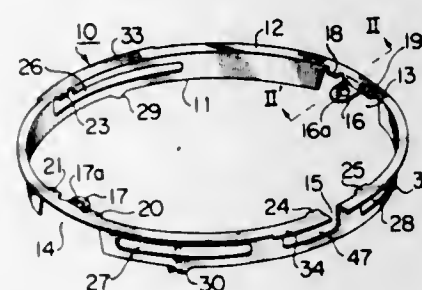
Filed Aug. 17, 1970, Ser. No. 64,427

Claims priority, application Japan, Aug. 16, 1969, 44/77934; Aug. 25, 1969, 44/80600

Int. Cl. G04b 37/04

U.S. Cl. 58—94

2 Claims



A movement holder ring for resiliently attaching a timepiece movement to a watch casing by means of fixing means such as case screws or pins comprising the provision of a pair of inwardly projecting attaching tongues made integral with a ring flange which constitutes the holder ring, together with a web ring made integral therewith. These tongues are arranged substantially diametrically opposite to each other and has each such a configuration that they are brought into engagement with said respective fixing means when assembling of the holder ring and the watch movement in the interior of said watch casing.

Said holder ring has several inwardly and outwardly and downwardly directing projections for assuring optimum contact with the movement as well as the watch housing, for keeping the movement in position and in a shock-absorbing way.

3,633,357

BRACELET CONSTRUCTION

Roger M. King, Watford, England, assignor to Milner King, Watford, England

Filed May 15, 1969, Ser. No. 824,770

Claims priority, application Great Britain, Nov. 11, 1968, 53,263/68

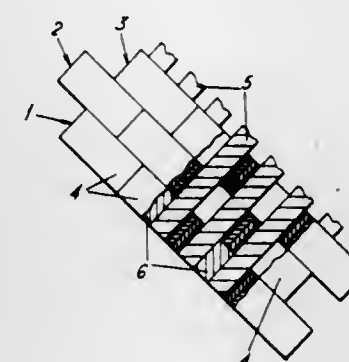
Int. Cl. F16g 13/00

U.S. Cl. 59—35

14 Claims

A tile bracelet formed of staggered rows of tiles joined by cross pins has the pins secured within the tiles at the edge of the bracelet by means of an indentation formed along the

length of the underneath surface of the bracelet at a position spaced from the outer edge of those tiles so that the indenta-



tion presses the material of the pins and tiles into a mutual curve.

3,633,358

SUPERCHARGING PROCESS

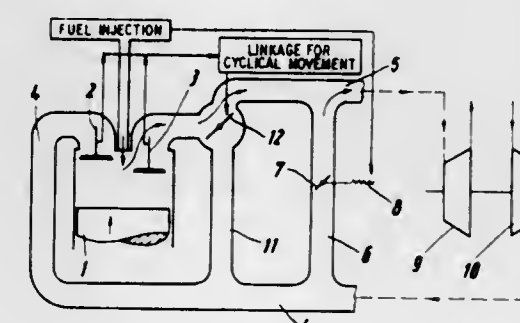
Dragos Sfinteanu, and Marius Angelo Paul, both of Bucharest, Romania, assignors to Uzina 23 August

Filed June 25, 1969, Ser. No. 836,473

Int. Cl. F02b 37/00

U.S. Cl. 60—13

11 Claims



A method for supercharging internal combustion engines by moving supercharged air in a flow path, separating part of the air from the flow path and mixing it with engine exhaust products, directing another portion of the air in the flow path into the chambers of an internal combustion engine to supercharge the engine, and controlling the quantity of air separated from the flow path and mixed with the exhaust in accordance with a quantity of fuel supplied to the internal combustion engine during each cycle. Either single or double diversion may be used. The apparatus for performing the method comprises a compressor which utilizes heated engine exhaust products to compress air for supercharging an engine. A first conduit is connected to the compressor for carrying combustion products from the engine and a second conduit is connected to the compressor to carry air from the compressor to the intake of the engine. At least one additional conduit is provided which connects the first and second conduits to one another for diverting a portion of the compressed air from the second conduit into the exhaust products carried in the first conduit.

3,633,359

HYDRAULIC APPARATUS

Calude Leslie Gordon Worn, Cheltenham, England, assignor to Dowty Hydraulic Units Limited, Cheltenham, England

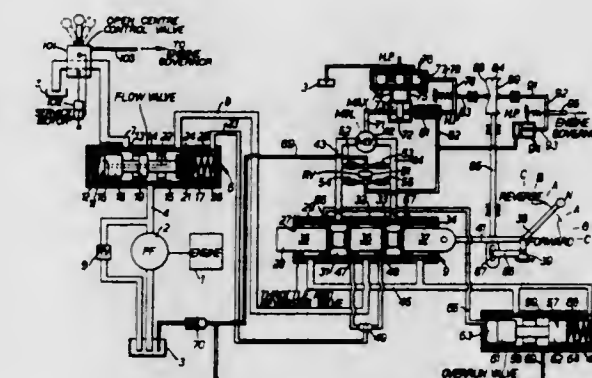
Filed Jan. 28, 1970, Ser. No. 6,519

Claims priority, application Great Britain, Feb. 18, 1969, 8,688/69

Int. Cl. F15b 11/16

U.S. Cl. 60—19

24 Claims



A hydraulic power transfer system, for use for example in the propulsion of a vehicle, comprising an engine, a fixed positive displacement pump driven by the engine, a fixed positive displacement pump driven by the engine, a variable positive displacement motor, a control valve controlling flow of liquid from the pump to the motor and a pressure responsive means responding to increase in hydraulic pressure at the motor to increase motor displacement and increase engine speed. The variable positive displacement motor may be the propulsion motor for the vehicle. The control valve may include a variable flow-selecting device adapted to feed the motor some of the pressure liquid delivered by the pump and including a bypass to carry the remainder of the liquid carried by the pump back to reservoir. The pressure-responsive means may operate to limit hydraulic pressure to a value which having regard to the volumetric displacement of the pump will demand a driving torque from the engine less than the maximum torque of which the engine is capable.

3,633,360

BOOST STARTER SYSTEM

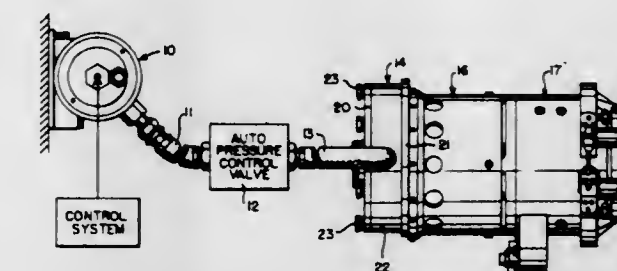
Archie P. Kelley, Scottsdale, Ariz., assignor to Talley Industries, Inc., Mesa, Ariz.

Filed Jan. 20, 1970, Ser. No. 4,357

Int. Cl. F02c 7/26

U.S. Cl. 60—39.14

10 Claims



A torque augmentation means for starters to be employed during low-temperature starts or for other conditions when starting would be marginal or impractical with the normal starting system. The boost starter consists of a propellant actuated gas rotary motor coupled to the normal starting motor shaft by means of a clutch. A replaceable propellant cartridge provides the gas source for operation of the boost motor.

3,633,361

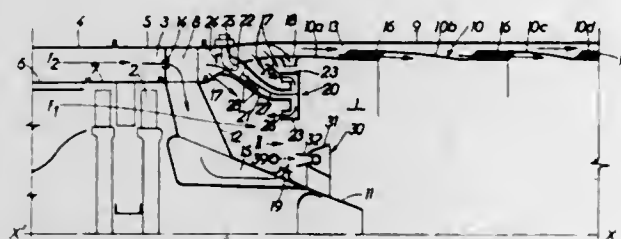
BURNERS FOR REHEAT COMBUSTION CHAMBERS
Louis Jules Bauger, Vanves, and Armand Jean-Baptiste Lacroix, Itteville, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs D'Aviation, Paris, France

Filed Sept. 29, 1969, Ser. No. 861,918

Claims priority, application France, Oct. 2, 1968, 168514
Int. Cl. F02k 3/02, 3/10

U.S. Cl. 60—39.71

6 Claims



A burner for the reheat chamber of a dual-flow gas turbine jet engine, comprising a fuel-prevaporizing device having a feedpipe fed jointly from a liquid fuel source and a secondary air duct and having a discharge pipe opening into the reheat chamber to discharge therein a mixture of air from the secondary duct and of fuel preheated by heat exchange with a primary flow of hot gases from the turbine.

3,633,362

REHEAT COMBUSTION APPARATUS FOR BYPASS GAS TURBINE ENGINES

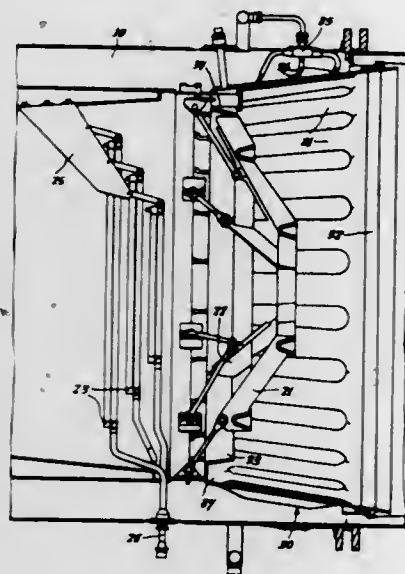
Arthur Sotheran, and John S. Lewis, both of Filton, Bristol, England, assignors to Rolls-Royce Limited, Derby, England
Filed May 13, 1969, Ser. No. 824,080

Claims priority, application Great Britain, May 16, 1968, 23,255/68

Int. Cl. F02k 3/10

U.S. Cl. 60—39.72

3 Claims



A reheat system for a bypass gas turbine jet propulsion engine comprises a device at the downstream end of the bypass duct which both mixes the bypass air with the hot gas stream and provides a stable zone for combustion of the cold air. Fuel injectors are provided to supply the fuel to the stable zones. The device is used in combination with a normal reheat device in the hot gas stream.

When reheat is not required the mixing device gives the advantage of mixing the hot and cold streams with a gain in thrust, and when reheat is required the device allows the cold air to be burned under more favorable conditions.

3,633,363

HYDRAULIC BOOST DEVICE WITH EMERGENCY FLUID SUPPLY

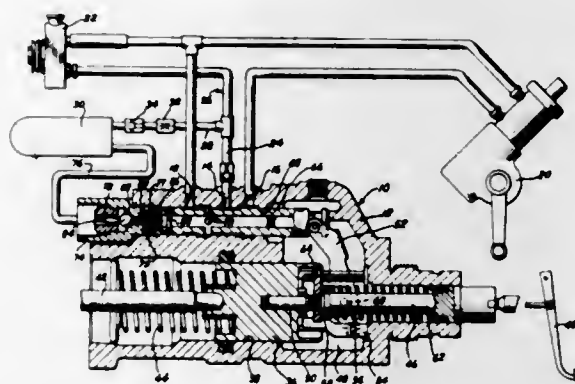
Lester J. Larsen, South Bend, Ind., assignor to The Bendix Corporation

Filed June 3, 1970, Ser. No. 43,072

Int. Cl. F15b 1/02, 20/00

U.S. Cl. 60—51

8 Claims



A hydraulic brake booster is disclosed which provides a power assist to the vehicle operator during a brake application. Pressurized hydraulic fluid is supplied to the booster from the vehicle's power steering pump which also supplies pressurized fluid for charging an accumulator. During normal operation of the system, fluid is supplied directly from the pump to the booster. However, if a malfunction interrupts the supply of pressurized fluid from the pump, the booster can use the fluid stored in the accumulator to apply the vehicle's brakes.

3,633,364

HYDRODYNAMIC TRANSMISSION WITH CONSTANT POWER INPUT

Karl Haide, Friedrichshafen, and Walter Schweizer, Immenstaad, both of Germany, assignors to Motoren-und Turbinen-Union Friedrichshafen GmbH

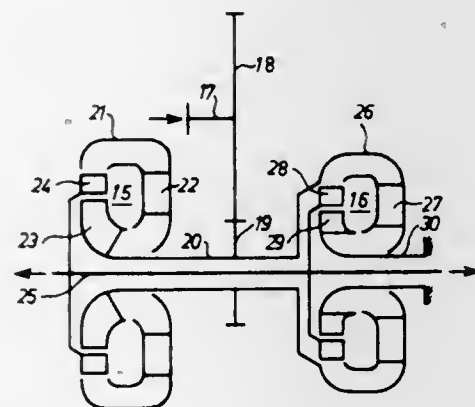
Filed Feb. 24, 1970, Ser. No. 13,728

Claims priority, application Germany, Mar. 8, 1969, P 19 11 879.7

Int. Cl. F16d 31/06

U.S. Cl. 60—54

3 Claims



A hydrodynamic transmission, especially for railway motor cars in which the torque converter or torque converters for the lower velocity range include a turbine with centrifugal flow and the torque converter or torque converters for the upper velocity range include a turbine with axial or centripetal flow.

3,633,365

HYDRAULIC JACK

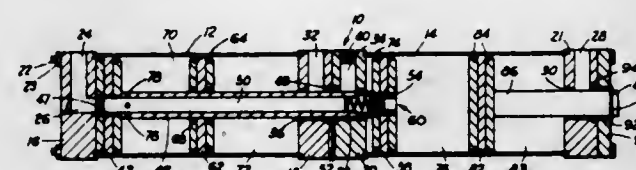
John C. Belknap, 229 South Shore Drive, Buffalo, N.Y.

Filed Sept. 28, 1970, Ser. No. 76,178

Int. Cl. F15b 7/00

U.S. Cl. 60—54.5 A

12 Claims



A hydraulic jack comprises a first and second piston mounted on the opposite ends of a hollow piston rod which extends through a partition in a cylinder, said rod having an intermediate floating piston mounted thereon for axial movement relative to the first and second pistons. A first chamber is defined between the first and intermediate pistons, and second and third chambers are provided on opposite sides of the second piston. These three chambers are filled with hydraulic fluid. An actuating piston, preferably of the same diameter as the other three pistons, is disposed in spaced relation to the second piston and is subjected to pressure transmitted through the fluid present in the third chamber to extend the rod of the actuating piston and thus engage the work or load. A sequence valve is located within the hollow piston rod to control the flow of fluid between the chambers and is normally positioned to establish communication between the first and second chambers. The sequence valve is responsive to an external load encountered by the actuating piston rod to interrupt such communication and establish communication between the second and third chambers whereby the pressure in the second and third chambers is intensified to a high-pressure sufficient to overcome the resistant force of the load encountered by the rod of the actuating piston.

Air under pressure is employed to move the first piston and the sequence valve is operative to permit transfer of hydraulic fluid in a self contained supply from a low-pressure state to a high-pressure stage through the hollow piston rod. Retraction of the actuating piston is also accomplished by compressed air and the hydraulic fluid is returned by means of the sequence valve to its original position.

3,633,366

DUAL LEVER RATIO BRAKE ACTIVATING APPARATUS

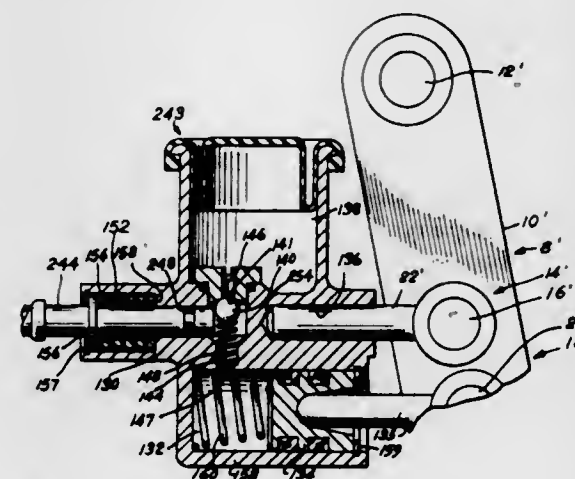
Maxwell L. Cripe, South Bend, Ind., assignor to The Bendix Corporation

Filed Mar. 30, 1970, Ser. No. 23,533

Int. Cl. F15b 7/00, 13/10; G05g 1/04

U.S. Cl. 60—54.6 P

7 Claims



A brake-activating apparatus, allowing a dual lever ratio for applying a force from the brake pedal to a valve-operat-

ing rod of a power booster which communicates with the master cylinder. A brake-activating lever arm is pivotally secured to a vehicle. A pivot pin carrying a first force transmitting member is located at a fixed distance from the end of the lever arm. A yoke member, attached to the lever arm at a different fixed distance from the end, is connected to a vacuum chamber housing. A diaphragm contained within the vacuum chamber is secured to a second force transmitting member. The valve-operating rod for a power booster communicating with the master cylinder has a bored chamber to receive the first transmitting member and a U-shaped member surrounding the chamber to secure the second transmitting member. When the brake lever is moved, the applied force is transmitted through the yoke and second transmitting member as long as the pressure differential retains the diaphragm member in a fixed position. If the diaphragm member is free to move, the first transmitting member contacts the end of the bored chamber and transfers the applied force from the lever arm, at a different ratio, to the valve-operating rod communicating with the master cylinder. In another embodiment, the second force transmitting member carries the applied force until the force required to move the valve-operating rod is greater than a resilient member whereupon the resilient member collapses permitting the applied force to be transmitted through the first force transmitting member.

3,633,367

MASTER CYLINDER ASSEMBLY FOR VEHICLE HYDRAULIC BRAKE SYSTEMS

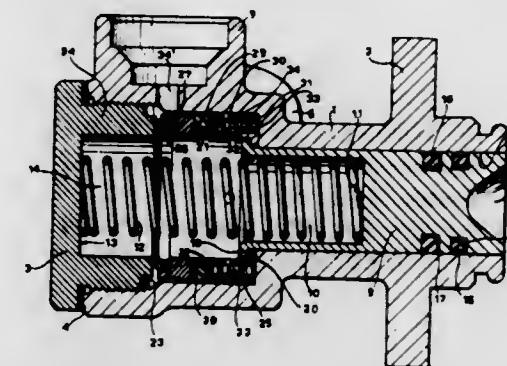
Phillip S. Baldwin, Florence, Italy, assignor to FIAT Societa per Azioni, Turin, Italy

Filed May 27, 1970, Ser. No. 41,033

Claims priority, application Italy, May 30, 1969, 52054 A/69
Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 R

14 Claims



A master cylinder assembly for vehicular hydraulic brake systems has a cylinder closed at one end, with a piston sliding in the cylinder and defining therein a compression chamber which communicates through first and second ports with a point of use and an hydraulic fluid reservoir respectively. A reaction spring urges the piston away from the closed end of the cylinder against a stop and flow of hydraulic fluid through the said second port is controlled by valve means. According to this invention the valve means comprise a tubular member, slidable, with axial and radial play, in the compression chamber, a frontal annular packing carried by the tubular member and cooperating with an annular radial seat, and a peripheral annular packing adapted to seal against the said lateral wall of the cylinder bore. The two said ports are always disposed on opposite sides of the peripheral packing and the tubular member is biased towards a position in which the frontal packing is spaced from its seat, permitting open communication between the two ports when the piston is resting against its stop. Means are provided for displacing the tubular member towards the said seat upon the movement of the piston towards the closed end of the cylinder for actuating the brakes.

3,633,368

EXHAUST GAS REACTOR

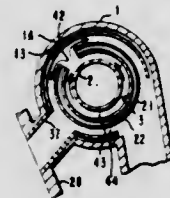
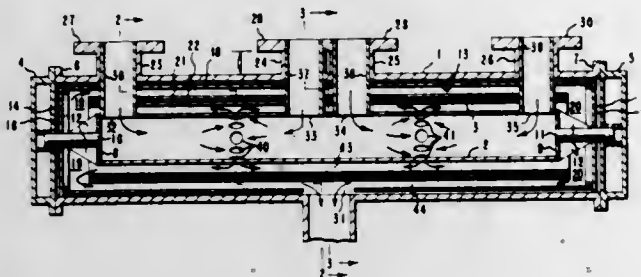
Iver T. Rosenlund, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 12, 1970, Ser. No. 63,101

Int. Cl. F01n 3/10

U.S. Cl. 60-29 A

16 Claims



An exhaust gas reactor structured as a group of three concentric tubes surrounding two annuli, an inner annulus between the innermost tube and the middle tube and an outer annulus between the middle and outer tubes, the innermost tube, into which exhaust gases enter, having peripheral openings to the inner annulus, the middle tube being open at its ends and provided with a bypass hole, and the exterior tube being insulated and open only at a gas outlet, all arranged to provide a path of flow which is predominantly from the interior tube through the two annuli in series and out the outlet of the exterior tube when the gas flow rate is relatively high, and a shorter path from the interior tube through the two annuli via the bypass hole to the outlet which predominates when the gas flow rate is relatively low.

3,633,369

METHOD AND APPARATUS FOR TRANSPORTING AND LAUNCHING AN OFFSHORE TOWER

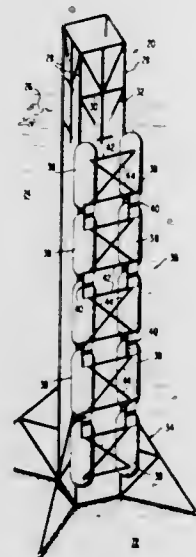
Joseph Benton Lawrence, Houston, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed Apr. 20, 1970, Ser. No. 29,994

Int. Cl. E02b 17/02; E02c 5/00

U.S. Cl. 61-46.5

14 Claims



A method and apparatus for transporting an offshore tower to a working site upon one or more articulated strings of

freely pivotally connected flotation chambers. At a desired site, the flotation chambers are sequentially flooded to controllably lower the tower into the body of water. The flotation string may then be disconnected from the tower and controllably sequentially refloated for subsequent reuse.

3,633,370

SEA CAGE

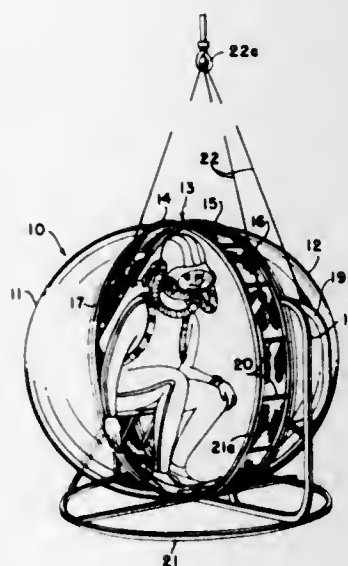
Larry E. McKinley, Box 647C Oro Verde Road; William E. Evans, Rt. 3, Box 489A, both of Escondido, Calif., and Clarence S. Johnson, 4444 Lo. Pt. Loma Road Apt. 66, San Diego, Calif.

Filed Mar. 30, 1970, Ser. No. 23,670

Int. Cl. B63c 11/00; B63g 8/00

U.S. Cl. 61-69 R

9 Claims



A pair of hemispherically shaped transparent shells is carried on a hinged annular bracket forming a water-flow resistant envelope for providing an underwater sanctuary for a diver. Suspending divers in contemporary, protective "jail-cell"-like cages from a surface craft subjects them to violent buffeting as the cage is jerked and dropped through the water as it follows the supporting ship's heaving and pitching motions. The hemispherical shells prevent such buffeting by enclosing a diver in a relatively static "slug" of water and simultaneously protecting him from all marine predators from sharks to piranhas. Mounting a pivotable hinge, diametrically opposed to a pair of separable handle elements, allows splitting of the Sea Cage its entire girth to permit an unimpeded entrance and exit from the cage.

3,633,371

GAS SEPARATION

Joseph W. Davison, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Apr. 5, 1968, Ser. No. 719,032

Int. Cl. F25j 3/05, 3/00

U.S. Cl. 62-17

4 Claims

A method for recovering ethane and heavier from a normally gaseous material by partially condensing the gas by cooling to a temperature in the range of from about -70° to about -120° F., removing uncondensed gas with an absorbent at a temperature in the range of from about -70° to about -120° F.

3,633,372

TRANSFER OF CRYOGENIC LIQUIDS

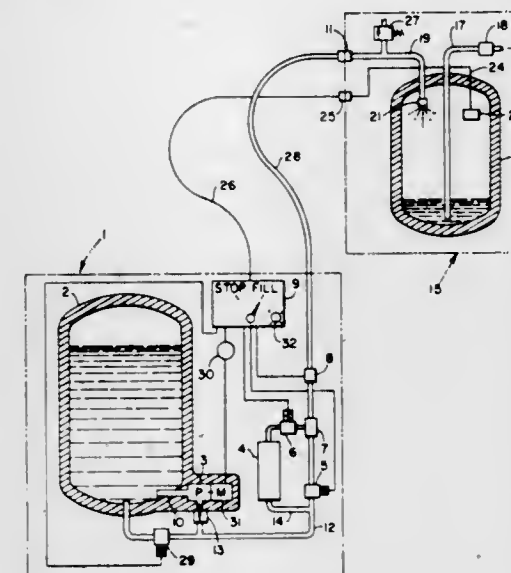
Cleve C. Kimmel, Torrance, and John H. Moll, Hawthorne, both of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Apr. 28, 1969, Ser. No. 819,681

Int. Cl. F17c 7/02

U.S. Cl. 62-49

9 Claims



This invention relates to a system which permits the storage and transfer of cryogenic fluids without losses due to handling and venting and which is characterized by reversed-cascade filling procedure. This system for transfer of a cryogenic liquid from a supply container to a receiver is characterized in that only a single fluid connection is made between the container and receiver without venting the receiver so that the receiver-filling operation may be achieved without gas or liquid loss by evaporation or overflow as by the use of a submerged and continuously primed pump.

3,633,373

METHOD AND APPARATUS FOR THE GENERATION OF REFRIGERATING ENERGY

Emile Carbonell, Grenoble, France, assignor to L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procédes Georges Claude, Paris, France

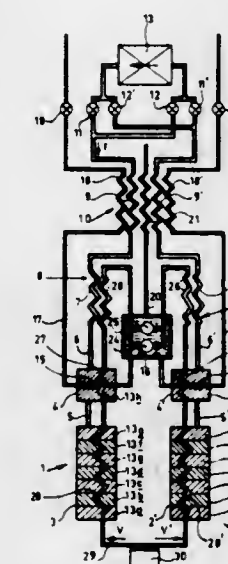
Filed Mar. 2, 1970, Ser. No. 15,433

Claims priority, application France, Mar. 14, 1969, 6907355

Int. Cl. F25b 9/00

U.S. Cl. 62-79

10 Claims



The present invention relates to a method of and an apparatus for the generation of refrigerating energy. There are

arranged two columns provided with adsorbent products; an adsorbed gas is sucked into a first column and delivered into a second column and vice versa, and a closed circulation of helium is created in said columns in counterflow with the adsorption-desorption gas and to the exterior in contact with conducting means.

3,633,374

REFRIGERATOR WITH SELF-REGULATING HEATERS

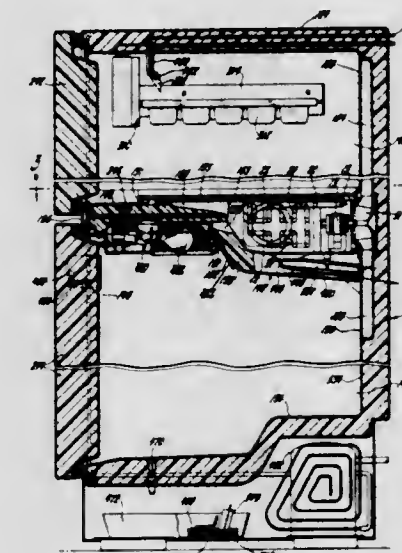
James A. Canter, Englewood, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 6, 1970, Ser. No. 9,152

Int. Cl. F25d 21/06

U.S. Cl. 62-156

6 Claims



In the preferred form a refrigerator is provided with positive temperature coefficient thermistors acting either as heaters alone or in series with a small electric heater for preventing condensation of moisture adjacent the door openings and for evaporating melted frost and also to prevent freezing of the water delivery means of the icemaker provided in the refrigerator as well as preventing freezing of defrost water in the drainage means or the evaporator and to control the heating temperature of the butter compartment to maintain the butter at proper spreading consistency, and to heat the fluid motor of the control switch to assure control in accordance with the temperature of the thermosensitive element.

3,633,375

REFRIGERATOR COOLING SYSTEM DESIGN

John A. McLean, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 15, 1970, Ser. No. 28,676

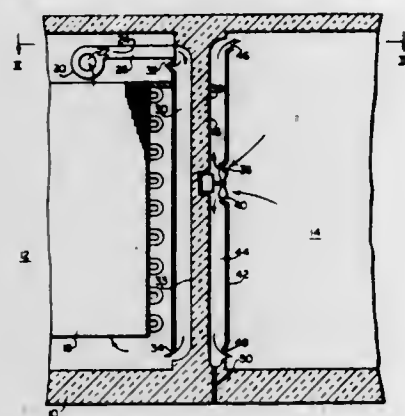
Int. Cl. F25d 17/00

U.S. Cl. 62-180

8 Claims

A refrigerator is provided where the cold air for refrigerating the fresh food space is force-circulated over a portion of the wall surface of this food compartment. This wall surface also serves as a wall for the freezer compartment of the refrigerator so that there is heat removal from the fresh food space through the food compartment wall. A portion of the time the fresh food side of this wall is maintained at above 32° so that water will condense thereon and run by gravity to a convenient point for disposal. A circulating fan within the fresh food space is used so that moisture does not condense on the containers and shelves therein with a resultant dripping of moisture on the food stored at lower levels of the food storage space. A single evaporator cooler is provided and this is contained in the frozen food space of the refrigerator, with a fan also provided in this space for circu-

lating air within the frozen food space. To ensure that the wall between the frozen food space and the fresh food space is sometimes above 32° F., the fan in the fresh food space is



in active circulating condition at all times when the refrigerator compressor and the fan for the frozen space are not operating.

3,633,376

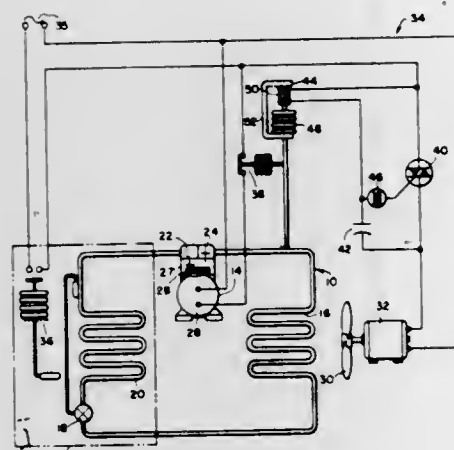
REFRIGERATION APPARATUS CONTROL

Robert G. Miner, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Dec. 18, 1967, Ser. No. 691,439
Int. Cl. F25d 17/00

U.S. Cl. 62-181

10 Claims



A vapor compression refrigerant system is cycled in response to the refrigeration load. The system has a high-pressure-responsive safety protector for terminating operation of the system in response to an abnormally high-refrigerant pressure and a variable-speed condenser fan motor for controlling said refrigerant pressure in response to a variable resistance, said variable resistance being directly responsive to refrigerant pressure whereby said fan operates to maintain the refrigerant pressure below said abnormally high-refrigerant pressure immediately following startup of said compressor and above a predetermined minimum pressure during the run cycle of said system. The pressure-responsive transducer is a piezoresistive semiconductor.

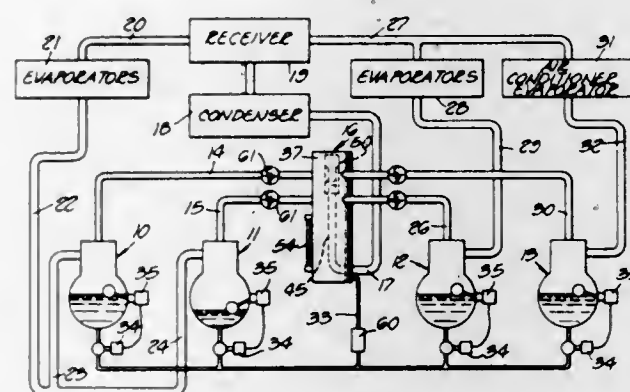
3,633,377 REFRIGERATION SYSTEM OIL SEPARATOR

Lester K. Quick, 868 Westview Crescent, North Vancouver, B. C., Canada

Filed Apr. 11, 1969, Ser. No. 815,452
Int. Cl. F25b 43/02

U.S. Cl. 62-192

15 Claims



An oil separator for use in a refrigeration system, having a plurality of compressors and evaporators, receives the discharge of refrigerant and oil separately from each compressor to separate the oil which is returned to the compressor from the refrigerant which is passed on to a condenser.

3,633,378

HOT GAS DEFROSTING SYSTEM

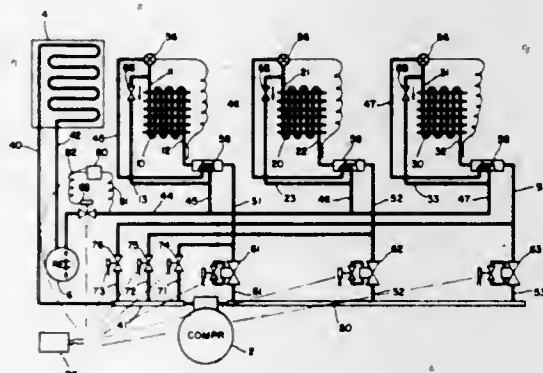
Steven J. Toth, Kendallville, Ind., assignor to Streater Industries, Inc., Albert Lea, Minn.

Continuation of application Ser. No. 800,511, Feb. 19, 1969, now abandoned. This application July 15, 1970, Ser. No. 56,228

Int. Cl. F25b 41/00

U.S. Cl. 62-196

2 Claims



The invention relates to a central-type of refrigeration system in which multiple evaporator coils are remotely located from the compressor and condenser. The system has hot gas defrosting means associated therewith which operates during a defrosting cycle in a manner so that all of the hot refrigerant gas delivered by the compressor is utilized for the defrosting operation except when abnormal or unusual heat load conditions are present. When the abnormal conditions are present the compressor is partially diverted from its defrosting function just sufficiently so that the primary cooling function of the system is sustained at a predetermined level.

3,633,379 TEMPERATURE-RESPONSIVE CAPACITY CONTROL DEVICE AND SYSTEM

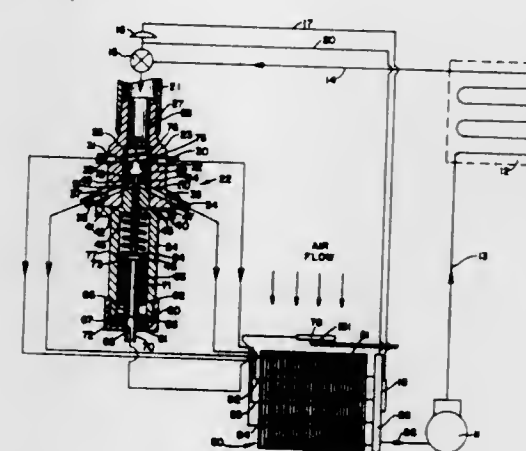
Gary E. Nielson, Florissant, Mo., assignor to Jackes-Evans Manufacturing Company, St. Louis, Mo.

Filed Dec. 29, 1969, Ser. No. 888,359

Int. Cl. F25b 41/04

U.S. Cl. 62-202

5 Claims



A capacity control arrangement adapted for use in air conditioning systems and the like and modulates the capacity of the system for greater uniformity in temperature and humidity. The system includes a novel capacity control valve located between the expansion means and the evaporator in an air conditioning system which controls the flow of refrigerant through the evaporator, operating in response to changes in temperature. As the temperature of the air approaches the set point, part of the passes through the evaporator are closed and, as a consequence, the remaining passes run colder for greater dehumidification. An artificial control means is provided whereby the capacity control valve may be remotely controlled independently of the actual temperature of the air flowing over the evaporator.

3,633,380

REFRIGERATOR SYSTEM

Italo Pellizzetti, Corso Bramante 56, Turin, Italy

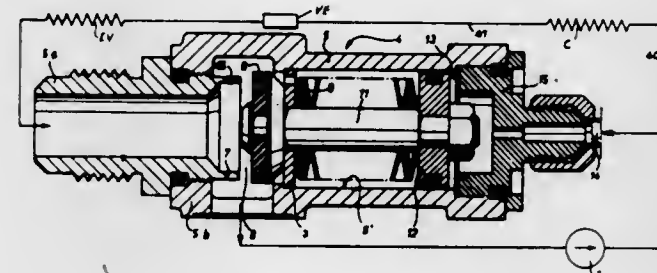
Filed Mar. 23, 1970, Ser. No. 21,987

Claims priority, application Italy, Mar. 21, 1969, 5109 A/69

Int. Cl. F25b 41/04

U.S. Cl. 62-217

5 Claims



A pressurized refrigeration system having a condenser, an evaporator, and a compressor is provided with an isobaric valve between the evaporator and the compressor. The isobaric valve is sensitive to the output pressure of the compressor to restrict the flow of refrigerant fluid into the compressor when the output pressure of the fluid from the compressor increases above a first predetermined value. The isobaric valve also has a normally closed pressure-sensitive switch which operates to disconnect the compressor from its drive means if the pressure of the refrigerant fluid from the compressor falls below a second predetermined value, such as when a leak occurs in the refrigeration system.

3,633,381

OPEN-CYCLE PORTABLE REFRIGERATOR

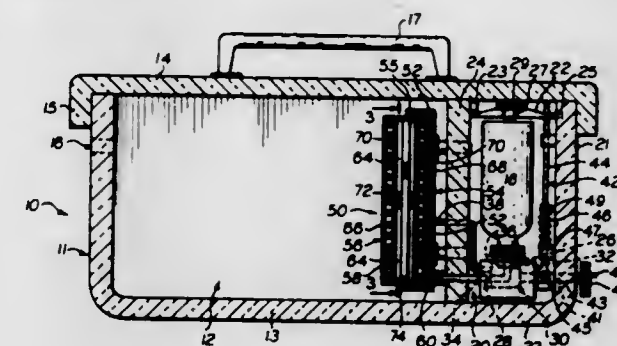
Peter A. Haaf, and Horst D. Jungblut, both of 52-26 69th Pl., Maspeth, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,655

Int. Cl. F25b 41/04

U.S. Cl. 62-222

17 Claims



A portable refrigerator employing an open-cycle system. A stored compressed gas, such as carbon dioxide, is passed from its storage container through an evaporator which comprises a serpentine passageway for the gas and a surrounding medium, such as water, an aqueous solution, which is maintained frozen due to the passage of the expanding compressed gas through the coiled passageway. The temperature of the evaporator medium is lower than the ambient temperature of the interior of the container comprising the storage portion of the refrigerator, which is cooled thereby. The gas passing through the evaporator may be exhausted into the interior of the container whereby the cooler air which is next to the evaporator medium is circulated throughout the interior of the container.

3,633,382

UNIVERSAL JOINT

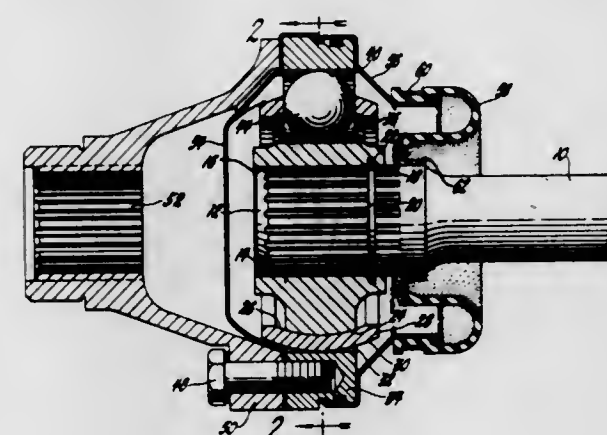
Kenneth L. Westercamp, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation of application Ser. No. 559,302, June 21, 1966, now abandoned. This application June 19, 1968, Ser. No. 738,333

Int. Cl. F16d 3/30

U.S. Cl. 64-21

8 Claims



A constant velocity universal joint includes an outer member having a cylindrical inner surface, an inner member having a spherical outer surface, a spherical cage embracing the inner member, a plurality of alternated cross grooves formed in the inner and outer members, and a plurality of torque transmitting balls confined within the grooves. The spherical mating of the cage with the inner member locks the balls and thus the joint against axial movement, while permitting angulation of the joint.

3,633,383

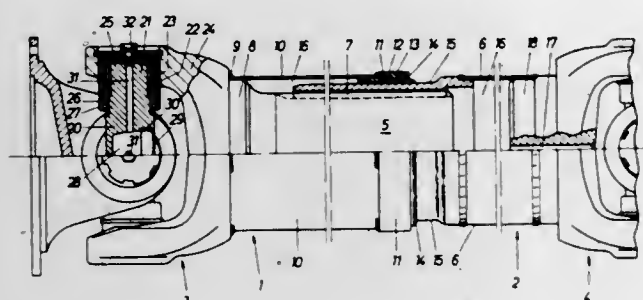
UNIVERSAL SHAFT

Hans-Joachim Kleinachmidt, Essen, Germany, assignor to Gelenkwellenbau G.m.b.H., Essen, Germany
Filed Feb. 26, 1970, Ser. No. 14,436
Claims priority, application Germany, Feb. 28, 1969, P 19 10 284.2

Int. Cl. F16d 3/06

U.S. Cl. 64—23

9 Claims



Universal shaft includes two shaft portions having respective inner ends splined to one another so that the portions are nonrotatable though axially displaceable relative to one another, the surface material of at least one of the portions at the splined connection having relatively good antifriction and wearing properties, sealing means surrounding the splined portions and enclosing a lubricant-filled inner chamber for the splined connection, the sealing means including a sealing ring and a scraper ring located adjacent and coaxial to one another, the scraper ring having a scraping end facing outwardly, and a permanently lubricated swivel joint carried by each of the shaft portions at respective outer ends thereof.

3,633,384

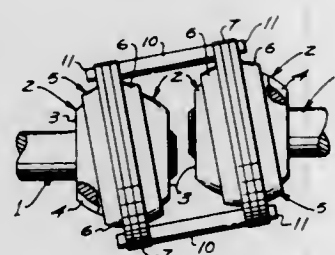
UNIVERSAL COUPLING

Bert Jarren, P.O. Box 3074, Beverly Hills, Calif.
Filed June 3, 1970, Ser. No. 43,142

Int. Cl. F16d 3/04

U.S. Cl. 64—31

7 Claims



A universal coupling primarily intended for connecting a pair of noncoaxial shafts; that is, shafts which are angularly related or misaligned, the coupling including a pair of ball members mounted on the shafts and journaling encompassing structures having interior portions conforming to the ball members, the structures being rigidly connected by bars or incorporating gears, or connected sheaves or sprockets which tend to maintain the encompassing structures in coplanar relation, the structures being connected to the ball members by diametrically disposed key slot and pivotal key elements to effect a drive connection between the shafts.

3,633,385

TRANSFER DEVICE FOR RIB BORDER KNITTING MACHINES

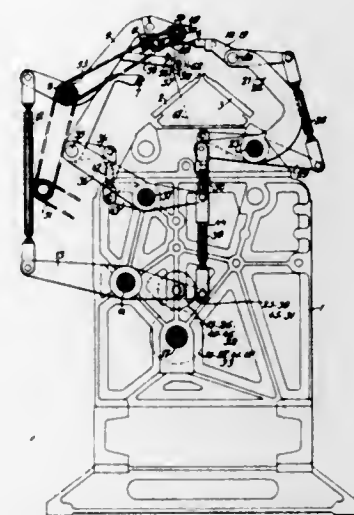
Karel Bernard Marie Bruelemans, Gentbrugge, Belgium, assignor to Fabrique Nationale D'Armes De Guerre, Societe Anonyme, Herstal-Liege, Belgium
Filed Jan. 28, 1970, Ser. No. 6,482

Claims priority, application Belgium, Feb. 9, 1969, 728.048

Int. Cl. D04b 9/40

U.S. Cl. 66—148

5 Claims



A transfer device for rib border knitting machines of the type having a sinking comb having means for imparting to the latter rotating movements about a first axis and about a second axis which may be shifted about the first axis.

3,633,386

PULLING AND KNOCKING-OVER DEVICE FOR TWO NEEDLE BED KNITTING MACHINES

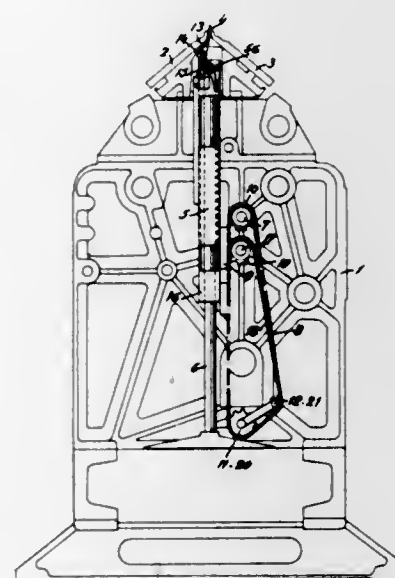
Karel Bernard Marie Bruelemans, Gentbrugge, Belgium, assignor to Fabrique Nationale d'Armes de Guerre Societe Anonyme, Herstal-Liege, Belgium
Filed Jan. 28, 1970, Ser. No. 6,480

Claims priority, application Belgium, Feb. 7, 1969, 728.050

Int. Cl. D04b 15/88

U.S. Cl. 66—149

3 Claims



A hooking-up and knocking-over device for a two needle bed knitting machine comprising a pulling comb vertically moving between the needle beds and a knocking-over member moving also vertically between the needle beds, the latter having imported a rotating movement in addition to a traversing movement.

3,633,387

GUIDE MEANS FOR WEBS OF FABRIC DURING DRAFF ON FLAT KNITTING MACHINES

Walter Wörner, Pfullingen, and Albert Ostertag, Reutlingen, both of Germany, assignors to H. Stoll and Company, Reutlingen, Germany

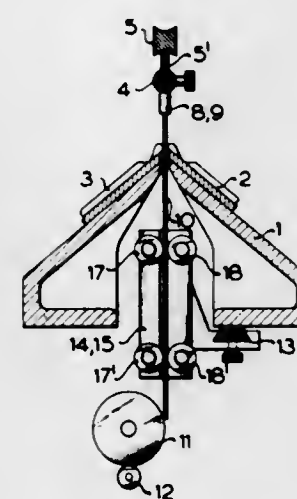
Filed Sept. 14, 1970, Ser. No. 71,691

Claims priority, application Germany, Sept. 17, 1969, P 19 47 007.6

Int. Cl. D04b 15/88

U.S. Cl. 66—149

9 Claims



In flat knitting machines, the selvage wires are prevented from laterally flexing so as to prevent lateral contraction of the knitted web as it is drawn off. In the preferred embodiment, each selvage wire extends through a guide channel in a steadying component, and fabric-guiding elements at the front of the guide channel are spaced apart to provide between them a gap which permits passage therethrough of the web margin, but which will not permit passage of the selvage wire.

3,633,388

COMBINATION LOCK CONSTRUCTION

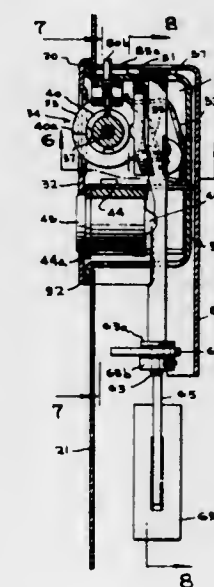
Wallace E. Atkinson, Petersburg, Va., assignor to Long Manufacturing Co., Inc., Petersburg, Va.

Filed Aug. 28, 1970, Ser. No. 67,913

Int. Cl. E05b 37/02, 65/02

U.S. Cl. 70—80

32 Claims



A combination lock mechanism for locker doors and similar movable closures having a manually operable latching mechanism for the door, wherein the lock includes plural

combination dial wheels spaced along a common axis and hubs which may be coupled with the dial wheels at different combination positions. A movable fence is normally restrained by the hubs in locking position to hold a locking bar against vertical movement and is released by gates in the hubs to permit the locking bar to be moved vertically to unlocking position when the correct combination is dialed. The locking bar is arranged to permit opening movement of the latching mechanism only when the fence is released upon dialing of the proper combination, or upon operation of a master key by a custodian which overrides the combination locking mechanism.

3,633,389

EDGE-MOUNTED LOCK FOR A DOOR

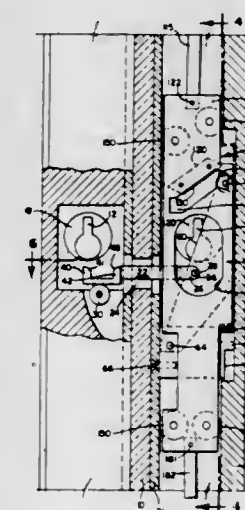
William J. Horgan, Jr., Allegheny County, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 875,229, Nov. 10, 1967, now abandoned. This application Nov. 9, 1970, Ser. No. 87,717

Int. Cl. E05b 9/00, 63/14, 65/02

U.S. Cl. 70—120

16 Claims



A lock mechanism for a door comprises a plurality of lock cylinders which are mounted on edge rather than flush with the door and which are interconnected through the door by means of a slide bar. The slide bar actuates a lever in response to appropriate movement of tabs on the lock cylinders, to lock or unlock the door by extending or retracting one or more bolts.

3,633,390

LATCH

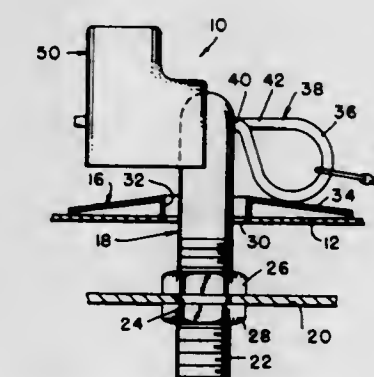
George Wartian, East Detroit, Mich., assignor to Wartian Lock Company, St. Clair Shores, Mich.

Filed Jan. 26, 1970, Ser. No. 5,721

Int. Cl. E05b 65/19, 67/24

U.S. Cl. 70—240

8 Claims



The latch mechanism is adapted for use in connection with an automobile hood pin of the type mounted interiorly of the

engine compartment and extending through an opening in the hood when the hood is in the closed position and wherein the hood pin has an opening therein exteriorly of the hood for reception of a latch pin to maintain the hood in the closed position. A key-operated latch mechanism is adapted for reception and latching of that portion of a latch pin extending beyond the hood pin to the end that the device is effective to prevent unauthorized removal of the latch pin.

3,633,391

INSTALLATION AT LOCKING MECHANISMS, ESPECIALLY IN MOTOR VEHICLES, OPERATING WITH VACUUM

Rudolf Andres, Sindelfingen, and Hermann Moller, Aidlingen, (Württemberg), both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

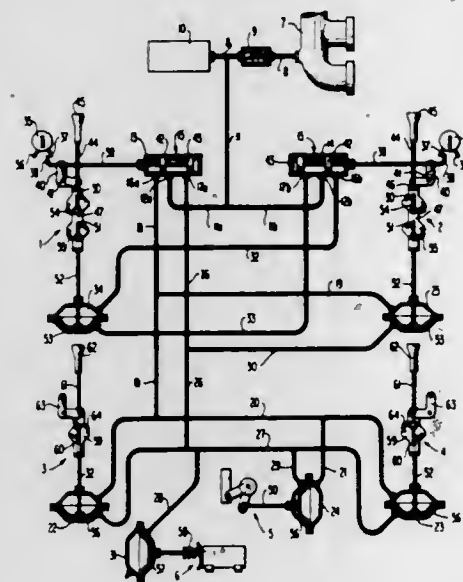
Filed July 9, 1969, Ser. No. 840,294

Claims priority, application Germany, July 9, 1968, P 17 03 758.0

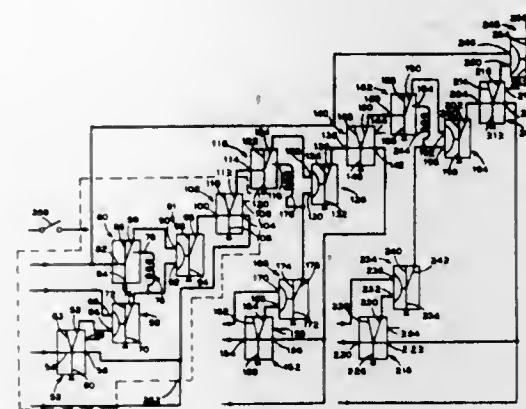
Int. Cl. E05b 53/00

U.S. Cl. 70-264

8 Claims



the occurrence of a predetermined sequence of digits of a



3,633,393

LOCK HAVING MAGNETS INCORPORATED IN ROTARY TUMBLERS

Hideyoshi Hisatsune, No. 16-14, 3-chome Minamikamata, Otaka, Tokyo, Japan

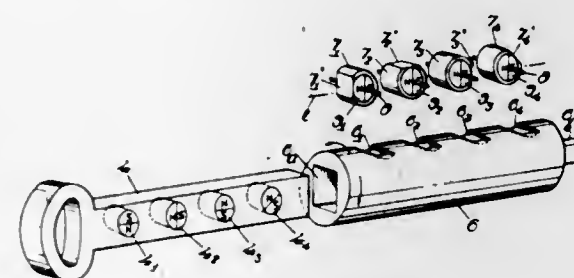
Filed Oct. 15, 1968, Ser. No. 767,708

Claims priority, application Japan, Oct. 19, 1967, 42/66901

Int. Cl. E05b 29/06, 47/00

U.S. Cl. 70-276

7 Claims



The present invention disclosed a lock comprising rotary tumblers each having a magnet and provided rotatably inside a main body of the lock, said tumblers being permitted to rotate to a given position through operation of magnets incorporated in a key, and a locking or unlocking mechanism operating in relation to said rotary tumblers.

3,633,394

SAFETY DEVICE FOR ANTITHEFT DEVICE

Christian Pleck, and Guenter Schaumburg, both of Wuppertal-Langerfeld, Germany, assignors to Societe D'Exploitation Des Brevets Neiman S.A., Neuilly, France

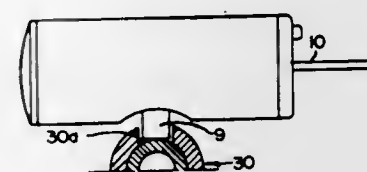
Filed Apr. 29, 1970, Ser. No. 32,953

Claims priority, application France, Apr. 30, 1969, 6913781

Int. Cl. E05b 11/00, 65/12

U.S. Cl. 70-389

6 Claims



3,633,392

FLUIDIC COMBINATION LOCK

Edward Hall Bell, Clinton, and Barry Sayers Fichter, Dunellen, both of N.J., assignors to American Standard Inc., New York, N.Y.

Filed Jan. 30, 1970, Ser. No. 7,167

Int. Cl. E05b 51/02; F15c 1/12

U.S. Cl. 70-275

14 Claims

This invention relates to a fluidic device for determining

In a lock comprising a rotor and a stator, the rotor being rotatable in the stator by means of a key from a first position

to a second position, the improvement comprising means defining a first abutment associated with the rotor for rotation therewith, means defining a second abutment mounted in the lock nonrotationally relative to the axis of the rotor, the second abutment being in such engagement with the first abutment as to block rotation of the rotor from the first position to the second position when the rotor is in the first position, the manually operable means for shifting the second abutment out of the blocking engagement with the first abutment to permit rotation of the rotor from the first position to the second position.

3,633,395

PRESS BRAKE FOR RAM

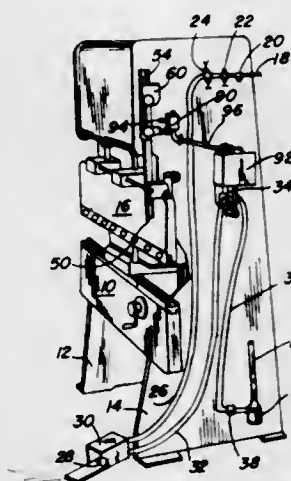
Robert Frank Anderson, Chicago, Ill., assignor to McAnd, Inc., Bronson, Mich.

Filed Mar. 26, 1970, Ser. No. 29,586

Int. Cl. B21d 5/01

U.S. Cl. 72-22

5 Claims



The disclosure describes a press brake for a ram comprising an automatic control to stop and start the ram mechanism within preset desired positions in order to impart improved operation thereof. In one embodiment, a microswitch is used in cooperation with an air valve to automatically stop the operation of the ram at a desired point and then release the ram for completion of the ram operation. Other embodiments are disclosed.

3,633,396

METHOD AND APPARATUS FOR IMPROVEMENTS IN THE EXTRUSION OF METALS AND ALLOYS

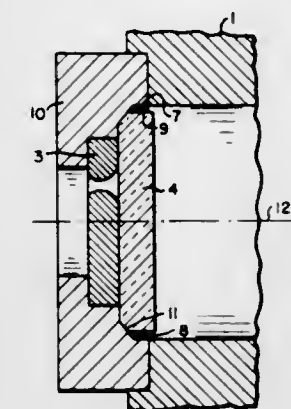
Erik G. Eriksson, Sandvik, Sweden, assignor to Cefilac, Paris, France

Filed Dec. 8, 1969, Ser. No. 883,111

Int. Cl. B21c 23/32

U.S. Cl. 72-41

5 Claims



A method and apparatus for the extrusion of metals and alloys in an extrusion press wherein a lubricating disc about

which an elastic band has been stretched is compactly placed in a tightly fitting manner in a substantially cylindrical shaped recess of a die holder which is ultimately positioned coaxially in the extrusion press so that the lubricating disc is between the die and the workpiece prior to the extrusion operation.

3,633,397

PIPE-STRAIGHTENING MACHINE

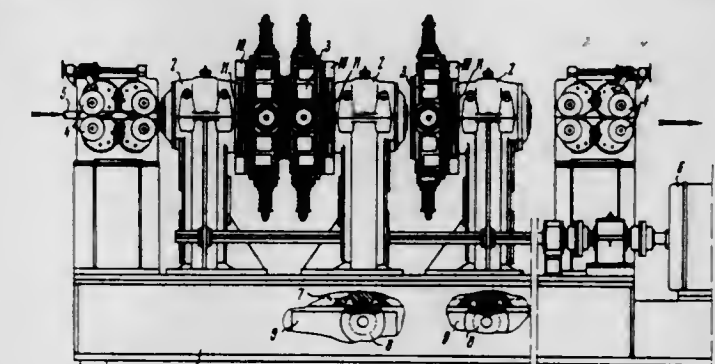
Gennady Konstantinovich Zhukov, Kubanskaya ulitsa, 12 str. 1, kv. 24; Nikolai Ivanovich Krylov, Volgogradsky prospekt, 171, kv. 31; Vyacheslav Ivanovich Lebedev, Smolensky bulvar, 13, kv. 51; Boris Vasilievich Popov, proezd Kulbysheva, 23, kv. 37; Alexandr Zosimovich Slonim, Tashkensky proezd, 1, kv. 166; Anatoly Leonidovich Sonin, B. Ugreshskaya ulitsa, 6, kv. 91, all of Moscow; Sergei Iosifovich Vasilenko, ulitsa Pestelya, 6, kv. 3; Valentin Vasilievich Kondratiev, ulitsa Korbuta, 11, kv. 2, and Nester Ivanovich Krokhin, prospekt Lenina, 89, kv. 2, all of Nikopol Dnepropetrovskoi Oblasti, all of U.S.S.R.

Filed May 1, 1970, Ser. No. 33,739

Int. Cl. B21d 3/06

U.S. Cl. 72-79

4 Claims



The present disclosure relates to the machines for straightening pipes, particularly thin-walled ones, in the process of their motion. The machine comprises the feeding mechanisms and holders with straightening rolls, said holders located between said feeding mechanisms; said holders are cantilevered on the supports (speed reducers) moved along the pipe feed axis. The holders have roll-holding pins with bushings and washers connected correspondingly with gears. Each holder has two gearwheels meshing with said gears. In each holder the gearwheel meshing with the gear of the bushing is intended for simultaneous radial displacement of all the straightening rolls of this holder while the gearwheel meshing with the gear of the washer is intended for simultaneous angular displacement of all its straightening rolls.

3,633,398

MAKING CORRUGATED ELASTIC SHIMS

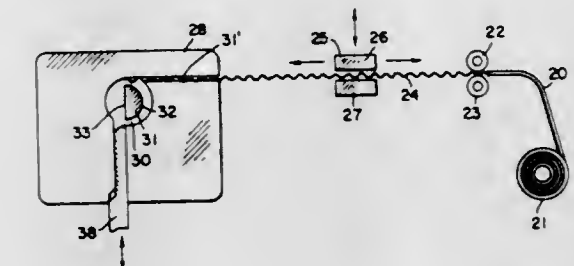
Hans W. Koch, Levittown, Pa., assignor to Roller Bearing Company of America, Trenton, N.J.

Filed Jan. 21, 1970, Ser. No. 4,691

Int. Cl. B21f 11/00; B21d 45/00

U.S. Cl. 72-131

7 Claims



Into a cylindrical bending chamber, free from rotating parts, a corrugated strip is fed tangentially between the in-

terior wall of the bending chamber and a semicylindrical anvil whose curved side follows in spaced relation the opposite curved side of the bending chamber from that at which the stock enters. The end of the stock after making one and a half turns abuts against the radial straight side of the semicylindrical anvil. The stock is sheared generally radially by a shear blade acting against the corner of the semicylindrical anvil. Completed corrugated elastic shims are ejected axially. In the preferred embodiment the strip is gripped or engaged only at the edges.

3,633,399

ROLLING MILL TRAIN

Ernst Hinterholz, and Hubert Sulzer, both of Linz, Austria, assignors to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed Apr. 6, 1970, Ser. No. 25,664

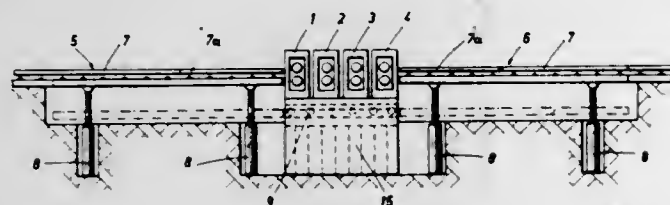
Claims priority, application Austria, May 14, 1969,

A4582/69

Int. Cl. B21b 39/16

U.S. Cl. 72-222

11 Claims



A plurality of nonreversible two-high rolling mill stands define a plurality of pass groove lines disposed one beside the other. A first roller bed unit precedes said rolling mill stands. A second roller bed unit succeeds said rolling mill stands. An additional roller bed unit extends under said rolling mill stands between said first and second roller bed units and is operable to return stock from said second roller bed unit to said first roller bed unit. Each of said first and second roller bed units comprises a plurality of roller bed sections disposed one beside the other, and guide means laterally defining guide paths on said roller bed sections. At least two of said roller bed sections of each of said first and second roller bed units are reversible and adapted to be lowered to the level of said additional roller bed unit. Each of said first and second roller bed units is provided with deflecting means, which are adapted to deflect stock onto a desired one of said reversible roller bed sections of the respective roller bed unit.

3,633,400

HANDTOOL AND METHOD FOR SOLDERLESS ELECTRICAL CONNECTIONS

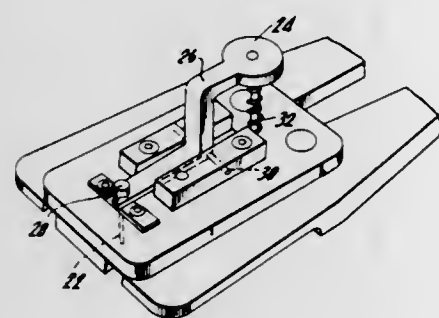
Richard J. Wunder, Richboro, Pa., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Dec. 3, 1969, Ser. No. 881,776

Int. Cl. B21d 9/08

U.S. Cl. 72-410

10 Claims



This disclosure relates to a handtool for initially crimping a ductile, fractureable electrical connector to a pair of conduc-

tor wires disposed in openings in the connector in order to form an electrical connection to the wires. The tool is provided with a mandrel which is adapted to engage an additional opening in the connector during the initial crimping operation in order to maintain the additional opening free to receive another wire, post or other electrical connection to be fastened to the connector in a final crimping operation at a later time.

3,633,401

METHOD AND APPARATUS FOR CHECKING ELECTROMAGNETIC FLOWMETERS

Ichiro Wada, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed July 2, 1970, Ser. No. 51,807

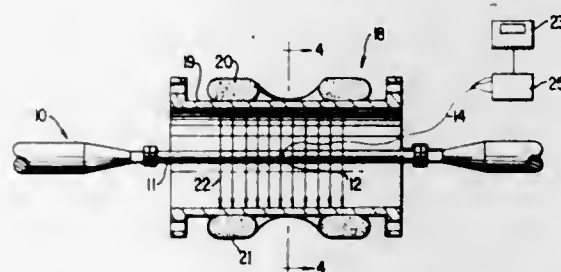
Claims priority, application Japan, July 3, 1969, 44/52289;

44/52290

Int. Cl. G01f 25/00

U.S. Cl. 73-3

5 Claims



A device for checking electromagnetic flowmeters includes a flat duct having a rectangular section which is made of an electrical insulating material. The flat duct has a pair of electrode which extend in a widthwise direction through the opposite sidewalls thereof. When it is desired to check the electromagnetic flowmeter, the flat duct is inserted into a tubular duct of the electromagnetic flowmeter such that the pair of electrodes of the former are positioned along a diameter of the latter. A small amount of liquid is then passed through the flat duct. Exciting means are provided for generating a magnetic flux around the tubular duct of the electromagnetic flowmeter to be checked. The magnetic flux generated passes through the liquid flowing through the flat duct in a direction perpendicular to a line extending between the pair of electrodes. In accordance with the liquid flow, an electromotive force is generated and the same may be measured to indicate the approval or rejection of the electromagnetic flowmeter.

3,633,402

DEADWEIGHT TESTER WEIGHTS

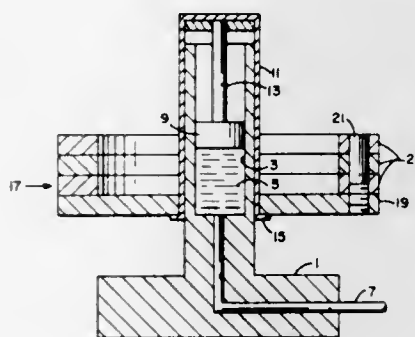
James R. Miller, III, 7812 Charlotte Drive, Huntsville, Ala., and Robert W. Peterson, 772 Quince Orchard Blvd. Apt. 201, Gaithersburg, Md.

Filed Aug. 31, 1970, Ser. No. 68,269

Int. Cl. G01l 27/00, 7/16

U.S. Cl. 73-4 D

1 Claim



A weight set for applying a deadweight in the fluid-supplied piston of a pressure test set to produce a propor-

tionate pressure in the supporting fluid. The weight includes a circular baseplate disposed for rotation around the cylinder of the test set and provided with an axial rod for engaging the piston. The weight set is spun around the piston to overcome static friction and provide a steady pressure in the fluid. A number of hollow cylinder weights are secured to the plate to provide a high moment of inertia per mass and achieve an appreciable spin time for accurate reading of the fluid pressure.

3,633,403

HIGH-FREQUENCY VISCOELASTIC VIBRATOR

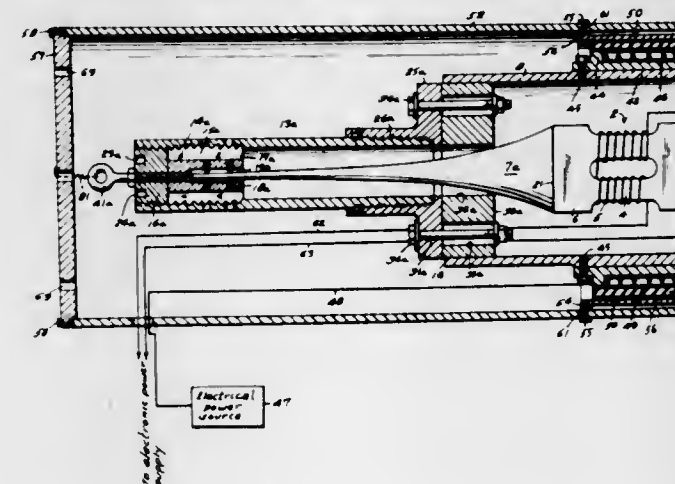
Patrick H. McDonald, Raleigh, N.C.; Henry W. Blake, Oak Ridge, Tenn.; Guy A. Myers, Raleigh, N.C.; Claud E. Pugh, Oak Ridge, Tenn., and Edward S. Todd, East Hartford, Conn., assignors to The United States of America as represented by the Secretary of the Army

Filed Feb. 6, 1970, Ser. No. 9,296

Int. Cl. G01n 3/32, 25/00

U.S. Cl. 73-15.6

3 Claims



Apparatus for obtaining meaningful data on the high-frequency properties and behavior of viscoelastic substances consisting of a magnetostrictive oscillator driven by a high-frequency power supply and having an exponential horn coupled to each of two opposite ends whereby amplification of the motion of the two opposite ends is obtained to produce an amplified pure full-wave shape of the oscillatory longitudinal (axial) motion generated by the magnetostrictive oscillator. The throats of the exponential horns are mechanically coupled to a cylindrical assembly which comprises a housing for the magnetostrictive oscillator and horns assembly. An outer cylinder or cylinder of greater diameter than the diameter of said housing and at least equal to the length of said housing is positioned concentric therewith to provide an enclosure therefor. A first specimen holder is affixed to the periphery of said assembly intermediate its ends and a second specimen holder is affixed to the interior surface of the outer cylinder opposite the first holder. The specimen is cast or otherwise affixed between these two holders. The mechanical axial oscillations generated by the magnetostrictive oscillator and amplified by the exponential horns are coupled to the assembly which responds thereto to impart axial oscillations to the specimen through the first holder.

3,633,404

PROGRAMMER FOR CHROMATOGRAPHIC ANALYZER

Craig S. Chandler, Bartlesville, Okla., assignor to Phillips Petroleum Company

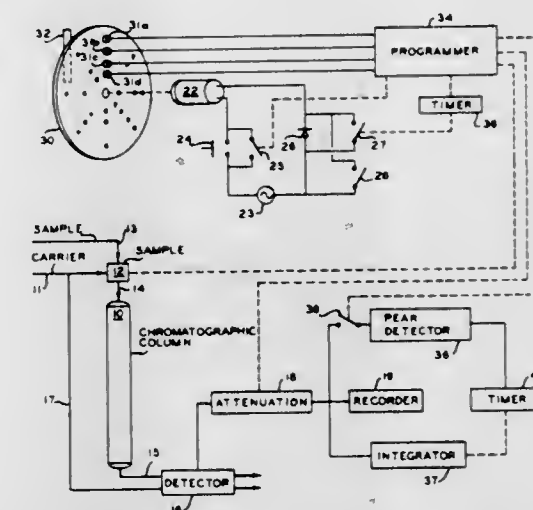
Filed Mar. 12, 1970, Ser. No. 19,005

Int. Cl. G01n 31/08; G01d 15/08; G06f 15/46

U.S. Cl. 73-23.1

The timing motor which controls a programmer of a chromatographic analyzer is stopped during intervals of the analy-

sis cycle when control operations are not being performed.



This permits higher speeds of rotation during the remainder of the cycle, and thereby results in more accurate switching.

3,633,405

ROTARY INERTIAL IMPACTOR FOR SAMPLING ATMOSPHERIC PARTICLES

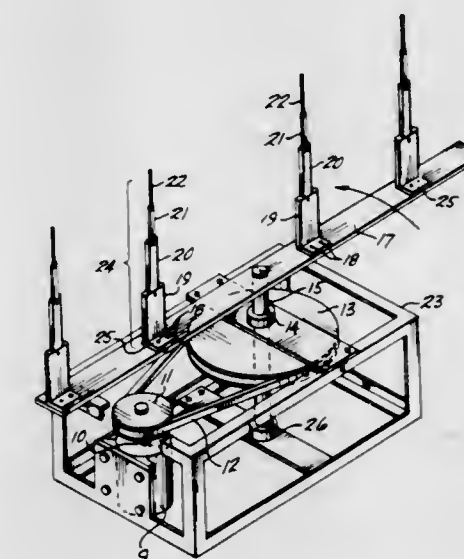
Kenneth E. Noll, Sacramento, Calif., assignor to The Battelle Development Corporation, Columbus, Ohio

Filed Feb. 16, 1970, Ser. No. 11,437

Int. Cl. G01n 15/00

U.S. Cl. 73-28

19 Claims



A multistage inertial impactor is disclosed having a plurality of collection stages and impactor surface characteristics. The impactor comprises a motor-driven rotor arm mounted for rotation about an axis having a plurality of impactor stages mounted at various locations on the rotor arm. The sample surfaces comprise flat elements disposed perpendicularly to the path of rotation. Several sample surfaces are provided at each impactor stage and extend upwardly from the rotor arm in a tiered arrangement.

3,633,406

APPARATUS FOR TESTING ARTICLES

Thomas F. Helms, New Fairfield, Conn., assignor to IDEX Corporation, Danbury, Conn.

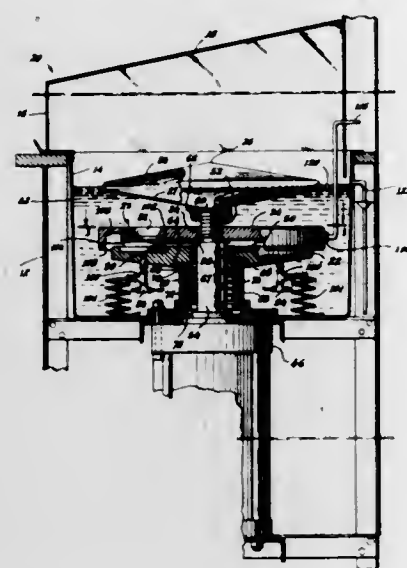
Filed June 22, 1970, Ser. No. 48,043

Int. Cl. G01m 3/06

U.S. Cl. 73-45.5

An apparatus for testing articles such as can ends and the like is described. A lid for a can is placed to cover a pres-

surizable test chamber in a lower platen. An upper platen is brought down over the lid to firmly clamp the lid against the test chamber and submerge the platens below the surface of a body of liquid such as water. The upper platen is provided with a gas bubble capturing chamber to prevent gas bubbles



trapped in and about the submerged structure from interfering with the observation of articles through ports in the upper platen. A transparent liquid damper is employed over the upper platen and is selectively spaced to be partially submerged in the liquid over the viewing ports for clear viewing of articles under test.

3,633,407

ACOUSTIC HOLOGRAPHY WITH A FREQUENCY-SHIFTED REFERENCE BEAM

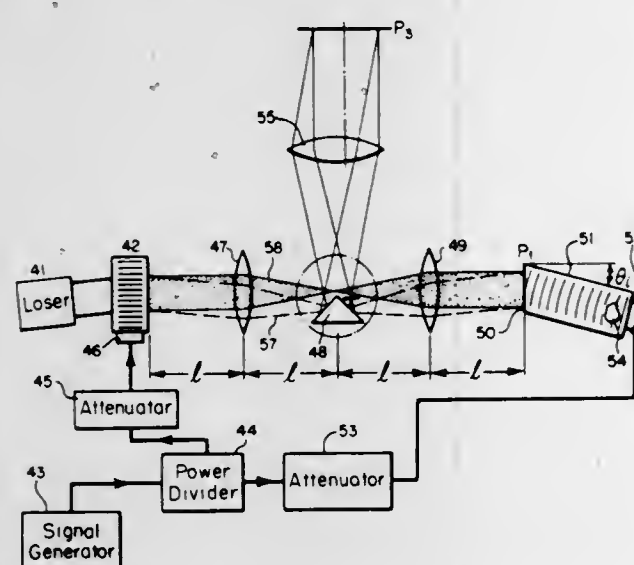
Robert L. Whitman, Oak Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Feb. 16, 1970, Ser. No. 11,524

Int. Cl. G01n 29/04

U.S. Cl. 73-67.5 H

8 Claims



An acoustic interference pattern as manifested upon a compliant surface and caused by an impinging acoustic field carrying image information is visualized into an observable optical interference pattern which is photographed constitutes a hologram of the image information. A source beam of laser light is diffracted from the surface into a subject beam which is thereby modulated with the image information and frequency-shifted from the source light. The subject beam is separated from other diffracted light components and from background scattered noise light and directed to in-

terfere with a reference beam at an angle such that spurious images are minimized. The reference beam is also derived from the source beam and also frequency-shifted for coherence with the subject beam, thereby forming stationary fringes representative of the acoustic interference pattern.

3,633,408

PRESSURIZED OMNIDIRECTIONAL STRESS TRANSDUCERS GAGE SYSTEM

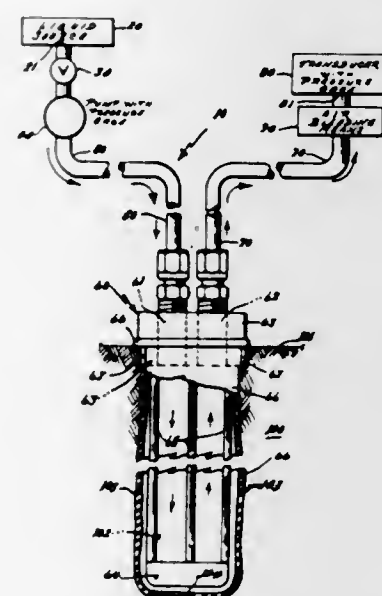
Sidney F. Johnston, Jr., Albuquerque, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Sept. 10, 1970, Ser. No. 70,970

Int. Cl. G01b 5/30

U.S. Cl. 73-88 E

2 Claims



A system for taking transient subsurface pressure measurements at various depths in solid media. The system includes a source of liquid, a container assembly with a liquid-impervious, distensible, flexible and resilient container having an inlet and an outlet, a first hollow conduit from the source of liquid to the container inlet, a pump to move the liquid through the first conduit from the source to the inlet of the container, a transducer with pressure gage, and a second hollow conduit from the outlet of the container to the transducer. A hole is made in the solid medium and the container is lowered therein. The container is distended by filling it with the liquid from the liquid source until the outer surface of the container conforms to the configuration of the hole and the container becomes closely and completely coupled with the solid medium. Any pressure applied to the solid medium is transmitted to the liquid-filled container and, through the liquid, to the transducer.

3,633,409

APPARATUS FOR THE DETERMINATION OF THE DEFORMATIONAL PROPERTIES OF DOUGHY MATERIALS, PASTES AND MELTS

Joachim Meissner, Fussgonheim, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed Jan. 26, 1970, Ser. No. 5,841

Claims priority, application Germany, Jan. 28, 1969, P 19 04 079.0

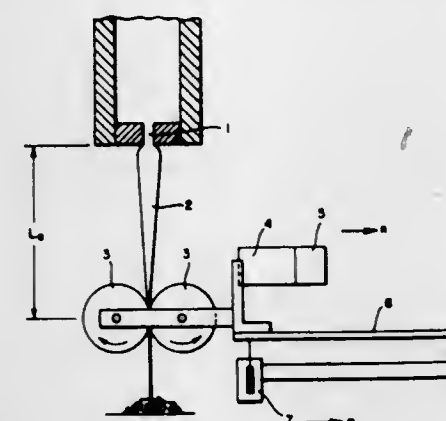
Int. Cl. G01n 3/08

U.S. Cl. 73-95.5

5 Claims

Apparatus for the determination of the viscoelastic properties and particularly of the elongation behavior of materials having consistencies ranging from those of doughs to those of

melts, in which a pair of rollers attached to the end of a thereby the blades, for testing the turbine, and the indicator deflectable arm and driven at a variable speed applies pull to means are adapted to indicate the attainment of the governed



a descending strand of the material, and in which the force deflecting the arm at a given speed is continuously measured.

3,633,410

DEVICE FOR MEASURING THE MAXIMUM PRESSURE IN THE INTERNAL COMBUSTION ENGINE CYLINDERS

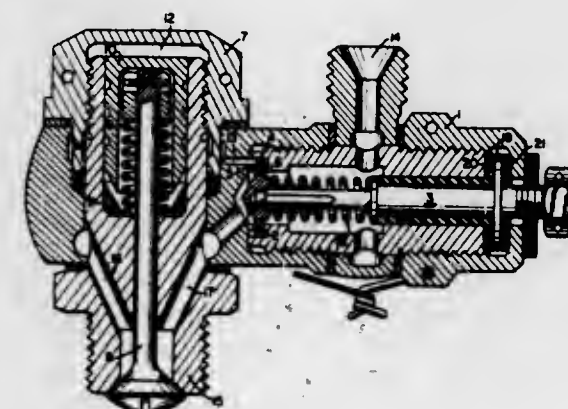
Afanasy Alexandrovich Isaev, Kolpino, ul. Volodarskogo, 12 kv. 2, Leningrad, U.S.S.R.

Continuation of application Ser. No. 740,309, May 26, 1968, now abandoned. This application July 24, 1970, Ser. No. 64,065

Int. Cl. G01m 15/00

U.S. Cl. 73-115

5 Claims



An apparatus for measuring maximum pressure in the cylinder of an internal combustion engine includes two primary chambers, in each of which is shiftably mounted a valve. The valves act to control the direction of flow of a controlled pressurized medium introduced into one of the primary chambers, and the direction of flow of a pressurized medium to be measured when introduced into the other chamber from the cylinder of an internal combustion engine.

3,633,411

TURBINE-TESTING APPARATUS

Robert Mehew Bass, Cranham, and John Alfred Chilman, Palmswick, both of England, assignors to Dowty Rotol Limited, Gloucester, England

Filed Aug. 18, 1969, Ser. No. 850,882

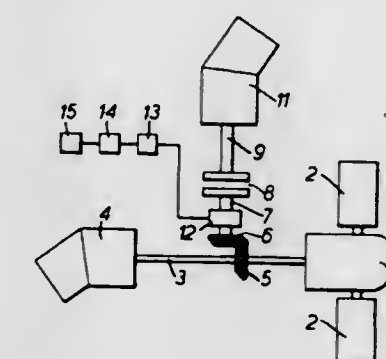
Claims priority, application Great Britain, Aug. 28, 1968, 41,010/68

Int. Cl. G01m 15/00

U.S. Cl. 73-116

11 Claims

Apparatus including in combination a turbine (1), a governor, a rotary device (11) and indicator means (14). The governor is adapted to govern the speed of the turbine by varying the pitch of the turbine blades (2) between their low-pitch position and their high-pitch position. The rotary device is connectable to rotate the hub of the turbine and



speed when the turbine is driven by the device and the power delivered by the device is increased beyond that which the turbine can absorb with the blades in the low-pitch position.

3,633,412

EQUIPMENT FOR TESTING THE BRAKES OF AUTOMOBILES

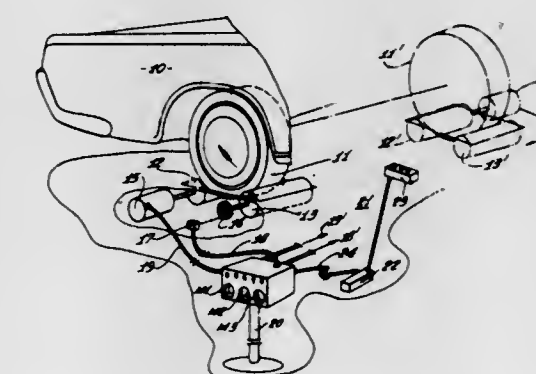
Edmond R. Pelta, Pacific Palisades, Calif., assignor to Autotscan, Inc., Los Angeles, Calif.

Continuation of application Ser. No. 790,812, Jan. 13, 1969, now abandoned. This application May 21, 1970, Ser. No. 39,570

Int. Cl. G01l 5/28

U.S. Cl. 73-126

38 Claims



Brake-testing equipment is disclosed for measuring brake response and effort and brake distance. High-inertia rolls are drivingly coupled to the wheels and different reactions between wheels, rolls and constant speed roll drive for the rolls are ascertained as to instantaneous responses as well as integrated effects. Brake pedal force is ascertained concurrently. Measuring values are represented by electric signals processed electronically. Processing includes formation of products and ratios using Hall devices.

3,633,413

DEVICE FOR MEASURING PULLING POWER

Russell P. Case, Prospect, Ohio, assignor to National Tractor Pullers Association, Upper Sandusky, Ohio

Filed July 27, 1970, Ser. No. 58,298

Int. Cl. G01l 3/00, 5/12

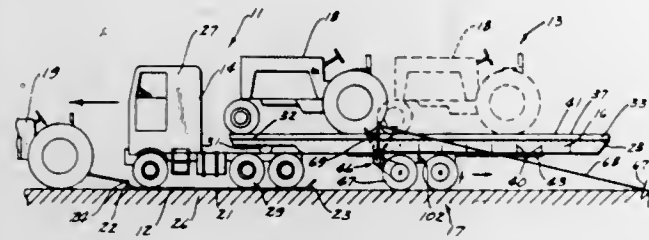
U.S. Cl. 73-141 R

12 Claims

A device for measuring the relative pulling power of a power source is provided herein. The device comprises a front portion, generally a motorized cab, and a rear portion, generally a trailer having a weight immovably secured thereon. The rearward end of the trailer is supported by wheels which are movable relative to the rearward end of the trailer and in the opposite direction that the cab is moved. The cab is placed on a sled and the sled is secured to a tractor or other power source. As the tractor pulls the sled for-

wardly, the trailer wheels move, relative to the trailer, rearwardly thus increasing the load on the sled and measuring the

direction, by virtue of the response of the rotor of the synchro. Computing means are additionally provided for computing the magnitude velocity of the fluid flow under



relative pulling power of the tractor by eventually causing the tractor to stall.

3,633,414

METHOD AND APPARATUS FOR MEASURING RATE OF BOTTOM HOLE PRESSURE CHANGE

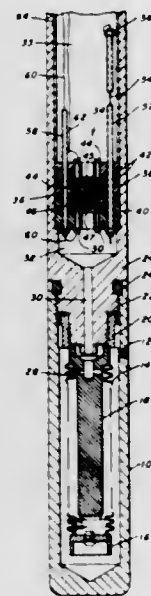
Harold S. Field, and James C. Harper, both of Tulsa, Okla., assignors to Geophysical Research Corporation, Tulsa, Okla.

Filed Apr. 27, 1970, Ser. No. 32,231

Int. Cl. E21b 47/06

U.S. Cl. 73-152

6 Claims



The rate of change of bottom hole pressure within oil and gas wells is measured by an apparatus and method. The pressure differential across a flow restriction placed between well hole pressure and a pressure gauge is measured to provide a direct indication of rate of change of pressure.

3,633,415

FLOWMETER

John W. Luce, Arnold, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

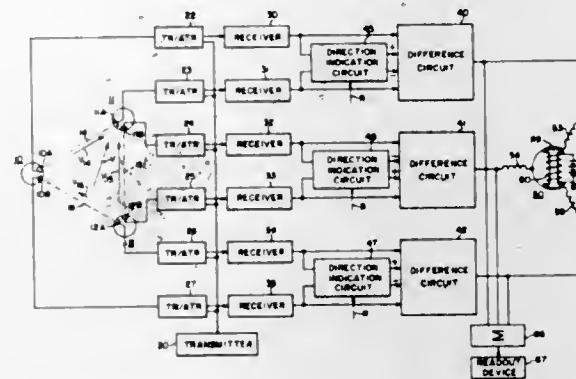
Filed Mar. 28, 1969, Ser. No. 811,359

Int. Cl. G01p 5/00; G01w 1/02

U.S. Cl. 73-189

8 Claims

A flowmeter measures fluid speed and flow direction in a plane. The flowmeter includes three transducer stations each of which projects acoustic energy towards the other two upon the simultaneous application of a drive signal. Each transducer station provides an output signal in response to the acoustic energy received from a corresponding other transducer station and the respective output signals, which occur at times depending upon the fluid flow, are utilized to obtain the time difference of travel of acoustic energy between the transducer stations to provide a plurality of difference signals. The difference signals are also applied to three stator windings of a synchro in order to obtain a vector



measurement. In another embodiment speed and direction of fluid flow is obtained by electromagnetic means including three spaced-apart electrical contact pick-ups.

3,633,416

METHOD AND APPARATUS FOR CONTROLLING AND METERING GAS FLOW

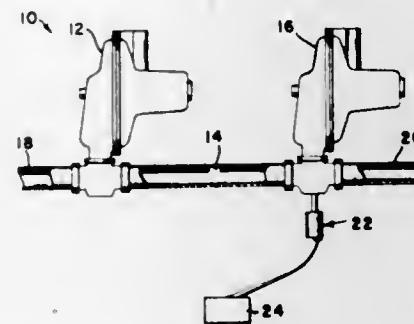
John Van Dyke, and Albert R. Milliroj, both of Columbus, Ohio, assignors to Columbia Gas System Service Corporation, New York, N.Y.

Filed May 7, 1970, Ser. No. 35,323

Int. Cl. G01f 1/04

U.S. Cl. 73-199

12 Claims



A system is disclosed for metering the flow of gas which includes a pressure-control regulator through which gas flows from the supply line to an intermediate line, and a metering regulator through which the gas flows from the intermediate line to the discharge line. The gas pressure in the supply line varies, but is always greater than that in the discharge line which must be maintained constant. The pressure-control regulator maintains a predetermined intermediate pressure in the intermediate line, i.e., a pressure somewhat higher than the pressure in the discharge line. The metering regulator has a valve element, the position of which is moved between its fully closed and fully open positions to control the rate of gas flow through the metering regulator and thereby maintain the predetermined pressure in the discharge line. An electrical transducer is coupled to the movable valve element and transmits an electrical signal to an electrical integrator and recording system. The transducer electrical signal is a function of the position of the movable valve element, and is indicative of the rate at which gas is flowing through the metering regulator. That signal is combined with time by the integrator and recording system to produce a readout of the total volume of gas supplied through the discharge line.

3,633,417

REMOVABLE SEWER CONDUIT FLOWMETER

Albert Montague, 2925 West 5th St., Brooklyn, N.Y.

Filed Feb. 2, 1970, Ser. No. 7,748

Int. Cl. G01f 1/06

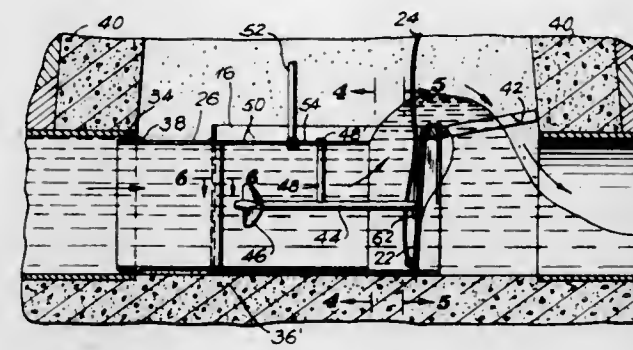
U.S. Cl. 73-231 R

6 Claims

A construction is described for insertion to the invert of a sewer conduit system or the like in order to determine the

rate of flow in that system. The device includes a flow tube apparatus which may be permanently inserted to the sewer system and which converts open channel flow of the system

basin, a wave-forming means provided at one end of said long basin, a wave damper at the other end thereof, a water circulation channel extending along the outside of said basin to communicate with the bottom of each end of said basin in



into full pipe flow for greater accuracy in measurement of the flow rate. Also included in the construction is a metering apparatus which may be lowered into the flow tube apparatus when a measurement is desired.

3,633,418

ADJUSTABLE TORQUE WRENCH TRANSLATING DEVICES

Kenneth R. Larson, Des Plaines, Ill., assignor to Snap-On Tools Corporation, Kenosha, Wis.

Continuation-in-part of application Ser. No. 735,401, June 7, 1968. This application May 7, 1969, Ser. No. 822,624

Int. Cl. G01l 5/24

U.S. Cl. 73-139

12 Claims



A torque-measuring wrench that effectively and accurately translates the twist in a work-engaging member to a calibrated meter spaced therefrom through an improved elongate twist-translating member operatively disposed therebetween that maintains a fixed meter-actuating moment arm for each setting, and provides for the convenient straight line moment arm adjustment between the translating member and the calibrated meter to enable simple and accurate calibration corrections by the user to insure precise measurements commensurate with the applied turning load. The translating member is of comparatively light nonflexible construction to render such responsive to abnormal deflections when the prescribed manual application of the turning force is inadvertently applied during the use thereof. This is accomplished with an improved twist-translating arm and mount therefor which embodies an improved straight line moment arm that is capable of adjustable setting with the calibrated meter operating lever through a removable housing closure without dismantling any part of the wrench assembly.

3,633,419

EXPERIMENTAL BASIN AND MEANS FOR TESTING BEHAVIORS OF OFFSHORE MARINE STRUCTURES

Yukio Arita; Yoshiaki Nakao, both of Hiroshima; Takashi Iwai, Saito-gun, and Koozoo Tagaya, Hiroshima all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

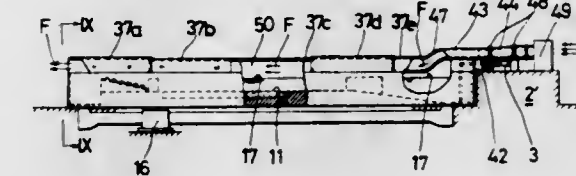
Claims priority, application Japan, Dec. 11, 1968, 43/90750

Int. Cl. G01m 10/00

U.S. Cl. 73-148

2 Claims

A basin for testing the effect of a marine platform or similar marine structure characterized by providing a long



the proximity of each end, a water-feeding means to move the water in said channel in at least one direction and thereby to produce a stream or current as desired in the water in said basin.

3,633,420

CONTINUOUS FLOW METERING AND CONTROL APPARATUS

Heinz Holzem, Monchengladbach, Germany, assignor to Pierburg Luftfahrtgerate Union G.m.b.H., Neuss am Rhein, Germany

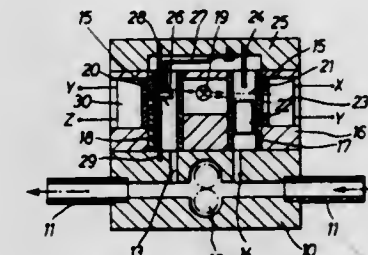
Filed Feb. 27, 1969, Ser. No. 802,940

Claims priority, application Germany, Aug. 19, 1968, P 17 98 080.2

Int. Cl. G01f 3/10

U.S. Cl. 73-199

15 Claims



The invention relates to apparatus for providing substantially immediate flow measurement and/or flow control. The apparatus incorporates a positive displacement flow meter in the form of a gear pump the speed of which is controlled in such a way that the pressure difference between the inlet and the outlet of the pump is held at zero. This pressure difference is sensed by both a proportional sensor and an integral sensor and their joint output signal is used to control a motor which drives the gear pump.

3,633,421

MOLDED PLASTIC FLOWMETER AND CONTROL VALVE THEREFOR

James W. Phillips, Michigan City, Ind., assignor to Dwyer Instruments, Inc.

Filed Apr. 22, 1970, Ser. No. 30,902

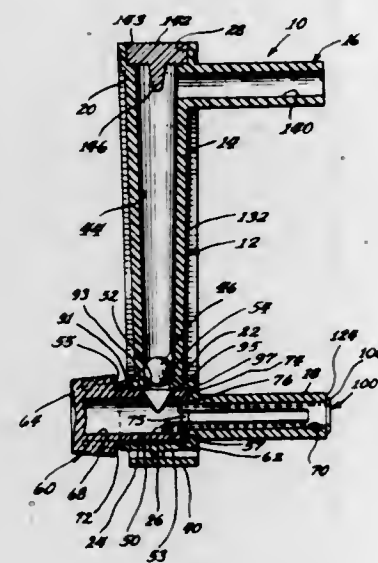
Int. Cl. G01f 1/00

U.S. Cl. 73-209

5 Claims

A flowmeter of simplified construction in the form of a one-piece molded plastic body defining a float tube, tubular mounting studs at the base and the top of the float tube that also form the fluid connections to and from the tube, and a cylindrical valve chamber at the base of the float tube and aligned with the bore of the base stud, in which chamber a hollow cylindrical valve member is mounted by interengagement with a tubular connector extending through the base stud bore and having resilient legs that engage behind an annular flange in the valve member. A float is contained in the float tube, and the valve member defines a teardrop port for sensitive metering control of fluid supplied to the float tube,

with a sealing ridge being formed about the valve member port, and sealing ridges formed about either end of the valve



member, that are in firm sealing engagement with the body wall forming the valve member.

3,633,422

URINOMETER CONSTRUCTION

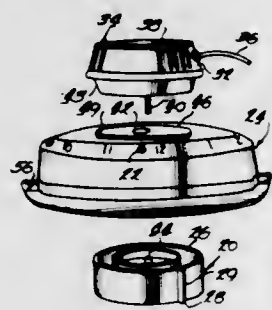
Herman R. Grieshaber, 621 Exmoor Road, Kenilworth, Ill.

Filed May 22, 1969, Ser. No. 826,989

Int. Cl. F01f 1/110

U.S. Cl. 73-219

1 Claim



A urinometer employing a compartmented receptacle, a rotatable urine-dispensing pan having a discharge spout, and a transparent detachable cover are maintained in assembled relation by means of a resilient plastic band having end portions under tension. A rotatable drive motor supportable on the cover and detachably connected thereto has a drive shaft which penetrates the cover and engages the pan so as to rotatably position the same while in an assembled condition, thereby enabling the pan spout to be disposed over a desired receptacle compartment prior to urinometer use.

3,633,423

ACOUSTIC THERMOMETERS

John F. W. Bell, Glengarth, Causey Hill, Hexham, Northumberland, England

Filed Jan. 28, 1970, Ser. No. 6,406

Claims priority, application Great Britain, Jan. 29, 1969, 4,934/69

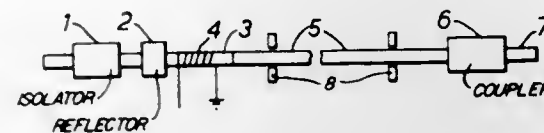
Int. Cl. G01k 1/26

U.S. Cl. 73-339 A

11 Claims

An acoustic thermometer of the resonant sensor type relies for its operation on variations in the resonant frequency of an acoustic resonator with temperature. Pulses of ultrasound are supplied over an acoustic resonator with temperature. Pulses of ultrasound are supplied over an acoustic transmission line to the acoustic resonator and an automatically operating electronic arrangement varies the frequency of the ul-

trasound to maintain the acoustic resonator in resonance as the temperature varies. The echo signals returned down the transmission line each include a crossover in their waveform,



and the electronic arrangement operates by maintaining the echo signal before crossover precisely in antiphase with the echo signal after crossover.

3,633,424

MAGNETOSTRICTIVE ULTRASONIC TRANSDUCER

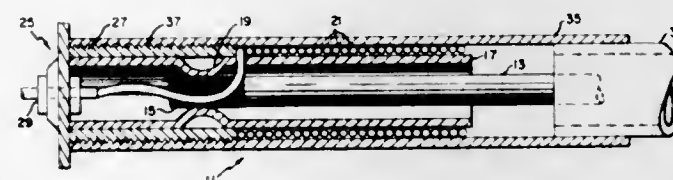
Lawrence W. Lynnworth, Waltham, and Brian J. Spencer, Billerica, both of Mass., assignors to Panametrics, Inc., Waltham, Mass.

Filed Sept. 25, 1969, Ser. No. 860,938

Int. Cl. G01k 1/24

U.S. Cl. 73-339 A

17 Claims



A magnetostrictive transducer in which unwanted pulses due to internal reflections are avoided by placing the energizing winding at or near one end of a magnetostrictive rod, the rod having a diameter which is small in relation to the wavelengths of the pulses being generated. The driven end of the magnetostrictive rod is supported by means providing a terminating impedance which is widely disparate from the characteristic acoustic impedance of the rod itself.

3,633,425

CHROMATIC TEMPERATURE INDICATOR

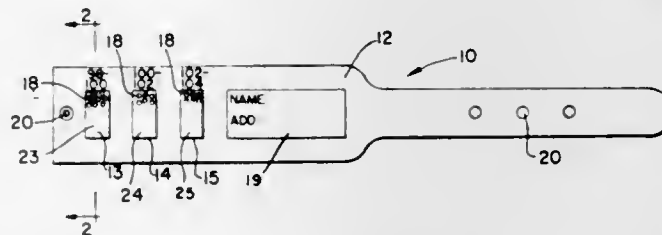
Robert A. Sanford, Marblehead, Mass., assignor to Meditech Energy and Environmental Corporation, Danvers, Mass.

Filed Jan. 2, 1970, Ser. No. 449

Int. Cl. G01k 1/116

U.S. Cl. 73-356

22 Claims



A fever indicator which can be visually monitored by observation of a temperature-dependent color-changing characteristic thereof. Said indicator is advantageously formed of a mixture of liquid crystals, e.g., a mixture formed of cholesteryl pelargonate and cholesteryl oleyl carbonate and maintained in contact with a porous and inert, but translucent, material. The mixture is incorporated into an apparatus comprising a reservoir, which can be formed of the porous inert material, and normally includes a fastening means for holding said reservoir in close contact with the body of a patient. Where a black background is required to aid the visibility of the color change, graphite-type carbon powders have been found most advantageous for use.

3,633,426

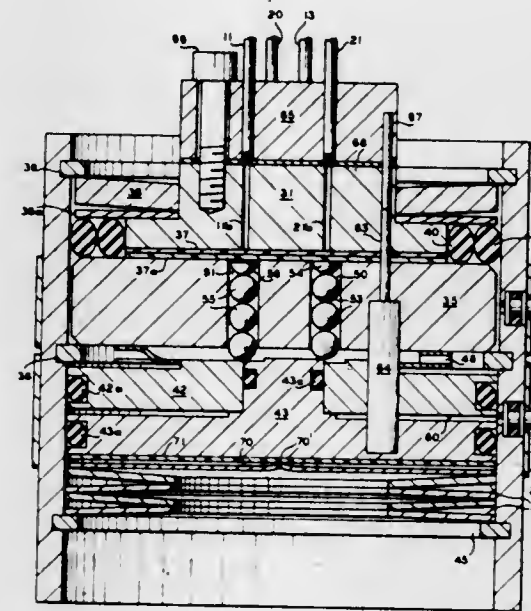
CHROMATOGRAPHIC ANALYZER SAMPLE VALVE

Arthur B. Broerman, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Aug. 10, 1970, Ser. No. 62,551

Int. Cl. G01n 1/00

U.S. Cl. 73-422 GC



A sample valve for a chromatographic analyzer is actuated by a pair of pistons which move plungers to block communication between selected valve ports. The valve components are contained within a cylindrical housing by split rings and spring washers. The force exerted by the washers on one end of the valve assembly is concentrated by a cylindrical plate having a central protrusion.

3,633,427

VEHICLE WHEEL SPINNER

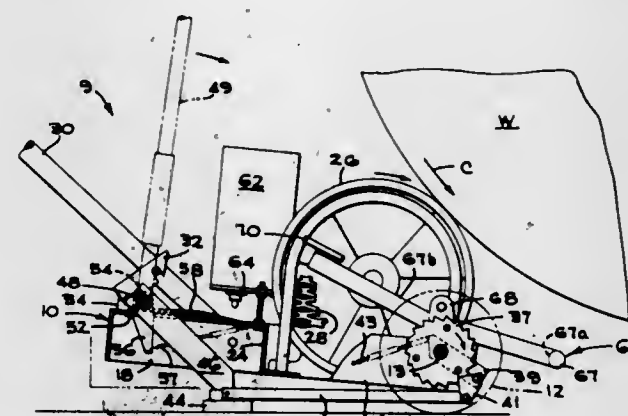
Larry A. Wilhelm, Lansing, Mich., assignor to FMC Corporation, San Jose, Calif.

Filed Apr. 9, 1970, Ser. No. 27,002

Int. Cl. F16m 3/00

U.S. Cl. 74-16

17 Claims



A wheel spinner device has legs which, on actuation, tilt the frame of the device to urge a rotating drum thereon into the vehicle wheel to be spun. Wheels on the frame are locked by pawl and ratchet to hold the drum against the vehicle wheel during spinning. A brake member on the front of the frame swings, when actuated, into braking engagement with the spinning wheel after the drum is withdrawn.

3,633,428

CONVEYOR BELT

Richard Pott, Heiden, Germany, assignor to Westland Gummiwerke GmbH & Co., Melle, Germany

Filed Oct. 16, 1970, Ser. No. 80,849

Int. Cl. F16g 1/00; B65g 15/00

6 Claims U.S. Cl. 74-231 R

10 Claims



A conveyor belt for steep-path conveying has a main belt portion provided on its conveying surface with a plurality of projections which include with the conveying surface acute angles open in the direction of advancement of the conveyor. Corrugated sidewall portions extend along opposite margins of the main belt portion and project from the conveying surface thereof at opposite lateral sides of the projections, the corrugations of these sidewall portions being inclined in the predetermined direction of advancement of the belt and also including with the conveying surface respective acute angles.

3,633,429

PISTON STROKE CONTROL MECHANISM

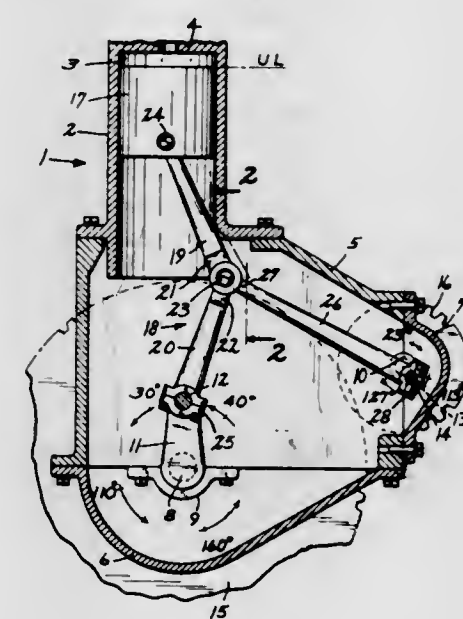
Thorvald N. Olson, Ormsby, Minn.

Filed June 8, 1970, Ser. No. 44,102

Int. Cl. F02b 75/32; F16h 21/22

U.S. Cl. 74-44

5 Claims



Connections between a reciprocating piston and a cooperating crankshaft for providing a substantial dwell period for the piston at opposite ends of each stroke of reciprocatory movement of the piston. The connections include a connecting rod comprising a pair of pivotally connected rod sections between the piston and crankshaft, a control shaft, crank means on the control shaft, a control rod

connected to the crank means and the connecting rod, and connections between the crankshaft and control shaft for imparting rotation to the control shaft at a predetermined speed relative to that of the crankshaft.

3,633,430

REDUCTION GEAR TRANSMISSION

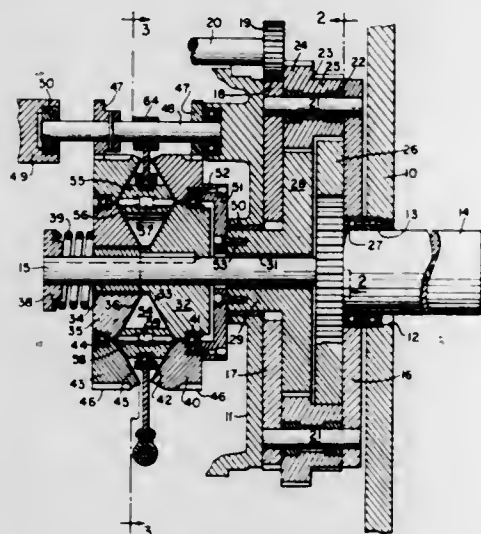
Arthur P. Bentley, Box 139, Boerne, Tex.

Filed Jan. 26, 1970, Ser. No. 5,645

Int. Cl. F16h 15/14, 37/00, 15/08

U.S. Cl. 74-690

7 Claims



This specification discloses a reduction gear transmission comprising an input shaft carrying a pinion, a satellite carrier having a gear meshing with the pinion, a composite satellite gear on said carrier and including two sections, one with a greater number of teeth than the other, an output gear meshing with the satellite gear section having the smaller number of teeth, an output shaft drivably carrying the output gear, and a holding gear meshing with the other section of the satellite gear and having a hub in which the output shaft is journaled. The hub extends through an opening in the housing in which the aforesaid gear mechanism is mounted. An infinite ratio gear assembly is operatively associated with the hub to control its rate of rotation. This gear assembly includes an inner pair of beveled gears in confronting relation, relatively axially movable, and keyed to the output shaft; an outer pair of beveled ring gears in confronting relation to each other and also confronting the inner beveled gears, a mechanical interlock to cause said outer beveled gears to rotate in unison, all of the faces of said beveled gears having radial grooves, a pin ring disposed in the space defined by the faces of the beveled gears, pins carried by said pin ring and having ends received in said grooves, and a ring shifting device to move the ring radially and thereby adjust the radial positions of the pin ends in the grooves.

3,633,431

PULLEY AND METHOD OF MAKING THE SAME

Peter J. Van Bussel, 2006 N. Gulley, Dearborn, Mich.

Filed June 10, 1970, Ser. No. 44,943

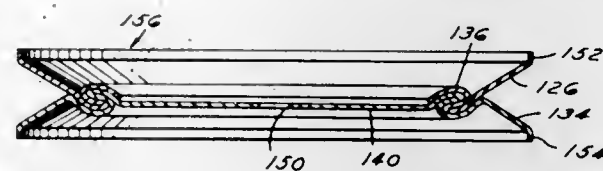
Int. Cl. F16h 55/44

U.S. Cl. 74-230.8

30 Claims

The invention relates to manufacture of a V-type pulley and the pulley construction. Several embodiments of both the method of manufacture and pulley construction are disclosed. Basically, all of the embodiments have in common the use of the pair of sheet metal discs as the starting blanks for manufacturing a single pulley. The discs are progressively formed into a final pulley in three stages. In the first stage, the metal discs are formed into nesting blanks forming an intermediate preclinched blank assembly shaped to facilitate the second step which involves acting upon the first assembly

in a die to form an intermediate clinched blank assembly in which the discs are held together by an annular clinched portion. In the third step, the clinched blank assembly is acted upon to spread apart the outer rim sections to form a V-groove for the reception of a V-belt. A multipulley construction is disclosed in which a plurality of the single pulleys are



clinched together Los Angeles, all of form a multipulley having several V-grooves for simultaneous use in connection with several V-belts. One preferred form of the clinched portion comprises mutually intertwining generally S-shaped sections of each disc, end portions of the S-shaped sections being folded back upon the S-shape

3,633,432

PULLEY CONSTRUCTIONS

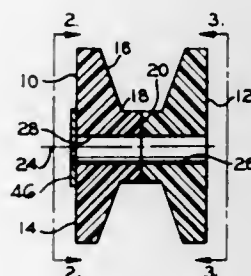
Edgar T. Horsey, Chagrin Falls, Ohio, assignor to E. T. Horsey & Company Incorporated, Chagrin Falls, Ohio

Filed Dec. 29, 1969, Ser. No. 888,344

Int. Cl. F16h 55/46

U.S. Cl. 74-230.11

7 Claims



The drawings disclose several V-belt-type pulleys which are composite plastic and metal. The pulleys are arranged so that all elements can be simple injection molded plastic parts or metal stampings. None of the pulleys require any machining steps in their manufacture.

3,633,433

GEAR RACK FOR A TRACK OF SUSPENDED OR OVERHEAD CONVEYORS

Eugen Schurch, Gerlafingen, Switzerland, assignor to Von Roll AG, Gerlafingen, Switzerland

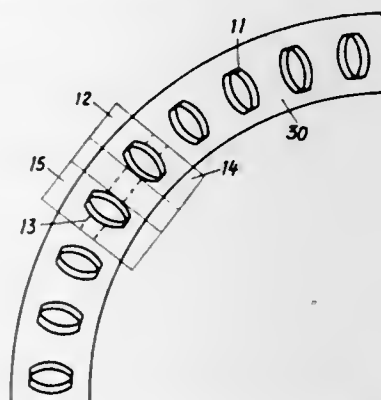
Filed May 25, 1970, Ser. No. 40,194

Claims priority, application Switzerland, May 28, 1969, 8083/69

Int. Cl. F16h 1/06, 1/04, 55/06

U.S. Cl. 74-415

6 Claims



A gear rack arrangement for the track of an overhead conveyor system in which the movement of the transport unit is

undertaken through the agency of a gear rack and pinion drive. The drive pinion of the transport unit meshes with the gear rack arranged at the track. According to an important aspect of the invention, the teeth of the gear rack are designed such that their thickness radially reduces inwardly and outwardly at the track curves, the plane of which is situated parallel to the plane of the gear rack.

3,633,434

MIXTURE RATIO CONTROL

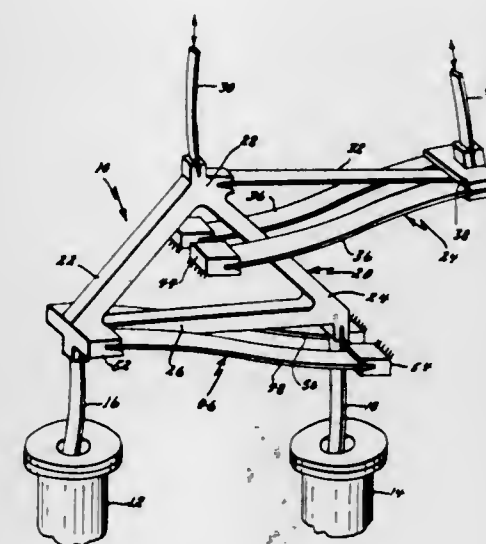
Herbert J. Hoffman, Torrance, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Mar. 24, 1970, Ser. No. 22,316

Int. Cl. G05g 1/00

U.S. Cl. 74-470

8 Claims



A mixture ratio control having a pair of valve arms attached to a rigid triangular-shaped member. A mixture ratio control actuator and a throttle actuator are also attached to the rigid member. Movement of the mixture ratio control actuator determines the vertical position of the pair of valve arms and therefore determines the flow through a pair of valves utilized in conjunction with the valve arms. After a setting of the mixture ratio control actuator, any subsequent movement of the throttle actuator moves the valve arms in a substantially straight line. Furthermore, throughout the entire throttle stroke the mixture ratio percentage flow through the valves remain constant.

3,633,435

BIDIRECTIONAL FORCE OVERRIDE

Alton E. Farr, Rolling Hills, Calif., assignor to McDonnell Douglas Corporation

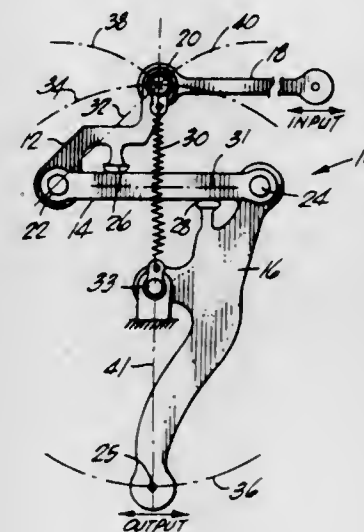
Filed Nov. 2, 1970, Ser. No. 86,131

Int. Cl. G05g 1/04

U.S. Cl. 74-470

10 Claims

Bidirectional force override mechanisms one embodiment of which includes a first link with one end pivotally connected to a reciprocating input rod and with the other end pivotally connected to the end of a second link, the other end of which is pivotally attached to an output link which is itself pivotally mounted to rotate about a stationary pivot. The output link is further interconnected to the first link by a spring connected therebetween which acts to preload the pivotal joints of the second link and to provide relatively constant



predetermined load is applied in either direction across the mechanism.

3,633,436

SINGLE-LEVER ACTUATED LINKAGE FOR CONTROLLING THE TRANSMISSION AND STEERING OF A CRAWLER TRACTOR

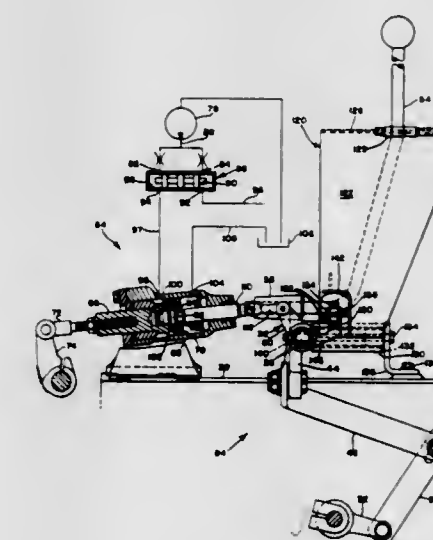
Thomas William Freiburger, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Oct. 9, 1970, Ser. No. 79,514

Int. Cl. G05g 9/04

U.S. Cl. 74-471 XY

23 Claims



A control linkage for a crawler tractor includes first, second and third two-armed cranks mounted for selective rocking about a horizontal transverse shaft and connected for respectively controlling the transmission settings and the steering. An upwardly extending hand lever for actuating the cranks has a longitudinally extending bottom end portion pivotally mounted in one arm of the first crank and is movable fore-and-aft to rock the first crank and shift the transmission. An inverted U-shaped housing straddles the lever and pivots about a longitudinal axis so as to be swung transversely with the lever when the latter is swung about its pivot connection. A pair of oppositely extending transverse members are fixed to the housing and respectively rock the second and third cranks to steer the tractor to the right and to the left when the housing is swung respectively to the right and to the left from a vertical position by means of the lever.

3,633,437

HAND CONTROL DEVICE FOR SPEED CHANGE GEAR MECHANISM OF A BICYCLE

Takuo Ishida, c/o Shimano Industrial Co. Ltd., No. 77, 3-cho, Oimatsu-cho, Sakai, Osaka, Japan

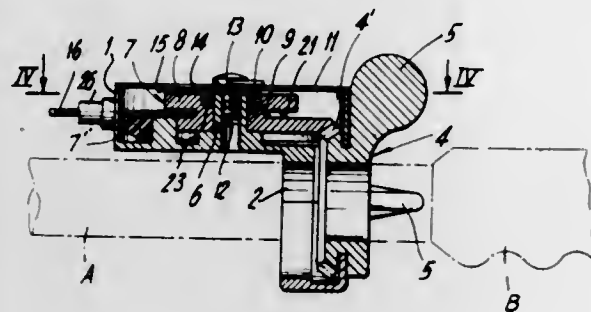
Filed Oct. 17, 1969, Ser. No. 867,213

Claims priority, application Japan, July 31, 1969, 44/73184

Int. Cl. G05g 7/02

U.S. Cl. 74-489

5 Claims



A hand control device for the speed change gear mechanism of a bicycle comprising a drive means mounted rotatably around a handle rod in the proximity of the grip of this rod, a driven means being rotatable along with the movement of said drive means provided with an operable wire which is connected in its one end with the speed change gear and connected in its other end with said driven means so that said driven means is moved by the movement of said drive means to operate the gearshift for changing the speed whereby a rider can control the speed easily and safely with the fingertip of his hand grasping the handle grip.

**3,633,438
STEERING GEAR**

Toshiaki Akamatsu, Okazaki-shi, and Shou Honda, Toyota-shi, both of Japan, assignors to Toyota Jissha Kogyo Kabushiki Kaisha, Toyota-cho, Toyota-shi, Aichi-ken, Japan

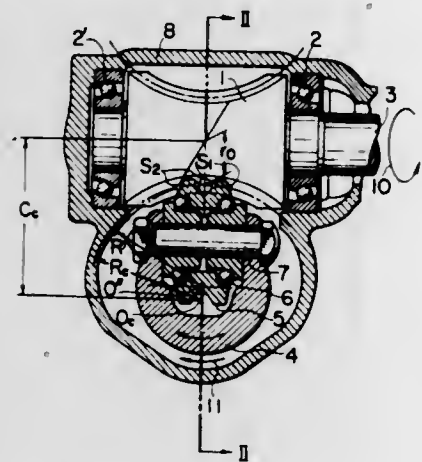
Filed Jan. 19, 1970, Ser. No. 3,892

Claims priority, application Japan, Jan. 23, 1969, 44/4402

Int. Cl. B62d 3/10

U.S. Cl. 74-500

6 Claims



A steering gear includes an hourglass worm fixed to rotate with a steering wheel shaft, and a sector shaft mounting a roller shaft rotatably supporting a toothed roller in engagement with the worm. The roller shaft supports the roller in engagement with the worm with at least one pair of contact points, between the tooth surfaces of the roller and the worm, and which contact points are symmetrical with respect to a diametric plane through the center of the worm, located substantially in a plane including the axis of the roller shaft when the roller is in a neutral position relative to the worm.

The contact points are at the extreme outer tooth surfaces of the roller. The roller setting angle differs from the worm lead angle at the neutral, or straight line driving, position of the worm.

3,633,439

TRANSMISSION CONTROL

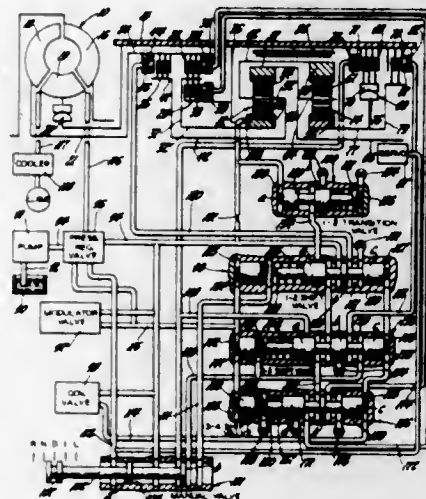
Robert E. Annis, Howell, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 19, 1970, Ser. No. 64,978

Int. Cl. F16h 47/00, 3/74; B60k 21/10

U.S. Cl. 74-751

3 Claims



An automatic transmission control having a transition valve controlled by a transmission gearing member to maintain one transmission drive engaged to drive a load until another transmission drive is established with sufficient torque capacity to drive the load.

3,633,440

TRANSMISSION CONTROL

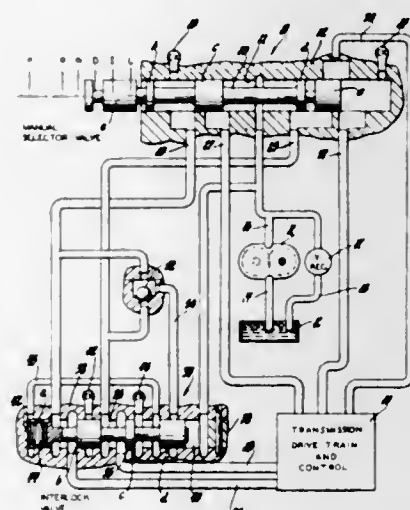
Gordon D. Corrigan, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 24, 1970, Ser. No. 13,452

Int. Cl. B60k 27/08

U.S. Cl. 74-753

3 Claims



A transmission control having an interlock valve that operates to prevent delivery of fluid from a manual selector valve to a transmission's fluid pressure operated drive establishing devices unless the manual selector valve has previously selected a transmission condition in which no drive is established.

3,633,441

GEAR TRAINS

Raymond John Hicks, Llanwrthwl, Wales, assignor to Vickers Limited, London, England

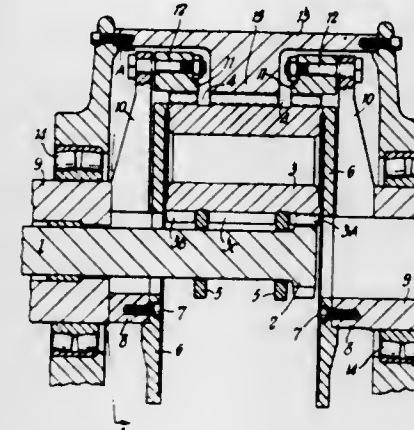
Filed Apr. 1, 1970, Ser. No. 24,770

Claims priority, application Great Britain, Apr. 18, 1969, 19,893/69

Int. Cl. F16h 1/28, 57/00

U.S. Cl. 74-801

3 Claims



An epicyclic gear train of the type where the planets, instead of being mounted on the spindles of a carrier, float between the annulus and sun gear and also mesh with toothed reaction rings. The latter are resiliently mounted and arranged to have limited freedom of rotational movement about the axis of the gear to ensure even load sharing in the gear.

3,633,442

REVERSIBLE INDEXING MECHANISM

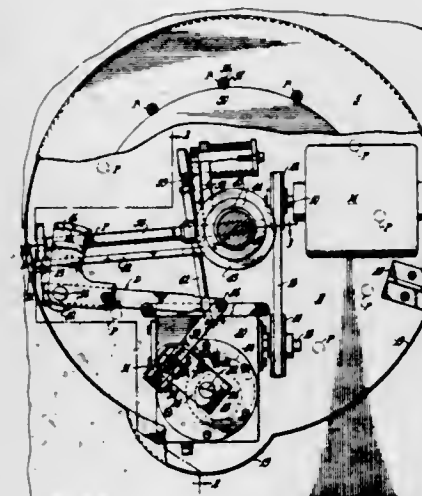
Clifford L. Stoen, 530 Mary Ann, Redondo Beach, Calif.

Filed Mar. 2, 1970, Ser. No. 15,686

Int. Cl. B23q 17/00

U.S. Cl. 74-822

13 Claims



Rotary index table is provided with uniformly arcuately separated sequence of dependent drive pins located on theoretical circle radiused from center of table. Table is rotated stepwise by timed intermittent advance of successive pins by electric motor driving the present alternating drive and lock mechanism. Succession of (nonconsecutive) pins alternately have (for example) No. 1 pin advanced an arcuate

segment (thereby turning table by this amount), then No. 3 pin held during dwell period, then No. 2 pin advanced a like segment, then No. 4 pin held, etc. Pin-engaging mechanism underlying table top comprises (a) constantly rotating motor-driven arm radiused from outside circle of pins with its distal end inscribing an arc thereacross, the arm pivotally, distally carrying an open top, open-ended channel wherein (each successive) No. 1 pin is received, moves reciprocally lengthwise to the channel due to the movement of the laterally embracing channel walls, and then emerges from the same end of the channel, during the course of a fractional rotation of the drive arm. During remainder of arm's continuous rotation, linkage connected to rotary arm and comprising (b) bellcrank, fulcrumed at point outside of circle of drive pins, terminally carries arcuate open top channel in which it receives No. 3 pin in the channel; by rocking or reciprocable movement of the arcuate channel, it locks the pin and table against movement during dwell period. Upon release of No. 3 pin from mouth of arcuate, bellcrank channel, the rotating drive arm immediately picks up (next) No. 2 pin in its pivoted straight channel, in repetitive sequence. Direction of table movement is reversible by reversing the motor. Additionally, by means of another bellcrank-activated lifting arm and cam drive from the same drive shaft which carries the radial arm, a central toolplate or platform may be raised and lowered synchronously with each arcuate advance of the table, the timing of which is adjustable simply by rotating the cam.

3,633,443

ROTARY WORKTABLE

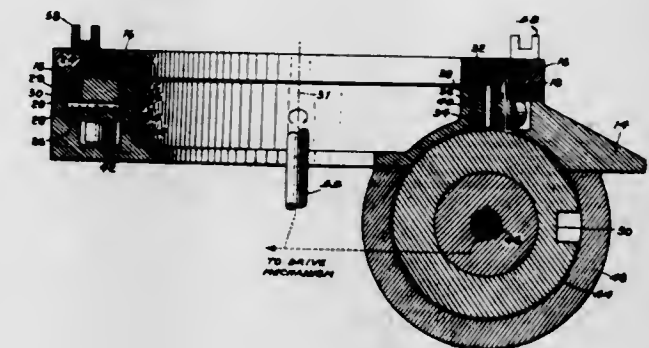
Robert J. Schussler, Union, N.J., assignor to Robert J. Schussler, Seminole, Fla.

Filed Apr. 16, 1970, Ser. No. 29,110

Int. Cl. B23b 29/24

U.S. Cl. 74-822

10 Claims



A rotary worktable includes a ring member rotatably supported in a housing and a work-holding platform mounted on the ring. The ring includes two sets of radially positioned bearings extending from one circumferential surface and riding respectively on upper and lower annular surfaces within the housing. The radial bearings provide rotation of the ring about a central vertical axis with minimum friction while maintaining precise horizontal alignment. A further set of bearings, positioned around the opposite circumference of the ring, rides on a corresponding annular vertical surface of the housing to maintain an axial disposition and prevent horizontal movement. The rotary worktable elements form an integral unit which is incorporated in a machine used for various manufacturing or assembly operations performed at stations around the periphery of the platform. A common drive mechanism is coupled to the ring member and the entire machine to provide rotation and movement of all elements in a synchronized manner.

3,633,444

MACHINE FOR ROTATABLY DRIVING THE BOTTOM OF A WATCH-CASING OR THE BOTTOM OF A MEASURING APPARATUS

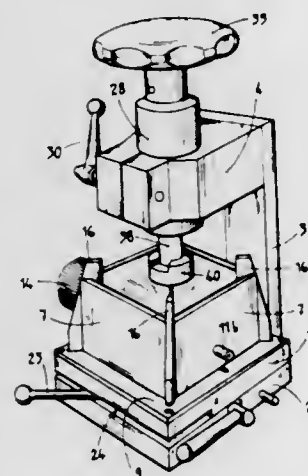
Bernard Freiburghaus, Bienne, Switzerland, assignor to Flimecor Fine Mecanique S.A., Bienne, Bern, Switzerland
Filed June 23, 1970, Ser. No. 49,080

Claims priority, application Switzerland, June 30, 1969, 10045/69

Int. Cl. G04d 3/04

U.S. Cl. 81-6

7 Claims



A machine for screwing or unscrewing the bottom of a watch-casing or the like having a support for receiving and holding the casing and a bracket carrying a rotatable spindle disposed above the support. The spindle is axially movable with respect to the bracket and carries a driver for application against the bottom of the casing for driving the same rotatably.

3,633,445

TORQUE RELEASE HANDTOOL

Sulo A. Aljala, 275 Tiffany St., Attleboro, Mass.
Filed Dec. 1, 1969, Ser. No. 881,012

Int. Cl. B25b

U.S. Cl. 81-52.5

5 Claims



A torque tool having a spring bar and plunger normally positioned in axial alignment with a cylindrical roller seated therebetween in opposing channels formed in the ends of the spring bar and plunger whereupon a predetermined torque being applied on said spring bar the roller is caused to roll up diagonally opposite vertical walls of the mating channels. This movement allows the bar limited relative movement with respect to the plunger, the bar colliding with the inner wall of the tubular housing surrounding the spring bar and plunger to produce an audible warning sound.

3,633,446

DEVICE FOR TIGHTENING A NUT AND BOLT ASSEMBLY

Kenich Tadahira, Kawasaki, and Jiro Kojima, Tokyo, both of Japan, assignors to Taisei Kensetsu Kabushiki Kaisha, Chuo-ku, Tokyo, Japan

Original application May 31, 1968, Ser. No. 733,655, now Patent No. 3,581,383. Divided and this application Oct. 22, 1969, Ser. No. 871,804

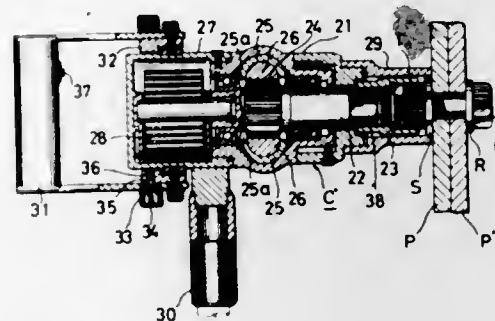
Claims priority, application Japan, Dec 13, 1967, 42/79550
Int. Cl. B25b 13/00, 13/46

U.S. Cl. 81-57.46

6 Claims

An improved device for tightening a nut and bolt assembly wherein a washer and a nut are fitted to a threaded end por-

tion of a bolt inserted through bores in members to be clamped together to cause the washer to be pressed against the surface of the member to be clamped. A rotary rod which is adapted to be rotated by hydraulic pressure has an extremal end and a cylinder concentrically surrounding said rotary rod has an extremal end for engaging with said nut and



washer, respectively. Means are provided for supplying hydraulic pressure to rotate the rotary rod, thereby applying a torque to and rotating the nut simultaneously, such that the washer is prevented from rotating, and the point of engagement between the washer and the cylinder absorb the reaction force created. When a predetermined torque is reached, the hydraulic pressure is automatically terminated.

3,633,447

CUTTING APPARATUS

Darrell F. Casida, Hobart, Okla., assignor to M. L. Hart, Hobart, Okla.

Filed Aug. 6, 1969, Ser. No. 848,037

Int. Cl. B23d 19/00

U.S. Cl. 83-8

5 Claims



Apparatus for cutting sheets of metal including a vertically extending framework having a continuous chain extending over a plurality of sprockets and secured to a cutting element for driving the cutting element in a horizontal path along the length of the framework. Brackets are provided on the framework in a horizontal plane immediately beneath the cutting member for supporting a sheet of metal to be cut along a line across the sheet. One of the sprockets over which the chain is passed is driven by a belt drive from a motor mounted on the framework, such motor being reversible, and being connected in an electrical circuit, which includes switches suitable for energizing, deenergizing and reversing the motor. The cutting element employed is a disk of hard metal carried at the outer end of a lever arm which is pivoted about a horizontal axis to raise or lower the disk. A spring element tending to raise the arm from its cutting position is opposed by a threaded shaft which can be directed against a second arm connected to the lever arm carrying the disk to force the disk against the top of a sheet of metal to be cut.

3,633,448

CUTOFF DEVICES FOR CONTINUOUS ROD CIGARETTE-MAKING MACHINES AND OTHER SIMILAR MACHINES

Phillip A. Maw, London, England, assignor to Molins Machine Company Limited, London, England

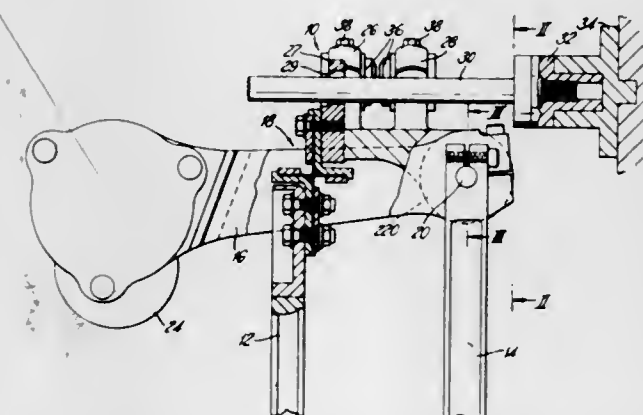
Filed June 5, 1970, Ser. No. 43,705

Claims priority, application Great Britain, June 13, 1969, 30,170/69

Int. Cl. B26d 5/00

U.S. Cl. 83-62

3 Claims



A cutoff device for a cigarette-making machine or other continuous rod-making machine includes a reciprocating ledger formed with an aperture through which a stationary rod passes, the aperture wall and the rod being connected to an electrical warning circuit which operates in the event of the rod contacting the surrounding wall of the aperture.

3,633,449

PAPER TRIMMER

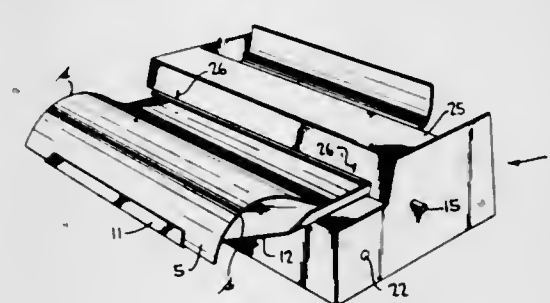
James B. Knudsen, Lewiston, N.Y., assignor to Moore Business Forms, Inc., Niagara Falls, N.Y.

Filed Apr. 23, 1970, Ser. No. 43,299

Int. Cl. B26d 7/08

U.S. Cl. 83-105

8 Claims



A paper trimmer for individually trimming opposite sides of a paper sheet a predetermined amount having means for inducing a curl in the sheet for the purpose of both aligning the sheet and initiating its movement toward a pair of cutters without the assistance of the operator.

3,633,450

MACHINE FOR SLICING SAUSAGE AND APPLYING THE SLICES TO PIZZA IN A PREDETERMINED PATTERN

James E. Grote, 998 Thurman Ave., Columbus, Ohio

Filed May 8, 1970, Ser. No. 35,726

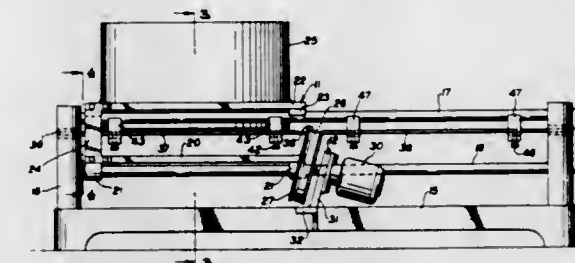
Int. Cl. B26d 1/46

U.S. Cl. 83-201

10 Claims

A machine which receives and holds a group of sausage sticks over a pizza with their axes vertical and substantially perpendicular to the pizza and with their lower ends spaced above the pizza. The group of sausage sticks is moved

laterally relative to a band-type cutting blade and the pizza is simultaneously moved therewith so that as the sausage slices



are severed from the lower ends of the sticks, they drop in a predetermined pattern on the pizza.

3,633,451

KEY-CUTTING MACHINE WITH COORDINATED POSITIONING AND CUTTING MOVEMENTS

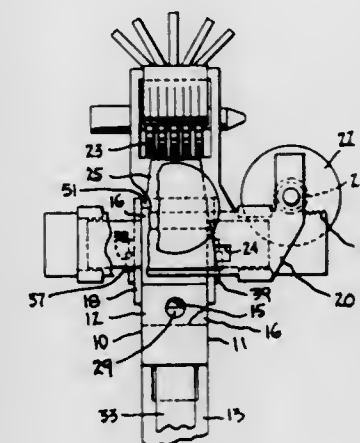
Nathan S. Lieptz, Beachwood, Ohio, assignor to Curtis Noll Corporation, Cleveland, Ohio

Filed Feb. 19, 1970, Ser. No. 12,697

Int. Cl. B26d 5/20

U.S. Cl. 83-205

11 Claims



A key-cutting device having a vertically and transversely movable key blank support member carrying adjustable gauging elements for presetting the depth of cut to be made on the key blank. The support member is lowered into operative position by a cam operating through a lever or rocker arm having a lost-motion connection with the cam to permit overtravel after the support member has attained the limit of its preselected downward movement. The hand lever which is utilized to operate the cam and lower the support member also serves to advance the cutting tool to traverse the key blank. Spring means engage the support member to both retract it from the anvil surface of the cutting machine and elevate it to an inoperative position in response to completion of each cut on the key blank and retraction of the cutting tool. Traversing movement of the key blank is accomplished through a rack-and-pinion arrangement and appropriately spaced detents.

3,633,452

COMBINED GUITAR AND BANJO

Tracy Rosser Beasley, 2332 Modesto St., San Diego, Calif.

Filed Nov. 19, 1970, Ser. No. 91,093

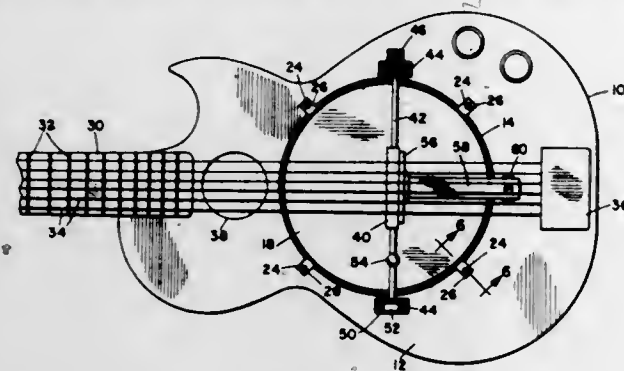
Int. Cl. G10d 1/00

U.S. Cl. 84-263

6 Claims

A guitar and banjo combined in one instrument with means for instantaneous conversion from one instrument to the other without retuning or other change except a simple manipulation of a special bridge structure which, in one posi-

tion makes the banjo elements substantially inoperative and in the other position bridges the strings to the banjo head so



that the instrument essentially becomes very similar to a banjo in performance.

3,633,453

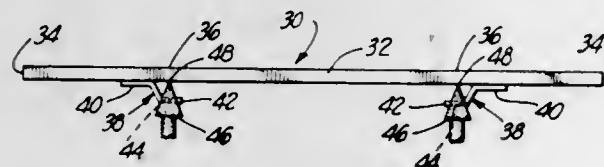
PERCUSSION MUSICAL INSTRUMENT AND TONE BAR THEREFOR

Clair O. Musser, 12997 Blairwood Drive, Studio City, Calif.
Continuation-in-part of application Ser. No. 752,561, Aug. 14, 1968, now abandoned. This application July 20, 1970, Ser. No. 56,607

Int. Cl. G10d 13/08

U.S. Cl. 84-403

15 Claims



Tone bars are disclosed which have two attached clips, each clip including means for engaging a support for the tone bar. Such supports engage nodal areas of the tone bar intermediate the ends thereof. The tone bar is held by the clips against undesired movement with respect to the supports. The clips are normally located adjacent to the nodal points on the ends of the tone bar, remote from the center region thereof. The tone bar supports comprise elastomeric mounts through which the clips extend, and which are frictionally mounted on cylindrical support posts.

3,633,454

CONNECTOR PLATE

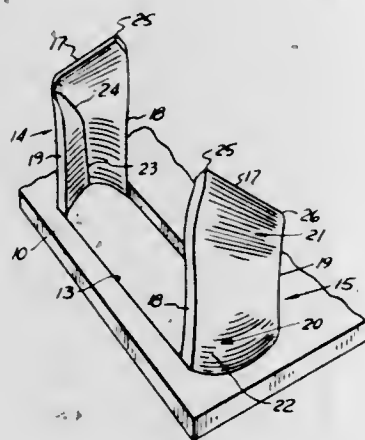
Jack N. Schmitt, and Paul E. Hodges, Jr., both of 1300 Penobscot Bldg., Detroit, Mich.

Filed Mar. 2, 1970, Ser. No. 15,766

Int. Cl. B43m 15/00

U.S. Cl. 85-113

1 Claim



A connector plate, for connecting abutting wood members, formed of a sheet having numerous punched-out, narrow,

elongated openings, with the punched-out material forming integral, identical mirror-image teeth at each end of their respective openings. The ends of the teeth are cut diagonally. The half of each tooth adjacent to the sheet is formed with a convex outer surface and V-shaped inner surface, and the free half of each tooth is formed generally flattened and gradually twisted around an axis perpendicular to the sheet so that its free diagonal edge is at a roughly 45° angle relative to the long edges of its respective opening.

3,633,455

SELF-THREAD-FORMING FASTENER WITH EASY THREAD PICKUP

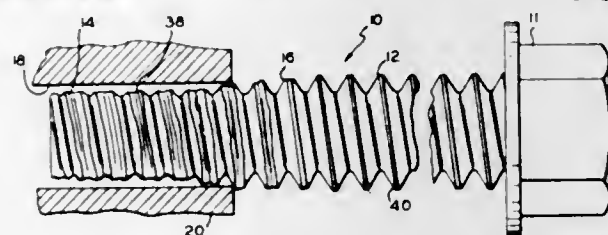
Eugene R. Larson, Rockford, Ill., assignor to Textron Inc., Rockford, Ill.

Filed Feb. 13, 1970, Ser. No. 11,211

Int. Cl. F16b 25/00, 33/02

U.S. Cl. 85-46

5 Claims



The work-entering end of a self-thread-forming fastener is provided with a step-tapered portion for initially engaging the sidewall of the pilot hole of a workpiece. The invention is characterized by the fact that the tapered portion is of substantially circular cross section while the radial height of the thread over such step-tapered portion increases from a beginning height less than the diameter of the pilot hole to the full height of the thread on the shank portion in stages. In the first such stage, the crest of the thread increases rapidly in radial height within a small circumferential angle to establish substantial initial thread-forming engagement with the pilot hole. In the second stage, the crest of the thread continues for at least one full thread turn at substantially the same radial height as it achieves in the first stage to insure thread pickup with minimum end loading. In the third stage, the crest of the thread increases in radial height substantially to the maximum radial height of the crest of the thread on the shank portion.

3,633,456

POWER-ACTUATED SEPARATION SYSTEM

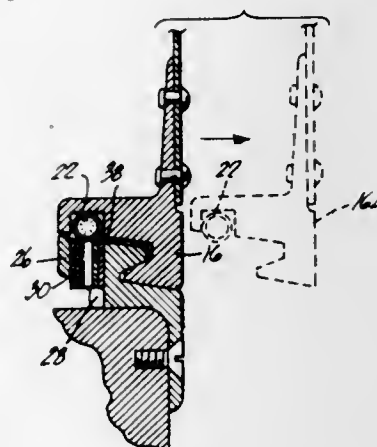
William F. Carr, Santa Monica, and Sidney A. Moses, Culver City, both of Calif., assignors to McDonnell Douglas Corporation

Filed July 3, 1969, Ser. No. 838,950

Int. Cl. F42b 15/00

U.S. Cl. 89-1 B

1 Claim



A power-actuated system for releasably connecting structures wherein the releasing force does not apply a separation

force to the structures being disconnected. Each of the structures to be separated have interlocking flanges along their separation edges which prevent separation in the plane of the structures. In addition, a multiple of releasable locking pins are placed along the mating flanges and when released permit lateral displacement of the structures. When applied to a cylindrical configuration the outwardly directed structure is in section.

3,633,457

DEVICE FOR SECURING AND RELEASING OF WORKTOOLS IN A WORKTOOL MACHINE SPINDLE

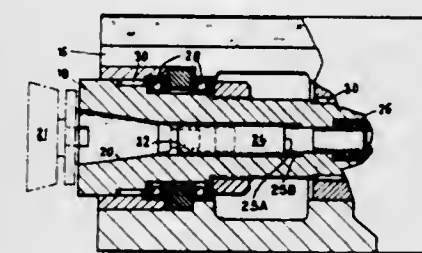
Rudolf Reeber, Neukeferloh, and Horst Lanzberger, Munich, both of Germany, assignors to Friedrich Deckel Prazision, Mechanik & Maschinenbau, Munich, Pflingensstrasse, Germany

Filed Oct. 6, 1969, Ser. No. 863,786

Int. Cl. B23c 9/00

U.S. Cl. 90-11 A

10 Claims



Electric motor and gearing means for securing and releasing of worktools in the spindle of a machine tool. The motor drives through suitable reduction gearing a planet carrier which is connected simultaneously to two sun gears. One sun gear is connected to a drawbar for screwing and unscrewing same into and off from the tool. The other sun gear is connected to means responding to rotation of said last-named sun gear for applying sufficient tension to said drawbar to set its threads with sufficient force against the threads of the tool to assure against accidental unscrewing of such tool from the drawbar. The parts are arranged so that the first-mentioned sun gear operates to apply said tensioning force sufficient to prevent unscrewing of said tool from the drawbar. Release of the tool is accomplished first by releasing said tensioning force following by unscrewing of the drawbar from the tool.

3,633,458

INDEX HEAD

Ichiji Ito, 9711 Oaza Nakaminowa, Minowa, Kamina-gun, Nagano, Japan

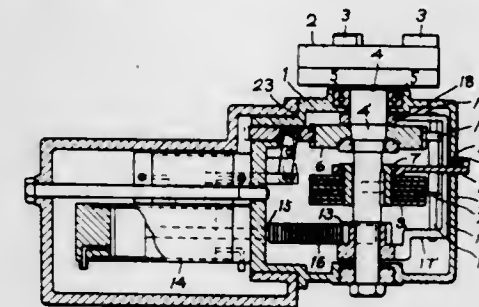
Filed May 5, 1970, Ser. No. 34,840

Claims priority, application Japan, May 14, 1969, 44/36705

Int. Cl. B23f 23/08; B23q 17/04; B23b 39/06

U.S. Cl. 90-56 R

18 Claims



An index head adapted for direct indexing operation wherein rotation of the worktable by the desired distances is attainable upon positioning a manually operable lever in the desired spot in a stepped opening bored through the housing

for said index head, and setting a pneumatic drive mechanism into actuation, each time the work held on said worktable is to be turned said desired distances.

3,633,459

PNEUMATIC PERCUSSION DEVICE

Lange, Wilfried, 1 Brockhold, 3101 Altenhagen, Germany

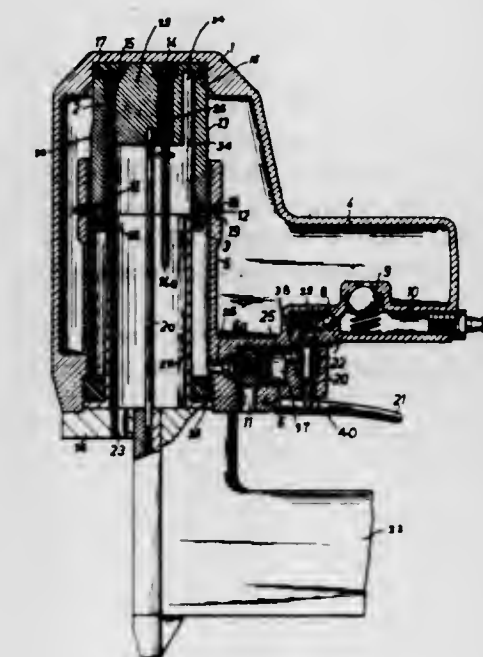
Filed Feb. 16, 1970, Ser. No. 11,684

Claims priority, application Germany, Feb. 18, 1969, P 19 08 085.4

Int. Cl. F15b 15/22, 15/17

U.S. Cl. 91-401

7 Claims



In a pneumatically operated percussion device, a working cylinder with a differential-type piston reciprocable therein is in constant communication with a compressed-air reservoir to cause the driving stroke. The piston is cup-shaped with an open lower end and has a cylindrical sleeve for engaging an annular chamber in the working cylinder. The bottom wall of the cylinder has an outlet for venting air from the cylinder to the atmosphere during the driving stroke. In the initial position of the piston, the annular chamber communicates with an air supply line, and during the driving stroke of the piston the annular chamber is vented. At the completion of the driving stroke a venting valve in the piston is opened, and air from the supply line is admitted to the annular chamber to return the piston to its initial position.

3,633,460

EXTENSION MEANS OF A MULTISTAGE EXTENSIBLE BOOM

Kazuhiro Ohnawa, and Seiji Ishikawa, both of Takamatsu, Japan, assignors to Kabushiki Kaisha Tadano Tekkosho, Takamatsu, Japan

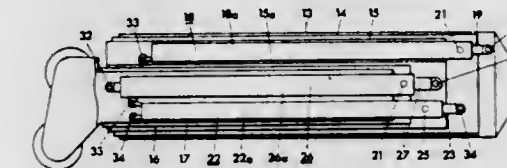
Filed Dec. 11, 1969, Ser. No. 884,302

Claims priority, application Japan, Dec. 13, 1968, 43/91833

Int. Cl. F15b 13/07, 15/16

U.S. Cl. 91-411 R

4 Claims



The present invention discloses an extension means of a multistage extensible boom having more than three boom members and a plurality of hydraulic cylinders and charac-

terized in that each of the hydraulic cylinders is provided with a compressed oil chamber on its extending side and a compressed oil chamber on its retracting side, both of the compressed oil chambers are in serial communication with each other, one of the hydraulic cylinders is connected to the oil pressure supply and discharge circuit, and a plurality of changeover valves controllable by the oil pressure or solenoids are interconnected to respective oil pressure supply circuits connecting the preceding hydraulic cylinder with the succeeding hydraulic cylinder, so that the oil pressure is easily controlled for successively and in regular sequence to actuate respective boom members to an extending or retracting position. A unitary control valve or a plurality of control valves is provided for operating the changeover valves, thereby providing simplicity and accuracy in operation.

3,633,461

HYDRAULIC CIRCUITRY FOR THE HOIST RAM AND THE LIKE OF THE BUILDING MACHINERY

Hiroyuki Taki, Komatsu-shi; Kazuo Inouye; Naruhiko Sakaki, and Masayuki Futamata, all of Tokyo, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho (Komatsu Mfg. Ltd.), Tokyo, Japan

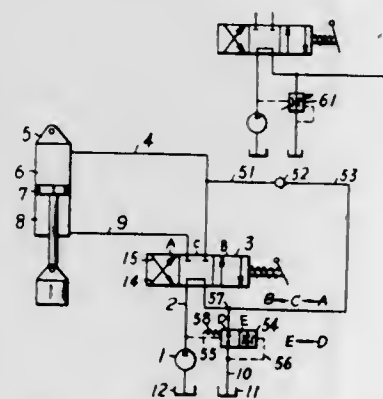
Filed Apr. 22, 1969, Ser. No. 818,359

Claims priority, application Japan, Apr. 27, 1968, 43/28223

Int. Cl. F15b 11/08, 13/042

U.S. Cl. 91-436

10 Claims



A hydraulic circuitry adapted to replenish oil under a positive pressure automatically into a cylinder for operating a blade of a bulldozer, when pressure in the cylinder is reduced, whereby the operation of the blade is made quick and easy.

3,633,462

BYPASS ORIFICE FOR HYDRAULIC BOOST DEVICE

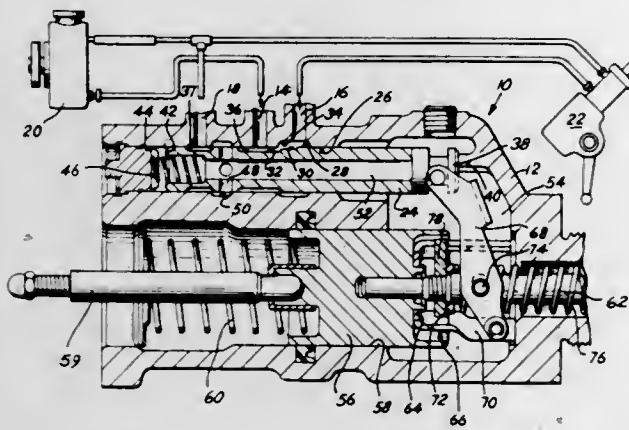
Edward J. Goscenski, South Bend, Ind., assignor to The Bendix Corporation

Filed Feb. 24, 1970, Ser. No. 13,415

Int. Cl. F15b 11/08, 13/04, 13/10

U.S. Cl. 91-450

2 Claims



A hydraulic boost device is disclosed which includes a housing having an inlet, an outlet, and a bore communicating

the inlet with the outlet. A piston is slidable in a boost chamber which is provided in the housing in fluid communication with the bore. A stepped valve member having larger, smaller and intermediate radial portions is slidable in the bore from a first position in which substantially uninhibited flow of fluid is permitted between the inlet and the outlet to a second position in which the intermediate portion of the valve defines a metering orifice with the wall of the bore. In this position, a portion of the fluid is directed into the boost chamber to slide the piston and the rest of the fluid flows through the orifice to the outlet.

3,633,463

PLUNGER PUMP OR MOTOR

Kenji Ninomiya, Kawasaki-shi, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho (Komatsu, Ltd.), Akasaka, Tokyo, Japan

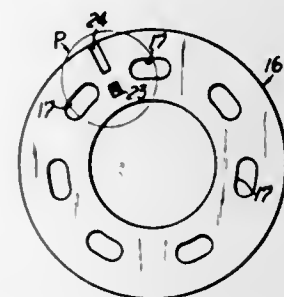
Filed Dec. 22, 1969, Ser. No. 887,234

Claims priority, application Japan, Dec. 25, 1968, 43/94502

Int. Cl. F01b 1/00, 3/00, 13/04

U.S. Cl. 91-487

6 Claims



A plunger pump or motor provided with a solid particle removing mechanism characterized in that the ports of the cylinder block are radially larger than the ports of the port plate, that two radially elongated openings are formed in the contacting surface of the cylinder block and traverse annular areas of the port plate, which are partly in common with an annular area to be traversed by the ports of the cylinder block, and that the openings do not communicate with the ports. The particles removed by the openings may be expelled out of the cylinder block by the centrifugal force.

3,633,464

CONTROLLING SYSTEM FOR POSITIONING A SWASHPLATE OF A MULTIPLE-PISTON ROTARY FLUID PUMP OR MOTOR

Ryozo Aoyama, Yokohama-shi, and Akira Koizumi, Tokyo, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho (Komatsu Ltd.), Akasaka, Tokyo, Japan

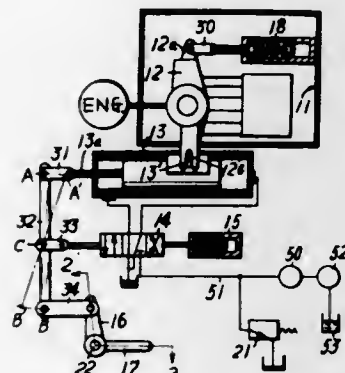
Filed Dec. 23, 1969, Ser. No. 887,515

Claims priority, application Japan, Dec. 28, 1968, 43/96078

Int. Cl. F01b 3/00, 13/04; F15b 9/10

U.S. Cl. 91-505

7 Claims



A controlling system for positioning a swashplate of a multiple-piston rotary fluid pump or motor, comprising a servo

piston, a changeover valve, an operating lever, and a link mechanism connecting the above three components one after another. When the operating lever is swung, the changeover valve is slid intermediate the link mechanism so as to actuate the servo piston and vary the inclination of the swashplate. By the sliding of the servo piston, the changeover valve is again slid to the neutral position. When the inclination of the swashplate is forced to be varied from the multiple pistons, the changeover valve serves to resist such variation.

3,633,465

PNEUMATIC POSITIONING APPARATUS AND PARTS THEREFOR OR THE LIKE

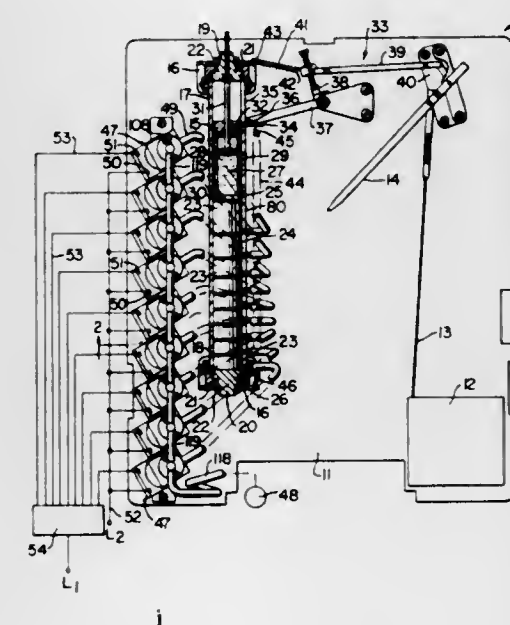
Louis M. Puster, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 9, 1969, Ser. No. 865,079

Int. Cl. F01b 15/02; F15b 11/18

U.S. Cl. 92-13.3

11 Claims



A plurality of separate pneumatically operated actuators disposed in aligned and abutting relation to provide a linear positioning unit having opposed ends with each actuator being individually operable to linearly extend itself when actuated and thereafter to linearly collapse itself when deactuated whereby one end of the unit will be correspondingly linearly extended relative to the other end thereof and thereafter be linearly collapsed relative to the other end thereof. A control device being operatively interconnected to the one end of the positioning unit to be controlled in relation to the position of the one end relative to the other end thereof and control means for directing a source of pneumatic fluid to at least one of the actuators to extend the one end of the unit by the degree of actuation of the one actuator and for thereafter disconnecting the source from that one actuator to collapse the one end of the unit by the degree of deactuation of the one actuator.

3,633,466

SPRING CUSHIONING DEVICE FOR CLUSTERED CYLINDER LIFTS

Frank H. Field, 133 East Virginia Blvd., Jamestown, N.Y. Continuation-in-part of application Ser. No. 853,854, Aug. 28, 1969. This application June 24, 1970, Ser. No. 49,401

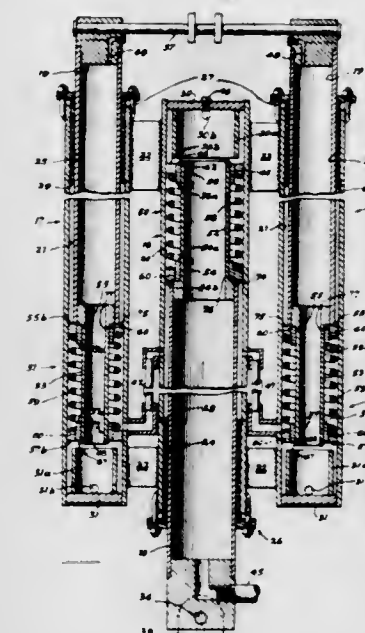
Int. Cl. F01b 11/02

U.S. Cl. 92-85

Spring cushioning devices are provided in each cylinder of

11 Claims

a clustered cylinder lift, each device including a single coil-



type compression spring operable to cushion its associated cylinder during both extension and retraction thereof.

3,633,467

HYDRAULIC PUMP OR MOTOR DEVICE PLUNGERS

Makoto Watanabe, and Naoyuki Kitayama, both of Kawasaki-shi, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho (Komatsu, Ltd.), Akasaka, Tokyo, Japan

Filed Dec. 19, 1969, Ser. No. 886,648

Claims priority, application Japan, Dec. 28, 1968, 43/114437; 43/114438

Int. Cl. F16j 1/00

U.S. Cl. 92-172

8 Claims



A plunger for a pump or a motor comprising a plunger body having a hollow interior having a generally cylindrical inner surface and a filler body molded in the interior and prevented from axial, spiral and circumferential displacement relative to the plunger body by two portions of the inner surface differently shaped from each other and also from the generally cylindrical portions. The two portions may be two spiral grooves having different pitches from each other, or a groove having circumferentially varying depth. These grooves are radially deeper than the inner surface at the open end of the hollow interior.

3,633,468

PISTON OF AN INTERNAL COMBUSTION ENGINE

Willem Marinus Burck, Zierikzee, Netherlands, assignor to N. V. Industriële Handelscombinatie Holland, Rotterdam, Netherlands

Filed Nov. 5, 1969, Ser. No. 874,203

Claims priority, application Netherlands, Nov. 5, 1968, 68.15749

Int. Cl. F01p 3/10

U.S. Cl. 92-186

The piston of an internal combustion engine is cooled by passing a coolant liquid toward the bottom of the piston

1 Claim

along the skirt of the piston in an annular path, and thence radially inwardly in a layer along the bottom of the piston



and finally axially out of the piston away from the bottom of the piston.

3,633,469

RIM CURLING APPARATUS AND METHOD

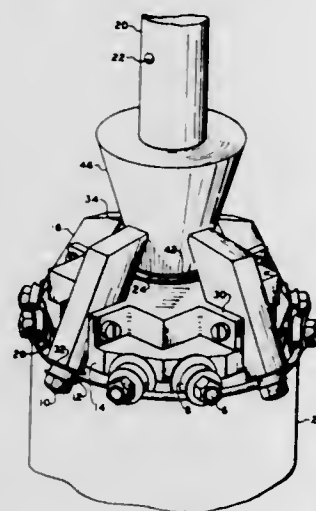
Alfred W. Kinney, Kansas City, Mo., assignor to Phillips Petroleum Company

Filed June 11, 1970, Ser. No. 45,504

Int. Cl. B31b 1/00

U.S. Cl. 93-36.5

9 Claims



Initiating and curling rollers contacting an edge portion of a carton at spaced-apart locations along the container edge are rotated about the edge portion of the container for rolling the container edge portion.

3,633,470

PACKAGE FEEDER APPARATUS

Laurence W. Bingham, Brighton, Victoria, Australia, assignor to Pitters Proprietary Limited, Victoria, Australia

Filed Jan. 28, 1970, Ser. No. 6,344

Claims priority, application Australia, Feb. 12, 1969, 50354/69

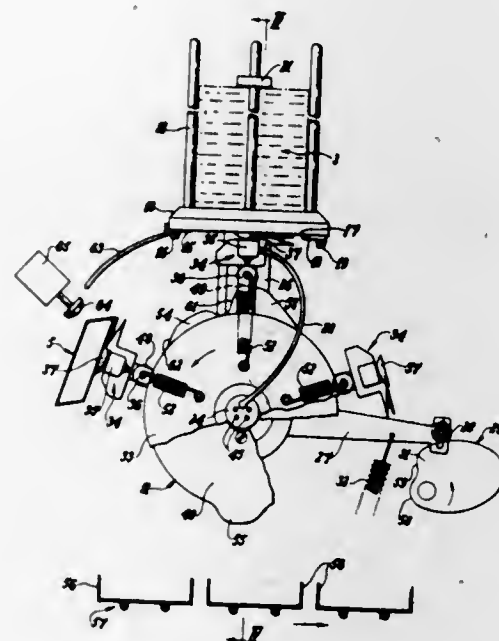
Int. Cl. B31b 1/76

U.S. Cl. 93-53 R

22 Claims

Package feeder apparatus including a carrier for a stack of package blanks, and a rotary device for engaging and removing blanks singly from the carrier during rotation of that device. The blanks are stacked in a flattened condition and are adapted to form open ended tubular packages when expanded. Control means is provided to move the carrier with

the rotary device after that device arrives at a package blank-engaging position relative to the carrier, and to stop such movement of the carrier when the device is firmly attached to a package blank and commences, or is about to commence final withdrawal of that blank from the carrier.



Mechanism for actuating the rotary device is such that brief collision occurs between an engaged package blank and the carrier, when stationary, so as to effect a desired degree of expansion of the package blank during the withdrawal operation.

3,633,471

CLEANER BAR SUPPORT STRUCTURE FOR COMPACTOR WHEEL

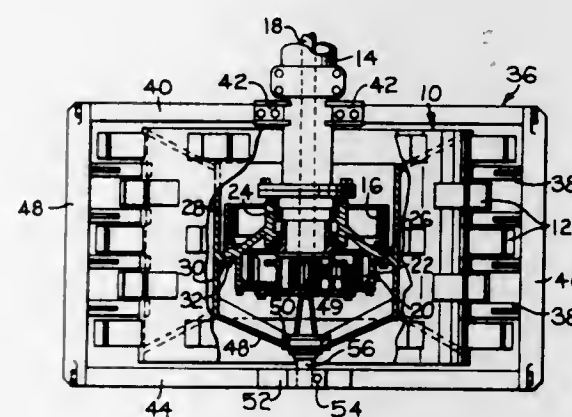
Victor Randour, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed July 6, 1970, Ser. No. 52,283

Int. Cl. E01c 19/23

U.S. Cl. 94-50 PR

4 Claims



A compactor wheel has a framework which surrounds the wheel and supports cleaner bars which project into the spaces between rows of compactor tamping pads. A specially constructed bearing and support structure is provided for supporting an outboard beam component of the cleaner bar framework with respect to the compactor wheel.

3,633,472

IDENTIFICATION CAMERA ADAPTER

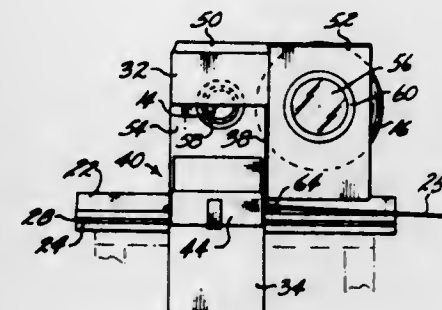
Andrew Robert Meyncke, 7150 C Melrose, Buena Park, Calif., and Eugene Arday, 10350 North Lynn Circle, Mira Loma, Calif.

Filed Mar. 26, 1970, Ser. No. 22,895

Int. Cl. G03b 17/24

U.S. Cl. 95-1.1

10 Claims



This invention discloses an identification camera adapter which produces photographs including the image of a subject in combination with pertinent related information of considerable length on the same exposure. The device masks one portion of the negative while the other portion is being exposed; the adapter is then placed in another position causing the exposed portion to be masked while the unexposed portion is then exposed.

3,633,473

EXPOSURE CONTROL APPARATUS FOR PHOTOGRAPHIC CAMERA

Wada Yasuhiro, Tokyo, Japan, assignor to Kabushiki Kaisha Kōparu, Tokyo-to, Japan

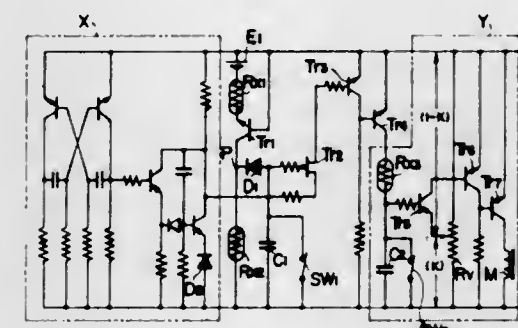
Filed Nov. 5, 1970, Ser. No. 87,110

Claims priority, application Japan, Nov. 10, 1969, 44/89887

Int. Cl. G03b 7/08

U.S. Cl. 95-10 CT

5 Claims



This exposure control apparatus for photographic camera comprises a photoconductive element adapted to receive the light through the objective lens system, a photoconductive element adapted to directly receive the light coming from the object to be photographed, a capacitor for storing a voltage having a magnitude corresponding to the ratio of resistance values between said two photoconductive elements, a sawtooth voltage generating circuit, a field effect transistor adapted to be controlled by its switching action by the comparison of the voltage stored by said capacitor and the sawtooth voltage produced by said sawtooth voltage generating circuit, and a capacitor—which constitutes a CR delay circuit—adapted to be intermittently charging by the switching action of said field effect transistor. By use of this exposure control apparatus, the control of exposure time can be always performed so as to be precisely in compliance with the changes in the photographic light.

3,633,474

CAMERA DOOR LATCH

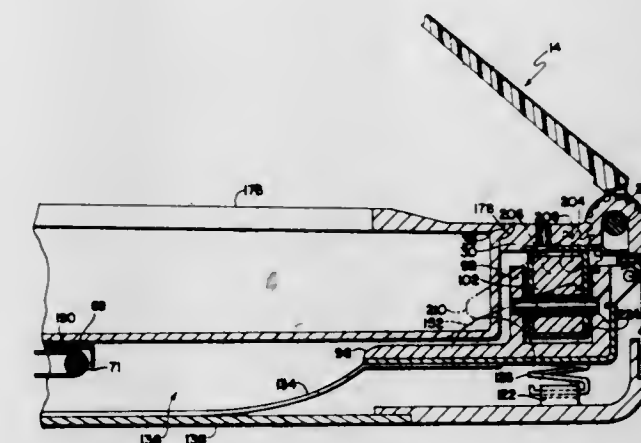
Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 1, 1970, Ser. No. 33,601

Int. Cl. G03b 17/04, 17/52

U.S. Cl. 95-11 R

10 Claims



A camera of the extensible type including a housing having a plurality of sections adapted for movement between a compact, inoperative position wherein components of the camera are located near the camera's film loading door and an extended, operative position wherein the components are moved away from the film loading door. The film loading door is coupled to one of the sections by a magnetic coupling and a release is provided for breaking the magnetic coupling to allow opening of the film loading door. A detent is mounted on the door and is adapted to move from a first position wherein it renders the release inoperative to break the magnetic coupling to a second position which renders the release operative as the sections of the camera move into the extended, operative position, thereby insuring that the components are moved away from the film loading door prior to its opening to reduce the possibility of damage to the components when an object is inserted into the film loading door opening.

3,633,475

INFORMATION DISPLAY APPARATUS

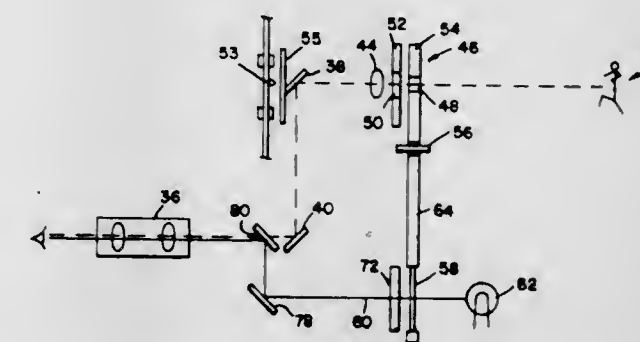
Dexter P. Cooper, Jr., Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Apr. 9, 1969, Ser. No. 814,712

Int. Cl. G03b 17/20

U.S. Cl. 95-11 R

12 Claims



Apparatus for monitoring a camera iris and for producing in the camera viewfinder visible displays of information concerning the size of the iris aperture. Red indicia are displayed within nearly the entire field of the viewfinder when available ambient light is insufficient to produce satisfactory film exposures, and green indicia are less conspicuously displayed in the camera's viewfinder at other times.

3,633,476

AUTOFLASH SWITCHING DEVICE FOR CAMERA

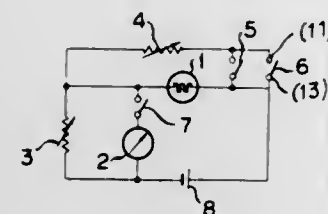
Mutsunobu Yazaki, Yokohama-shi, and Takashi Uchiyama, Tokyo, both of Japan, assignors to Cannon Kabushiki Kaisha, Tokyo, Japan

Filed May 1, 1969, Ser. No. 820,988

Claims priority, application Japan, May 9, 1968, 43/38015
Int. Cl. G03b 15/03

U.S. Cl. 95—11 R

4 Claims



An autoflash switching system and device for use in automatic photoelectric exposure control cameras (EE cameras) wherein the camera is automatically switched from its autophotography position to its flashphotography position upon attachment of a flashgun to an accessory shoe.

3,633,477

PHOTOGRAPHIC APPARATUS WITH BUILT-IN FLASH UNIT

Hubert Hackenberg; Siegfried Zobel, both of Munchen; Rainer Spinnler, Oberbilberg; Erwin Becker, Munchen, and Dieter Engelsmann, Unterhaching, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

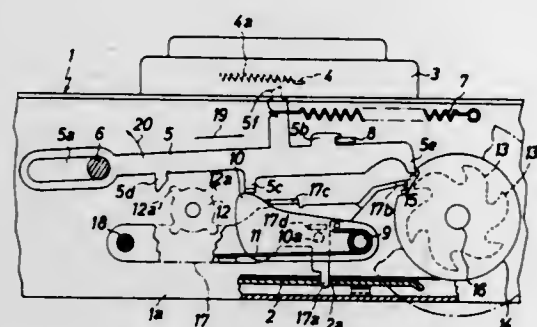
Filed Dec. 1, 1969, Ser. No. 881,058

Claims priority, application Germany, Nov. 30, 1968, P 18 11 908.9

Int. Cl. G03b 19/02

U.S. Cl. 95—11

15 Claims



A still camera wherein the shutter is propelled to open position by an impeller which is cocked in response to transport of the film by the length of a frame and is free to leave the cocked position under the action of a spring in response to actuation of the camera release. The camera includes a built-in flash unit having a socket for flashcubes which is indexed by the impeller during movement back to cocked position. A blocking member which automatically arrests the film-transporting mechanism when the film is advanced by the length of a frame is disengaged from the transporting mechanism in response to movement of the impeller from cocked position.

3,633,478

PHOTOGRAPHIC METHOD AND APPARATUS UTILIZING A DIRECT-VIEW-TYPE STORAGE TUBE

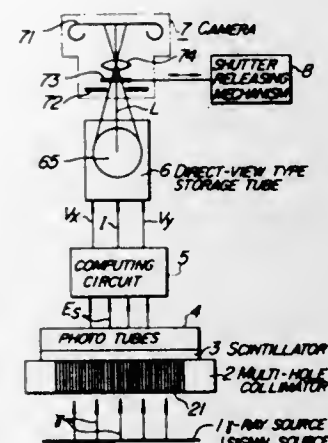
Kenji Ishimatsu, Tokyo, and Hideho Tabuchi, Hachioji-shi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 30, 1969, Ser. No. 837,853

Claims priority, application Japan, July 1, 1968, 43/45083
Int. Cl. G03b 29/00

U.S. Cl. 95—12

6 Claims



A photographing method wherein the distributed image of an object to be photographed is initially stored in the form of a stored charge density pattern on the surface of a direct-view-type storage tube target and this pattern is then reproduced on the screen of said storage tube as a visible image which in turn is reproduced on a photographic film. In the production of the image, the value for a bias voltage to be applied to the target of the storage tube is caused to change continuously or gradually from a level at which no pattern area can be reproduced, no matter how high the stored charge density is, up to a level at which all the pattern areas are reproducible at the same time, whereby the higher the stored charge density of a pattern area is, the longer the exposure time of a film becomes (with a consequent increase in the amount of exposure). According to this method, a well-contrasted picture is obtainable through a very simple operation.

3,633,479

DEVICE FOR STACKING FILM SHEETS

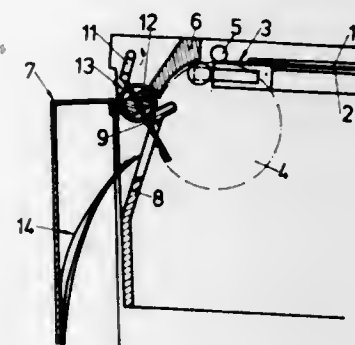
Lennart S. E. Bergstrom, Solna, Sweden, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Dec. 29, 1969, Ser. No. 888,535

Claims priority, application Sweden, Jan. 15, 1969, 502/1969
Int. Cl. G03b 19/10

U.S. Cl. 95—19

4 Claims



A stacking device for film sheets wherein the film sheets after having been exposed in an illuminated area are transmitted over a curved path to the inlet opening of a receiving magazine is particularly characterized by a device rotatably mounted at the inlet opening and driven in synchronism. When the front edge of an exposed film sheet approaches the

inlet opening the device moves to the side all film sheets already present in the magazine, so that a free passage into the magazine is provided for the new film sheet.

3,633,480

SAFETY WINDUP DEVICE FOR CAMERA

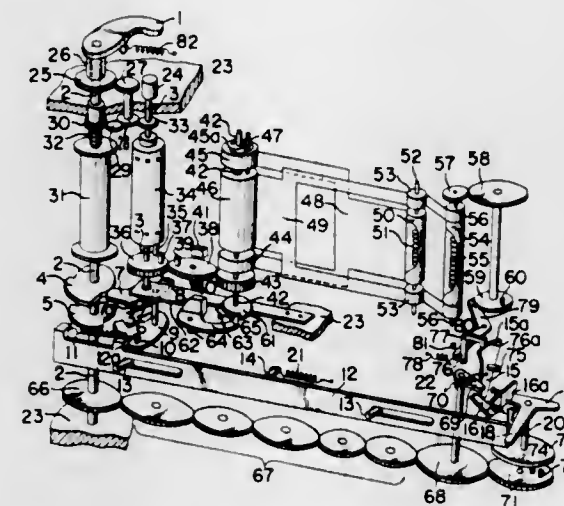
Hideobu Kondo, Kawasaki, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Nov. 2, 1970, Ser. No. 86,142

Claims priority, application Japan, Nov. 27, 1969, 44/112100
Int. Cl. G03b 19/04

U.S. Cl. 95—31 FL

4 Claims



A safety windup device used with a camera in which a shutter release shaft even in a somewhat lowered position may be raised by normal windup action into a position for permitting windup operation to be accomplished. The shutter release shaft has a beveled lower end face, and a release limiting member has a complementary beveled surface for cooperating with the beveled end surface of the shutter release shaft to raise the shaft.

3,633,481

PHOTOMICROSCOPE

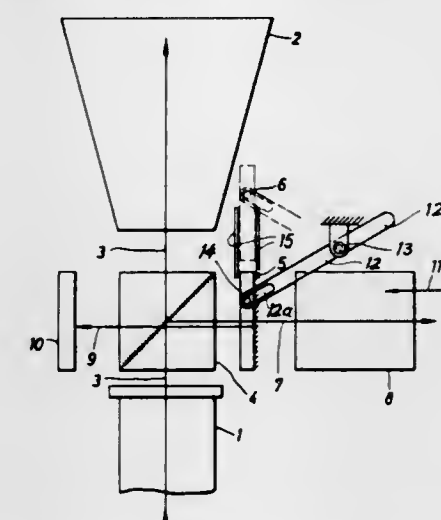
Klaus Kuhl, Immenhausen, Germany, assignor to Hertel & Reuss, Kassel, Germany

Filed Aug. 21, 1969, Ser. No. 851,980

Int. Cl. G03b 19/12

U.S. Cl. 95—42

9 Claims



The photomicroscope comprises a photographic camera and a microscope disposed in optically coaxial relationship. An ocular permits viewing of objects placed on a stage of the microscope and is disposed outside of the light beam from the microscope to the camera. A beam splitter interposed in this light beam directs part of the light beam to the camera and deflects another part toward an exposure meter. A fully silvered mirror can be selectively interposed into the path of the light beam from the beam splitter toward the ocular or

withdrawn from this path. The mirror, when in its position interposed into the path of the light beam, directs the light beam upon the light meter for the purpose of indicating the available intensity of the light.

3,633,482

VIEWER MASK CHANGING DEVICE FOR A MICROSCOPE HAVING PHOTOGRAPHIC CAMERAS

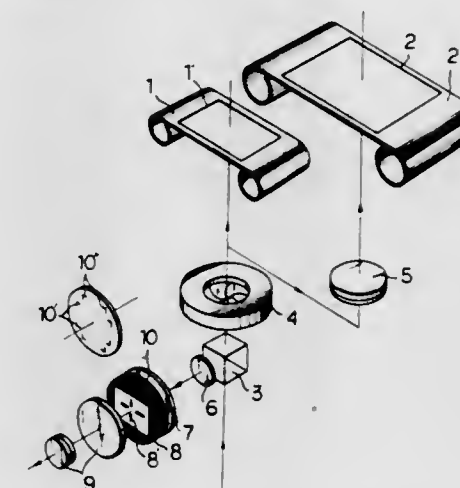
Hiroshi Tsuda, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed June 18, 1970, Ser. No. 47,446

Int. Cl. G03b 3/00

U.S. Cl. 95—44 R

3 Claims



Viewer mask changing device for a microscope having at least two photographic cameras each having different size and shape of the frame of the photosensitive material and a viewer receiving a portion of light to be directed to the camera selected for taking a microscopic photograph of an object so as to permit a magnified image of the object to be viewed therethrough while the microscopic photograph is taken. The viewer is provided with a focusing plate located in a plane in which the image of the object is focused and a mask plate rotatably located immediately in front of the focusing plate. The focusing plate has a central rectangular transparent portion the area of which is slightly greater than that corresponding to the size of the frame of the photographic material in any of the cameras and the remaining outer translucent or opaque portion surrounding the central portion, while the mask plate has at least two sets of corner marks each set indicating the corners of the area corresponding to the frame of the photosensitive material in the respective camera. Any of the sets is angularly displaced from the remaining sets about the optical axis of the viewer so that selected one of the sets is positioned in registration with the central portion of the focusing plate by rotating the mask plate while the remaining sets are hidden by the outer portion of the focusing plate, so that the portion of the image to be photographed by the camera selected in connection with the registered set of corner marks is indicated by the registered set of corner marks.

3,633,483

DEVICE FOR CONTINUOUSLY ALTERING THE FOCAL LENGTH OF PHOTOGRAPHIC LENSES

Motoi Nagashima, Tokyo-to, Japan, assignor to Shima Kogaku Kabushiki Kaisha, Tokyo-to, Japan

Original application Aug. 27, 1968, Ser. No. 755,665, now Patent No. 3,566,765. Divided and this application Aug. 12, 1970, Ser. No. 63,133

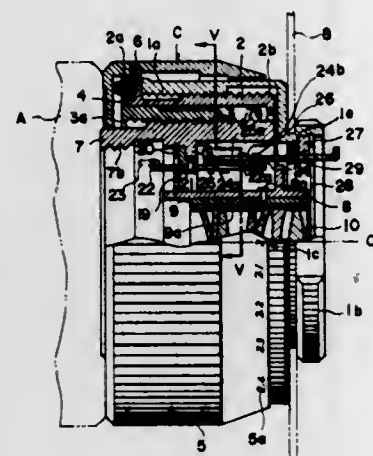
Claims priority, application Japan, Dec. 31, 1967, 43/200
Int. Cl. G03b 3/00; G02b 15/00

U.S. Cl. 95—44 R

1 Claim

A device for continuously altering the focal length of photographic lenses, which is detachably mounted between the camera body and the objective lens unit containing a diaphragm means and which comprises an operating ring

means capable of continuously altering the focal length of the objective lens system or, in other words, the magnification of the objective lens system by a mere rotation of said operating ring means causing said objective lens unit to be driven forwardly or backwardly in the direction of the optical axis of said objective lens unit and a built-in diaphragm ac-



tuating rod means capable of making telescopic movement in accordance with the forward or backward movement of said objective lens unit, whereby effecting the automatic operation of the diaphragm means in interlocking relation with the operation of the shutter button which is provided on the camera body, regardless of whichever focal length adjusting position occupied by said operating ring means.

3,633,484

ELECTROMAGNETIC SHUTTER MECHANISM FOR A CAMERA

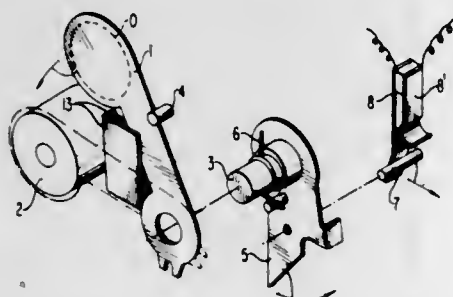
Yoshizo Ikegami; Kunio Abe; Masakazu Nagai; Susumu Fukuda, and Takehiko Kaki, all of Nishinomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 24, 1970, Ser. No. 22,311

Claims priority, application Japan, Mar. 25, 1969, 44/22615
Int. Cl. G03b 9/10

U.S. Cl. 95-53 R

3 Claims



A pivotable shutter blade is spring biased to closed position and carries a pin fixed thereto for closing a switch to the time-constant circuit, which in turn energizes an electromagnet which momentarily maintains the shutter in open position for a time dependent upon full charging of the condenser of the time-constant circuit. The face of the electromagnet is parallel with the plane of the shutter.

3,633,485

SHUTTER FOR USE IN A CAMERA

Kenji Hiruma, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Feb. 24, 1969, Ser. No. 801,379

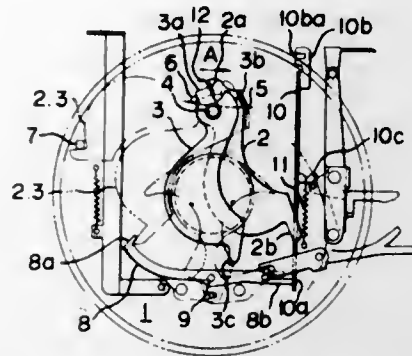
Claims priority, application Japan, Feb. 29, 1968, 43/13074
Int. Cl. G03b 9/26

U.S. Cl. 95-60

6 Claims

A shutter for a camera having a driving blade for driving a driver blade mounted on a common pivot. The blades are

partially overlapped when closing the camera aperture in a first position determined by abutting projecting portions on the blades. The blades rotate simultaneously in completely



overlapped condition to a second position thereby opening the aperture, and stop means is provided to determine the second position.

3,633,486

APERTURE CONTROLS FOR PHOTOGRAPHIC APPARATUS

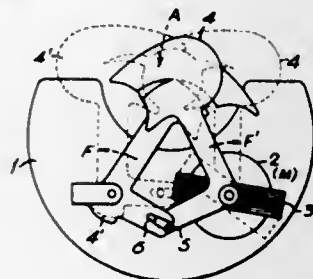
Tatsuo Asazuma, Tokyo-to, Japan, assignor to Cosmocar Kogaku Kabushiki Kaisha, Tokyo-to, Japan

Filed Nov. 19, 1969, Ser. No. 877,980

Claims priority, application Japan, May 7, 1969, 44/41176
Int. Cl. G03b 7/08, 9/06

U.S. Cl. 95-64 D

2 Claims



A photographic apparatus having a structure for automatically determining the exposure aperture according to the lighting conditions. An electrical circuit is provided with a switch for opening and closing the circuit. A photosensitive resistor is connected with the circuit for influencing the current flowing therethrough according to the intensity of the light which is received by the photosensitive resistor. An adjustable diaphragm is provided to determine the size of the exposure aperture, and this diaphragm has a fully closed position where no aperture is provided. A moving coil instrument is operatively connected with the circuit and with the diaphragm for automatically adjusting the latter according to the intensity of the light which is received by the photosensitive resistor. When the switch opens the circuit, the moving coil instrument automatically places the diaphragm in its fully closed position, so that when the structure is not used, with the circuit open, no light will pass through an objective with which the diaphragm coacts.

3,633,487

APPARATUS FOR PROCESSING PHOTOGRAPHIC MATERIAL

Herbert Reinhold Langkopf, Fuerstenwall 234, Dusseldorf, Germany

Filed July 29, 1969, Ser. No. 845,721

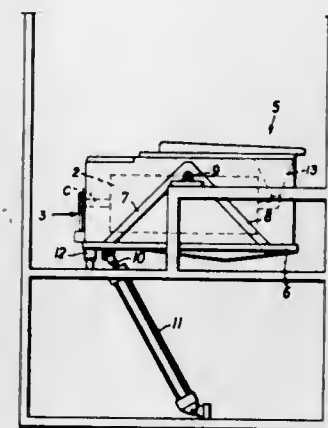
Claims priority, application Germany, Aug. 31, 1968, P 17 97 228.0
Int. Cl. G03d 13/04

U.S. Cl. 95-89 R

13 Claims

Apparatus for processing photographic emulsion coated material, in particular color films and color prints, of the

kind comprising a tank containing mechanically rotated drums for holding the material and a plurality of metering containers for supplying processing liquids to the drums has its tank mounted in a swinging frame provided with a driving mechanism which enables the frame to be swung to tip the



tank and empty the drums. Each of the drums has a filling funnel to which a number of flexible supply tubes lead, one from each of the metering containers so that the processing liquids can be supplied from the containers to the drums one after another automatically without disconnecting the supply tubes which flex when the tank is tipped.

3,633,488

MULTIPLE-TRAY PHOTOGRAPHIC PRINT AGITATOR

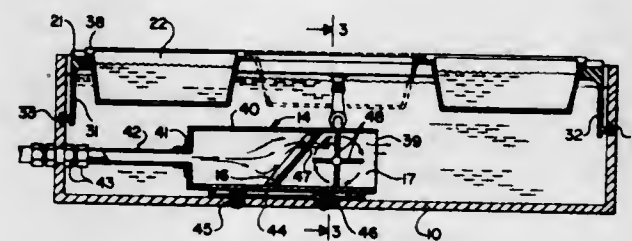
Frank Rummo, 1623 81st St., Brooklyn, N.Y.

Filed Aug. 19, 1970, Ser. No. 65,149

Int. Cl. G03d 3/04

U.S. Cl. 95-99

4 Claims



An agitator comprising a bottom tank in which water is kept at a definite level and at an even temperature, an inlet water supply and a drain pipe. Inlet water supply operates a water wheel device by conveying water through an inclined plate having orifices at its upper end so that water is directed against the vanes of a water wheel. A crank is connected to the water wheel and to a pivoted frame within said tank to rock the frame. The frame is adapted to support print trays so that their bottoms depend into the tank and below the level of the water therein. The liquids within the developer trays are thus maintained at a constant temperature by the water within the tank.

3,633,489

INTERRUPTABLE DEPOSITING MACHINE

John F. Spoelhof; William L. De Witt, and Frank C. Werner, all of Grand Rapids, Mich., assignors to Werner Lebara, Inc., Grand Rapids, Mich.

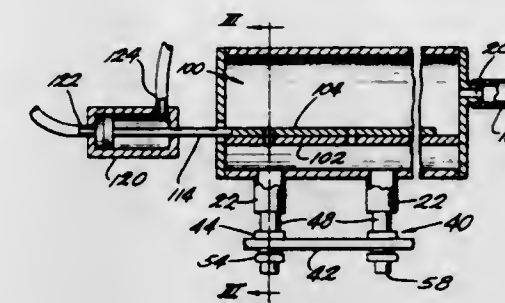
Filed Nov. 28, 1969, Ser. No. 880,729

Int. Cl. A21c 9/08

U.S. Cl. 99-450.7

4 Claims

An improved depositing machine wherein foodstuff is ejected from a manifold by nozzles which reciprocate within nipples on the manifold, the uniform distribution of the deposited material being insured by the use of arcuately shaped, equally and concentrically spaced openings in the



manifold into an upper chamber and a lower chamber, there being provided relative reciprocation between the two by means of a piston.

3,633,490

APPARATUS FOR PRODUCING COOKED PRODUCTS

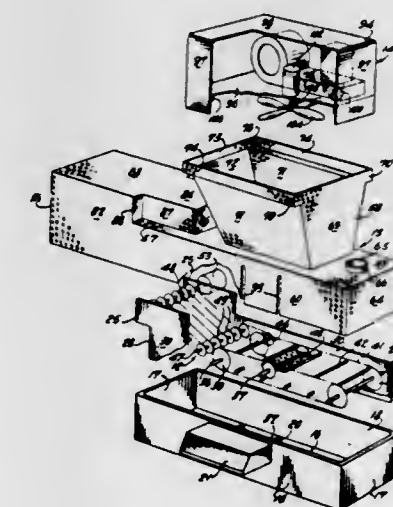
Robert F. Schiffmann, Brooklyn; Howard Roth, Bronx; David H. Lipka, Roslyn, and Abraham H. Goodman, Great Neck, all of N.Y., assignors to DCA Food Industries, Inc., New York, N.Y.

Continuation of application Ser. No. 519,255, Jan. 7, 1966, now abandoned. This application Aug. 17, 1970, Ser. No. 64,433

Int. Cl. A47j 37/12

U.S. Cl. 99-339

13 Claims



A fried bakery product, such as a chemically leavened and extruded doughnut, is produced by apparatus which is arranged to first totally immerse a piece of dough for the fried product in a frying vessel containing an edible frying medium at a frying temperature wherein the edible frying medium is liquid and for a time sufficient to assure proper shaping of the dough piece. Thereafter, the dough piece, while partially immersed in the frying medium, is moved by a conveyor to an intermediate location of the frying vessel at which it is subjected to microwave energy from a microwave source concurrent with frying of the underside thereof. The fried product is completed by the provision of an inverting mechanism which turns the same in the frying medium. The resulting product has a number of improved characteristics including uniform crumb density and better physical properties and eating characteristics.

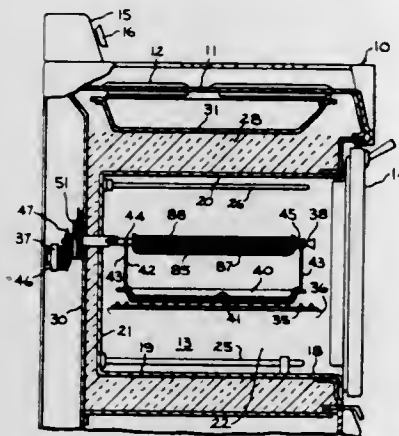
3,633,491

DRIVE MEANS FOR A ROTISSERIE SPIT

Milton S. Williams, Jr., and Christian A. Eff, both of Louisville, Ky., assignors to General Electric Company
Filed Sept. 23, 1969, Ser. No. 860,184
Int. Cl. A47j 37/04

U.S. Cl. 99—340

9 Claims



A roasting oven having means for supporting a rotisserie spit for rotary movement within the oven cavity. One wall of the oven supports a gear motor having an output shaft with a first spit connector or chuck which is adapted to be coupled with one end of a standard spit to create a constant speed turning action spit. An alternate spit carrying a food basket is adapted to be coupled with a second spit connector that is freely supported on the first spit connector. An intermittent drive gear train is connected between the output shaft and the second spit connector whereby this second connector and hence the food basket has a slow, intermittent turning action for exposing first one side and then the opposite side of the food in the basket to a radiant heating source.

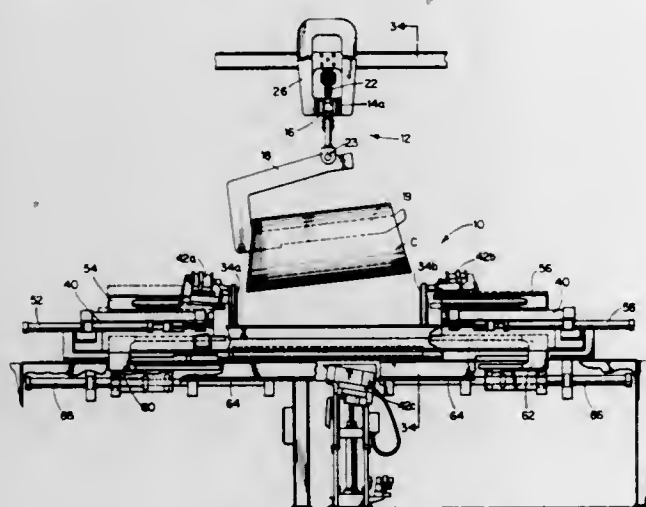
3,633,492

COIL COMPACTING AND STRAPPING APPARATUS

Martin Gilvar, Westboro, Mass., assignor to Morgan Construction Company, Worcester, Mass.
Filed Mar. 5, 1970, Ser. No. 16,876
Int. Cl. B65b 13/02

U.S. Cl. 100—3

6 Claims



An apparatus and method for compacting and strapping cylindrical product coils. Each coil is transported to a position between spaced oppositely disposed compacting elements. The compacting elements, which are movable in a direction parallel to the coil axis, are then advanced symmetrically towards each other to axially compact the coil. Thereafter, strapping devices are operatively positioned and

actuated to apply a plurality of circumferentially spaced retaining straps to the coil while the coil remains axially compacted between the compacting elements. The compacting elements and strapping devices are then returned to their inoperative positions, and the compacted strapped coil is removed to another location.

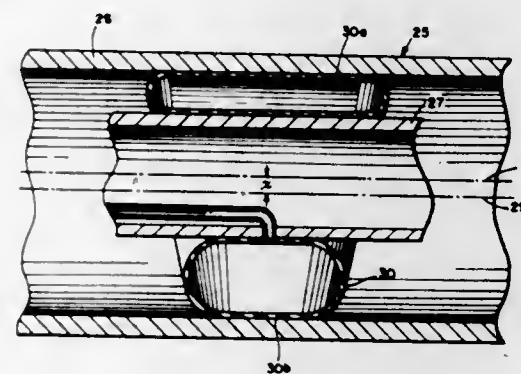
3,633,493

ROLL ASSEMBLY

Toivo Helminen, 517 North Idlewild St., Kaukauna, Wis.
Filed June 25, 1969, Ser. No. 836,339
Int. Cl. B30b 3/04

U.S. Cl. 100—162 B

4 Claims



A variable deflection roll wherein a shaft is mounted within a cylindrical shell eccentric to the axis of the shell and at least one resilient element, such as an inflatable rubber tire, is interposed between the exterior of the shaft and the interior of the shell; the deflection of the roll being compensated for by a combination of the pressure inside the tire or tires and the amount of eccentricity of the shaft relative to the shell axis.

3,633,494

SCREW EXTRUDERS WITH BAFFLE PLATES AND EXPELLER BODIES

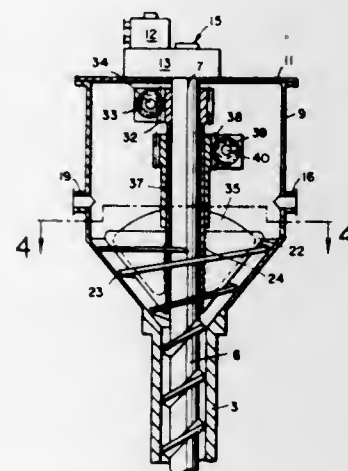
Heinz Schippers, Remscheid, and Hans Slemetzki, Hilgen, both of Germany, assignors to Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany
Filed May 20, 1970, Ser. No. 39,020

Claims priority, application Germany, May 28, 1969, P 19 27 067.8

Int. Cl. B29f 3/02, 3/03

U.S. Cl. 100—90

10 Claims



The screw extruder for the processing of liquid melts or pulverulent, granular or similar thermoplastic materials, especially of those with liquidlike flow behavior, wherein the feed hopper of the screw press has at least one stationary, vertically adjustable, radial baffle plate and also one or more expeller bodies inside a spiral impeller revolving in the annu-

lar space between a conical segment of the hopper and the baffle plates and expeller bodies.

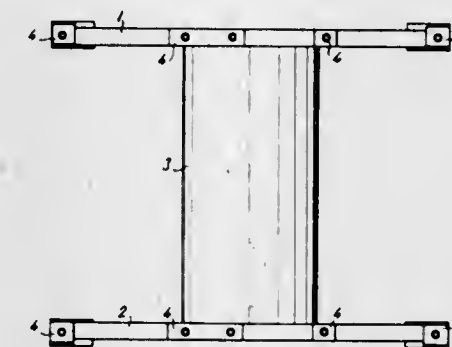
3,633,495

BASE FRAME FOR A PRINTING PRESS

Jaroslav Janacek, Brno, and Antonin Svoboda, Adamov, both of Czechoslovakia, assignors to Adamovske strojirny, narodni podnik, Adamov, Czechoslovakia
Filed Nov. 6, 1968, Ser. No. 773,899
Int. Cl. F16m 1/00

U.S. Cl. 101—1

5 Claims



The base frame of an offset printing press consists of two sidewalls made from steel tubing reinforced by ribs and connected by a rigid horizontal tube approximately centered in each sidewall. The diameter of the tube is about one-half of the sidewall height so that it provides good rigidity to the frame. It houses the electric drive motor and the air pump for the press.

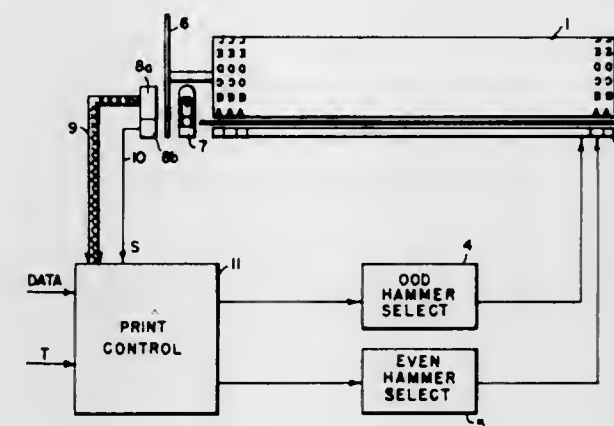
3,633,496

PRINTER AND CONTROL CIRCUIT THEREFOR

Thomas M. Kearns, Norwood, Mass., assignor to Mohawk Data Sciences Corporation, Herkimer, N.Y.
Filed Jan. 29, 1970, Ser. No. 6,859
Int. Cl. B41j 9/14, 1/34; H01h 47/00

U.S. Cl. 101—93 C

3 Claims



A printer having a bank of electromagnetically operated print hammer mechanisms which are sequentially energized by only two driving circuits. Those hammer mechanisms which print in the even columns of the line being printed are energized by one of the driving circuits while those which print in the odd columns are energized by the other driving circuit. The two driving circuits are alternately energized so that characters are alternately printed in the odd and even columns. Each driving circuit is connected to the hammer mechanisms which it energizes via a network formed by two sets of leads arranged as a matrix. A first group of relays is provided to selectively connect the leads in one set with the driving circuit while another group of relays is provided to selectively connect the leads in the other set with a reference

potential. Each hammer mechanism has its coil connected between a different pair of leads, each lead of the pair being in different sets. When one relay in each group is closed, a conductive path is provided from a driving circuit, to a hammer mechanism, to the reference potential. Decoding means are provided to simultaneously operate a pair of relays, one in each group, in response to outputs from a binary counter. Advancement of the counter sequentially operates the decoding means to close one pair of relays at a time and cause the hammer mechanisms to be sequentially electrically connected between the driving circuit and the reference potential. In this manner, one driving circuit sequentially energizes those hammer mechanisms which print in either the odd or even columns.

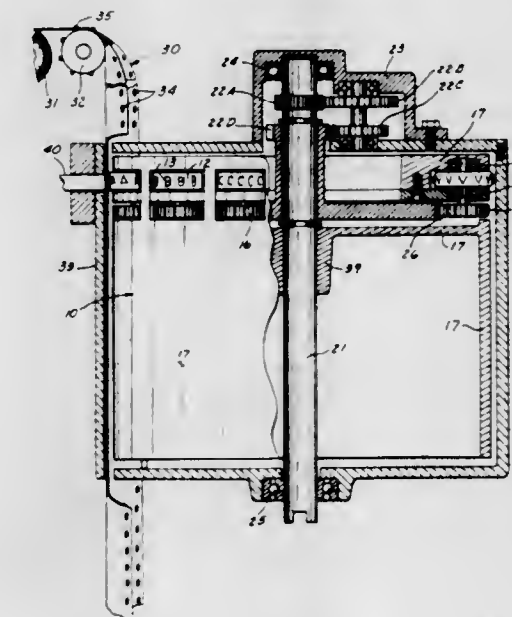
3,633,497

PLANETARY HIGH-SPEED PRINTED

Richard A. Hartley, 4225 Ethel Ave., Studio City, Calif.
Filed June 27, 1969, Ser. No. 837,201
Int. Cl. B41i

U.S. Cl. 101—93

8 Claims



The printer is constructed with a movable printing head having a plurality of rotatable planetary-type wheels mounted to protrude slightly through the outer rim of the printing heads. The planetary-type wheels are mounted in a plane parallel to the plane of the printing heads and their axes are parallel to the axis of the printing heads. The planetary-type wheels are geared to a drive system that moves the printing heads such that they rotate with the precise surface velocity of each printing head but in an opposite direction. Each planetary-type wheel is provided with a discrete number of identical raised-type faces separated by the precise dimension desired for character spacing on the printed page. In one embodiment of the invention, the printing paper is curved in an arc around a cylindrical printing head close to or in contact with the type wheels. In another embodiment of the invention the paper is held flat. The length of the paper is parallel to and moves along the axis of the printing heads. Individual forcing means are provided at each character position to press the paper into printing contact with the rolling-type face. The desired character may then be printed at each occurrence on a line by merely energizing a forcing means as a type wheel moves sequentially to each character position on the paper strip. Electronic control means are provided for controlling the individual forcing means as a function of the desired character printing position on the paper.

3,633,498

MARKING DEVICE WITH SELECTIVE MARKING WHEELS ADJACENT A PUNCH MEMBER

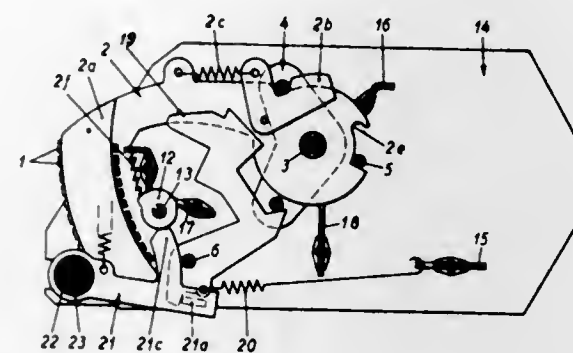
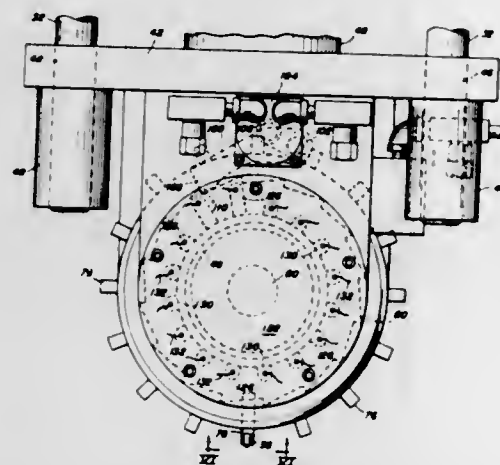
Norman A. Beck, Ellicott City, Md., assignor to Koppers Company, Inc.

Filed Jan. 27, 1970, Ser. No. 6,201

Int. Cl. B41f 15/14, 47/04

U.S. Cl. 101-79

6 Claims



carriage, and electronic coding and sensing may be provided for controlling the apparatus for example, in the event of computerized operation.

3,633,500

MEANS MOUNTING TYPE SLUGS ON TOOTHED BELT IN CHAIN PRINTERS

James H. Edwards, Winchester, and Alan M. Swett, Milton, both of Mass., assignors to Mohawk Data Sciences Corporation, Herkimer, N.Y.

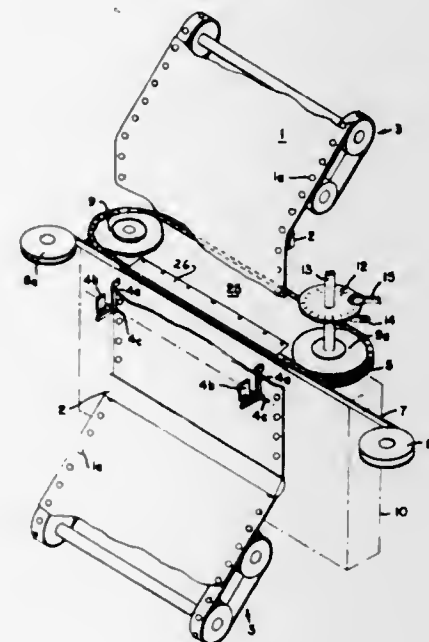
Filed June 27, 1969, Ser. No. 837,085

Int. Cl. B41j 1/20, 1/30

U.S. Cl. 101-111

10 Claims

Apparatus for marking a plate member at a preselected location and to impress selected characters on opposite sides of the mark. A bridge member spans a layout table and is movably supported on a pair of rails secured to the table sides so that the bridge member is movable longitudinally along the layout table. A turret assembly is movably supported on the bridge member and is movable longitudinally thereon and transversely relative to the layout table. The turret assembly includes a marking head assembly that is movable vertically toward and away from the plate positioned on the layout table. The marking head assembly includes a central support member with a punch member extending downwardly therefrom and a pair of marking wheels rotatably supported on opposite sides of said support member. The marking wheels have a plurality of raised characters positioned at spaced intervals along the outer periphery. The marking wheels are rotated by means of a driven worm gear assembly and a pawl ratchet assembly. A fixed commutator wheel is associated with each marking wheel and has separate commutators for each character on the marking wheel. Separate fixed and movable commutator wheels complete an electrical circuit through a remotely closed switch circuit and the commutator for a selected numeral on the marking wheel. The circuit remotely controls the drive for rotating the marking wheel and stops the wheel when the selected numeral is in a marking position.



A chain printer containing a type chain which comprises a belt having a toothed side and which carries channel-shaped printing slugs along the print line. The web of each channel-shaped slug abuts the nontoothed side of the belt and has type characters thereon. The slugs' flanges project across the edges of the belt and a pair of pins hold each slug at alternate teeth on the belt by extending between the flanges and projecting into holes therein. Each pair of pins abuts the opposite sides of a tooth and the adjacent side of the belt. A driving pulley moves the belt with a set of peripheral notches which mesh with those teeth not abutted by pins; a second set of peripheral notches is provided in the pulley for accommodating the abutting teeth and pins. When traveling around the pulley, the flanges pass over the pulley's sides and thereby guide the belt and slugs.

3,633,499

PRINTING MECHANISM

Gosta Curt Hjerpe, Molndal, Sweden, assignor to Ing. F-a Preko, Molndal, Sweden

Filed July 9, 1969, Ser. No. 840,203

Claims priority, application Sweden, Nov. 14, 1968, 15447/68

Int. Cl. B41j

U.S. Cl. 101-93 C

23 Claims

Printing apparatus preferably for printing numerals in calculating machines is disclosed, such apparatus having a plurality of substantially sector-shaped-type carrying members, each of such members being pivotally mounted and provided with a predetermined number of illustratively impression-type members movable generally radially in the vicinity of the circumference of the sector-shaped portion. A ratchet mechanism is provided on each of the sector-shaped portions for ruling or interrupting movement of each of the type carrying members. A plurality of spring-loaded printing hammers are arranged to strike the type members to print selected characters, each of the hammers being provided

3,633,501

PRINT SLUG MOUNTING MEANS IN TYPE CHAIN ASSEMBLY

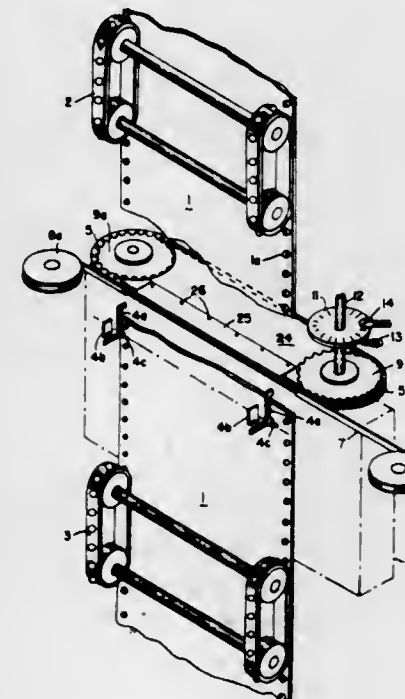
James H. Edwards, Winchester, Mass., assignor to Mohawk Data Sciences Corporation, Herkimer, N.Y.

Filed Sept. 30, 1969, Ser. No. 862,237

Int. Cl. B41j 1/20

U.S. Cl. 101-111

5 Claims



A chain printer having a type chain which comprises an endless flexible belt to which a plurality of abutting print slugs are attached. Each print slug contains a printing portion located on the outside of the belt and a pair of driving portions which are cantilevered from the printing portion and project across the belt's edges. Type characters are located on the printing portions and the driving portions have their cantilevered ends shaped to mesh with peripherally spaced notches in a driving pulley so that they thereby drivingly engage the chain with the pulley. Preferably, the pulley is made up of three parts: top and bottom parts having peripherally spaced notches, and a center part which projects between the slugs' driving portions and abuts the inside of the belt when the type chain moves around the pulley. In addition, preferably, the outside of the belt is toothed and each slug's printing portion contains a slot into which one of the teeth tightly projects.

3,633,502

INTAGLIO PRINTING BLOCK WITH RESERVOIR FOR POWDERED INK

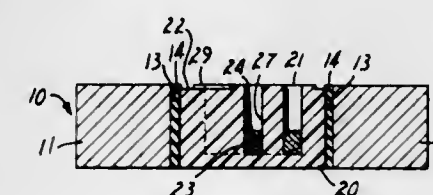
Theodore F. Schwandt, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 13, 1969, Ser. No. 806,980

Int. Cl. B41k 1/44, 1/30

U.S. Cl. 101-150

2 Claims



For applying characters to tacky sheet material, an apparatus comprising a holding means which releasably holds at least one printing block having at least one intaglio printing

face formed by at least one image well, at least a portion of which forms a reservoir for containing a supply of freely flowable powdered ink. A flexible tacky sheet material is adhered over the printing blocks and ink adhered to the tacky surface to provide a desired character arrangement. The printed tacky sheet material can then be adhered to, or the characters transferred to, any desired surface such as signs, posters, etc.

3,633,503

DRIVE AND INTERRUPTER ARRANGEMENT FOR ROTARY OFFSET PRESS

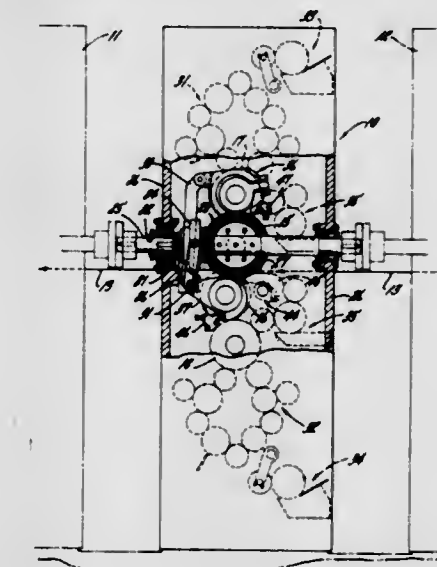
Leonard Immanuel Tafel, La Grange, Ill., assignor to Miehle-Goss-Dexter, Incorporated

Filed June 20, 1969, Ser. No. 835,171

Int. Cl. B41f 13/28, 7/02

U.S. Cl. 101-218

3 Claims



A perfecting offset printing press in which one blanket cylinder is directly driven to run the press, the plate cylinder cooperating with that blanket cylinder and the opposing blanket cylinder being mounted in throwoff eccentrics which are linked together and actuated for throwoff. One of the links is of variable length so that, by varying link length, the plate cylinder linked thereby can be skewingly adjusted. All cylinders run normally in bearing ring relationship, but the driven blanket cylinder is supported in shifting eccentrics permitting the driven blanket cylinder to be shifted from the other blanket cylinder while maintaining blanket cylinder-plate cylinder bearing relation. The gear driving the blanket cylinder has two engaged positions, one for each position of the blanket cylinder.

3,633,504

ROTARY PRESS WITH WEB-TENSIONING ROLL MEANS

Louis Jean Chambon, Paris, France, assignor to Societe D'Etudes Des Machines Speciales Societe Anonyme, Paris, France

Continuation of application Ser. No. 738,061, June 18, 1968, now abandoned. This application Dec. 24, 1970, Ser. No. 101,406

Claims priority, application France, June 23, 1967, 11681

Int. Cl. B41f 5/06

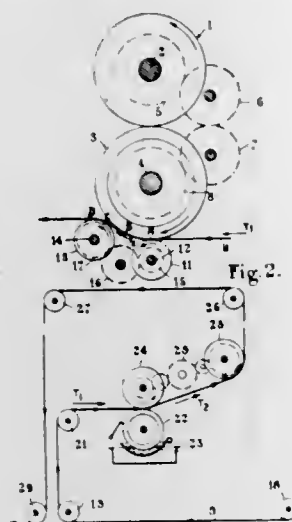
U.S. Cl. 101-228

4 Claims

A rotary press of the offset or process engraving type comprises a plurality of printing units through which a paper web is fed in succession. Each unit comprises a power-driven blanket cylinder, a freely rotatable impression cylinder driven by frictional engagement with the paper web passing between the impression cylinder and the blanket cylinder and a tension control cylinder downstream of and driven from the impression cylinder at a peripheral speed slightly lower than

that of the impression cylinder so that the tension T_2 in the paper web between the impression cylinder and the tension control cylinder is slightly less than the tension T_1 of the

controls a lever arm which actuates a ratchet fixed to one of the spools to intermittently feed the ribbon. The cam may be



paper web entering the bite between the impression cylinder and the blanket cylinder. This tension differential avoids "whipping" or beating of the impression cylinder.

3,633,505

IMAGE TRANSFER PRINTING MACHINE

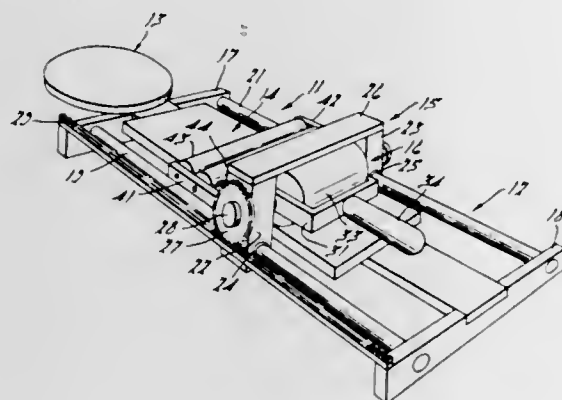
Edward A. Ferrari, Detroit, Mich., assignor to David P. Rankine and Robert L. Rankine

Filed Oct. 13, 1969, Ser. No. 865,891

Int. Cl. B41f 3/34

U.S. Cl. 101-269

6 Claims



An image transfer printing machine for delivering an inked impression from a plate onto a roller for subsequent transfer to an article to be printed. The machine has a drive arrangement for driving the roller in timed sequence across the plate so as to accurately record the impression upon the roller.

3,633,506

ROTARY INKING DEVICE FOR FRUIT MARKING MACHINES

Harold J. Mumma, and Curtis L. Parry, both of Riverside, Calif., assignors to FMC Corporation, San Jose, Calif.

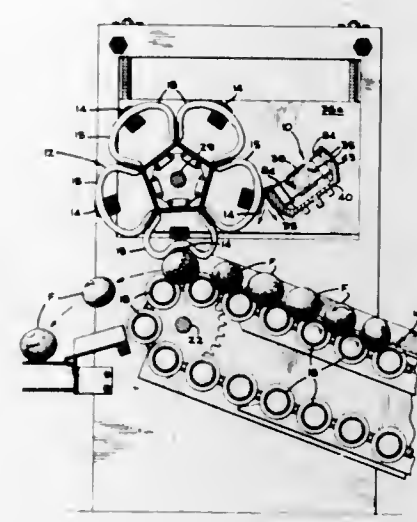
Filed Dec. 4, 1967, Ser. No. 687,870

Int. Cl. B41f 1/44

U.S. Cl. 101-336

15 Claims

An inking device is mounted for continuous rotational movement and for tangential engagement with a plurality of marking dies angularly spaced about a rotatable marking wheel. The inking device includes a pair of spools which carry an inked ribbon that extends therebetween and along the opposite faces of the devices for rolling engagement with the dies. A cam positioned adjacent to the end of the device



3,633,507

AIR-TO-GROUND TARGET-MARKING DEVICE

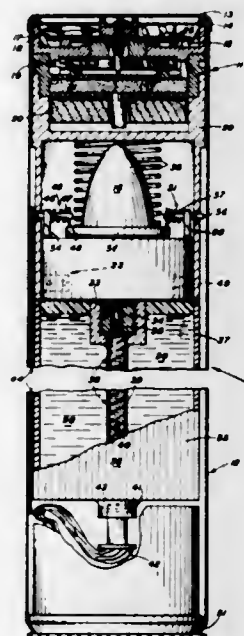
Carl H. Morley, Ridgecrest, and Howell M. Sumrall, San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Mar. 19, 1970, Ser. No. 20,958

Int. Cl. F42b 25/02

U.S. Cl. 102-4

2 Claims



A delivery system for air-to-ground markings which comprises a bomblet-containing marking material and provided with a sensor which operates to trigger release of said marking material within a few inches of treetop or near ground surface.

3,633,508

APPARATUS FOR ANCHORING A RIVER MINE OR OTHER EXPLOSIVE CHARGE

Engelbertus Ribberink, Hattem, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabriken N.V., Nijmegen, Netherlands

Filed Apr. 16, 1969, Ser. No. 816,551

Claims priority, application Netherlands, Apr. 18, 1968, 68,05458

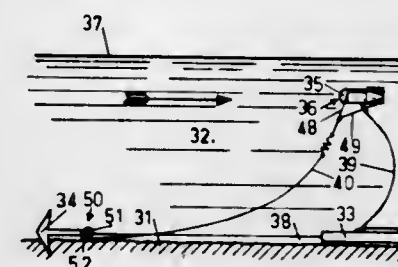
Int. Cl. F42b 22/16

U.S. Cl. 102-13

14 Claims

An anchoring apparatus, permitting the application of river mines or other explosive charges, is provided in which the

charge and the anchor constitute the two base points and the ignition device contained in a floater constitutes the summit point of a triangular configuration consisting of these three elements and of the three cables interconnecting them. The



reduced dimensions of the floater held in suspense beneath the water surface ensure a restricted detectability by sight thereof and a restricted surface area on which forces can be exerted by the flowing water.

3,633,509

REACTIONLESS FLARE-LAUNCHING APPARATUS

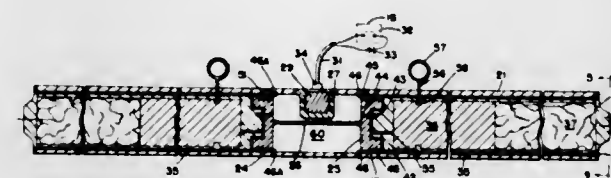
Andrew J. Grandy, North Hills, and Sidney Goldstein, Philadelphia, both of Pa., assignors to The United States of America as represented by the Secretary of the Army

Filed Sept. 30, 1969, Ser. No. 862,212

Int. Cl. F42b 25/04, 13/38

U.S. Cl. 102-35.4

7 Claims



A reactionless flare-launching apparatus having two spaced-apart, frangibly secured together pistons located within an open-ended elongated tube, is mounted transversely to an aircraft longitudinal axis. Two flares, positioned within the tube outwardly of the pistons, are urged out of the tube away from the aircraft after a predetermined gas pressure, applied in the tube between the pistons, breaks the frangible securing element and permits the pistons and flares to be ejected laterally from the aircraft.

3,633,510

DUAL MODE FUZE EXPLOSIVE TRAIN

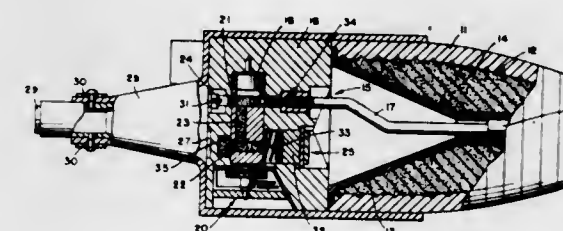
Rodney A. Bernardin, Wayzata, Minn., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 5, 1970, Ser. No. 61,129

Int. Cl. F42c 1/00

U.S. Cl. 102-74

1 Claim



A dual mode fuze explosive train which comprises the combination of a superquick firing pin assembly and an inertial firing pin assembly whereby the inertial pin comes forward to initiate the stab primer when the fuze hits a soft tar-

get and the superquick firing pin is driven into a stab detonator thereby initiating the end initiator when a hard target is struck.

3,633,511

ROCKET FUSE WITH DELAYED-ACTION ARMING
Louis Maury, Toulouse, France, assignor to E. Lacroix, Toulouse, France

Filed Nov. 12, 1969, Ser. No. 875,884

Claims priority, application France, Nov. 13, 1968, 173462

Int. Cl. F42c 15/26

U.S. Cl. 102-80

5 Claims



A rocket fuse with delayed-action arming comprises a fixed cylinder containing microballs and a spring-loaded plunger in the cylinder tends to force the balls out through a calibrated orifice. In the stored position the orifice is closed by a closing ring which can slide on the cylinder with a helical movement to open the orifice at the end of such movement. The movement takes place due to inertia when the rocket is launched and the ensuing movement of the plunger is used to arm the detonator.

3,633,512

SELF-DESTRUCT PROJECTILE AND COMPOSITION

Allen F. Schlack, Churchville; Thomas J. McNally, Levittown, both of Pa., and Thomas A. Doris, Jr., Palmyra, N.J., assignors to The United States of America as represented by the Secretary of the Army

Filed Oct. 17, 1969, Ser. No. 867,164

Int. Cl. F42b 1/116

U.S. Cl. 102-87

5 Claims

A self-destructive projectile having a transverse wall integral with and extending across a substantially cylindrical projectile outer wall, thus defining a forward high-explosive cavity and a rearward tracer cavity. The tracer mix in the tracer cavity consists of a fuel, an oxidizer and a burning rate modifier and is capable of prolonging the period immediately prior to self-destructive occurrence.

3,633,513

METHOD FOR REPLACING AN OLD TRACK BY A NEW TRACK

Franz Plasser, and Josef Theurer, both of Johannesgasse 3, Vienna 1, Austria

Original application June 20, 1968, Ser. No. 738,475, now Patent No. 3,521,656. Divided and this application Feb. 3, 1970, Ser. No. 8,318

Claims priority, application Austria, June 29, 1967, A 607/67

Int. Cl. E01b 29/05

U.S. Cl. 104-2

9 Claims

A work train is moved continuously along a right of way, with a forward section moving on the rails of an old track section and a rear section moving on the rails of a newly laid track section. In an intermediate section, the ends of the old rails are lifted up and supported on the cars of the rear train section as the train advances and the old rail ends remain connected to the rails. Simultaneously, continuous lengths of new rails are supported on the cars of the forward train section and their ends are laid in the intermediate section while the ends remain connected to the rails.

3,633,514

CONVERTIBLE RAIL-HIGHWAY TRACTOR

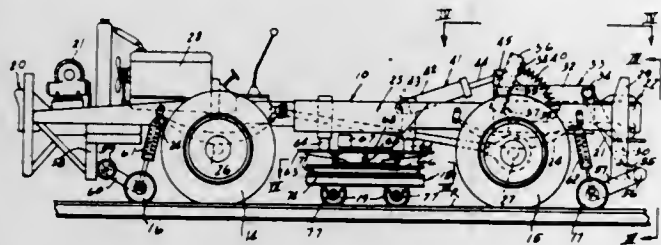
Robert F. Deike, Cheyenne, Wyo., assignor to Cleaner Container Corporation, Cheyenne, Wyo.

Filed Dec. 8, 1969, Ser. No. 882,972

Int. Cl. B61c 13/00, 15/04; B61f 9/00

U.S. Cl. 105-26 R

20 Claims



A self-propelled vehicle or tractor with pneumatically tired wheels operable on roads or railroad tracks, especially useful for shunting railroad cars, which has a cradled drawbar works cooperating with a railroad car drawbar forming a rigid beam connection therewith and shiftable to exert a bending force on the rigid beam connection to transfer railroad car weight to a central portion of the vehicle for loading the wheels to increase the traction of the vehicle. Although the drawbar works project from an end of the vehicle beyond the wheels the loading force is transmitted by the bending beam action to a central portion of the vehicle for preventing tilting or vaulting of the vehicle.

3,633,515

DOOR-OPERATING MECHANISM

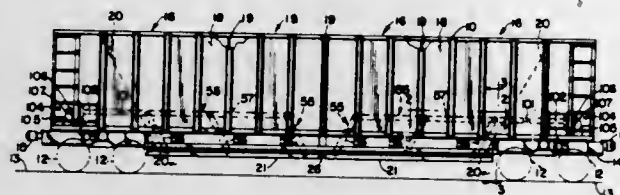
William R. Shaver, and Ernest J. Nagy, both of Munster, Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Dec. 12, 1969, Ser. No. 884,535

Int. Cl. B61d 7/02, 7/28

U.S. Cl. 105-240

24 Claims



In a railroad hopper car, a power-operated hopper door opening and closing mechanism for an interconnected pair of sequentially opening and closing overlapping pivotally interconnected master and slave bottom hopper doors, the door-operating mechanism including longitudinally extending drive means having vertically extending lever means pivotally supported on the car center sill and having an upper end portion pivotally connected with air cylinder means for movement of the lever means and having a lower end portion pivotally connected with laterally extending door arm means and movable into overcenter door locking relation therewith, the door arm means connecting with the overlapping master hopper door for opening and closing same and the slave door sequentially thereby, housing means for the lever means mounted on the center sill and having a pair of longitudinally spaced opposed roller stops, roller means in the housing means pivotally carrying the lever means and selectively engageable with one of the two stops and with a fixed abutment on the center sill below the housing means whereby the lever means develops a high-mechanical power advantage moment arm between the air cylinder means and the abutment for ini-

tial powered opening of the master door in passing by said overcenter locking relation and a longer moment arm between one of the stops in the housing means and the door arm means for final quick travel gravity opening of both bottom doors. In alternate form additional fulcrum means are provided to give an improved mechanical advantage lever means on closing of the hopper doors.

3,633,516

MOVABLE STAKE POCKETS

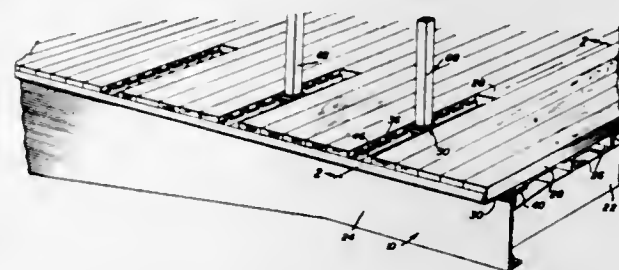
Cletus Ray Henslee, 416 North Auglin Street, Cleburne, Tex.

Continuation-in-part of application Ser. No. 811,957, Apr. 4, 1969, now abandoned. This application Feb. 10, 1970, Ser. No. 9,470

Int. Cl. B61d 3/08

U.S. Cl. 105-390

14 Claims



A load bed of a vehicle including opposite side sets of longitudinally spaced, elongated and transversely extending upwardly opening recesses each having a support structure disposed therein for adjustable positioning along the corresponding recess. The recesses and support structures include a coacting structure operable to prevent movement of the support structures in their recesses toward the corresponding side of the vehicle after the support structures have been placed in predetermined positions along the corresponding recesses. Further, the support structures have either permanently supported, detachable or swingable load retaining stakes supported therefrom and the swingable load retaining stakes are swingable to horizontally disposed retracted positions wholly received within the corresponding recesses when the associated support structures are disposed in the ends of the recesses adjacent the sides of the load bed. Further, all but one form of the support structures disclosed are supported within the corresponding recesses against removal therefrom and all forms of the disclosed support structures are fully recessed within the corresponding recesses.

3,633,517

AUTOMATIC EGG ROLL MACHINE

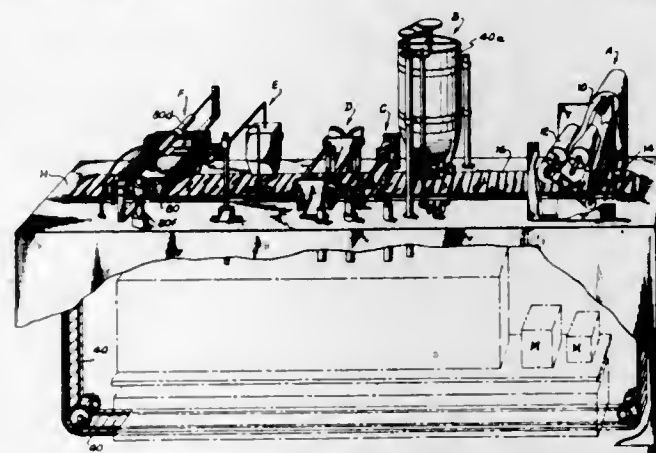
Chung-Chin Fao, 214 Linden Lane, Princeton, N.J.

Filed Aug. 6, 1970, Ser. No. 61,700

Int. Cl. A23g 3/00

U.S. Cl. 107-1 A

11 Claims



Egg rolls are machine made by supporting dough sections on flexible pads. Egg roll stuffing is placed on the dough sec-

tions, the pads then being mechanically moved to fold the dough over the stuffing. The folded section holding the stuffing is then rolled into final egg roll form.

3,633,518

OVENS

Edwin Charles Simmonds, Wellesbourne, Warwick, England, assignor to Charles Simmonds and Trimcote Limited, Warwick, England

Filed Aug. 13, 1969, Ser. No. 849,653

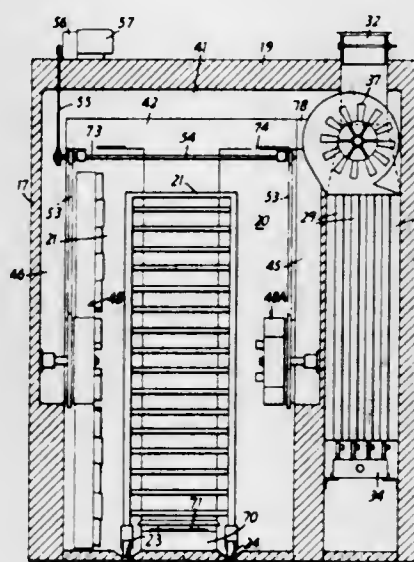
Claims priority, application Great Britain, Aug. 28, 1968,

41,037/68

Int. Cl. A21b 1/00

U.S. Cl. 107-55 R

14 Claims



The invention relates to an oven for heating or baking products by circulation of hot air having means which conduct heated air into the product space of the oven in currents from opposite sides of said space, and each such current of air is directed from one side towards the opposite side from an opening in said means which moves in an endless path.

3,633,519

GOLF CART SEAT

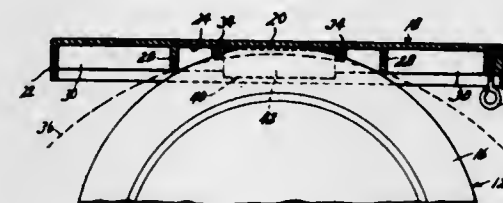
George D. Nichol, 411 W. Washington St., Pittsfield, Ill.

Filed Jan. 29, 1970, Ser. No. 6,728

Int. Cl. A47b 13/02

U.S. Cl. 108-44

1 Claim



A golf cart seat consisting of a panel adapted to be rested on the top peripheral edge of a wheel of a golf cart whereby to serve as a seat for a golfer, said panel having a generally planar top surface and having members on its lower surface forming a centered, generally rectangular recess for engaging over said wheel, whereby to keep said seat panel balanced on said wheel, and whereby to prevent said wheel from rolling along the ground, even if the ground should be sloping, as a result of the user's weight.

3,633,520

GRADIENT ARMOR SYSTEM

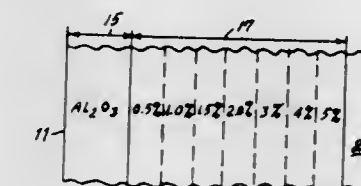
Jacob J. Stiglich, Jr., West Allis, Wis., assignor to The United States of America as represented by the Secretary of the Army

Filed Apr. 2, 1970, Ser. No. 25,128

Int. Cl. F41h 5/00

U.S. Cl. 109-82

6 Claims



An armor system consisting of a ceramic matrix having a gradient of fine metallic particles dispersed therein in an amount of from 0.0 percent commencing at the front or impact surface of the armor system to about 0.5 to 50 percent by volume along the interface of the system.

3,633,521

BOILER SYSTEMS

Eric Kellett, London, England, assignor to C.A.V. Limited, Birmingham, England

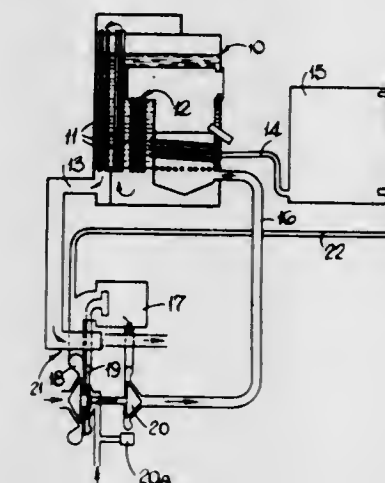
Filed Feb. 19, 1970, Ser. No. 12,577

Claims priority, application Great Britain, Feb. 25, 1969, 9,908/69; Nov. 21, 1969, 52,182/69

Int. Cl. F23k 3/02

U.S. Cl. 110-104

1 Claim



A boiler system including a boiler chamber to which pulverized solid fuel or liquid fuel can be supplied from a container the system also including a combustion chamber the heated gases from which drive a turbine prior to their use as combustion air in the boiler chamber, the turbine driving a pair of compressors which supply dilution air and an air-fuel mixture respectively to the combustion chamber, a tapping being provided from one of the compressors to pressurize the fuel in the container to ensure its supply to the boiler chamber.

3,633,522

SOD SEEDERS

Ronald S. Main, RMB 467 Kootinjal, New South Wales, Australia (2352)

Filed Mar. 24, 1969, Ser. No. 809,908

Claims priority, application Australia, Apr. 1, 1968, 35819

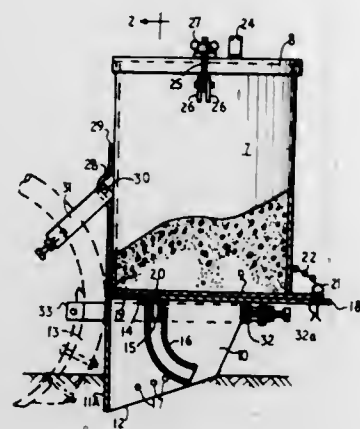
Int. Cl. A01c 5/06, 7/16

U.S. Cl. 111-69

2 Claims

A sod seeder for sowing pasture seed or other like particulate matter, detachably attachable to the lower portion of

and rearwardly of a tilling tine so that the seed or like particles positioned to be sewn during each sewing cycle. The buttons are successively moved from a supply source and delivered to an orienting station before they are transferred into the



ticulate matter will be distributed evenly and at a constant rate into the furrow and below the sod.

3,633,523

TUFTING MACHINE HAVING MULTIPLE STROKE NEEDLE BARS

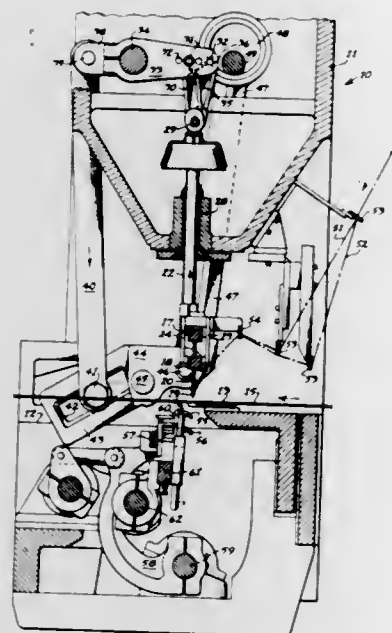
Roy T. Card, Chattanooga, Tenn., assignor to Card & Co., Inc., Chattanooga, Tenn.

Filed Oct. 29, 1970, Ser. No. 85,084

Int. Cl. D05c 15/32

U.S. Cl. 112-79 A

12 Claims



A multiple needle tufting machine having first and second needle bars, each needle bar supporting a separate transverse row of needles, and a drive mechanism for imparting different strokes to each needle bar to cause each set of needles to penetrate a base fabric to different depths in order to form a tufted fabric having different pile heights.

3,633,524

BUTTON FEEDING AND POSITIONING DEVICE FOR SEWING MACHINES

Walter A. Hoffsommer, Ridley Park, Pa., and Howard A. Hodgins, Newark, Del., assignors to Enterprise Machine and Development Corp., New Castle County, Del.

Filed Sept. 23, 1970, Ser. No. 74,655

Int. Cl. D05b 3/22

U.S. Cl. 112-113

9 Claims

This device automatically orients and positions "sewthrough"-type buttons in the clamping jaws of a high-speed button-sewing machine so that a button is properly

clamping jaws. A pneumatic operating and control system is provided to implement the feeding and orientation of the buttons in timed relationship to operation of the sewing machine.

3,633,525

DEVICE FOR ADJUSTING IN HEIGHT THE FABRIC PRESSER IN MULTINEEDLE QUILTING MACHINES

Giannino Landoni, Via Verdi 133, Cassano Magnago, Italy

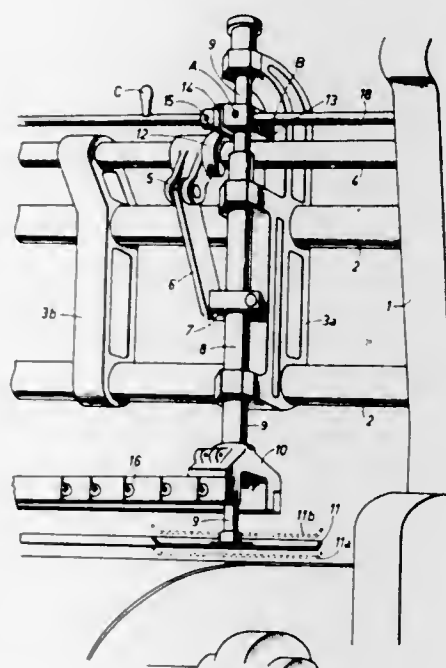
Filed Jan. 28, 1970, Ser. No. 6,347

Claims priority, application Italy, Feb. 8, 1969, 12633 A/69

Int. Cl. D05b 11/00, 29/00

U.S. Cl. 112-117

4 Claims



There is provided a device for adjusting simultaneously, on all the supporting bars, the initial height of the fabric presser in a multineedle quilting machine. On the needle-controlling bar a cam is fixed constantly in engagement with a roll mounted on one end of a lever pivoting on a clamping means which is made integral with the fabric presser rod. All the fabric presser rods are connected by a connecting rod passing through said clamping means and having a cam fixed thereto for each clamping means, said cam being always in engagement with the other end of said lever pivoting on the same clamping means. By causing the connecting suitably unfastened rod to rotate within all the clamping means, the simultaneous adjustment of all the presser rods is obtained.

3,633,526

AUTOMATIC SEWING MACHINE INSTALLATION

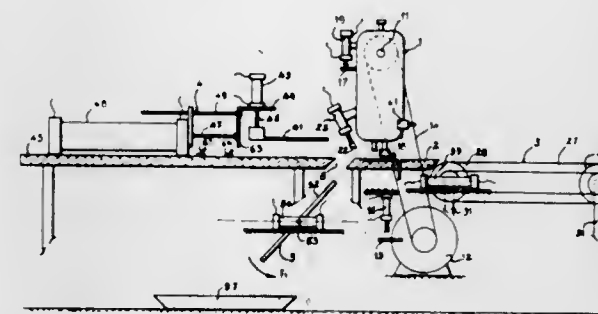
Francois S. Fay, Melun, France, assignor to Centre d'Etudes Techniques des Industries de L'Habillement, Paris, France
Filed Feb. 26, 1970, Ser. No. 14,296

Claims priority, application France, Feb. 28, 1969, 6905321

Int. Cl. D05b 33/00

U.S. Cl. 112-121.29

4 Claims



Automatic sewing machine installation comprising: a sewing machine having no feed grip for the workpiece, with its table and a motive device for driving its shaft, an advance device adapted to conduct each workpiece that is to be stitched onto the entry edge of the table, a feeder device adapted to take over the workpiece and cause it to advance into the machine under the presser-foot and the needle a driving device for the presser-foot, a thread-cutter and its driving device, a driving device for discharging the stitched workpieces, and means for control of the advance device, feeder device, driving device for the shaft of the machine and for drive of the presser-foot, the thread-cutter and the discharging device, adapted to bring about the actuation of the said devices in accordance with the appropriate sequence.

3,633,527

TOY SEWING MACHINE CAPABLE OF SWITCHING BETWEEN ZIGZAG STITCH FORMING AND STRAIGHT STITCH FORMING OPERATIONS

Sakae Kasai, Nakakoma-gun, Japan, assignor to Crystal Sewing Machine Ind. Co., Ltd., Tokyo, Japan

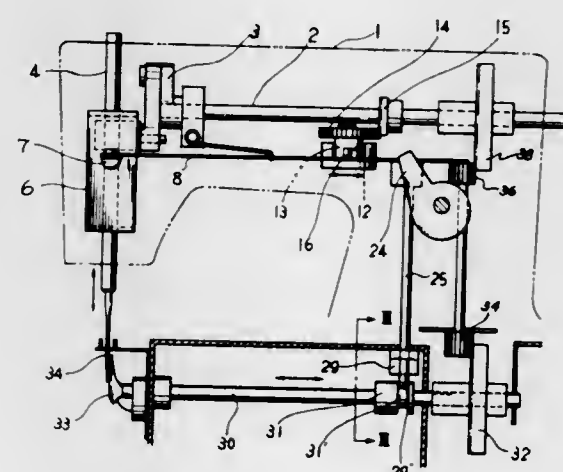
Filed June 19, 1970, Ser. No. 47,671

Claims priority, application Japan, June 26, 1969, 44/60010; 44/60011

Int. Cl. D05b 3/02

U.S. Cl. 112-159

2 Claims



A toy sewing machine capable of switching between zigzag stitch forming and straight stitch forming operations comprising a machine body, a rotary main shaft, a needle bar mounting a sewing needle and connected to said rotary main shaft for reciprocating motion in a vertical plane, a pivotal member connected to said machine body for pivotal motion in a horizontal plane and formed with an axial center bore

for permitting said needle bar to loosely extend therethrough, an actuation bar connected to said pivotal member for reciprocating motion in a horizontal plane, oscillating mechanism for causing said actuation bar to move in reciprocating motion in a horizontal plane in conjunction with the reciprocating motion of said needle bar, a mechanism for switching between a zigzag stitch forming operation and a straight by controlling the engagement of said actuation bar with said oscillating mechanism, a swinging mechanism connected to said actuation bar for repeated angular rotation to right and left as said actuation bar moved in reciprocating motion in a horizontal plane, a looper shaft connected to said swinging mechanism for reciprocating motion in a horizontal plane as said swinging mechanism repeatedly rotates angularly and a looper mounted at said looper shaft for cooperation with said needle.

3,633,528

METHOD OF AND APPARATUS FOR MAKING SLIDE-FASTENER STRINGERS

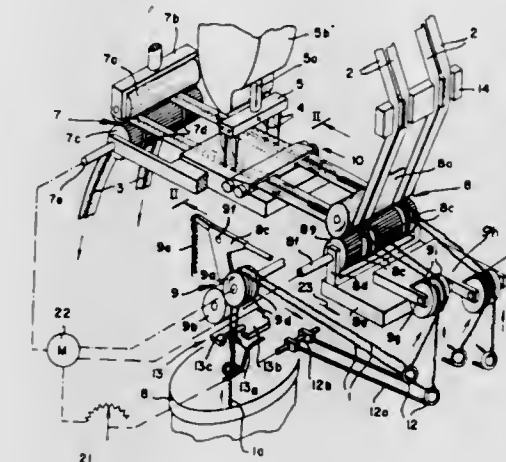
Alfons Frohlich, and Karl Rohn, both of Essen, Germany, assignors to Opti-Holding AG, Burgstr., Glarus, Switzerland
Filed July 6, 1970, Ser. No. 52,377

Claims priority, application Germany, July 16, 1969, P 19 36 053.3

Int. Cl. D05b 3/12

U.S. Cl. 112-265

9 Claims



A pair of interleaved synthetic-resin coils are separated upstream of the sewing station of a sewing apparatus, then both coils are sewn to respective support tapes, and finally the two coils, with attached tapes, are interleaved again just downstream of the sewing station. The sewing station can include a pair of plates defining a Y-shaped channel which serves to hold the coils and tapes during sewing and to mesh them together immediately afterwards.

3,633,529

MOBILE CARRYING SYSTEM FOR DEPOSITING LOADS ON THE OCEAN BOTTOM

Francisco M. Serrano, Paris, France, assignor to Compagnie Francaise des Petroles, Paris, France

Filed Jan. 8, 1970, Ser. No. 1,487

Claims priority, application France, Jan. 17, 1969, 6900779

Int. Cl. B63g 8/00

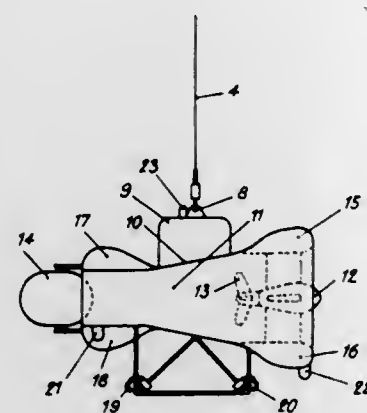
U.S. Cl. 114-16 R

7 Claims

A submarine delivery system for carrying and depositing heavy loads at precise locations on the ocean bottom. A self-powered and steerable submarine vehicle carries the load to be deposited and embodies sensing means for locating the

target or delivery area. The control system for the submarine may be entirely self-contained or control signals may be sup-

plied by a surface vessel linked to the submarine by a support and electrical power and communications cable.



3,633,530

FLOATING DEVICE FOR SUBMARINE WORKING VEHICLES

Toshio Murata, Matsudo, and Atsushi Yasui, Tokyo, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

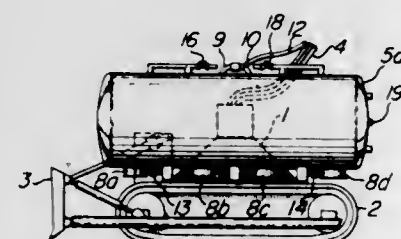
Filed July 17, 1970, Ser. No. 55,701

Claims priority, application Japan, July 21, 1969, 44/68507

Int. Cl. B63g 8/00

U.S. Cl. 114-16 E

3 Claims



A floating device for a submarine working vehicle, which comprises two floating tanks mounted on the body of the submarine working vehicle, each of said floating tanks having the interior thereof divided into a plurality of independent pressure air chambers, each of said pressure air chambers having a pressure air discharge conduit connected to the upper portion and a manhole provided at the lower portion thereof, said manhole being communicated with a pressure air supply conduit, and each of said conduits being provided with a valve by which the quantity of pressure air in the floating tank is adjusted so as to float the submarine working vehicle.

3,633,531

TROLLING DEVICE FOR BOATS

Thomas A. Hayes, 10 Treadwell Ave., Syosset, N.Y.

Filed Jan. 23, 1970, Ser. No. 5,205

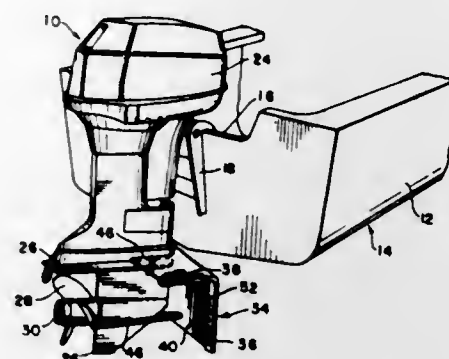
Int. Cl. B63h 25/44

U.S. Cl. 114-145 A

4 Claims

A special device is provided for slowing down the rate of advance of a boat in a body of water, the boat being driven by the blades of a propeller shaft of an engine substantially independently of the speed of rotation of the shaft and hence of the blades. The device preferably is removable so that it can be installed and used when it is desired to use the boat at

slow speeds, such as for trolling; and so that when the device is removed, the boat may be made to move at relatively high speeds, such as going to and from a desired fishing area. In



3,633,532

TUG LINKAGE

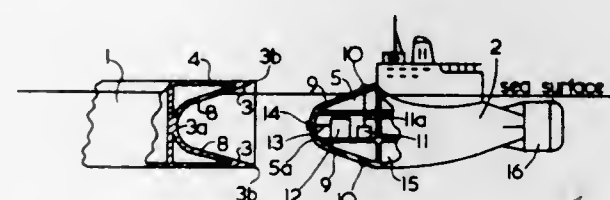
Peter Bruce, 10 Torphichen Place, Edinburgh, EH3. 8DU, Scotland

Filed June 30, 1970, Ser. No. 51,095

Int. Cl. B63b 21/00

U.S. Cl. 114-235 R

11 Claims



A coupling for connecting two vessels comprising a recessed concave member on one vessel and a protuberant convex member on the other vessel, said members being sealably fittable together to enclose an intervening space wherein the content pressure may be reduced by pumping to allow external atmospheric and hydrostatic pressures to establish a compressive force to hold the two vessels linked rigidly together for all conditions at sea.

3,633,533

LOCATION OF UNDERGROUND UTILITY LINES

Gordon H. Allen, Wheaton, Ill.; Robert C. Hosack; Werner P. Schoening, and Luther L. Yaeger, all of Houston, Tex., assignors to Griffolyn Company, Incorporated, Houston, Tex.

Filed Jan. 9, 1969, Ser. No. 790,101

Int. Cl. G01d 21/00

U.S. Cl. 116-114

16 Claims



Location of underground utility lines, such as telephone cables, gas mains, sewerlines, water mains and electric service lines buried beneath the surface of the earth, by disposing above said lines and below the surface of the earth a colored, flexible, thin metal foil, particularly in the form of a

tape and protected against corrosion, the presence and general location of said metal foil being detectable from above the surface of the earth by electronic or like detecting devices.

3,633,534

MECHANICAL ANNUNCIATOR FOR INDICATING THE POSITION OF THE ACTUATION SHAFT OF A SELECTOR SWITCH

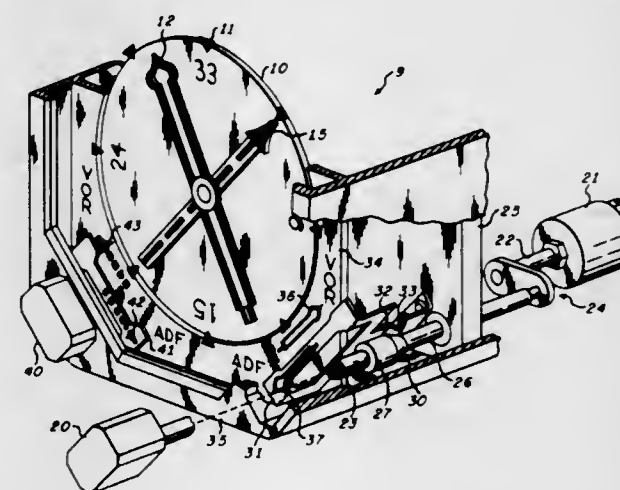
Gerald W. Hersey, Phoenix, Ariz., assignor to Sperry Rand Corporation

Filed Jan. 7, 1970, Ser. No. 1,087

Int. Cl. G09f 9/00

U.S. Cl. 116-124

8 Claims



A mechanical annunciator for indicating the position of the actuation shaft of a selector switch comprising a flag selectively positioned in view or out of view in accordance with two positions of the shaft. When the flag is positioned out of view, a first arrow is rendered visible pointing toward a first legend and when positioned in view, the flag obscures the first arrow and exposes to view a second arrow on the flag pointing toward a second legend. A cantilevered spring, to which the flag is attached, selectively cooperates with two dimensionally different portions of the shaft in accordance with the two shaft positions respectively, in order to position the flag.

3,633,535

GAGE CONSTRUCTION AND LINK MEANS THEREFOR

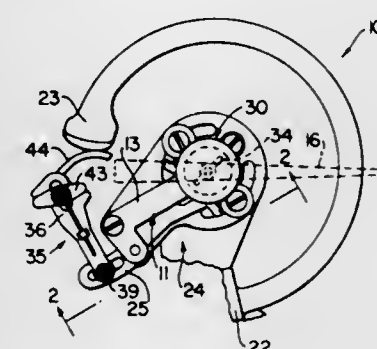
Louis M. Puster, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Aug. 28, 1969, Ser. No. 853,877

Int. Cl. G01d 11/00; G01f 7/04

U.S. Cl. 116-129 R

20 Claims



A double-acting spring link means for a pressure gage, the link means having a slot therein receiving a slide member adapted to be operated by the movable part of the actuating element of the gage while being slidable and pivotable in the slot. The link means has a spring means operatively associated with the slide member to normally cause the slide

member and link means to move in unison to cause normal movements of the movable part of the actuating element to be directly transmitted to the indicating pointer of the gage, the spring means minimizing rapid movements of the movable part of the actuating element that would be adversely imposed on the gear train means and bearings of the gage by causing pivotal and sliding movement of the sliding member in the slot to take up the rapid movement of the movable part of the actuating element.

3,633,536

APPARATUS FOR PAINTING ARTICLES

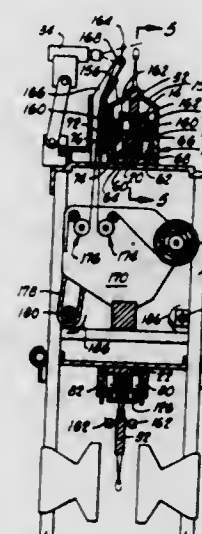
Jimmie H. Morrison, Norman, Okla., assignor to Storm Manufacturing Company, Norman, Okla.

Filed Apr. 4, 1969, Ser. No. 813,643

Int. Cl. B05c 5/00, 11/12

U.S. Cl. 118-6

11 Claims



The present invention relates to methods and apparatus for painting articles such as fishing lures, and the like. The articles to be painted are placed on a plurality of blocks movably secured to a plurality of carriage members which are connected together to form a continuous chain thereof. The chain of carriage members is movably secured to a continuous track, and is intermittently advanced over the track. As the articles are advanced, they are painted with paints of preselected color in preselected patterns, and the paint is dried and baked onto the articles. The painted and dried articles are then automatically removed from the apparatus.

3,633,537

VAPOR DEPOSITION APPARATUS WITH PLANETARY SUSCEPTOR

William E. Howe, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed July 6, 1970, Ser. No. 52,387

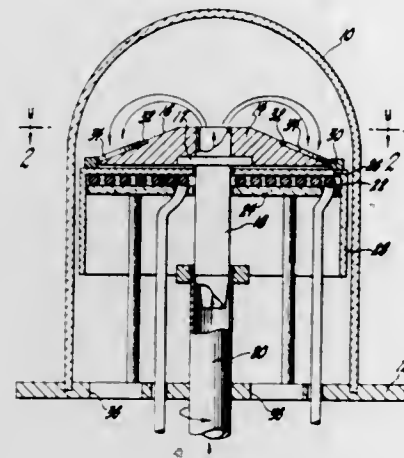
Int. Cl. C23c 11/00

U.S. Cl. 118-48

2 Claims

An apparatus for uniformly vapor plating circular articles, and particularly for making highly uniform epitaxial deposits on a plurality of semiconductor slices simultaneously. A preferred embodiment of the apparatus includes a susceptor plate mounted for rotation about a vertical axis. The susceptor plate has a generally conical upper surface, upon which the circular semiconductor slices are placed for epitaxial deposition. A stationary noncontiguous concentric ring is

disposed around the outer edge of the susceptor plate. The edges of the slices overhang the susceptor plate and contact



the stationary ring. Rotation of the susceptor plate produces planetary rotation of the circular semiconductor slices.

3,633,538

SPHERICAL DEVICE FOR CONDITIONING FABRICS IN DRYER

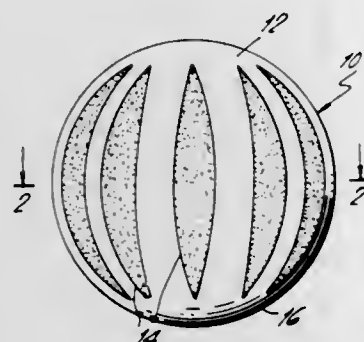
Melvin W. Hoeflin, Metuchen, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 20, 1970, Ser. No. 82,463

Int. Cl. B05c 11/00

U.S. Cl. 118—76

9 Claims



A device for conditioning fabrics in a dryer comprising a spherical-shaped body having a plurality of openings therein which are filled with a solid-type fabric conditioner. Since the spherical body is of a resilient material, there will be little noise or vibration caused thereby during the drying cycle.

3,633,539

DEVICE FOR USE IN PAINTING A COLUMNAR STRUCTURE

Nils Gustav Tage Petersson, Eskas, Klavrestrom, Sweden

Filed July 22, 1970, Ser. No. 57,225

Claims priority, application Germany, Aug. 7, 1969, G 69 31 178.0

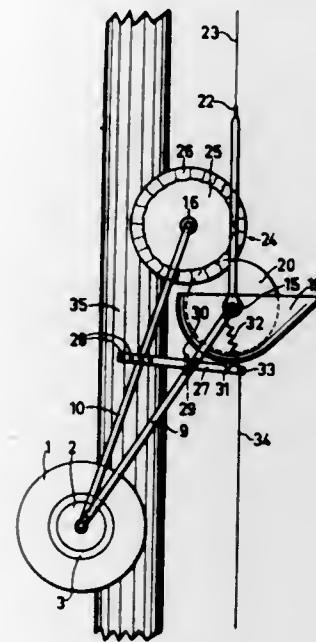
Int. Cl. B05c 11/08

U.S. Cl. 118—208

12 Claims

A device for use in painting a columnar structure, such as a flagpole or mast, comprises a double-conical roller and a pliable or resilient coating roller spaced apart and coupled together to form a carriage, which can be applied to the

columnar structure with the rollers engaging the latter at different levels, from opposite sides to guide the device for



movement up and down the structure, and which carries a paint receptacle providing for paint to be supplied to the coating roller.

3,633,540

ROTATABLE FIXTURE WITH POSITIVE RETENTION AND LIFTING MEANS

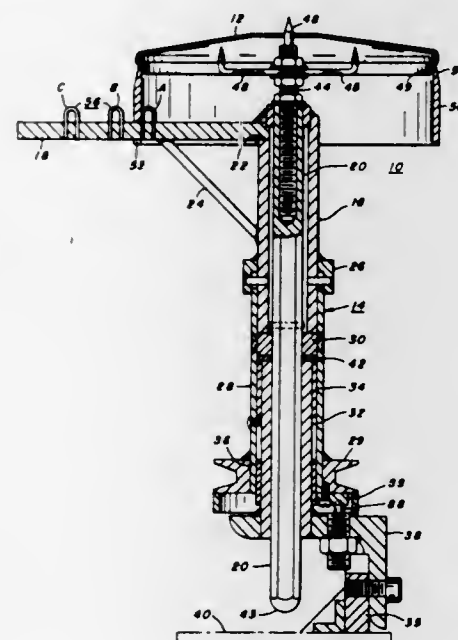
Alfred V. Bolt, and James S. Wood, both of Chillicothe, Ohio, assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 23, 1970, Ser. No. 5,192

Int. Cl. B05c 11/14

U.S. Cl. 118—502

4 Claims



A fixture for positively centering and holding an article in a coating process in which the interior and exterior surfaces of the articles are simultaneously coated while the article is rotated by the fixture. Further, the fixture includes means for lifting the article to allow its easy removal from the fixture. In addition, a structure is provided for masking the inner lip or rim of a pan cover or lid when applying a porcelain coating to the exterior surface of the lid.

3,633,541

DRAWING SUPPORT ASSEMBLY

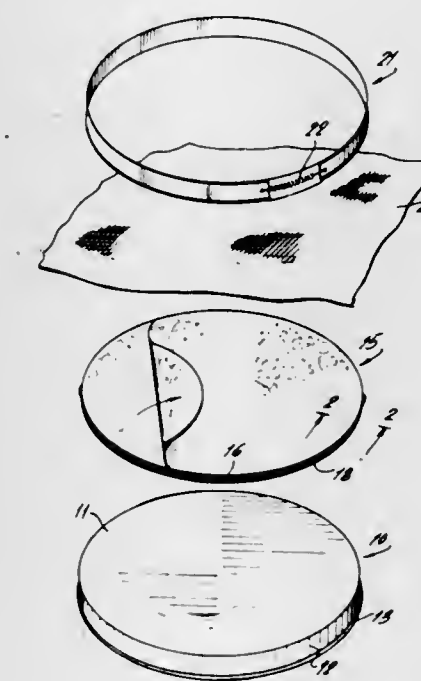
Francis W. Andrews, Clarcona, and Philip S. Sussman, Orlando, both of Fla., assignors to Mark-Tex Corporation, Englewood, N.J.

Filed Oct. 6, 1970, Ser. No. 78,448

Int. Cl. B05c 11/14

U.S. Cl. 118—503

7 Claims



An assembly is provided for supporting cloth, or other sheet material, upon which markings, such as paintings or drawings, are made by felt tipped, ball point or other marking devices. The assembly comprises a top support member, usually round or oval, and a removable hoop to temporarily fasten the cloth in position. A pad consisting of stacked sheets of blotter paper adhered together at their edges is positioned between the cloth and the support member.

3,633,542

PAINT SHIELD FOR CARPET EDGES

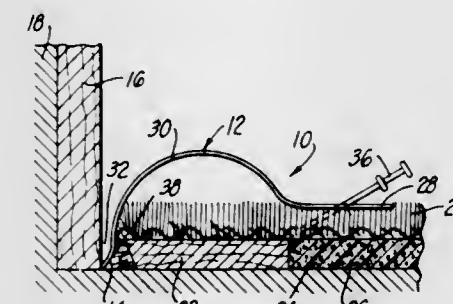
Harold H. Read, and Juil Lee Read, both of 2065 Terrebonne Avenue, San Dimas, Calif.

Filed July 13, 1970, Ser. No. 54,504

Int. Cl. B05c 11/16

U.S. Cl. 118—505

5 Claims



A painter's aid in the form of a paint shield of relatively thin resiliently flexible sheet material having a longitudinal edge lip for insertion between the edge of a wall-to-wall carpet and the adjacent wall baseboard and a longitudinal body portion extending transversely of the lip for covering the carpet edge to protect the latter against paint when painting the baseboard. Features of the shield reside in the out-turned shape of the lip which spaces the latter above the lip from the baseboard to permit painting of the baseboard to a level

below the upper carpet surface, inwardly projecting carpet engaging prongs on the lip for resisting upward retraction of the lip from its position between the baseboard and carpet, a flange along the edge of the shield remote from the lip having holes to receive pins for anchoring the shield to the carpet, and an arcuate upwardly arching section of the shield between the flange and lip for eliminating upward lip retracting pressure on the shield by the carpet.

3,633,543

BIASED ELECTRODE TRANSFER APPARATUS

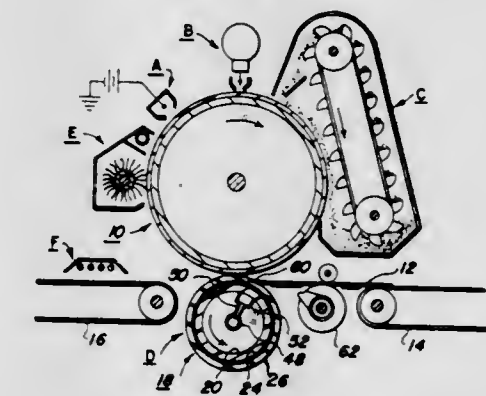
Carl R. Pitasi, Rosindale, Mass., and Eugene F. Young, Henrietta, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Dec. 5, 1969, Ser. No. 882,798

Int. Cl. B05c 5/02; B05b 5/02; G03e 15/00

U.S. Cl. 118—621

10 Claims



A roller for pneumatically supporting copy sheets in the transfer station of a xerographic machine. The roller is electrically biased to transfer toner images from a photoreceptive member to copy sheets supported on the roller. Recirculation of the roller may effect the transfer of superimposed images to the backing sheets.

3,633,544

TURBOCLOUD DEVELOPMENT

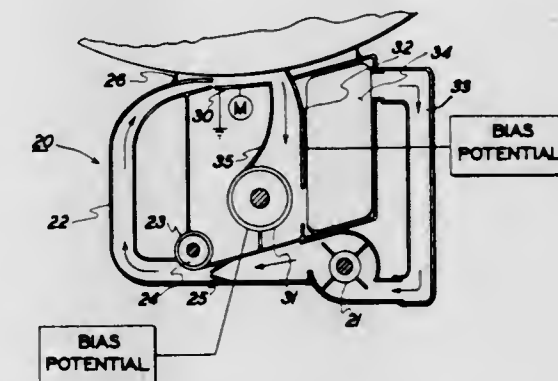
Ernest A. Weiler, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed July 3, 1969, Ser. No. 838,951

Int. Cl. G03g 13/08

U.S. Cl. 118—629

17 Claims



A powder cloud development device for developing a latent electrostatic image with toner wherein the toner is conveyed to the latent image area by a forced air system. A development electrode is mounted adjacent the image area to improve development and the electrode includes means to induce turbulence in the flow. A precipitation roller collects the toner in the flow after it passes the image area to control the toner concentration circulating in the device.

3,633,545

MAGNETIC PRINTOUT EQUIPMENT

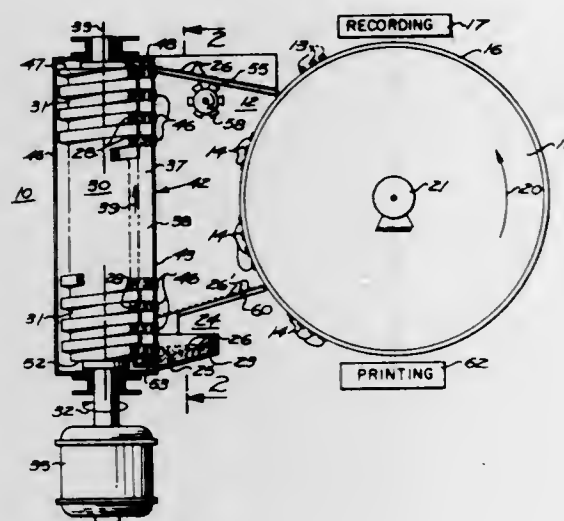
Felix Samanlego, La Puente, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Nov. 3, 1969, Ser. No. 873,285

Int. Cl. B05b 5/02; G03g 13/00

U.S. Cl. 118-637

7 Claims



An apparatus for conveying magnetizable toner particles from a toner supply region to a toning region for toning magnetic images includes a plurality of detached magnetic members for advancing toner particles from the toner supply region to the toning region. These detached magnetic members are successively engaged, advanced and thereupon released by a screw structure, and are thereafter returned for reengagement by a tube. Toner guide means extend from the toner supply region to the toning region for shielding the magnetic members against contact by the toner particles and for guiding the advancing toner particles.

3,633,546

ALGAE GROWTH-PREVENTING CONTAINER

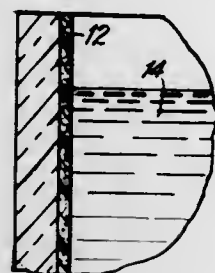
Alvin Guttag, Bethesda, Md., assignor to National Patent Development Corporation, New York, N.Y.

Filed Apr. 21, 1970, Ser. No. 30,447

Int. Cl. A01k 64/00

U.S. Cl. 119-5

9 Claims



A container for water in which vertebrate animals swim is given an internal coating of a hydrophilic polymer having an algicide impregnated or adsorbed therein. This prevents the algae from growing on the container and is especially valuable in preserving the transparency of glass or clear plastic aquariums.

3,633,547

SYSTEM FOR FEEDING AND MAINTAINING ANIMALS IN A CONFINED ENVIRONMENT

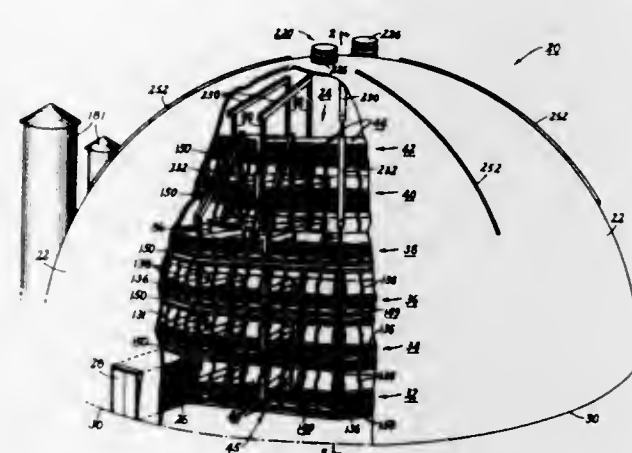
Roger H. Stevens, and Bruce A. Blair, both of New York, N.Y., assignors to International Farm Systems, Inc., New York, N.Y.

Filed Nov. 24, 1969, Ser. No. 879,194

Int. Cl. A01k 01/00

U.S. Cl. 119-16

20 Claims



A system for maintaining and feeding animals in a confined environment wherein a structure is provided having a plurality of tiers with each tier being partitioned into a plurality of animal confinement pans. The floors of each pan are of an open grillwork to allow a controlled flow of ambient ventilation air to flow upwardly through the pen and into the pen in the tiers above, and a portion of each pen is set aside to collect the animals' excrement. The collected animal excrement is flushed by a flowing water system into a collecting trough and returned to a central collecting trench where it is processed by promoting a bacteria and fungi action to convert the animal waste into a useable protein supplement which is added to the animals' food supply. The supply, i.e., a slurry mixture of bean and/or corn meal and the protein supplement derived from the reprocessed animal waste is pumped by a central distributing pump and distributed into troughs disposed adjacent each of the animal confinement pens where it is made continuously available to the animals. In addition, a dome-shaped covering is provided over the tiered structure including a ventilation system which automatically maintains proper temperature and humidity levels within the enclosure at all times and provides for proper air-flow within the enclosure so that each pen on each tier is properly ventilated at all times.

3,633,548

ANIMAL PEN FLOOR AND METHOD OF FORMING

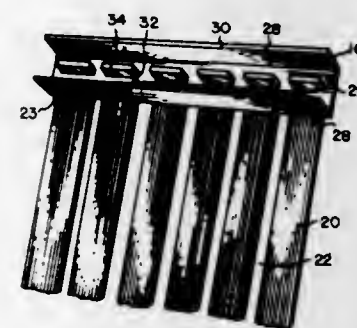
Orren N. Kepple, Peoria, Ill., assignor to Creve Coeur Mfg. Co., East Peoria, Ill.

Filed Feb. 24, 1970, Ser. No. 13,346

Int. Cl. A01j 1/00

U.S. Cl. 119-28

8 Claims



Easily handled, sanitary, lattice-type, metal slatted flooring is described wherein spaced slat members engage end sup-

port members through a tab-slot arrangement, the intermediate portions of the slats are affixed or spot-welded to intermediate support members and selected end tabs are affixed or spot-welded to the end support members, particularly at the corners. The method of fabrication includes the steps of cutting a series of spaced slots in the top wall of the end support members, bending the ends of pre-cut slats to form a 90° tab at each end, spacing and aligning the support members with the slotted walls of the end members facing upwardly, placing the slats thereon with their end tabs in the spaced slots and welding the intermediate portions of the slats to the intermediate support members and only selected elbow bends of the tabs in the slotted end supports.

3,633,549

ANIMAL HAIR-CONDITIONING COMB

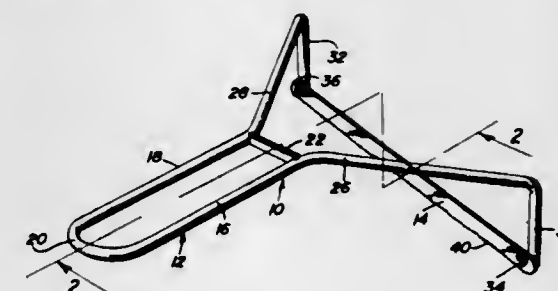
Veldon Morgan, Ellsworth, Nebr.

Filed Jan. 30, 1970, Ser. No. 7,098

Int. Cl. A01k 13/00

U.S. Cl. 119-92

7 Claims



An asymmetrical Y-shaped one-piece wire handle including a generally U-shaped handgrip defining base portion provided with a pair of generally parallel sides interconnected at one pair of corresponding ends by means of a curved integral bight portion. The free ends of the sides include extension arms angled oppositely away from each other with one of the arms being angularly displaced less than 30° relative to the corresponding side of the base portion and the other arm being angularly displaced more than 60° relative to its corresponding base portion side. An elongated flexible and toothed comb member is removably supported from and extends between the free ends of the arms and is inclined slightly relative to a plane disposed normal to the centerline of the base portion.

3,633,550

WATER PIPE BOILER

Willibald Kraus, Grebenstein, Germany, assignor to Rhelnsstahl Henschel Aktiengesellschaft, Kassel, Germany

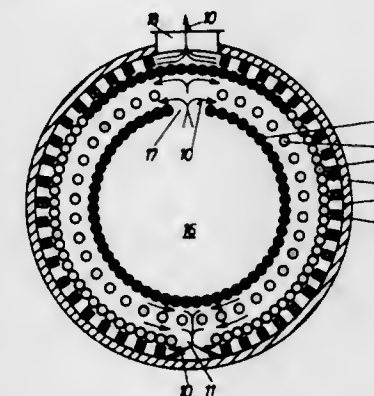
Filed Feb. 16, 1970, Ser. No. 11,438

Claims priority, application Germany, Feb. 15, 1969, P 19 07 758.8

Int. Cl. F22b 21/00

U.S. Cl. 122-235 R

9 Claims



A water pipe boiler having a circular or polygonal contour, which includes at least two heating surface cage bodies each

comprising vertical pipes and upper and lower annular or polygonal headers or bends arranged coaxially one within the other in radially spaced relationship, while any of the individual cage bodies may be designed as evaporator, superheater, feed-water preheater or hot water generator.

3,633,551

FUEL PROPORTIONER FOR PNEUMATIC INJECTION ARRANGEMENTS IN COMPRESSION-IGNITION ENGINES

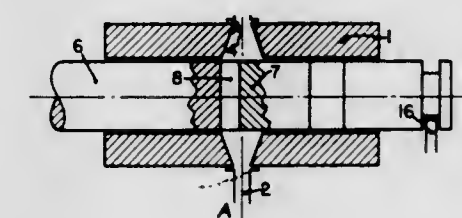
Stanislaw Jarnuszkiewicz, Swierczewskiego Str. 29/8, Krakow, Poland

Filed July 8, 1969, Ser. No. 839,968

Int. Cl. F02m 67/02

U.S. Cl. 123-33 E

7 Claims



A fuel proportioner having a body in which a cylindrical control element rotates, the control element having a passage therein into which fuel is introduced; the body has a pair of oppositely disposed fuel passages for introducing fuel into the passage of the control element and for removing excess fuel. A second pair of oppositely disposed passages are provided in the body, angularly positioned relative to the fuel passages, for introducing gas into the control element passage and for receiving the fuel and gas discharged therefrom. The control element is axially slidable to vary the quantity of fuel, and in alternate embodiments, the control element has either single or plural diametrically extending fuel passages. In a third embodiment, the passages of each pair are angularly spaced less than 180°, and each pair of body passages are oppositely disposed, the passage in the control element being plural, axially spaced segmentlike passages.

3,633,552

INTERNAL COMBUSTION ENGINE INCLUDING MAXIMUM FIRING PRESSURE-LIMITING MEANS

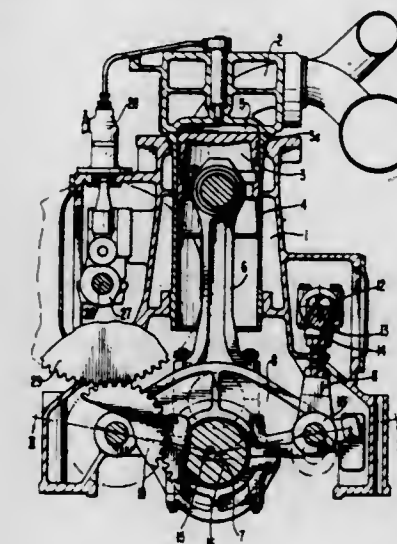
Ernest G. Huber, 3001 Veazey Terrace, N.W., Washington, D.C.

Filed Sept. 30, 1969, Ser. No. 862,223

Int. Cl. F02b 75/04, 75/36

U.S. Cl. 123-48 R

13 Claims



A variable compression ratio internal combustion engine wherein the engine crankshaft together with pistons and con-

necting rods are moved in such a way to increase or decrease the compression ratio (decrease or increase combustion chamber volume) during operation to thereby limit maximum firing pressure to a predetermined value for all engine loadings. The crankshaft is suspended in bearings in support members extending transverse to the crankshaft. The support members are pivotally supported at one end in the engine frame and individually suspended at the opposite end from an auxiliary crankshaft or the like.

3,633,553

INTERNAL COMBUSTION ENGINE CONSTRUCTION INCLUDING IMPROVED FUEL SYSTEM

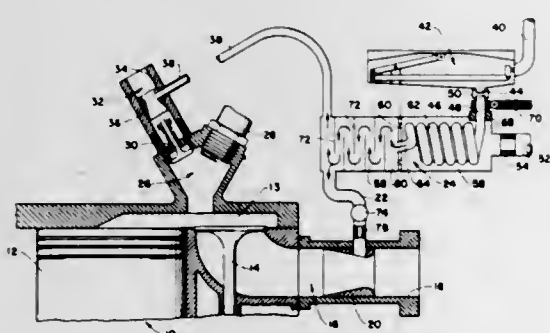
George L. Holzapfel, Los Angeles, Calif., assignor to John R. Gumbiner, Los Angeles, Calif., a part interest

Filed Feb. 4, 1970, Ser. No. 8,644

Int. Cl. F02b 75/02; F02n 25/06, 13/04

U.S. Cl. 123-75 B

8 Claims



Liquid fuel is supplied at atmospheric pressure or through a pressure regulator reducing the pressure thereon below atmospheric and then to a preheating-mixing chamber where a portion of the exhaust gases from a reciprocating piston cylinder, or warm air, or a mixture of both, is circulated around the liquid fuel preheating and vaporizing the same. A mixture of fuel and exhaust gas or warm air is then formed in the preheating-mixing chamber with portions of said gas mixture transmitted through a throttle valve to the preferably uninhibited air intake of a main intake valve and to the air intake of an antechamber opening into the cylinder. An auxiliary valve at the antechamber admits the fuel-exhaust-air gas mixture into said antechamber with ignition means igniting the same therein and through such ignition igniting the main charge of fuel-exhaust-air gas mixture from the main intake valve, the combination driving the piston of the cylinder. An electric resistance heater may be provided in the preheating-mixing chamber for vaporizing the entering liquid fuel prior to starting the engine and the initial starting of the engine may be accomplished by a fuel-air gas mixture solely within the antechamber and while the fuel-exhaust gas throttle valve to the main intake is closed.

3,633,554

VALVE TIMING SYSTEM OF AUTOMOTIVE INTERNAL COMBUSTION ENGINE

Yasuo Nakajima, Yokosuka; Yoshimasa Hayashi, and Kunihiko Sugihara, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

Filed July 29, 1970, Ser. No. 59,215

Claims priority, application Japan, Sept., 1969, 44/70901;

July 30, 1969, 44/59641

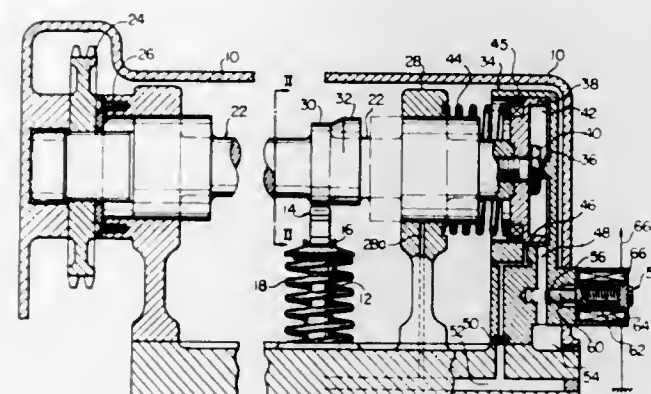
Int. Cl. F011 1/34, 13/00

U.S. Cl. 123-90.18

7 Claims

A valve timing system for an internal combustion engine of a motor vehicle, including a camshaft which is hydraulically axially movable and which has first and second cam lobes which are positioned and configured relative to the rocker arm for the exhaust valve of the engine cylinder, the first and second cam lobes being selectively aligned with the rocker

arm so that the valve is timed in different manners depending upon the driving conditions of the motor vehicle. The hydraulic fluid for axially moving the camshaft is controlled by a solenoid operated discharge valve in response to an engine speed actuated switch and an intake manifold vacuum actuated switch. The valve timing system is adapted for the



elimination of air pollution in urban areas without impairing the performance quality of the engine. Such cam lobe configurations may be applied to the cam lobes associated with the intake valve so that not only the exhaust valve but the intake valve can be timed in relation to the driving conditions of the motor vehicle.

3,633,555

VARIABLE CAMSHAFT MECHANISM

Lodovico Raggi, Milan, Italy, assignor to Associated Engineering Limited, Leamington Spa, Warwickshire, England

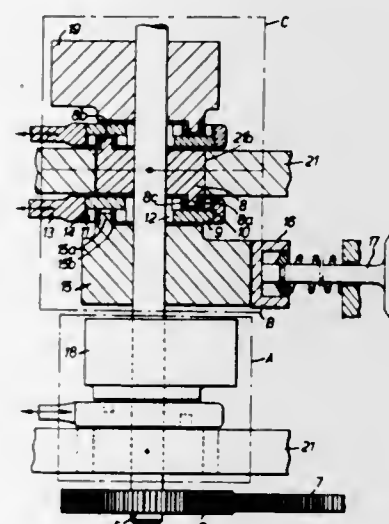
Filed June 15, 1970, Ser. No. 46,208

Claims priority, application Italy, June 27, 1969, 52410 A/69

Int. Cl. F011 1/34

U.S. Cl. 123-90.17

5 Claims



A device, particularly for controlling the opening and closing of valves of an internal combustion engine, comprises a camshaft on which a plurality of cams are mounted for rotation relative to the shaft. Each cam is driven by the shaft through an intermediate member which rotates about an axis eccentric to the shaft axis. A drive member rotatable with the shaft has a pin which engages in a radial slot on one side of the intermediate member, and likewise the cam has a pin engaging in a radial slot on the other side of the intermediate member, these slots being preferably 180° spaced apart.

3,633,556

GUIDE DEVICE FOR MULTIVALVE-ACTUATING BRIDGE FOR AN INTERNAL COMBUSTION ENGINE

Atsushi Inoue, Saitama-ken, Japan, assignor to Nissan Diesel Motor Co., Ltd., Saitama-ken, Japan

Filed Aug. 26, 1969, Ser. No. 853,032

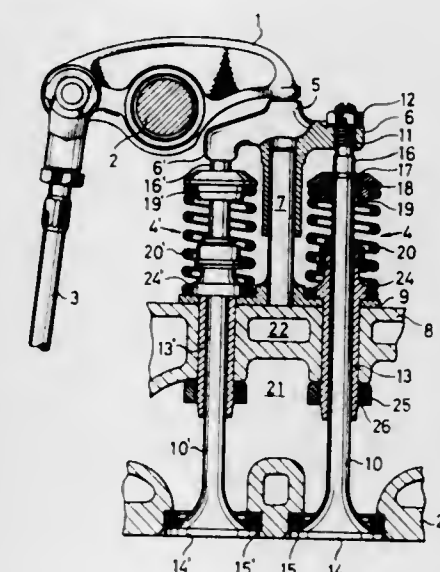
Claims priority, application Japan, Sept. 18, 1968, 43/80495;

43/80496

Int. Cl. F011 1/26

U.S. Cl. 123-90.22

2 Claims



In the valve mechanism for internal combustion engines, with each rocker arm actuating two or more valves through a bridge, a device for guiding the bridge comprising a flange rigidly fixed to a guide rod for guiding the bridge, said flange being mounted in a readily removable manner on the cylinder head and secured thereto by utilizing members of the valve mechanism.

3,633,557

DIAPHRAGM CARBURETOR

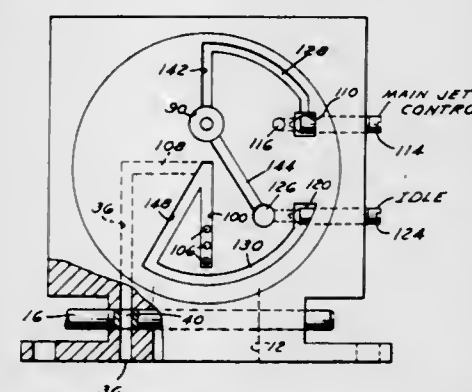
Charles H. Tuckey, and Kenneth C. Schneider, both of Cass City, Mich., assignors to Walbro Corporation, Cass City, Mich.

Filed Jan. 30, 1970, Ser. No. 7,190

Int. Cl. F02f 9/00; F02b 33/04

U.S. Cl. 123-119 B

5 Claims



A diaphragm carburetor system and construction in which the fuel supply for the main jet and the idle jet is brought from a diaphragm chamber through a main jet control valve and the idle jet control valve in series. A passage is provided in the carburetor to receive crankcase pulses from the two-cycle engine being controlled, and to expose these pulses to the idle system so that under full throttle conditions the pulses will be open to the idle system to blow collected fuel in that system back to the main jet as an acceleration charge and also to dry out the idle system so that upon the closing of the throttle there will be a delayed fuel flow through the idle system to prevent overrich comedown. This is accomplished by surface passages and a circuit gasket in the top wall of the diaphragm chamber to simplify the construction of the system.

3,633,558

DIPSTICK AND ENGINE CRANKCASE BREATHER

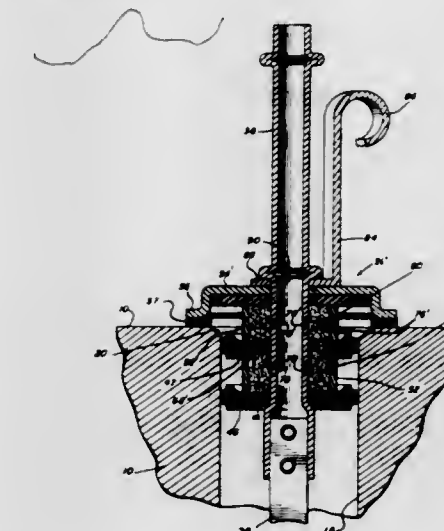
Bertil Stade, Wood Dale, and Edward Hoglund, Park Ridge, both of Ill., assignors to Mercury Metal Products, Inc., Schaumburg, Ill.

Filed May 15, 1970, Ser. No. 37,534

Int. Cl. F02n 25/06

U.S. Cl. 123-119 B

12 Claims



A combination dipstick and engine crankcase breather adapted to be engaged in the entrance passageway to the crankcase of an internal combustion engine and having a blade portion dipping into the liquid reservoir of the crankcase, structure comprising a pluglike assembly which includes an O-ring seal for the entrance, an annular cap adapted to engage over the outside of the entrance, a conduit extending from below the cap and having communication with the passageway and through the cap, the conduit having means for connection of a pipe between it and the air cleaner of the engine, and the cap being sealed to the conduit, communication between the interior of the passageway to the conduit while the dipstick and breather are in position so that all emissions from the crankcase will pass into the conduit and thence to the air cleaner, the combination being removable from the passageway to permit addition of lubricant to the crankcase.

3,633,559

APPARATUS FOR REGULATING THE TIMING OF FUEL INJECTION IN INTERNAL COMBUSTION ENGINES

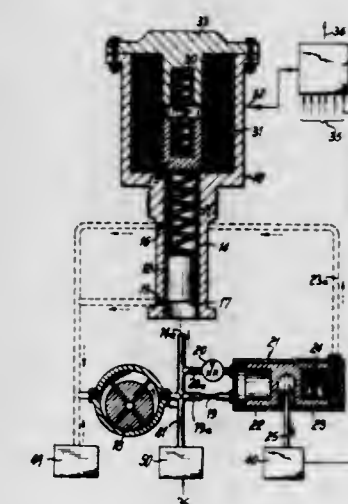
Franz Eheim, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed June 19, 1970, Ser. No. 47,807

Int. Cl. F02m 59/20

U.S. Cl. 123-139 AQ

10 Claims



A diesel engine wherein the fuel injection pump is adjustable to change the timing of fuel injection. The adjustment is

effected by a lever which is movable by the piston of a hydraulic timer wherein the axial position of the piston depends on fuel pressure at the outlet of a fuel pump which delivers fuel to the injection pump. The fuel pressure can be varied by the fuel pump in dependency on the rotational speed of the engine and also in dependency on the load upon the engine. The second adjustment is effected by a control circuit which energizes an electromagnet whose armature influences a pressure regulating valve for the fuel pump.

ERRATUM

For Class 123—191 see:
Patent No. 3,633,577

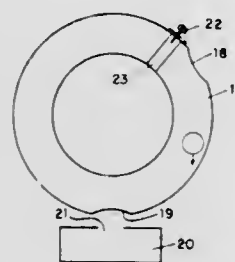
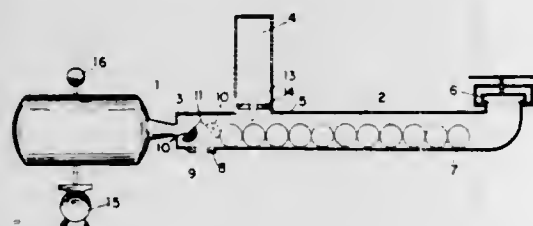
3,633,560

BIRD-SCARE CANNON WITH BALL RECOVERY
Waldemar Telxela DeFreitas, Rue Rodrigo Silva 26, Sao Paulo, Brazil

Original application July 24, 1967, Ser. No. 655,634, now Patent No. 3,572,309, dated Mar. 23, 1971. Divided and this application Sept. 30, 1969, Ser. No. 870,245
Int. Cl. F41b 11/00

U.S. Cl. 124—11

3 Claims



Cannon for scaring birds and other undesirable creatures, comprising an elongated reservoir wherein a plurality of balls is stored and which can be pressurized. The balls are expelled one by one when the air pressure in the reservoir attains a value capable of foregoing one ball through an orifice in the reservoir wall, overcoming the resisting frictional force between the orifice and the ball. Either the balls or the orifice wall can be made elastic or deformable while the other element is made relatively rigid or nondeformable. A recovering device is associated with the cannon, consisting of a circular tube into which the balls expelled by the cannon are shot, and from where they may be discharged into a container or the like.

3,633,561

BUILT-IN SELF-CLEANING WALL OVEN

Eugene J. Barnett, and Gerald E. Baker, both of Mansfield, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

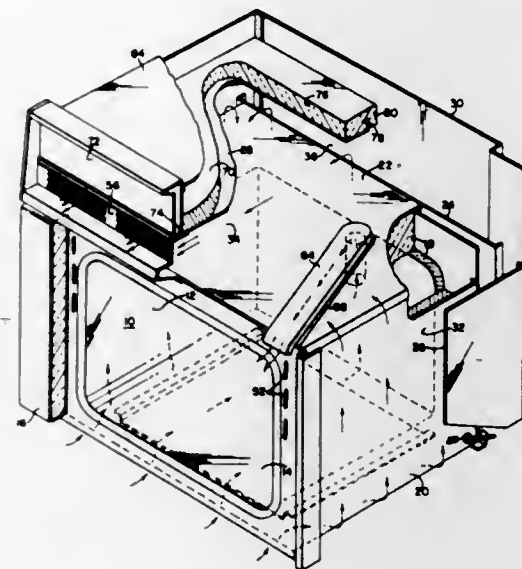
Filed Jan. 2, 1970, Ser. No. 362
Int. Cl. F24c 15/32

U.S. Cl. 126—21 R

3 Claims

A built-in, self-cleaning wall oven construction for a high-temperature self-cleaning oven cavity in which airflow

passages are provided around the oven cavity in a manner that convection airflow alone is adequate to limit the max-



imum external temperatures sufficiently to meet the established temperature limits.

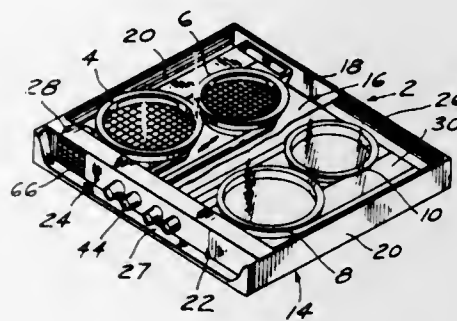
3,633,562

SLIGHTLY PRESSURIZED FLAT-TOP STOVE
William F. Morse, Upper Arlington, and Edward A. Reid, Jr., North Columbus, both of Ohio, assignors to Columbia Gas Service Corporation, New York, N.Y.

Filed Mar. 30, 1970, Ser. No. 23,838
Int. Cl. F24c 3/06, 15/10

U.S. Cl. 126—39 J

4 Claims



A kitchen range having a smooth top of heat-resistant glass, beneath which there are infrared gas burners. Heating is by infrared radiation and conduction through the glass top. The products of combustion are exhausted through an outlet at the rear of the range. Its burners are positioned within a closed chamber into which a small blower directs air so as to produce a slightly elevated air pressure.

3,633,563

MATERIAL HEATER

George E. Osborn, 239 Wylie Street, Saginaw, Mich., and Bernard W. Tunney, Sr., 3217 Roberts Street, Saginaw, Mich.

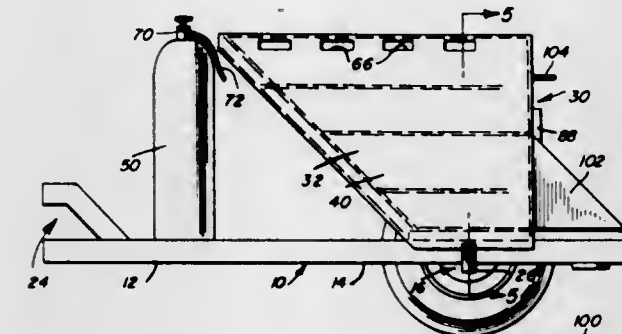
Filed Dec. 19, 1969, Ser. No. 886,457
Int. Cl. E01c 19/45

U.S. Cl. 126—343.5 A

9 Claims

A self-feeding hopper for containing heated or heating mixed bituminous or other materials for patching, repairing

or resurfacing street pavements, parking lots and other uses where heated materials are required. The hopper is constructed as a part of a mobile chassis and includes spaced inner and outer bottom and sidewalls with the spacing between the inner and outer walls defining heat chamber portions into which heated gases are delivered for heating the inner walls of the hopper. One sidewall of the hopper in-



cludes an outlet opening adjacent the inner bottom wall of the hopper and a generally horizontal heated work platform is supported outwardly of the outlet opening for receiving semifluid heated materials thereon flowing outwardly through the outlet opening. The platform is disposed at an elevation within 2 feet of the ground enabling workmen to readily shovel material therefrom to the ground.

3,633,564

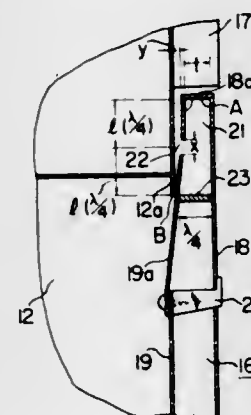
HIGH-FREQUENCY SEALING DEVICE

Tetsuo Togashi, and Morio Kumakura, both of Kawasaki, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha also known as Tokyo Shibaura Electric Co., Ltd., Kamagawa-ken, Japan

Filed Nov. 23, 1970, Ser. No. 91,947
Int. Cl. F23m 7/00

U.S. Cl. 126—190

4 Claims



For the prevention of wave leakage from within a chamber of a high-frequency sealing device such as a heating device (especially one for food-processing applications), there is provided a hollow metal door having a resilient inner surface for leakageproof contact with the inner edges of the heating chamber. A leaking wave, if any, from between the inner surface of the door and the inner edges of the heating chamber is guided into the hollow interior of the door through an elongated window provided on the inner surface thereof. The door may contain a dielectric for absorption of the leaking wave, and its window may be permanently closed with a dielectric thereby to prevent the entrance of any extraneous matter (e.g., water and dust) into the door interior without rendering the window itself impervious to the leaking wave.

3,633,565

CLINICAL SPECIMEN-COLLECTING INSTRUMENT
Bernard McDonald, Malibu, Calif., assignor to Medical Testing Systems, Inc., Beverly Hills, Calif.

Filed Apr. 1, 1970, Ser. No. 24,535
Int. Cl. A61b 10/00, 17/22; B27c 05/00
U.S. Cl. 128—2 R

5 Claims



An elongate clinical instrument comprises a blade and handle for collecting cells and tissues from body cavities, particularly for the detection of squamous carcinoma of the cervix. Two slanted spaced-apart edges on the blade tip describe a conical path during manual rotation in situ and gather specimens in troughs adjoining the edges. The blade tip is manually separable from the handle for forwarding to a pathology laboratory.

3,633,566

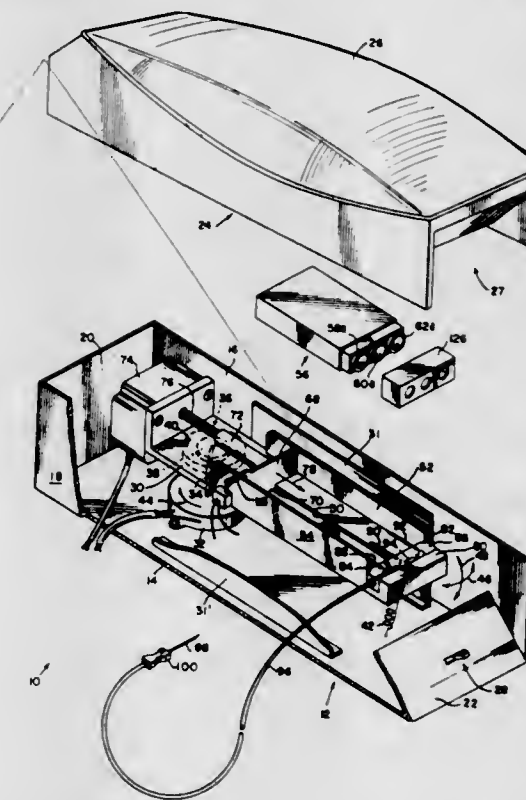
BLOOD COLLECTING METHOD AND DEVICE

Robert H. Grabhorn, Greenwood, Ind., assignor to Systematics, Inc., Indianapolis, Ind.

Filed May 15, 1969, Ser. No. 824,977
Int. Cl. A61b 5/10

U.S. Cl. 128—2

12 Claims



A blood specimen collecting device comprising means for holding conventional evacuated test tubes, each such tube

being sealed with a conventional rubberlike stopper, hollow needle means for penetrating through such stoppers and into such tubes, a vein-puncturing hollow needle, and flexible tube means for connecting the needle means to the vein-puncturing needle. The means for holding the tubes is arranged so that the stoppers face the needle means, and drive means is arranged to provide relative reciprocation between the needle means and the tube holding means to cause the needle means to penetrate through such stoppers. In many cases, such tubes contain materials, such as preservatives, coagulants and anticoagulants, with which the blood must be thoroughly mixed promptly after or immediately as soon as it is withdrawn from the vein. Thus, the device includes means for gently oscillating such tubes while blood is being drawn therein.

3,633,567

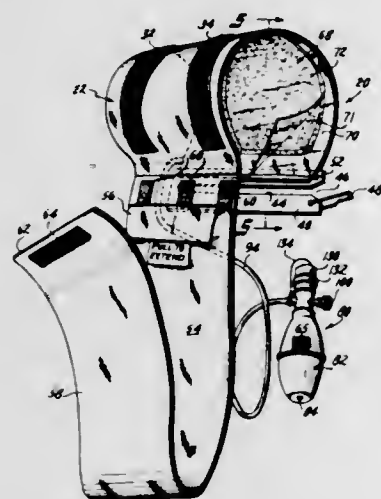
PNEUMATICALLY ACTUATED PRESSURE DRESSING
Stanley J. Sarnoff, Bethesda, Md., assignor to Survival Technology, Inc., Bethesda, Md.

Continuation-in-part of application Ser. No. 587,336, Oct. 17, 1966, now abandoned. This application Aug. 11, 1969, Ser. No. 849,112

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 C

6 Claims



A pneumatically actuated pressure bandage adaptable for use as a compression bandage, tourniquet or cuff wherein the pressure is applied by a manually operated pump and further wherein regulating means are provided to selectively bleed off the pressure.

3,633,568

AUTOMATICALLY OPERATING APPARATUS FOR MEASURING BLOOD PRESSURE

Peter Hobel, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Sept. 23, 1969, Ser. No. 860,183

Claims priority, application Germany, Nov. 2, 1968, P 18 06 092.7

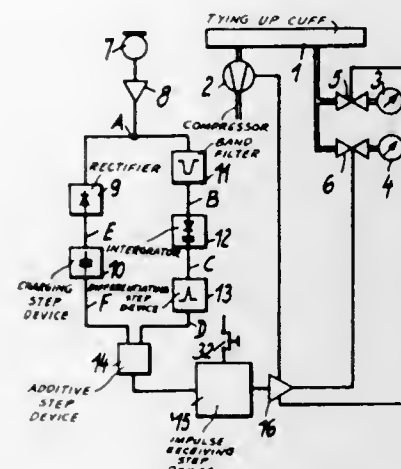
Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 M

5 Claims

An automatically operating apparatus for measuring blood pressure includes a tying-up cuff capable of being inflated, means receiving voltage impulses corresponding to blood pulsations, an amplifier for these voltage impulses, impulse treating members connected behind the amplifier and an electrical operating device which automatically indicates the diastolic and systolic blood pressure during a cuff pressure

cycle depending upon Korotkoff impulses. The apparatus is particularly characterized by two impulse treating channels connected in parallel to the outlet of the amplifier. One of these channels has a filter which passes through that frequency portion of the received total signal which contains the Korotkoff impulses, a first impulse forming device being connected behind this filter. The second channel contains a second impulse forming device. These two impulse forming



devices change the signals introduced into them into direct voltage impulses which are amplitudinally dependent upon the Korotkoff impulses or the total signal. The outlets of the two impulse forming devices are connected to a comparison device which delivers an impulse to an operating device when the outgoing values resulting from comparing the amplitudes of the outgoing signals of the impulse forming devices, exceed a predetermined value which is characteristic for the appearance of Korotkoff impulses.

3,633,569

ARRHYTHMIA COUNTER

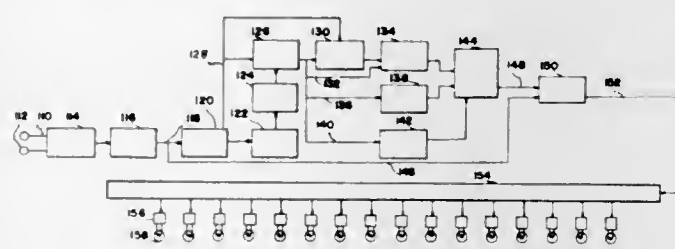
James R. Brayshaw, 1300 Bishop Lane, Alexandria, Va., and Richard T. Gagnon, Rochester, Mich., assignors to said James R. Brayshaw, by said Gagnon

Filed Jan. 28, 1969, Ser. No. 794,724

Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 A

27 Claims



The cardiac generated wave from a patient is analyzed for an arrhythmia condition by measuring time intervals between the R peaks of the cardiac wave, comparing relative duration of successive time intervals, and counting each occasion succeeding time intervals vary in duration by other than a normal amount of time.

3,633,570

MAGNETICALLY ACTUATED VIBRATOR

Francesco De Angeli, via Boccaccio 47, Milan, Italy

Filed Apr. 24, 1969, Ser. No. 819,053

Claims priority, application Italy, May 2, 1968, 16000 A/68

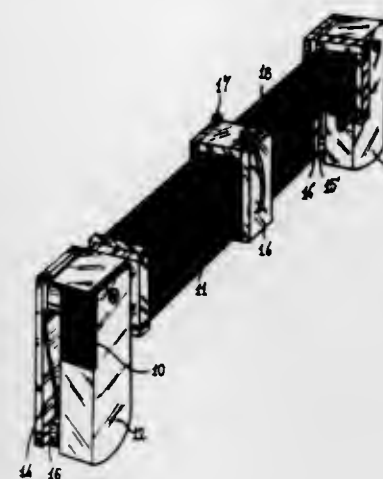
Int. Cl. A61h 23/00

U.S. Cl. 128-41

5 Claims

An apparatus for generating a pulsating magnetic field integrated by magnetic vibrations, particularly for the physical

treatment of the human organism, comprises a body of magnetic material. Each of the two ends of said body is provided with an extension to which is attached a metal lamina. A plurality of windings embrace said body. Rigidly connected to



the free end of each metal lamina is an armature so that upon energization of the windings by electric energy the windings generate a pulsating magnetic field, whereas the armatures generate vibrations.

3,633,571

MASSAGING MACHINE

Gentaro Shinagawa, and Fuzio Nozato, both of Kabushiki Kaisha Sankyu-sha, No. 36, 1-chome, Izuomatsuno-cho, Taisho-ku, Osaka-shi, Japan

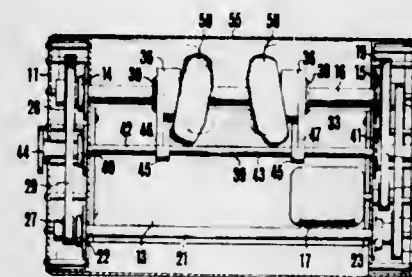
Filed June 9, 1970, Ser. No. 44,692

Claims priority, application Japan, June 9, 1969, 44/53906

Int. Cl. A61h 7/00

U.S. Cl. 128-44

3 Claims



A massaging machine for obtaining the same effect as a manual massage. A driving shaft is rotatably mounted on a supporting frame, and a pair of bilateral massaging implement supporting members are fitted on the driving shaft and are movable in the axial direction thereof and are also rotatable therewith. A pair of annular massaging implements are mounted on said supporting members so as to be rotatable around an axis which is eccentric to and inclined with respect to the driving shaft.

3,633,572

COPULATION-ASSISTING DEVICE

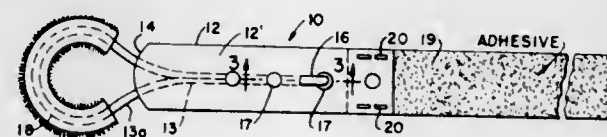
Emmett H. Wiggins, P.O. Box 241, Edenton, N.C.

Filed July 16, 1970, Ser. No. 55,317

Int. Cl. A61f 5/00

U.S. Cl. 128-79

6 Claims



An elongated flexible support member is positioned between the legs of a user and is held in place by adhesive

tape affixed to the gluteal region of the user's body. An elastic loop carried by the support member extends forwardly to encircle the penis at a point adjacent the scrotum, thus assisting to maintain erection during copulation by restricting outflow of blood from corpora cavernosa. The point of attachment of the loop to the support member is adjustable so as to vary tension of the loop circumferentially of the penis.

3,633,573

GLIDE ASSEMBLY

Herbert G. Lipson, 68 Aldrich Rd., Wakefield, Mass., and Bartholomew J. Spada, 52 Festo Rd., Revere, Mass.

Filed Aug. 7, 1969, Ser. No. 848,295

Int. Cl. A61f 5/04

U.S. Cl. 128-83.5

24 Claims



An assembly for permitting self-locomotion by the wearer of a walking-type leg cast by a sliding movement, rather than by walking. The assembly includes: a retainer of material of a high coefficient of friction, with at least one aperture, affixed to the foot-bottom of the leg cast; and at least one glide insert of material of a low coefficient of friction, configured in the form of cylinders of different diameters, with the narrower diameter end inserted into the aperture and the wider diameter end protruding a short distance from the retainer.

3,633,574

INTRAUTERINE CONTRACEPTIVE DEVICE

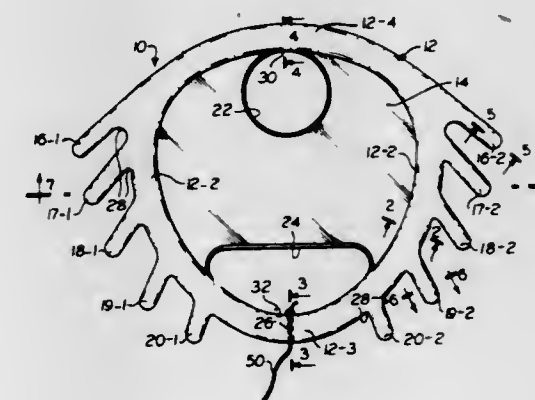
Irwin S. Lerner, Greenwich, Conn., assignor to A. H. Robbins Company, Incorporated, Richmond, Va.

Filed Nov. 14, 1968, Ser. No. 775,729

Int. Cl. A61f 5/46

U.S. Cl. 128-130

30 Claims



An intrauterine contraceptive device comprises an outer ring formed with a central membrane to prevent tissue obstruction and control the deflection characteristics of the device, and lateral spurs slanted in a retrograde direction to impede expulsion through the cervical os. The device is molded of a plastic material and may be coated with a metal film as a barrier against calcium deposits and provide radio-opacity.

3,633,575

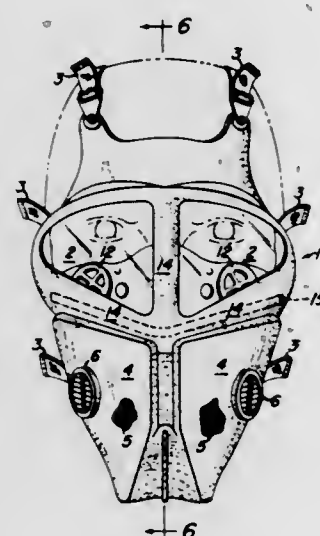
FOLDED LIGHTWEIGHT MASK

Richard S. Brumfield, Edgewood, Md., assignor to The United States of America as represented by the Secretary of the Army

Filed Mar. 20, 1970, Ser. No. 21,330

Int. Cl. A62b 23/02

U.S. Cl. 128—141 R



An improved protective mask means and method of fabrication thereof wherein fold lines are formed in the facepiece along the facepiece centerline and between each lens and each filter means; the fold lines being formed by the lower edge of each lens positioned at substantially at 45° angle adjacent to and parallel with the upper edge of the respective filter pocket means. The improved mask permits the manufacture of a mask which is lightweight and can be folded into a compact package.

3,633,576

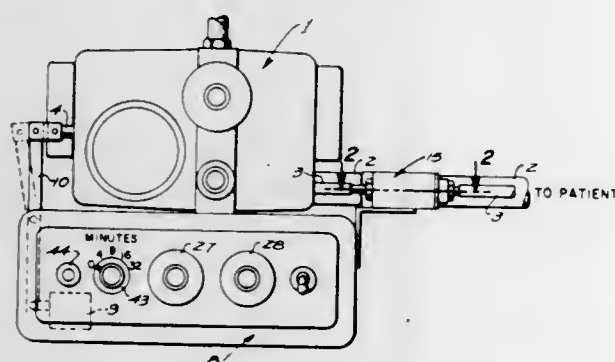
VOLUMETRIC RESPIRATOR

Reynolds G. Gorsuch, Thousand Oaks, Calif., assignor to Bourns, Inc., Riverside, Calif.

Filed Oct. 24, 1969, Ser. No. 869,098

Int. Cl. A62b 7/00

U.S. Cl. 128—145.8



A volumetric respirator which may utilize, as its source of air or life-sustaining gas, a conventional pressure-limited respirator. One or more flow meters, depending upon the selected pressure-limited respirator, are interposed between the respirator and the patient. An adjustable volume control, sensitive to the flow meters, shuts off the supply of air or gas after a selected tidal volume of air has passed. A timer reestablishes flow after a preselected period to permit the patient to exhale. At preselected intervals, the volume control causes a predetermined excess or sigh volume of air or gas to pass.

3,633,577

INTERNAL-COMBUSTION ENGINES

Sanzio Pio Vincenzo Piatti, 14 Corso Porta Nuova, Milan, Italy

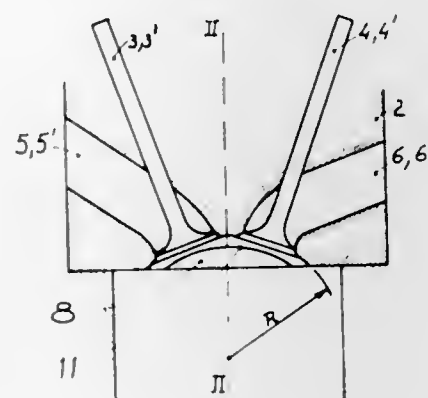
Filed Mar. 6, 1970, Ser. No. 17,075

Claims priority, application Italy, Mar. 10, 1969, 13902 A/69

Int. Cl. F02b 23/00

U.S. Cl. 123—191 R

6 Claims



This invention relates to a four-valve combustion chamber for an internal-combustion engine, to a cylinder head and internal-combustion engine incorporating the same, and to a method of forming the same. The combustion chamber comprises a pair of elongated cavities disposed side by side with their longer axes parallel and with a ridge therebetween. The cavity, at least at each end zone thereof, is of part-spherical configuration, and each end zone is formed with an opening therein provided with a valve seat, the axis of which is normal to the part-spherical surface.

3,633,578

METHOD OF MAINTAINING THE INTEGRITY OF BLOOD

Roy William Roth, New Canaan, Conn., and Edward Friedman, Marblehead, Mass., assignors to American Cyanamid Company, Stamford, Conn.

Filed June 24, 1970, Ser. No. 49,533

Int. Cl. A61m 05/00

U.S. Cl. 128—214 R

6 Claims

There is provided improved physiologically acceptable articles made from various fluorocarbon polymers and a process for maintaining the normal integrity of the blood of warm-blooded animals with said articles. The physiologically acceptable articles include specific medical devices such as catheters, etc., useful in contact with blood or tissue in warm-blooded animals.

3,633,579

CATHETER PLACEMENT DEVICE AND METHOD

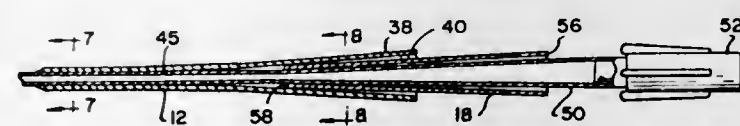
Ralph D. Alley, Loudonville, N.Y., and David S. Sheridan, Argyle, Wash., assignors to Sherwood Medical Industries Inc. Continuation-in-part of application Ser. No. 640,889, May 24, 1967, now abandoned. This application Mar. 13, 1969, Ser. No. 843,866

This application filed under Rule 47.

Int. Cl. A61m 5/00, 25/00

U.S. Cl. 128—214.4

12 Claims



A medical device for use in intravenous or intraarterial injections of fluids, in blood sampling, in diagnostic procedures

such as intravascular blood sampling including sampling in the heart, and in intravascular pressure measurements using transducers. The device incorporates a novel catheter means and method for placing a flexible cannula in a vein or artery such that the catheter means can be threaded through the cannula into the vein or artery of a patient an appropriate distance. The catheter can be secured in position relative to the cannula by means of a self-contained locking arrangement carried by the catheter. In preferred forms, the locking force against the catheter can be distributed over an area to assure a good lock without restricting the catheter and without the expense of providing close tolerance in the locking system.

3,633,580

HYPODERMIC NEEDLE

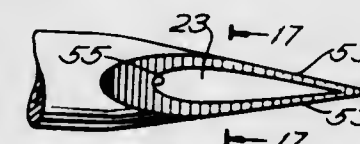
James J. Knox, Avenel, N.J., assignor to Knox Laboratories, Inc., Rahway, N.J.

Original application Jan. 18, 1967, Ser. No. 610,152, now Patent No. 3,540,112, dated Jan. 17, 1970. Divided and this application Sept. 29, 1969, Ser. No. 870,884

Int. Cl. A61m 05/00

U.S. Cl. 128—221

5 Claims



Hypodermic needlepoints are manufactured from tubular members by deforming top and bottom wall portions from opposite sides of the tubular member by gradually and progressively pressing generally inwardly against the top and bottom wall portions with dies so as to cause the top and bottom wall portions to gradually slop together and meet in an area where they intimately contact each other, and removing some of the opposite sidewall portions to create side surfaces which slope together from the unsloped portion of the tubular member to where they intersect in a cutting point in the area where the top and bottom wall portions are in intimate contact. The needlepoint consists of a regular quadrilateral pyramid having substantially identical triangular faces. Two opposing faces have substantially elliptical or pear-shaped openings therethrough providing communication between the hollow interior of the needle and the exterior of the needle adjacent to the apex of the pyramid.

3,633,581

DISPOSABLE URINAL

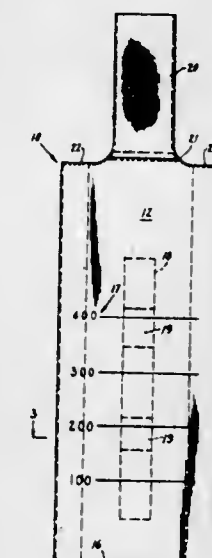
Irene P. Welch, 2001 Maple Glen Road, Sacramento, Calif.

Filed Nov. 17, 1969, Ser. No. 877,151

Int. Cl. A61f 5/44

U.S. Cl. 128—295

1 Claim



A transparent bag is provided having scale markings thereon to indicate the quantity of the content and provided

3,633,582

SUTURE PLACEMENT GUIDE DEVICE

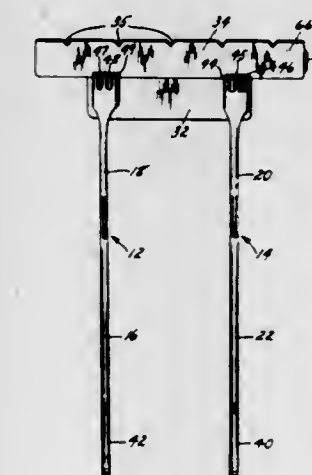
Charles Steinman, Mount Vernon, N.Y., assignor to Shirley A. Steinman, Mount Vernon, N.Y. and Irwin A. Steinman, Staten Island, N.Y., as cotrustees under a trust created by Charles Steinman

Filed Oct. 17, 1969, Ser. No. 867,160

Int. Cl. A61b 17/04

U.S. Cl. 128—334 R

9 Claims



A device to facilitate consistent and accurate placement of sutures for closing a wound or incision comprises clamping means having a closed position for clamping the edge portion of the tissue of an open wound or incision. An elongated guide plate is fixed to the clamping means and has an operative position extending generally parallel to the edge of said wound or incision when said clamping means is in said closed position. Locating means, for example notches in the edge of the guide plate, are utilized to locate the placement of sutures in predetermined positions for closing said wound or incision.

3,633,583

ORTHOPEDIC SINGLE-BLADE BONE CUTTER

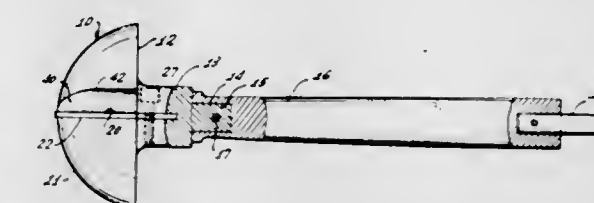
Meyer Fishbein, 12020 Saltair Place, Los Angeles, Calif.

Filed Aug. 22, 1969, Ser. No. 852,226

Int. Cl. A61b 17/32

U.S. Cl. 128—305

5 Claims



A surgical rotary bone cutter having a rotary cutter head shaped as a substantially hemispherical surface of revolution coaxial with its axis of rotation and being longitudinally and medially split into two halves by a diametrical slot intersecting the axis of rotation. A single flat blade having a longitudinally curved edge is positioned in the slot and projects marginally beyond said surface of revolution. The blade edge is oppositely beveled on opposite sides of its midpoint to form

two longitudinally curved rotatable shearing edges. A channel for conveying cuttings from the shearing edges is formed in the head alongside each shear edge. The cutter head may be formed as a concave or a convex hemispherical surface.

3,633,584

METHOD AND MEANS FOR MARKING ANIMALS FOR IDENTIFICATION

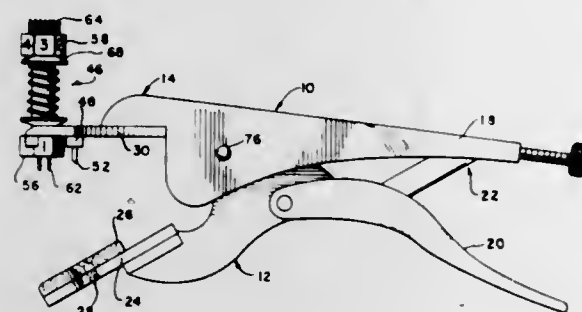
Roy Keith Farrell, Pullman, Wash., assignor to Research Corporation, New York, N.Y.

Filed June 10, 1969, Ser. No. 831,850

Int. Cl. A61d 1/00

U.S. Cl. 128—316

8 Claims



A system for forming forgery-proof identification markings on animals involves use of a tool having an impress jaw carrying a plurality of individually removable and rotatably resettable markers linearly arranged along a fixed impressible orientation line element on the jaw. The markers have faces that occupy adjoining spaces along the orientation line and the faces are provided with forming elements in the shape of double bar markings arrangeable perpendicular or parallel to the orientation line and in the shape of right-angle markings having their apices arrangeable at selected distances perpendicularly to the orientation line and their angular legs in selected geometrically patterned relation with such orientation line whereby such markings have a unique and unalterable meaning which is translatable into digits of the Arabic decimal positional system.

3,633,585
CATHETER

Harold P. McDonald, Jr., Brooklyn, N.Y., assignor to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Apr. 17, 1969, Ser. No. 817,040

Int. Cl. A61m 25/00

U.S. Cl. 128—348

13 Claims



A catheter for use in an animal or human body. A flexible tube resistant to the action of body fluids and compatible with the body environment, e.g., of silicone rubber, has an

exterior portion, an interior portion, and a percutaneous or skin-passing portion. The interior portion has apertures for withdrawal of fluid from a body cavity or vessel; the exterior portion has a removable closure. The skin-passing portion has a fabric or textile skirt or annular flange that lies adjacent the inner surface of the epidermis of the animal bearing the catheter. If desired, the skin-passage portion of the catheter is also provided with a fabric or textile sleeve. The fabric or textile is advantageously of Dacron or of Teflon or of like material not attacked by and compatible with the body environment.

3,633,586

STERILE TECHNIQUE TUBE END CLOSURE AND SYRINGE ADAPTOR

David S. Sheridan, Hook Road, Argyle, N.Y.

Filed Apr. 30, 1970, Ser. No. 33,374

Int. Cl. A61m 25/00

U.S. Cl. 128—351

1 Claim



A tube end closure for medicosurgical tube devices having an encircling removal cap that is captive to the closure body is molded as an integral unit from plastic material. The closure is constructed to make fluidtight union with tapered connectors of Luer syringes. A syringe needle penetratable plug may be fixed inside the closure sufficiently below the proximal end tip so contact of the plug will occur only with a syringe needle when fluids are injected or withdrawn via the closure.

3,633,587

INFANT'S TOY

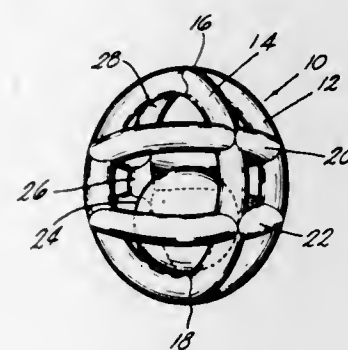
Phillip J. Hunt, 217 East Front, Adrian, Mich.

Filed Jan. 22, 1970, Ser. No. 4,924

Int. Cl. A61j 17/00

U.S. Cl. 128—359

10 Claims



An infant's toy in the form of a ball-like structure and comprised of a pair of meridional ring members intersecting

each other at the north and south poles of the ball-like structure at substantially right angles and joined by spaced latitudinal ring members disposed above and below the equator of the ball-like structure, the outside diameter of all of said ring members being such as to be readily graspable by an infant. A noise producing means may be disposed within the confines of the ball-like structure defined by the ring members, or noise producing elements, moveable or otherwise, may be disposed within the confines of the ring members per se.

3,633,588

HIGH-CAPACITANCE, LOW-INDUCTANCE ELECTRODE FOR A SHORT-WAVE THERAPEUTIC DEVICE

Werner Haas, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

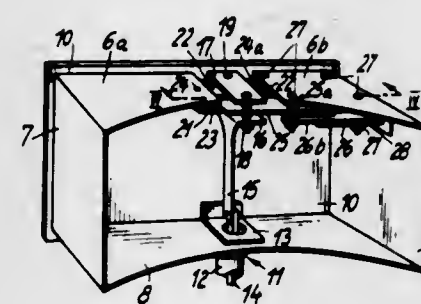
Filed July 14, 1969, Ser. No. 841,517

Claims priority, application Germany, July 13, 1968, P 17 64 666.1

Int. Cl. A61n 1/40

U.S. Cl. 128—404

5 Claims



A short-wave therapeutic device is shown for the frequency range of about 10 MHz. to 100 MHz. (3 to 30m. wavelength) which has an inductivity and a capacity of such size that it is adequately in resonance with the frequency used. The device is particularly characterized by the use of a frame-like-shaped armature made of a wide strip to provide inductivity which is as small as possible while making the capacity as large as possible by closely superposing the end portions of the armature.

3,633,589

CIGARETTE HAVING COMPOSITE WRAPPER CONSTRUCTION

Wilhelm Kahane, Franconia Hotel 20 West 72nd Street, New York, N.Y.; Magdalena Efros, and Norbert Efros, both of 597 Beech Street, Haworth, N.J.

Continuation-in-part of application Ser. No. 471,662, July 13, 1965, now abandoned. This application Feb. 27, 1970, Ser. No. 15,270

Int. Cl. A24d 01/02

U.S. Cl. 131—15

1 Claim

Cigarette with a composite wrapper consisting of two superposed thin sheets of paper fabricated of vegetable fiber stocks. The outer sheet is a porous conventional cigarette paper of good combustibility and ashing qualities. The inner sheet which is in contact with the tobacco is fabricated of uncoated, unsized and unimpregnated vegetable fiber stock and is essentially so poreless as to be practically impervious to the passage of air therethrough. The inner wrapper sheet burns at a rate slower than the tobacco underneath and the outer sheet in such wise that substantially all the air which is drawn through the cigarette during combustion is constrained, like in cigars and pipes, to pass axially through the burning coal, and thus to be less oxidizing than in conventional cigarettes. The produced smoke gives the feeling of being richer than that from conventional cigarettes made with the same tobacco, and tends to reduce inhalation.

3,633,590

PRODUCTION OF CIGARETTES

Frederick Pocock, and Ivan Yehudi Hirsh, both of London, England, assignors to Molins Machine Company Limited, London, England

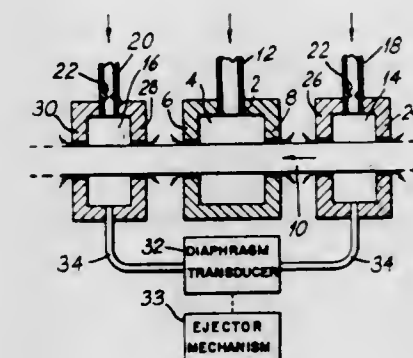
Filed Jan. 21, 1970, Ser. No. 4,588

Claims priority, application Great Britain, Jan. 31, 1969, 5,305/69

Int. Cl. A24c 5/34, 5/345; G01b 13/08

U.S. Cl. 131—21 B

9 Claims



A cigarette filling pressure indicator which, in a preferred arrangement, is arranged to allow the cigarette rod to pass continuously through it before the rod is cut into cigarette lengths. The indicator includes a pressure chamber which compresses an inadequately filled part of the rod, and a comparator device which compares the section of the rod before and after compression so as to detect an inadequate rod filling.

3,633,591

TREATMENT OF KERATINOUS SUBSTRATES WITH A REDUCING AGENT AND THEREAFTER AN OXIDIZING SOLUTION OF A VINYL MONOMER

Giuseppe Anzuino, Vercelli, Italy, and Clarence Ralph Robbins, Piscataway, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed May 29, 1969, Ser. No. 829,097

Int. Cl. A61k 7/10

U.S. Cl. 132—7

21 Claims

A process for the treatment of keratinous substrates comprising the steps of (1) reduction of said substrate (2) rinsing to remove excess reducing agent and (3) contacting the substrate with a solution comprising (a) a peroxide capable of liberating free radical species in the presence of mercaptan and (b) a vinyl monomer.

3,633,592

CLASP CONSTRUCTION FOR BARRETTES AND THE LIKE

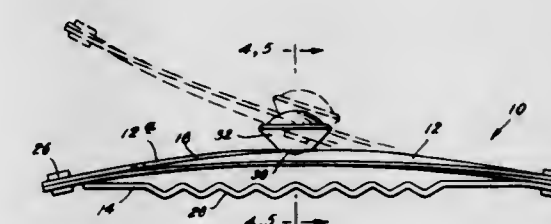
Edward Buglio, and Luigi Catanzaro, both of Cranston, R.I., assignors to Schick Manufacturing Co., Inc., Providence, R.I.

Filed Oct. 22, 1970, Ser. No. 83,112

Int. Cl. A45d 8/24

U.S. Cl. 132—48

6 Claims



A clasp construction for barrettes and the like comprising a pair of elongated spring-tempered strips with the ends of

each strip secured to the adjacent ends of the other strip in reversed relation, i.e., one end of the first strip in overlying relation with respect to the adjacent end of the second strip, and with the other end of the first strip in underlying relation with respect to the adjacent end of the other strip, whereby to impart a tension to said strips that maintains the assembled strips in arcuate relation, but wherein the assembled strips may be snapped from a concave position to a convex position and vice versa, the clasp further comprising a substantially straight arm secured to one end of the strips and in general alignment therewith, said arm and said strips defining a closed position when the strips are concavely disposed with respect to the arm and defining an open position when the strips are convexly disposed with respect to the arm.

3,633,593

APPARATUS FOR CLEANING LOG MEMBERS

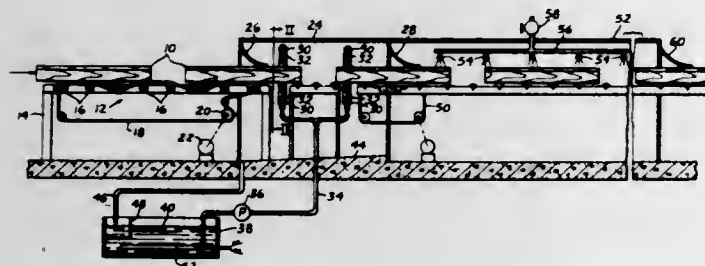
Mathew A. Slaats, Jasper, Ind., assignor to The Jasper Corporation, Jasper, Ind.

Filed Mar. 11, 1970, Ser. No. 18,554

Int. Cl. B08b 3/02

U.S. Cl. 134-64

7 Claims



The specification discloses an apparatus for treating log members from which veneer sheets are to be cut. The log members are conveyed in the direction of the length thereof through a wash station in which at least one bank of nozzles supply jets of wash liquid at high pressure to said log members to wash off sand and other foreign matter. A chamber following said wash station receives the log members and stores the log members at a controlled humidity until ready to be placed in a veneer cutting machine.

3,633,594

MACHINES FOR PROCESSING ARTICLES

James R. Boundy, Northwood, England, assignor to Sturtevant Engineering Co. Ltd.

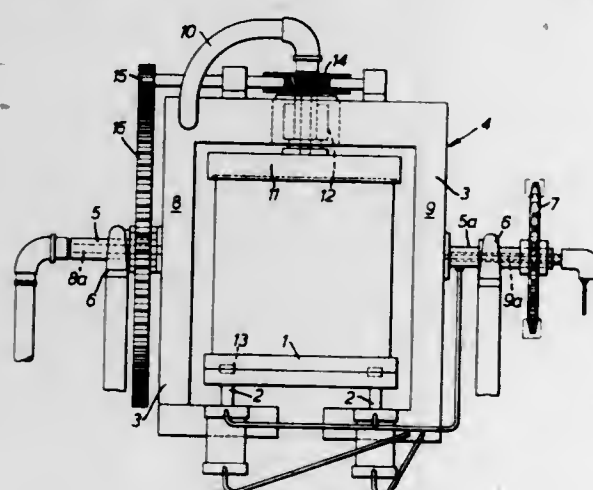
Filed Feb. 13, 1970, Ser. No. 11,270

Claims priority, application Great Britain, Nov. 10, 1969, 54,903/69

Int. Cl. B08b 3/04

U.S. Cl. 134-119

5 Claims



A machine for processing articles in a container comprising a rotatable frame, a pair of container engaging members

carried by the frame and themselves rotatable about an axis normal to the frame rotational axis and drive means to effect simultaneous movement of a container about both axes while exposed to processing liquid fed to the container.

3,633,595

HYDRAULIC GOVERNOR

Hiroaki Nagamatsu, Hiroshima-shi, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

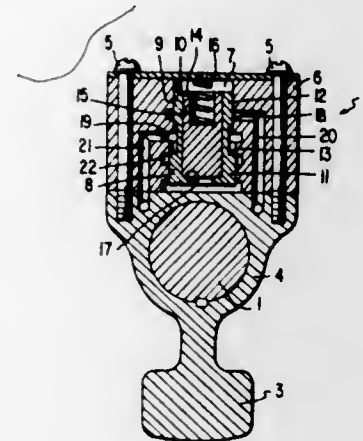
Filed Oct. 28, 1969, Ser. No. 870,030

Claims priority, application Japan, Oct. 31, 1968, 43/95250

Int. Cl. G05d 13/30

U.S. Cl. 137-56

3 Claims



A hydraulic governor having a rotary shaft, a valve body fixed to the rotary shaft and having a cylinder formed therein, a valve piston slidably inserted in the cylinder, a governor weight disposed in the cylinder in such a manner that the governor weight is urged against the centrifugal force of the weight by a spring and is urged into contact with the valve piston to provide a simple and improved governor.

3,633,596

DIAPHRAGM VALVE

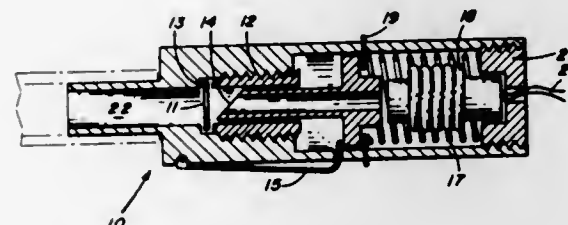
Robert L. Gerber, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed July 23, 1970, Ser. No. 57,710

Int. Cl. F16k 13/04; B67b 7/24

U.S. Cl. 137-68

3 Claims



A diaphragm valve for sealing a chamber which consists of a rupture disc, a hollow knife, a power spring, a power spring retainer and a bellows motor. The hollow knife is positioned by the power spring retainer adjacent to the rupture disc. A bellows motor, suitably positioned at the head end of the knife, provides the force, when initiated, to force the knife into the disc to rupture it thus permitting air to fill the chamber through the hollow knife body. The device may also be activated manually with the power spring providing the driving force to the knife.

3,633,597

FLOW RATE CONTROL METHOD

Lowell A. Jobe, Idaho Falls, Idaho, assignor to The United States of America as represented by the United States Atomic Energy Commission

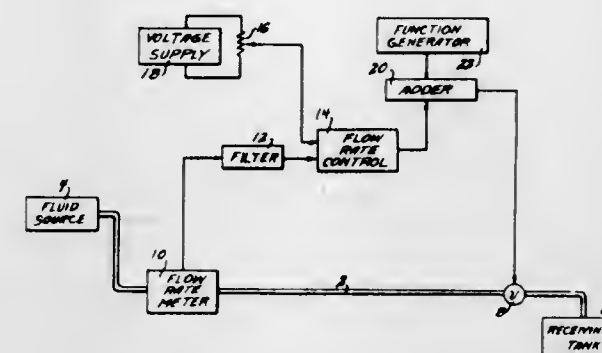
Filed May 28, 1970, Ser. No. 41,458

Int. Cl. F16k 31/02; G05d 16/00

U.S. Cl. 137-8

6 Claims

U.S. Cl. 137-15



The flow rate of a fluid through a conduit, in which solids buildup occurs, is controlled by introducing a time varying signal to a valve to control the rate of flow. The changes in fluid flow caused by the time varying signal act to flush out solids which have built up in the valve and/or conduit. The mean rate of flow is measured and maintained at a desired level by controlling the average valve opening.

3,633,598

METHOD AND APPARATUS FOR INSERTING A VALVE MEMBER BETWEEN FLANGES OF A FLANGED PIPE CONNECTION

Aubrey J. Morris, Devizes, and James S. W. Fox, Southampton, both of England, assignors to Ambuco Limited, London, England

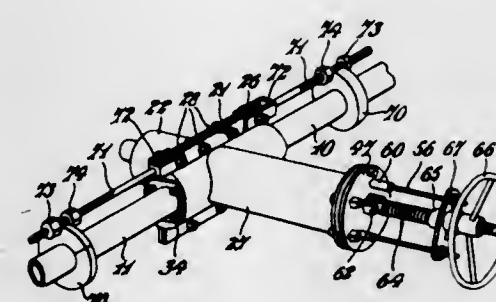
Filed Mar. 19, 1970, Ser. No. 21,022

Claims priority, application Great Britain, Mar. 25, 1969, 15,663/69

Int. Cl. F16l 55/18; B23p 19/04

U.S. Cl. 137-15

24 Claims



Apparatus and method for inserting a spade valve member between the flanges of a joint in a fluid-containing conduit to vary the flow of fluid, in which a divided casing is placed around the conduit and contains the spade valve and the flanges, the casing having means for securing its parts together, means for separating and refastening the flanges of the joint and means for moving the spade valve between the flanges.

3,633,599

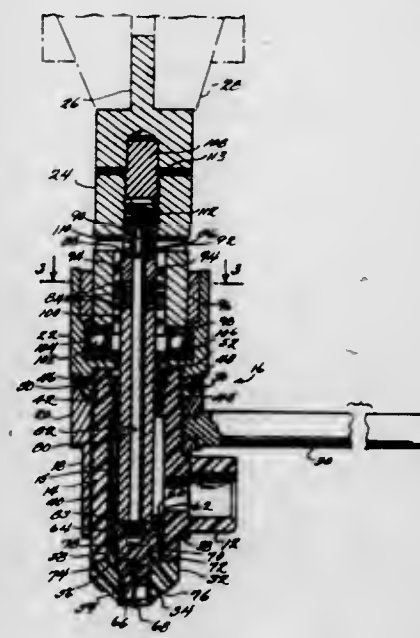
PLASTIC SERVICE FITTING AND METHOD AND APPARATUS FOR ATTACHING SAME

Robert R. Roos, Decatur, Ill., assignor to Mueller Co., Decatur, Ill.

Filed Sept. 4, 1970, Ser. No. 69,876

Int. Cl. F16l 47/02

22 Claims



A method and apparatus for attaching a plastic service fitting to a plastic main carrying fluid under pressure wherein a tubular fitting having a lateral outlet is disposed in a support housing and a connecting member carrying a tapping plug is disposed at one end of the tubular fitting and linked by a driving shaft to a driving head disposed atop the support housing. The tapping plug has a cutter element and coupon retainer located adjacent the frustoconical end portion of the connecting member which is placed in contact with the surface of the plastic main. A load is applied through the housing to the tubular fitting and to the connecting member while the driving head, driving shaft, cutter and connecting member are rotated to press the cutting member into the pipe and cut a perforation therein whereby frictional heat is developed between the surfaces of the connecting member, a tubular fitting and plastic main to form a fluidtight seal between these members as the perforation is formed.

3,633,600

FUSE-MELT-TYPE APPARATUS FOR INTERCEPTING FLOW OF AN OVERHEATED MEDIUM THROUGH A DUCT

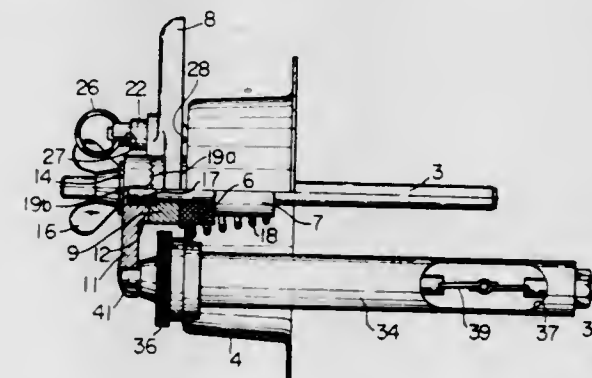
Noboru Sadamori, Osaka-shi, Osaka, Japan, assignor to Daito Mfg. Co., Ltd., Osaka, Japan

Filed Nov. 24, 1969, Ser. No. 879,027

Int. Cl. F16k 17/38

U.S. Cl. 137-77

12 Claims



An apparatus for automatically intercepting a flow of an overheated medium through a conduit duct having a fuse-

melt-type temperature detector exposed to the medium flow in an arrangement operable upon a damper shaft for effecting the closing of the damper set at a desirable opening magnitude upon detection of the overheated medium's passing.

3,633,601

DEVICE FOR DISCHARGING A GAS TOWARDS A SPACE HAVING A LOWER PRESSURE

Serge Vez, La Seyne-sur-Mer, France, assignor to La Spirotechnique

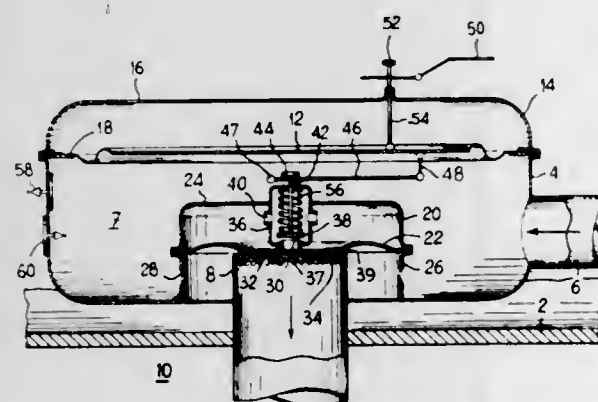
Filed Apr. 6, 1970, Ser. No. 25,742

Claims priority, application France, Apr. 14, 1969, 6911410

Int. Cl. A62b 7/00

U.S. Cl. 137-81

6 Claims



Device for discharging breathed-out gas towards a space having a lower pressure. The breathing-out moves a diaphragm which then opens a pilot valve. This opening of the pilot plane creates inside a casing the wall of which comprises another diaphragm an underpressure which lifts said another diaphragm and connects the space where is breathed-out the gas to the space with a lower pressure.

3,633,602

CONTROLLED MIXING VALVE

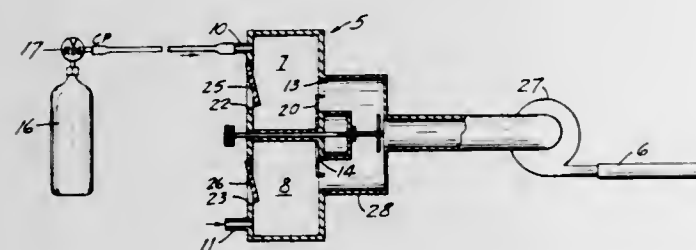
George W. Schossow, 2316 Lilac Lane, White Bear Lake, Minn.

Filed Apr. 6, 1970, Ser. No. 25,986

Int. Cl. F16k 19/00

U.S. Cl. 137-81

8 Claims



A mixing valve for gaseous fluids wherein the fluids are introduced into separate chambers, the pressure of the fluids in each chamber is equalized because of a gravity biased balancing cover in the chamber to open the chamber or chambers to the ambient atmosphere in the event the pressure inside a chamber exceeds or falls below the ambient pressure. A blower is utilized to draw the fluids from said chambers through exit openings proportioned to the desired percentage of each fluid to be mixed by and expelled from said blower.

3,633,603 CONTROL SYSTEMS

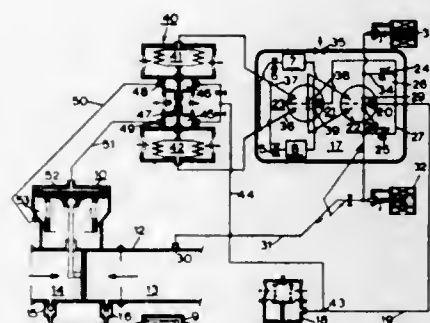
Owen Desmond Arthur Charles Furlong, and Michael Arthur Bennett Young, both of Yeovil, England, assignors to Normair-Garrett Limited, Yeovil, Somerset, England
Filed Nov. 25, 1969, Ser. No. 879,650

Claims priority, application Great Britain, Nov. 25, 1968, 55,778/68

Int. Cl. F15c 1/04

U.S. Cl. 137-81.5

8 Claims



A fluidic controlled pressure reducing valve where fluid amplifiers are utilized to sense pressure variations within a chamber, and present an amplified output signal to control the operation of the valve, the circuit also including an override device which enables the valve to be maintained in the fully open or closed position, irrespective of the fluid amplifier control signals.

3,633,604

FLUID-OPERATED CONTROL APPARATUS

Gerhard Klee, Frankfurt am Main-Glanheim, Germany, assignor to Samson Apparatebau A.G., Frankfurt am Main, Germany

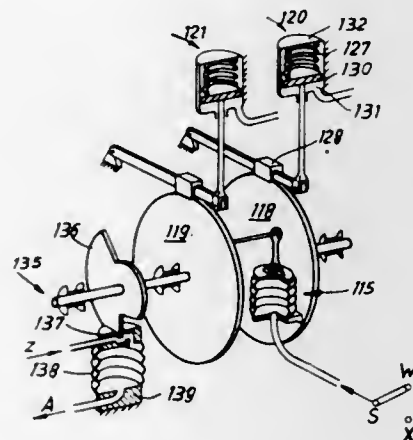
Original application Sept. 5, 1967, Ser. No. 665612, now Patent No. 3,489,064, dated Jan. 13, 1970. Divided and this application Oct. 20, 1969, Ser. No. 867,780

Claims priority, application Germany, Sept. 5, 1966, S 105696

Int. Cl. F15b 5/00

U.S. Cl. 137-83

4 Claims



The specification describes a rotary summing apparatus comprising a rotary disc which is arranged to be rotated by a fluid pressure-mechanical transducer in steps. Pressures whose values are to be added together are fed in sequence to the transducer so that the rotary part moves in steps proportional to the values of the pressures.

3,633,605

PNEUMATIC CONTROL SYSTEM AND PNEUMATIC CONTROL DEVICE THEREFOR OR THE LIKE

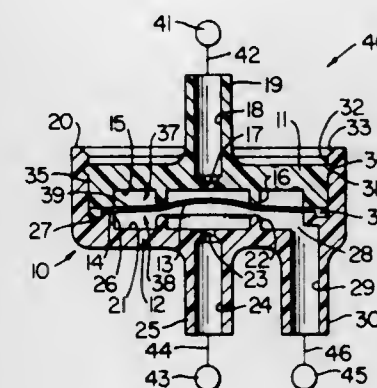
Larry S. Smith, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Mar. 18, 1969, Ser. No. 808,256

Int. Cl. F16k 15/14, 27/00

U.S. Cl. 137-113

14 Claims



A pneumatic control device comprising two cup-shaped housing members respectively having open ends and end wall means recessed from the respective open ends thereof, each end wall means having an inlet therein and a valve seat surrounding the respective inlet and projecting beyond its respective end wall means toward the open end of its respective housing member. The housing members are secured together in a snap-fit relation with the open ends thereof telescoped together. A flexible diaphragm has an outer peripheral means thereof secured between the open end of one of the housing members and the end wall means of the other housing member, the diaphragm being movable between and being selectively engageable with said valve seats and having an opening means passing therethrough outboard of the valve seats and always disposed in fluid communication with an outlet of the control device.

3,633,606

AUTOMATIC CHANGEOVER VALVE

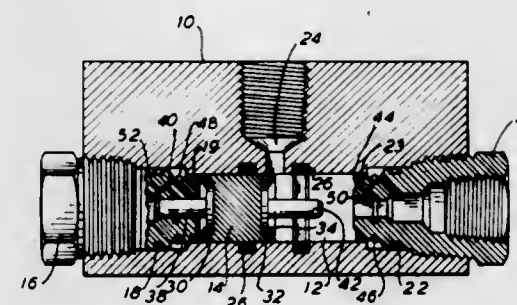
Wayne W. Hay, and Charles S. Thompson, both of Madison, Wis., assignors to Air Reduction Company, Incorporated, New York, N.Y.

Filed Aug. 7, 1969, Ser. No. 848,291

Int. Cl. G05d 11/00

U.S. Cl. 137-113

4 Claims



Valve for automatically changing from a depleted gas cylinder to a full-pressure gas cylinder comprising a piston moving in a bore past a discharge outlet, valves having floating mountings on said piston with oppositely extending stems alternately engaging separate supply inlets and O-ring relief valves for venting respective ends of the bore when the corresponding inlet is closed by the piston.

3,633,607

ASEPTIC VALVES

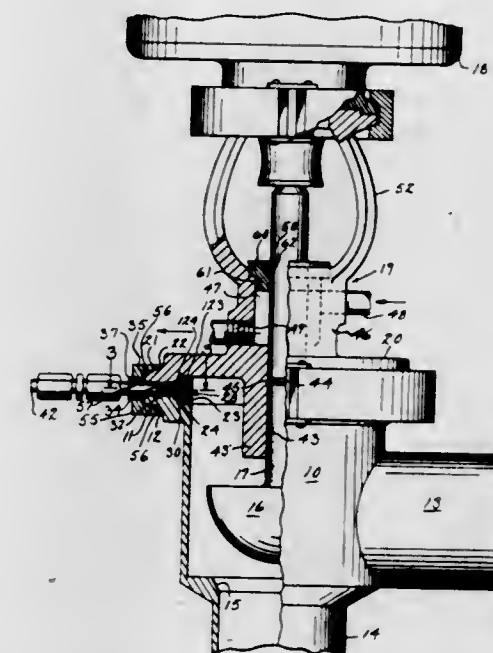
Bruno H. Werra, Waukesha, Wis., assignor to Ladish Co., Cudahy, Wis.

Filed July 6, 1970, Ser. No. 52,608

Int. Cl. F16k 41/00

U.S. Cl. 137-241

14 Claims



There is a valve body with a detachable bonnet, the latter having a steam chamber thereon through which the valve stem extends so that a portion of the valve stem which is exposed to the atmosphere in certain positions, is sterilized by the steam chamber when the valve stem is reciprocated inwardly. There is an annular sealing gasket between the bonnet and the top of the valve body with a rubber ring around the gasket to form an annular steam chamber inwardly of the rubber ring. A clamping ring which acts on annular flanges of the bonnet and valve has a slot through which the steam nipple projects.

3,633,608

GAS PRESSURE REGULATING VALVE

Ruthard Minkner, Am Donarbrunnen, and Werner Pick, Helliggenrode, both of Germany, assignors to Regel & Messtechnik G.m.b.H., Kassel-Bettenhausen, Germany

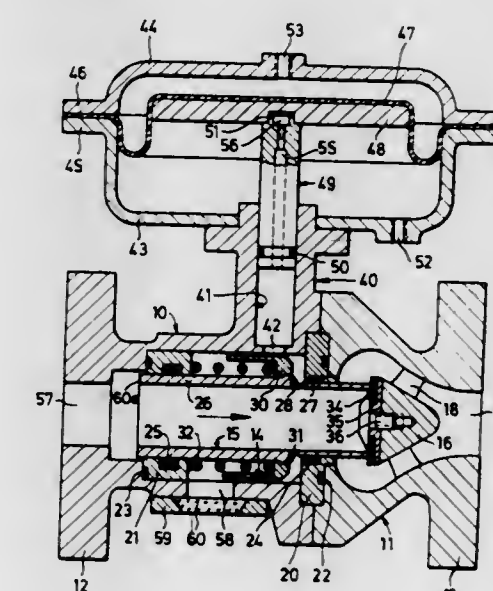
Filed Jan. 28, 1970, Ser. No. 6,339

Claims priority, application Germany, Feb. 1, 1969, P 19 05-026.1

Int. Cl. G05d 16/06

U.S. Cl. 137-220

9 Claims



In a gas pressure regulating valve provided with a straight passage for the gas and having therein a stationary valve

member and a pressure-actuated axially slidable valve sleeve, one end of which cooperates with said stationary valve member, the valve sleeve in accordance with the invention is provided between its ends with an annular shoulder subjected to a pressure medium which adjusts the position of the valve sleeve in said passage. This valve sleeve may be reversely inserted in said straight passage so that the valve sleeve may be moved by said pressure medium which adjusts said valve sleeve in a closure or opening direction.

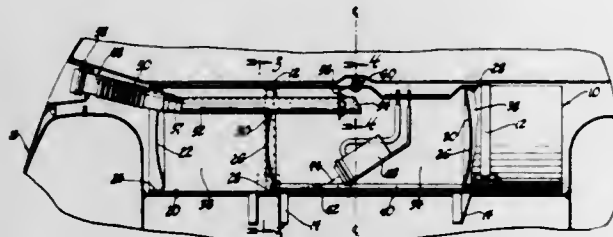
3,633,609

FUEL TANK FOR VEHICLES

Robert James Benner, Lansing; Frank W. Huxtable, Jr., Okemos, and Joseph H. Jones, East Lansing, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed May 20, 1970, Ser. No. 38,967
Int. Cl. B66f 9/06

U.S. Cl. 137-351

4 Claims



A pressurized fuel tank, disposed transversely over the rear axle of an automobile, is divided by baffles into three compartments. Large apertures in the baffles interconnect the upper portion of the compartments and a pipe extending through the baffles interconnects the lower portion of the compartments. A fuel pump inlet is located in the center compartment adjacent an opening in the pipe. A pressure relief valve discharges from the center compartment adjacent the vehicle centerline. A filler pipe extends through one of the end walls and one of the baffles to discharge adjacent the vehicle centerline. A cap on the filler pipe is provided with a vacuum relief valve. Pressure in the tank is also released during removal of the cap.

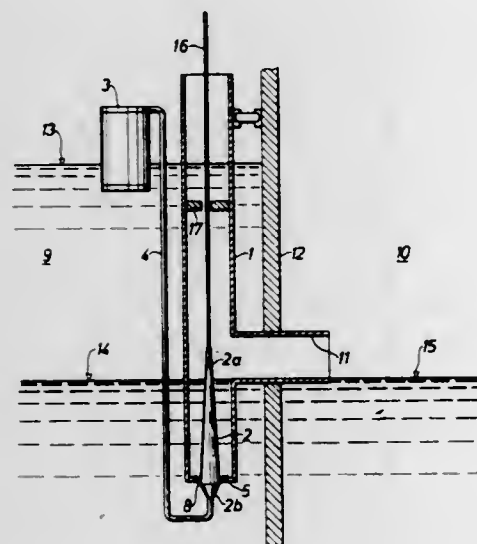
3,633,610

FLOAT-ACTUATED VALVE

Ake Oscar Wilhelm Hellqvist, Djurhamn, Sweden, assignor to Aktiebolaget Gustavsbergs Fabriker, Gustavsberg, Sweden
Continuation-in-part of application Ser. No. 856,559, Sept. 10, 1969. This application Aug. 24, 1970, Ser. No. 66,273
Claims priority, application Sweden, Sept. 11, 1968, 12191/68
Int. Cl. F16k 31/22

U.S. Cl. 137-398

3 Claims



A float-actuated valve contains a vertical tube having in its bottom a narrower inlet opening. A conical valve body is ar-

ranged to move up and down in said inlet opening. The valve body is connected to a float which floats on the surface of a body of liquid. If the water surface rises the valve body will be lifted so as to reduce the free area of the inlet opening. Consequently, the rate of flow through the valve will be substantially constant. The thickest portion of the valve body is narrower than the inlet opening, and the entire valve body can, consequently, be lifted to a position above the inlet opening. In this position the liquid can flow through the full area of the inlet opening.

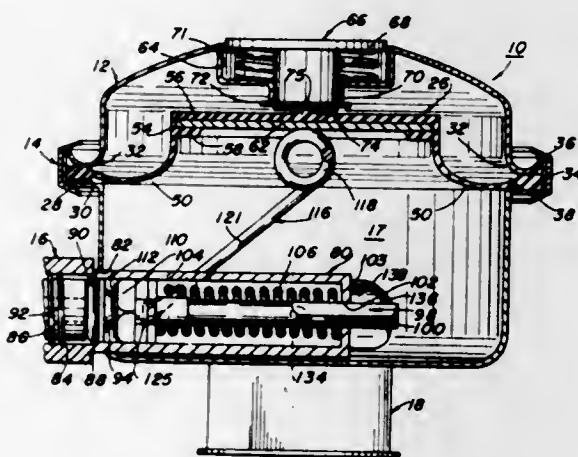
3,633,611

SINGLE HOSE UNDERWATER REGULATOR

Douglas K. MacNiel, Winnetka, Ill., assignor to Dacor Corporation, Skokie, Ill.
Filed May 9, 1969, Ser. No. 823,420
Int. Cl. B63c 11/22

U.S. Cl. 137-494

9 Claims



A second-stage single hose regulator includes an inlet valve extending diametrically across the bottom of the regulator chamber with an outlet orifice pointing directly into the mouthpiece tube. A valve-actuating lever is connected between the valve and a diaphragm extending across the housing, and a pair of exhaust ports and associated check valves are provided in the wall of the housing diametrically opposite to the mouthpiece.

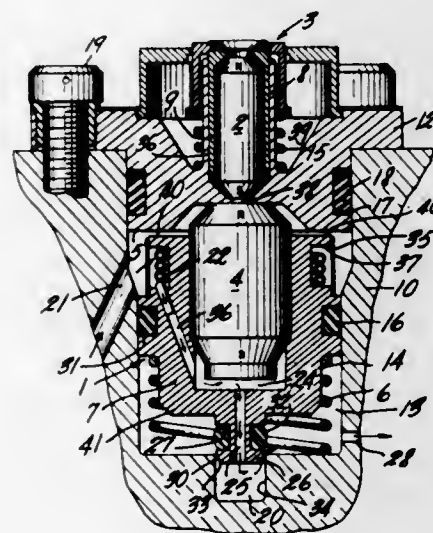
3,633,612

FLOW INDICATOR AND VALVE

Robert I. Gross, Roslyn Heights, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.
Filed Feb. 13, 1970, Ser. No. 11,162
Int. Cl. F16k 17/22

U.S. Cl. 137-498

17 Claims



A flow and/or viscosity indicator is provided having a flow-sensing means which is arranged to actuate a signal. A

calibrated flow-restricting passage imposes a fluid pressure differential related to flow and/or viscosity across the flow-sensing means, and thus ensures that whenever flow and/or viscosity through the flow-restricting passage changes sufficiently, the change in flow and/or viscosity is reflected in a predetermined change in fluid pressure differential which results in movement of the flow-sensing means, in a manner to give the signal.

A valve can also be actuated upon movement of the flow-sensing means, for closing off flow through the passage or another line.

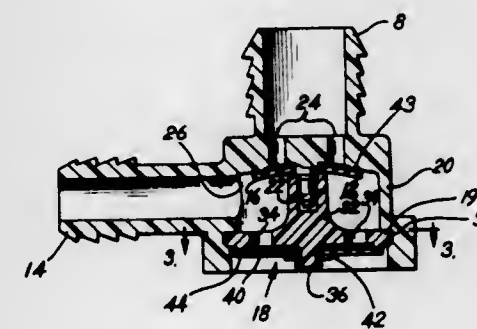
3,633,613

PRESSURE RELIEF MEANS FOR A CHECK VALVE

Thomas M. Julow, South Bend, Ind., assignor to The Bendix Corporation
Filed Apr. 17, 1970, Ser. No. 29,570
Int. Cl. F16k 15/14

U.S. Cl. 137-512.3

10 Claims



A cap member in a vacuum-operated check valve for relieving backflow pressure received at the control chamber. The cap member has a head member surrounded by a plurality of openings in communication with the control chamber. A flexible plate retained on the head member is seated on the cap member over the openings to form a closed control chamber permitting the vacuum to operate a power brake system. The flexible plate is resilient enough to be unseated by back pressure of a predetermined value received in the control chamber. Thus, internal damage to the check valve is prevented.

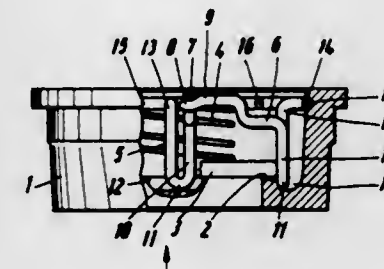
3,633,614

CHECK VALVE

Heinz Paul Scholz, Kirchweyhe, Germany, assignor to Gustav F. Gerdt KG, Bremen, Germany
Filed Oct. 21, 1969, Ser. No. 868,126
Int. Cl. F16k 15/02, 17/04

U.S. Cl. 137-543.19

2 Claims



A check valve has a plate guided sidwise by ribs and serving as a closure. The plate along with a closure spring and a spring support is located in a flat casing with a valve seat. The check valve is particularly characterized in that the spring support along with the guiding ribs for the valve plate

consists of a rigid wire box fixed in the casing containing all the parts of the check valve.

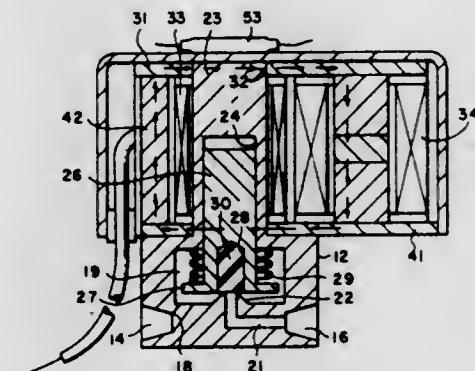
3,633,615

CONTROL SYSTEM

Charles F. Rhodes, Jr., Richardson, Tex., assignor to Sun Oil Company (Delaware), Dallas, Tex.
Filed Mar. 18, 1970, Ser. No. 20,688
Int. Cl. F16k 37/00; H01f 7/08

U.S. Cl. 137-554

7 Claims



The particular embodiment described herein as illustrative of one form of the invention utilizes a magnetically actuated reed switch arranged in coincidence with a flux path of an electromagnetically operated valve, which reed switch is actuated when the valve is moved to one of its selectively operable positions, and thereby changes a characteristic of the flux path, the actuation of the reed switch being in response to the change in the flux path characteristic.

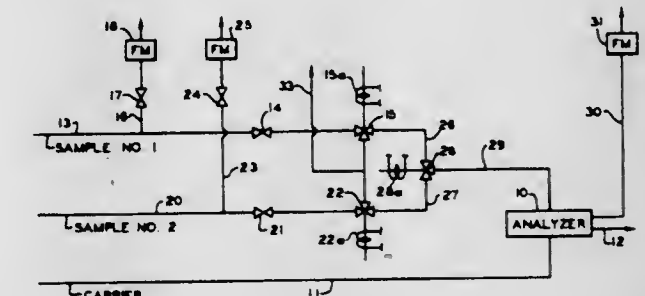
3,633,616

STREAM SWITCHING AND INDICATING APPARATUS

Harry M. Meshek, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Sept. 2, 1970, Ser. No. 68,814
Int. Cl. F16k 37/00; G01n 31/08; H03k 23/08

U.S. Cl. 137-554

6 Claims



Apparatus comprising two flip-flop circuits is employed to control selectively the passage of two fluid streams to an analyzer. Signals are also established to indicate the particular stream being passed to the analyzer.

3,633,617

FLUID SYSTEM AND VALVE ASSEMBLY THEREFOR

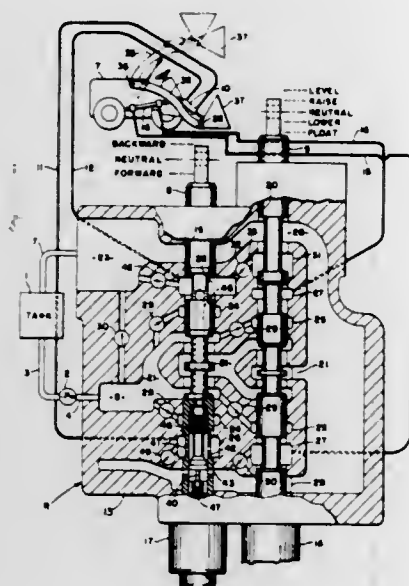
Hugh J. Stacey, Willoughby, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio
Filed Jan. 28, 1970, Ser. No. 6,412
Int. Cl. F16k 11/10, 11/02

U.S. Cl. 137-596.12

10 Claims

A spool-type valve assembly for automatically leveling the bucket (or scoop) of a front end loader or the like during raising of the boom thereof characterized in that the boom

hoist and bucket tilt spool valves are arranged in series so that when the boom hoist spool is in boom raise-bucket leveling position and when the bucket tilt spool is in neutral position, the returning fluid from the boom hoist cylinder is conducted to the tilt cylinder via a check valve between the adjacent motor passages of said valves. A flow control valve for permitting return flow from the tilt cylinder during the automatic leveling operation is disposed within the bucket tilt



spool and has a plunger portion in communication with the aforesaid motor passage of the bucket tilt valve so that the flow control valve will open the return passage of the bucket valve in response to pressure acting on the plunger portion and will close the return passage in response to decrease in pressure acting on the plunger portion to prevent the bucket from running ahead of the oil being supplied thereto from the hoist cylinder.

3,633,618

VALVED MANIFOLD FOR GAUGING A PLURALITY OF FLUID PRESSURES

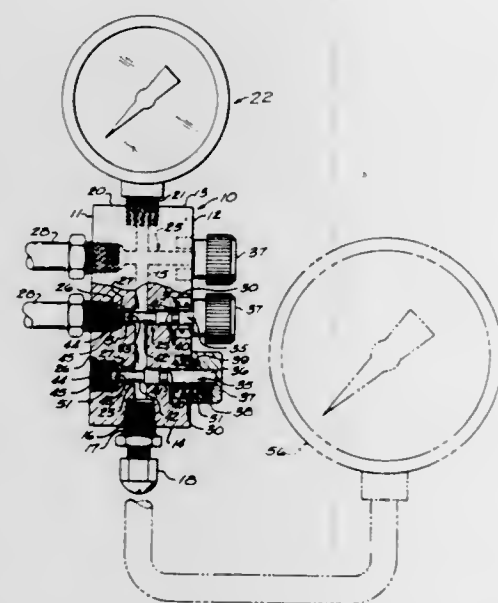
Joseph J. Blackmore, R.R. #1, Edwardsville, Ill., and Perry G. Glunt, 91 Wildwood Lane, Kirkwood, Mo.

Filed Feb. 26, 1970, Ser. No. 14,398

Int. Cl. G01l 7/00; F16k 37/00, 3/28

U.S. Cl. 137-597

5 Claims



A simply constructed valved manifold permits a single fluid pressure gauge to show, selectively, a number of sources of

fluid pressure. The manifold is a block having a longitudinal bore to which the gauge is connected. A plurality of crossbores, each terminating in a counterbore, intersect the longitudinal bore. Gas-free liquid connections are maintained from each counterbore through its crossbore, into the longitudinal bore and to the pressure gauge. A valve stem extends through each crossbore. When a valve stem is momentarily pressed to open, the pressure in the manifold will adjust itself to equal the source of pressure so opened to it; and the gauge will continue to show that pressure until one of the valve stems is again pressed to open position.

3,633,619

BERNOULLI EFFECT FLUID PRESSURE CONVERTOR, SWITCH, AMPLIFIER AND THE LIKE

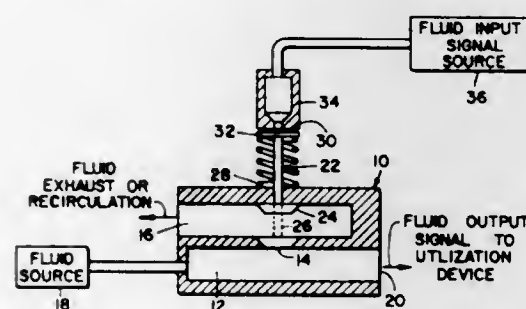
Herbert M. Eckerlin, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y.

Filed Apr. 1, 1969, Ser. No. 811,932

Int. Cl. F15c 3/14

U.S. Cl. 137-608

7 Claims



A means for controlling the pressure of a fluid output signal in accordance with the pressure of a fluid input signal applied to a Bernoulli air bearing. The bearing issues a fluid stream to provide a fluid cushion having an adjustable positive or negative pressure (relative to ambient) between the nozzleed frontal surface of the bearing and a movable member, which member operates as a valve or restriction to control the pressure and flow rate of the fluid output signal as a function of the pressure of the fluid input signal.

3,633,620

PNEUMATIC CONTROL SYSTEM UNIT AND DEVICE FOR RECEIVING THE SAME

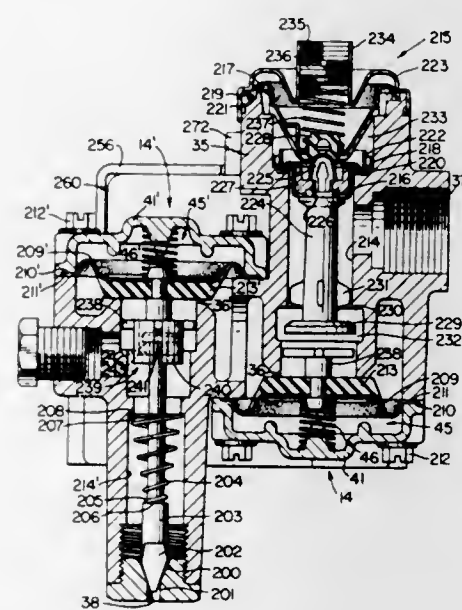
Douglas R. Scott, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed July 27, 1970, Ser. No. 58,368

Int. Cl. F16k 17/10, 31/12; H01h 29/28

U.S. Cl. 137-613

40 Claims



A housing means having an inlet and outlet separated by valve seat means whereby pneumatically operated valve

means carried by the housing means is adapted to open and close the valve seat means. A pneumatically operated control system unit for operating the pneumatically operated valve means is provided in a separate housing unit that is detachably carried by the housing means for the pneumatically operated valve means, the control system unit comprising a plurality of housing plates sonically welded together and retaining pneumatically operated control components for interconnecting a pneumatic source to the pneumatically operated valve means.

3,633,621

SNAP-FITTED PNEUMATIC SELECTOR VALVE HAVING A TUBULAR CONDUIT FOR FLUID FLOW SWITCHING

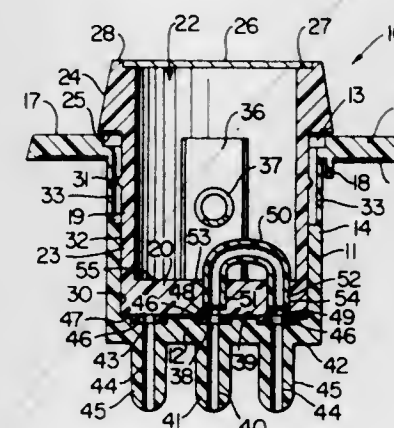
Ned C. Myers, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Feb. 13, 1970, Ser. No. 11,046

Int. Cl. F16k 11/00

U.S. Cl. 137-625.11

14 Claims



A pneumatic selector switch having a body member provided with a pneumatic source port and a plurality of actuator ports spaced from the source port and from each other. A movable valve member is carried by the body member for selectively interconnecting the source port to a selected actuator port depending upon the position of the valve member relative to the body member. The valve member includes a tubular conduit bent in substantially a U-shape with one of the opposed open ends thereof always in alignment with the source port and the other open end alignable with any one of the selected actuator ports.

3,633,622

VALVE MECHANISM FOR DISHWASHER

Bobby J. Ralston, Louisville, Ky., assignor to General Electric Company

Filed Sept. 3, 1970, Ser. No. 69,394

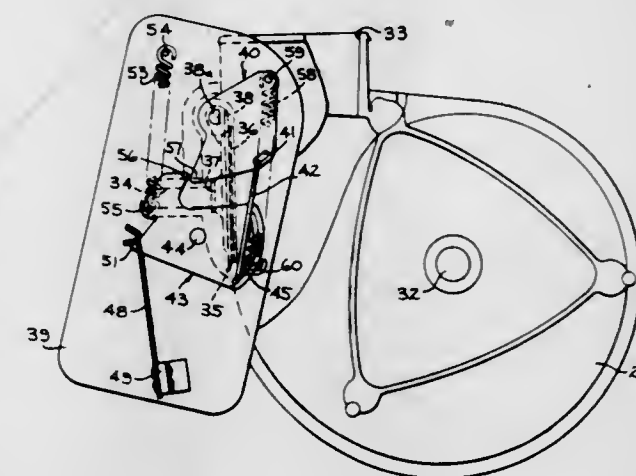
Int. Cl. F16r 11/02, 25/00

U.S. Cl. 137-625.44

6 Claims

In a pump housing having a valve for controlling the flow of pressurized fluid therethrough, a valve element is pivotally mounted in the housing, adjacent the outlet, for pivotal movement within the housing between a first position opening the outlet and a second position closing the outlet. At an intermediate position, between the first and second positions, the valve element is poised to be responsive to fluid flow through the housing whereby the valve element is caused to move to the second position in response to pressure of fluid flowing through the housing. The valve mechanism also includes a first biasing means that urges the valve element toward its normal first position, a second biasing means adapted to urge the valve element from the first position to the intermediate position, and releasable holding means that normally acts to prevent the second biasing means from mov-

ing the valve element to the intermediate position until the latching means is actuated to release the second biasing means. The releasable latching means is preferably a bimetal-



3,633,623

MOTOR-OPERATED VALVE

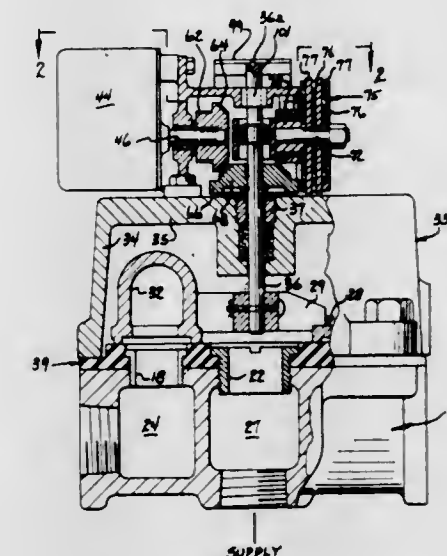
Leo F. Perry, and Gale N. Puerner, both of Fort Atkinson, Wis., assignors to AquaMatic, Inc., Rockford, Ill.

Filed Apr. 24, 1970, Ser. No. 31,505

Int. Cl. F16k 11/06

U.S. Cl. 137-625.46

20 Claims



The valve is of the lift-turn type and includes a ported stator, and a ported rotor cooperable with the stator to control the flow of fluid through the valve. A stem is attached to the rotor and extends outwardly of the valve casing. A gear and a cam are fixed to the stem outwardly of the valve casing. The motor continuously drives both a shaft and another gear during the time the motor is operated. The shaft, operating through a clutch mechanism, drives an arm to lift the stem. This unseats the rotor and causes the gears to mesh for rotation of the rotor by the motor. Meanwhile, the clutch slips but holds the stem in lifted position. The cam operates to throw a switch and cease power to the motor when the rotor has reached a preselected position. This ceases rotation of the rotor and stops the shaft. A spring then urges the stem and rotor back to seated position.

3,633,624

SOLENOID-OPERATED VALVE ASSEMBLY

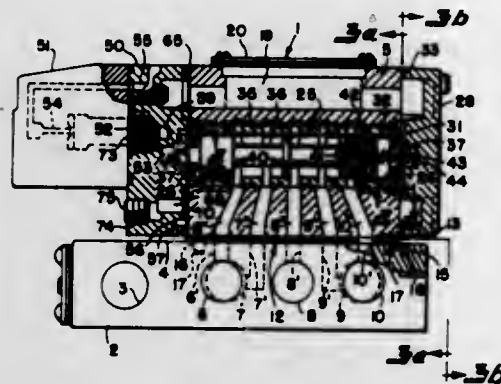
Kurt W. Leibfritz, Norridge, and Lester W. Malinowski, Des Plaines, both of Ill., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Original application Aug. 29, 1967, Ser. No. 664,191, now Patent No. 3,487,848. Divided and this application Jan. 5, 1970, Ser. No. 5,410

Int. Cl. F16k 11/07

U.S. Cl. 137-625.64

6 Claims



Solenoid operated valve assembly characterized in that from its basic components i.e., a distributing block, a valve block, a liner sleeve, and a valve spool, a wide variety of valve functions may be achieved simply by mounting on the valve block one or two solenoid pilot valves or one or two direct acting solenoids and by inserting minor parts in the valve spool or in the liner bore of the valve block.

3,633,625

VALVE FOR EMPTYING BOILERS

Kurt Rudel, Bremen, Germany, assignor to Gustav F. Gerdt KG, Bremen, Germany

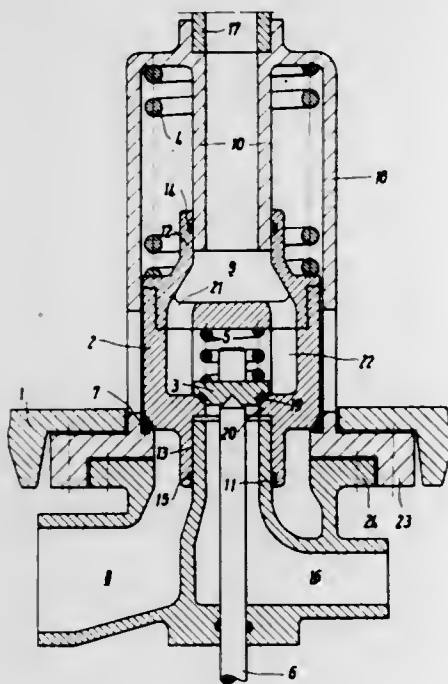
Filed Aug. 14, 1970, Ser. No. 63,731

Claims priority, application Germany, Oct. 22, 1969, P 19 53 096.2

Int. Cl. F16k 11/30

U.S. Cl. 137-630.22

5 Claims



A valve for emptying boilers has a locking member for the liquid phase and a locking member for the gas phase, the two

members being coaxial and being operated by a common actuating device against the action of closing springs. The locking member for the liquid cooperates with a valve seat fixed to the bottom of the boiler. The valve is particularly characterized in that the locking member for the liquid is provided with a central flow passage for the gas phase. A fixed tube joint for gas flow is seal tightly connected to the passage from the boiler interior. A fixed tube joint for gas outflow is also connected from the outside to the passage. The two points permit a relative movement of the locking member for the liquid. The locking member for the gas is located in this passage. The common actuating device engages the locking member for the gas.

3,633,626

VERNIER THROTTLING/BLOCK VALVE

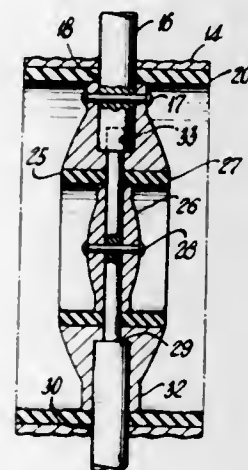
George T. Zirps, East Hanover, and Arthur C. Worley, Morristown, both of N.J., assignors to Esso Research and Engineering Company

Filed Aug. 28, 1970, Ser. No. 67,844

Int. Cl. F16k 11/22

U.S. Cl. 137-637.3

7 Claims



A butterfly valve of the vernier throttling/block type comprising a pivotably mounted auxiliary disc concentrically disposed within a separately pivotable main disc, each disc being provided with individual disc operator means for providing an independent and positively controllable method of throttle flow. This type of valve construction provides for a wide range of throttling capability as well as for tight shut-off. Further, any turbulence created will take place in the center of the fluid stream immediately downstream of the vernier disc such that there will be substantially no undesirable turbulence effects on the piping and associated equipment.

3,633,627

FLUID HAMMER ARRESTER

Charles H. Perrott, Portland, Oreg., and James B. Watts, Overgaard, Ariz., assignors to Precision Plumbing Products, Inc.

Filed Jan. 29, 1970, Ser. No. 6,776

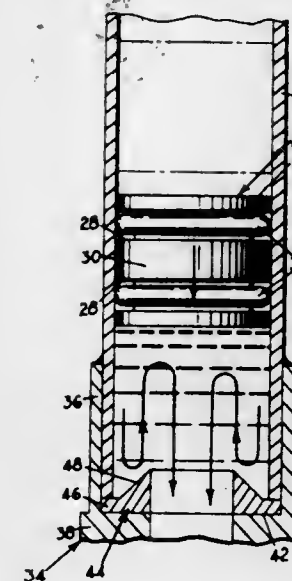
Int. Cl. F16l 55/01

U.S. Cl. 138-31

3 Claims

An arrester for inhibiting hammer caused by interruption of fluid flow in conduits comprises a hollow cylindrical body closed at one end and open at the other. A piston is freely slidable within the body forming with the closed end thereof an hermetically sealed gas chamber. A connector connects the open end of the body with the conduit conveying fluid

under pressure. Under fluid hammer conditions, the piston is advanced against the gas in the gas chamber. This forms a core and a portion of the reinforcing means may be bonded to the sheath. The sheath may be formed of a thermoplastic



cushion which absorbs the shock and prevents the development of fluid hammer.

3,633,628

WIREWAY DIVIDER

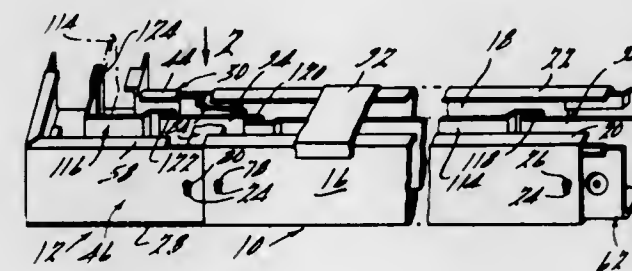
William F. Duquette, Bloomfield Hills; Dale T. Stormzand, Rochester, and Warren C. Rauhauser, Detroit, all of Mich., assignors to Avis Industrial Corporation, Madison Heights, Mich.

Filed Jan. 2, 1970, Ser. No. 319

Int. Cl. H02g 7/12

U.S. Cl. 138-116

7 Claims



An electrical wireway comprising a plurality of channel shaped wireway sections connected end-to-end by overlapping generally U-shaped members and adapted to be divided longitudinally by one or more removable partitions which are detachably interconnected with each other and at least certain of which are provided with attaching members which extend under and are retained by overlapping portions of the U-shaped connecting members.

3,633,629

HOSE CONSTRUCTION AND METHOD FOR FORMING THE SAME

Thomas F. Rider, Manitowoc, Wis., assignor to I-T-E Imperial Corporation

Filed Apr. 10, 1969, Ser. No. 814,903

Int. Cl. F16l 11/02

U.S. Cl. 138-127

21 Claims

A hose construction and method of forming the hose construction wherein a reinforcing means is provided about a tubular core. The reinforcing means includes a first portion which is bondable with the core and a second portion which remains free for movement relative to the core subsequent to the bonding of the first portion to the core. The first portion of the reinforcing means and the core may be formed of a thermoplastic material whereby the bonding is obtained by heat fusion. A sheath may be provided about the reinforced



material and may be bonded to the reinforcing means portion by heat fusion.

3,633,630

CONDUIT INSULATION

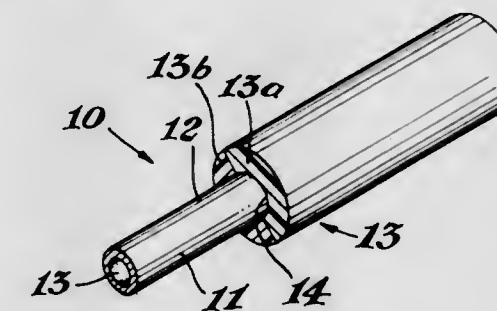
Alden W. Hanson; Eugene R. Moore; Louis Robert Schanbals, and Hal G. Parish, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 17, 1970, Ser. No. 20,318

Int. Cl. F16l 9/22

U.S. Cl. 138-149

3 Claims



Pipe insulation suitable for both low-pressure steam and refrigeration is prepared with benefit from constant composition styrene-maleic anhydride copolymer containing 85 to 65 weight percent styrene and 15 to 35 weight percent maleic anhydride.

3,633,631

ABLATIVE STRUCTURES

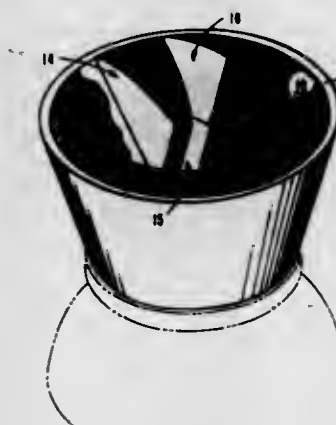
Donald Monroe Hatch, Harbor City, and Walter W. Wood, Inglewood, both of Calif., assignors to Hitco, Gardena, Calif.

Original application Apr. 30, 1964, Ser. No. 363,738, now Patent No. 3,436,292, dated Apr. 1, 1969. Divided and this application Sept. 27, 1967, Ser. No. 687,939

Int. Cl. B64d 33/04

U.S. Cl. 138-141

11 Claims



Ablative structures are prepared by laying up panels of at least two dissimilar high-temperature resistant materials im-

pregnated with a thermally curable resin so that the panels are at least partially interleaved and curing the resin and densifying the structure under increased temperature and pressure conditions.

3,633,632

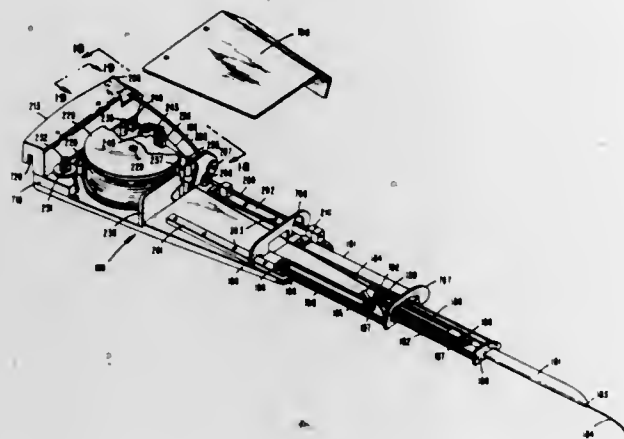
CIRCULAR WEAVING APPARATUS PRODUCT AND PROCESS

Paul D. Emerson, Raleigh; S. Jack Davis, Chapel Hill; John C. Oatfield; Fred H. Engleman, both of Cary, and Charles E. Bartee, Durham, all of N.C., assignors to Monsanto Company, St. Louis, Mo.

Original application Dec. 31, 1968, Ser. No. 793,921. Divided and this application Dec. 8, 1969, Ser. No. 883,345
Int. Cl. D03d 37/00

U.S. Cl. 139-13

4 Claims



A thick-walled, three-dimensionally shaped fabric is produced on a circular weaving machine with the aid of a rotating filling yarn inserter. The filling yarn inserter is adaptable for placing a filling yarn in an annular shed formed by the machine by moving through a path circling the vertical axis of the fabric.

3,633,633

STRAPPING APPARATUS

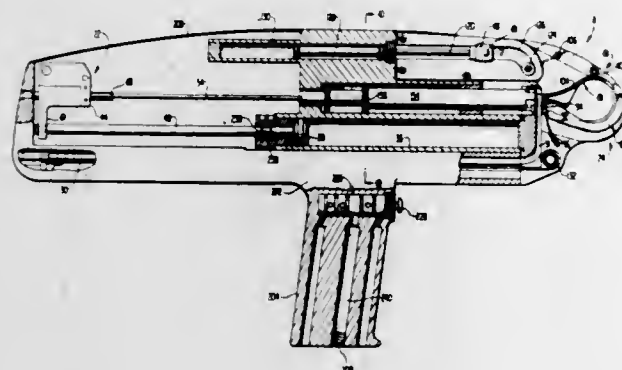
Albert J. Countryman, Mohawk, N.Y., assignor to Ty-Lok Assembly Systems, Inc., Ilion, N.Y.

Continuation-in-part of application Ser. No. 831,527, June 9, 1969, now abandoned. This application Jan. 27, 1970, Ser. No. 6,084

Int. Cl. B21f 9/02

U.S. Cl. 140-93.2

12 Claims



A portable strapping apparatus and method for semiautomatically applying an indeterminate length of plain flat surface plastic strapping around a bundle of electrical conductors includes a strapping material feed mechanism capable of feeding the strapping in opposite directions, a pair of jaws openable to accommodate the bundle of electrical conduc-

tors, strapping guides for guiding the strapping around the bundle of electrical conductors inside the jaws, and a cutter for cutting the strapping to separate the strapping supply from a portion of the strapping extending around the bundle of electrical conductors. The end of the strapping is twisted and together with a hollow closure fastener it forms a detent for holding the strapping during reverse feeding. After reverse feeding, a combination twister cutter cuts the strapping adjacent the closure fastener and twists it simultaneously to form a further detent. The closure fasteners, which are molded plastic of unique configuration, are fed into operative position from a magazine. The apparatus is embodied in a simple lightweight trigger operated gun.

3,633,634

LEAD STRAIGHTENING MACHINE

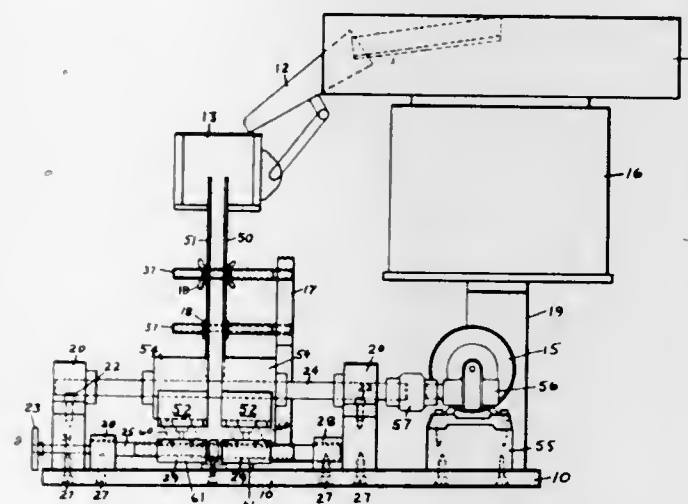
Ernest J. Bryner, and Gard W. Wolcott, both of Bradford, Pa., assignors to Sigma Engineering Service, Inc., Custer City, Pa.

Filed Apr. 4, 1969, Ser. No. 813,423

Int. Cl. B21f 1/02

U.S. Cl. 140-147

8 Claims



The disclosure describes a straightening machine for lead wires. The machine has concave straightening shoes with complementary shaped straightening rollers supported in closely spaced relation to the concavity of the shoes. The straightening shoes are supported by tension spring which apply a uniform pressure to the bottom of the shoes as the lead wires of the components pass between the rollers and the shoes. A limited travel adjusting screw is disposed in the bottom of the shoes thus providing fine adjustment between the shoes and the rollers. The shoes are made of a dielectric material which will not contaminate the work and is resistant to wear. The straightening surface of the shoes is progressively sloped and this, combined with the variable pressure and clearance adjustment, gives advantages not found in prior machines. No separate means is required for driving the components through the machine since the straightening action also drives the components through the machine. Jamming of the parts in the machine is practically eliminated.

3,633,635

FILLING ELEMENT FOR COUNTERPRESSURE FILLING MACHINES

Klaus Kaiser, Bad Kreuznach, Germany, assignor to Seitz-Werke GmbH, Bad Kreuznach, Germany

Filed June 1, 1970, Ser. No. 41,858

Claims priority, application Germany, May 31, 1969, P 19 27 821.8

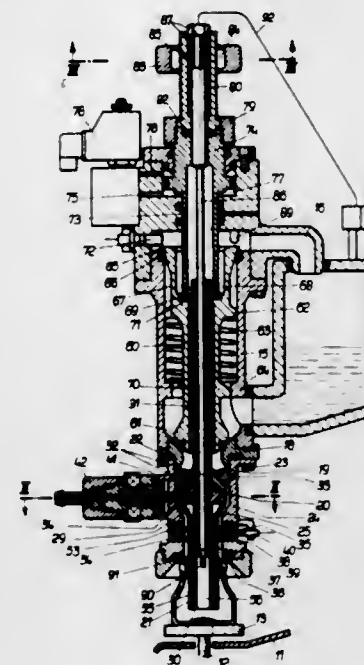
Int. Cl. B65b 31/00; B67c 3/06

U.S. Cl. 141-40

30 Claims

The specification discloses a filling element for the filling of vessels with liquid, while employing a gas under pressure

during the filling operation. The filling element has a body and has gas and liquid passages extending therethrough from a chamber containing the liquid and gas to a filling head. The filling head is arranged for sealingly engaging the opening in the vessel to be filled. Two concentric conduits on the body extend into the filling opening of the vessel and form therebetween an annular space which is part of the liquid passage while forming an annular space with the filling head



which is a part of the gas passage. Valves control the gas and liquid passages and a filler element extending axially through the filler element and on the axis of the inner one of said conduits is arranged to detect the liquid level in the vessel and to control the valves in conformity therewith. An exhaust passage extends from the space on the inner side of the conduit to the gas passage and then to the outside of the filling element and is under the control of an exhaust valve.

3,633,636

DEVICE FOR PRODUCTION OF UNCURED PROPELLANT STRANDS

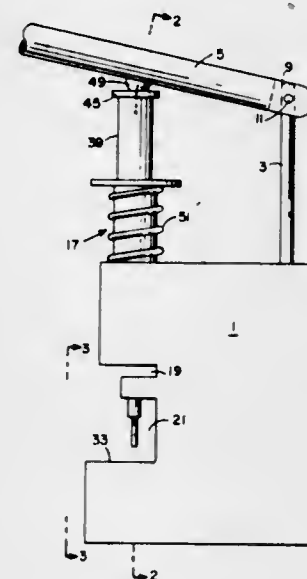
Selford F. Schultz, Huntsville, and Andrew B. Nix, Gunterville, both of Ala., assignors to The United States of America as represented by the Secretary of the Army

Filed June 25, 1970, Ser. No. 49,704

Int. Cl. B65b 3/12

U.S. Cl. 141-284

8 Claims U.S. Cl. 144-3 D



A device for uniformly filling plastic straws with uncured propellant to form propellant strands. The device includes a

syringe-type device mounted in a housing in alignment with a plastic straw to be filled with propellant. A lever on the housing is used to engage a plunger of the syringe and force propellant within the syringe into the plastic straw to form a propellant strand in which the propellant is uniformly arranged within the straw.

3,633,637

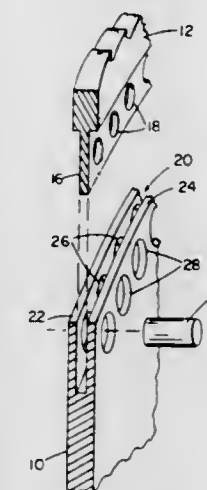
SEGMENTAL SAW AND METHOD OF MAKING SAME
Victor A. Kolesh, Holden, and Edward W. Armstrong, Fitchburg, both of Mass., assignors to Wallace-Murray Corporation, Fitchburg, Mass.

Filed July 6, 1970, Ser. No. 52,548

Int. Cl. B27b 33/02

U.S. Cl. 143-139

2 Claims



A segmented saw has its teeth-bearing edge segments attached by using a tongue and groove mounting, and removably fastening the segments by swaging metal pins extending through the tongue into counterbores formed in the groove walls on each side of the tongue in concentric or eccentric register with respect to the axis of each pin.

3,633,638

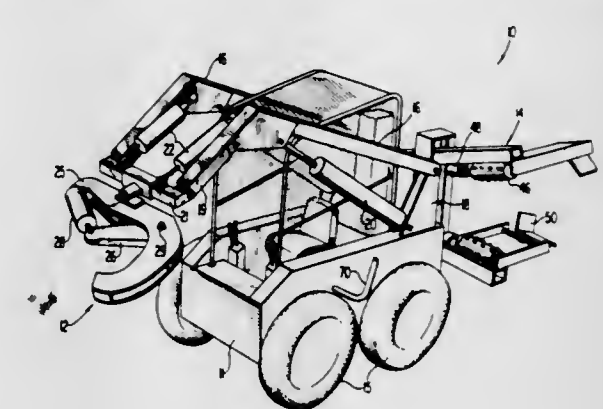
TREE SHEAR AND DELIMBER

Frank R. Groves, P.O. Box 267, Milan, Ga., and Ralph A. Denard, P.O. Box 548, Washington, Ga.

Filed Dec. 12, 1969, Ser. No. 884,631

Int. Cl. A01g 23/02

8 Claims



A tree shear and delimer for harvesting trees comprising a self-contained wheeled vehicle with a power-operated tree-severing means pivotally mounted on a normally horizontal axis at one end of the vehicle for severing a standing tree with a horizontal cut at one side of the vehicle and for sever-

ing a fallen tree into sections with a vertical cut, and power-operated delimbing means mounted on the other end of the vehicle. The delimbing means comprises a pair of generally open L-shaped cutting blades moveable with respect to each other into surrounding relationship about the trunk of a tree, and a pair of power-operated tree-feeding spindles moveable into engagement with opposite sides of the tree trunk to draw the tree through the generally L-shaped blades and remove the limbs from the tree. The severing means at the other end of the vehicle also operates to sever the trunk into sections as it is drawn through the L-shaped cutting blades.

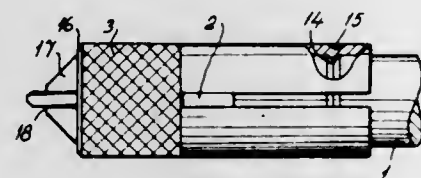
3,633,639 SCREWDRIVER

Tore L. Hill, Carl Tunbergs vag 9, 171 53 Solna, Sweden
Filed Aug. 7, 1969, Ser. No. 848,294
Claims priority, application Sweden, Aug. 14, 1968,
10928/68

Int. Cl. B25b 15/00

U.S. Cl. 145—50 E

4 Claims



A screwdriver having a replaceable blade that preferably is slit in its longitudinal direction with the two shanks thus formed being resilient and having their free end portions lying in different geometrical planes so as to facilitate retaining a screw merely by introducing the free ends of said blade into the slot of the screwhead.

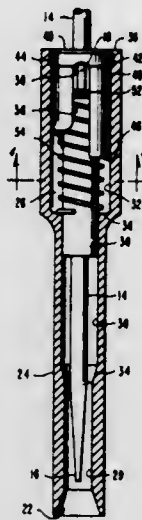
3,633,640

TOOL HAVING RETRACTABLE AND REMOVABLE CENTERING SLEEVE

Howard Moore, 5719 Wallis Lane, Woodland Hills, Calif.
Filed May 29, 1969, Ser. No. 828,846
Int. Cl. B25b 15/00, 23/08

U.S. Cl. 145—51

10 Claims



A tool having a working tip at the end of a shank is provided with a retractable and removable centering sleeve assembly. A hollow cylindrical sleeve which is slidably mounted on the shank is held in selected positions relative to the shank tip by the engagement of an ear upset from the shank with a cylindrical guide concentrically disposed within the sleeve. The sleeve is spring biased into an operative position by engaging the ear in a first groove in the guide and

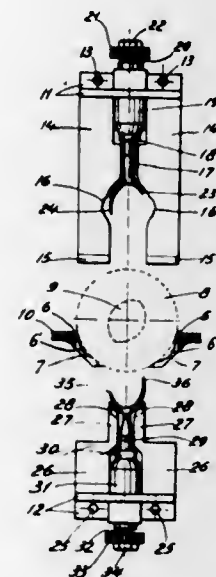
into a retracted position by positioning the ear at the one end of the guide. Engagement of the ear within a second groove in the guide permits complete removal of the sleeve from the shank.

3,633,641 APPARATUS FOR CUTTING FRUIT AND REMOVING STONES THEREFROM

Giordano Tomelleri, Via Montorio 22, Verona, Italy
Filed May 28, 1970, Ser. No. 41,525
Claims priority, application Italy, May 29, 1969, 61244-A/69
Int. Cl. A23n 3/08

U.S. Cl. 146—28 R

5 Claims



Apparatus for cutting fruit and removing stones therefrom comprising an indexable member having a cavity in which the fruit is supported, a pair of cutter blades located above and below said indexable member arranged to be moved towards each other in order to cut the flesh part of the fruit, a forked knife located between the blades of each pair of cutter blades, said knives each having a pair of curved prongs of different lengths and means for rotating the knives around the stone to remove the stone from the flesh part of the fruit whilst the fruit is held in the cavity by the pairs of cutter blades.

3,633,642

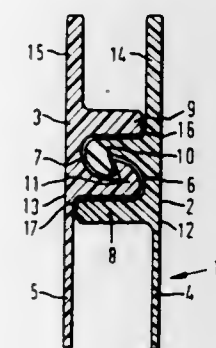
BAG OF PLASTICS MATERIAL SHEETING

Karlheinz Siegel, Bitkenstraße 1a, Schwaig via Nurnberg, Germany
Filed Oct. 28, 1969, Ser. No. 871,911
Claims priority, application Germany, Nov. 8, 1968, G 68 06 118.7

Int. Cl. B65d 33/24

U.S. Cl. 150—3

4 Claims



Two opposed bag walls are sealed together at the side edges and at the bottom. Two fastener elements are respec-

tively integral with said bag walls and disposed on the inside thereof and spaced from the free end thereof. The fastener consists of two interengaging hollow ribs, which have outside wall portions that do not contact each other and constitute webs for backing the interengaging other wall portions of the hollow ribs. The interengaging other wall portions consist of one-sided undercut hooks. The fastener elements have the same profile.

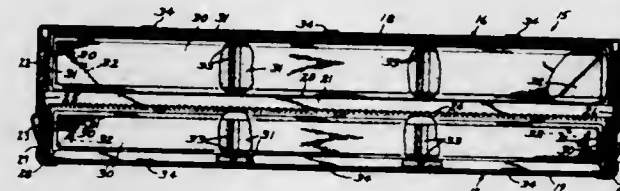
3,633,643

PROTECTIVE COVER FOR SHIPPING CASKETS OR THE LIKE

Emerson J. Stilwell, Westerville, Ohio, assignor to National Car Rental System, Inc., Minneapolis, Minn.
Filed July 9, 1969, Ser. No. 840,435
Int. Cl. A61g 17/02

U.S. Cl. 150—52

10 Claims



A cover having upper and lower elongated cover elements connected by closure means, bolster means extends longitudinally of the upper and lower wall opposite sides and opposite ends of respective ones of the upper and lower cover elements interiorly thereof and strap means are spaced longitudinally and extend transversely of the cover elements, and secure the bolster means in engagement with an article contained within the cover, the bolster means are formed to permit collapsing of the cover into a compact bundle whereby a strap associated with the cover may secure same for storage or subsequent reshipment and/or reuse.

3,633,644

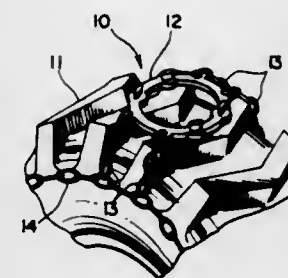
CROSSMEMBER FOR A TRACTION ASSEMBLY, HAVING REPLACEABLE CLEATS

Mortimer Russell Dock, P.O. Box 2406, Arlington, Va.
Filed Jan. 15, 1970, Ser. No. 3,089

Int. Cl. B60c 27/20

U.S. Cl. 152—229

5 Claims



This invention relates to crossmembers for a traction assembly, having cleats assembled therein for removal and replacement when the same become worn.

3,633,645

THIN-FILM APPARATUS

Janos Miklos Gorbai, and Franc Dermota, both of Zurich, Switzerland, assignors to Luwa AG, Zurich, Switzerland
Filed Apr. 10, 1970, Ser. No. 27,254

Claims priority, application Switzerland, Apr. 15, 1969, 5649/69

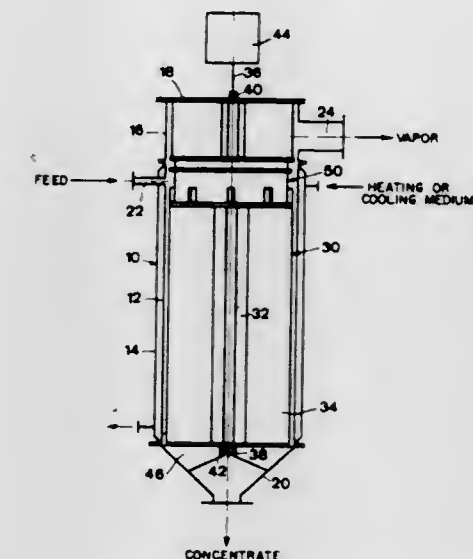
Int. Cl. B01d 1/22

U.S. Cl. 159—6 W

4 Claims

A thin-film apparatus for the treatment of flowable material which is of the type comprising an essentially vertically ar-

ranged rotationally symmetrical treatment chamber, the cylindrical wall portion of which possesses an inlet connection for the introduction of the material to be treated. Arranged within the treatment chamber is a substantially coaxial rotor. A distributor ring arrangement is associated with the inlet connection, such distributor ring arrangement being secured concentrically upon the rotor and being recessed or inset in diameter with respect to the treatment chamber wall towards the axis of the rotor. The distributor ring arrangement incorporates a respective ring-shaped or annular disc



member at its upper and lower end. Furthermore, an intermediate disc member is secured to the distributor ring arrangement parallel to and at a spacing from the upper disc member, this intermediate disc member approximately coinciding in diameter with the upper disc member. Additionally, a plurality of axially extending vane portions which extend radially up to the treatment chamber wall are provided at the distributor ring arrangement. These vane portions, starting from the lower disc member, and viewed in axial direction, terminating at a distance from the intermediate disc member.

3,633,646

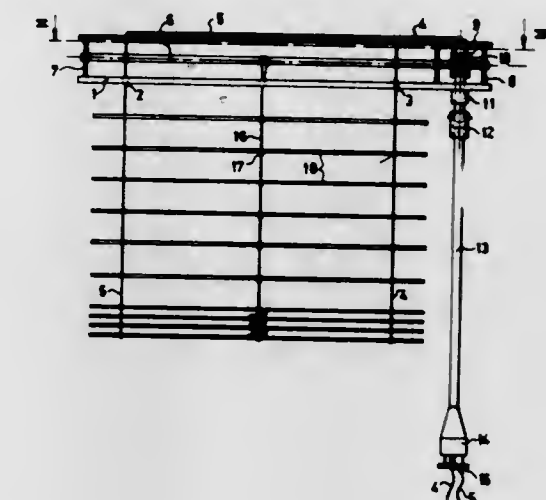
DEVICE FOR OPERATING A VENETIAN BLIND

Edwin Zilver, Arnhemsestraatweg 72, Velp, Netherlands
Filed Sept. 17, 1969, Ser. No. 858,703
Claims priority, application Netherlands, Sept. 19, 1968, 68-13456

Int. Cl. E06b 9/30

U.S. Cl. 160—168

1 Claim



Venetian blind having pulling cords for lifting and lowering its lamellae, an oblong member through which the pulling cords pass, a brake device for the pulling cords and a device for tilting the lamellae coupled to said oblong member in

which the oblong member hangs down freely and supports at its lower side the cord brake.

3,633,647

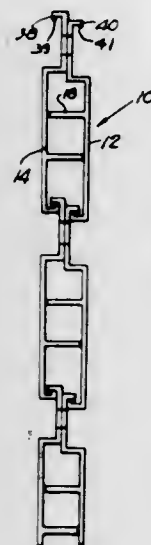
FASTENING INTERLOCK WITH HINGE FUNCTION
Rudolf J. Leitgeb, 56 Whitehall Blvd., Garden City, L. I., N.Y.

Filed June 4, 1970, Ser. No. 43,435

Int. Cl. E06b 3/12

U.S. Cl. 160-220

3 Claims U.S. Cl. 164-65



An interlocking system of structural elements of a wide range of utility made up of a series of said elements having opposite, connected ends. The elements each have one end with projecting arms, and another end with means for engaging the arms effecting a hinged connection between the adjacent elements of the system. The system comprehends mating, rectilinearly formed joints effecting a tight seal at the junctures thereof.

3,633,648

METHOD OF CASTING IN INVESTMENT MOLDS HAVING A RADIATION SHIELD

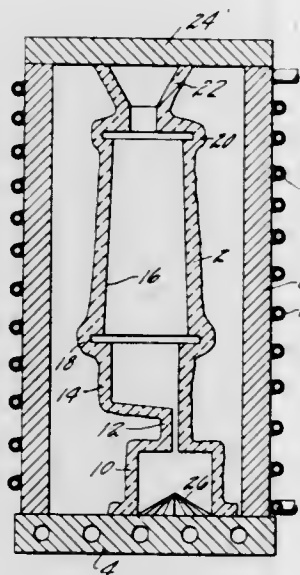
Robert B. Barrow, and Bruce E. Terkelsen, both of Cheshire, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 24, 1970, Ser. No. 31,637

Int. Cl. B22d 25/06

U.S. Cl. 164-60

4 Claims



In making columnar grained or single-crystal castings, the mold is heated prior to pouring and a meltable metallic shield is placed on the chill plate to serve as a heat shield between the mold and the plate during heating of the mold and also to prevent condensation of impurities on the chill plate.

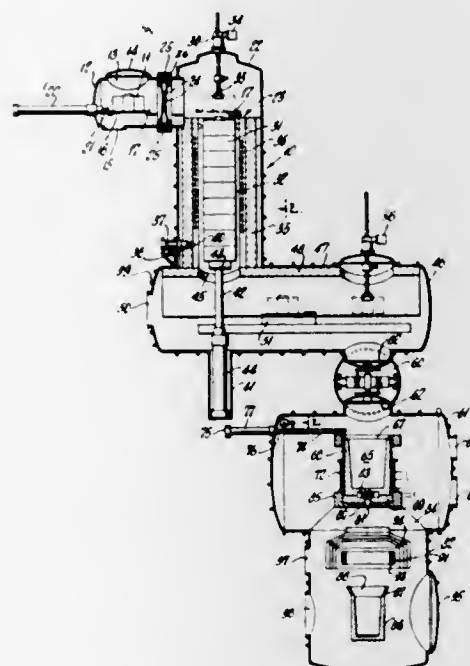
3,633,649
DECARBURIZATION OF FERROUS MATERIAL UNDER LOW PRESSURE AT ELEVATED TEMPERATURE

Rolf Einar Malmstrom, Pori, and Simo Antero Ilvari Makiplritti, Nakkila, both of Finland, assignors to Outo-kumpu Oy, Helsinki, Finland

Continuation-in-part of application Ser. No. 653,180, July 13, 1967, now abandoned. This application Nov. 24, 1969, Ser. No. 879,423

Int. Cl. B22d 27/16

3 Claims



Continuous metallurgical treatment, especially for decarburation treatment carried out in vacuum. Successive vacuum chambers for heat treatment at various temperatures and pressures have intermediate vacuum sealing doors and material transfer devices cooperate with the doors as material passes through the apparatus during treatment. Pressure equalization chambers may be provided at the input and output ends of the apparatus.

3,633,650

METHOD OF MAKING AND TREATING A CONTINUOUSLY CAST METAL BODY

Georges Schaumburg, 1 bis, rue de Londres, Montigny-les-Metz, France

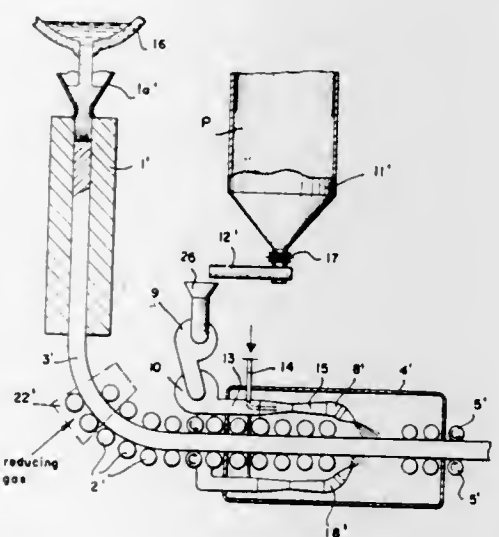
Filed June 23, 1969, Ser. No. 835,358

Claims priority, application Germany, June 25, 1968, P 17 58 548.7

Int. Cl. B22d 11/12

U.S. Cl. 164-76

4 Claims



A continuously cast body emerges from its mold in a hot, solid and relatively scale-free condition and passes im-

mediately into a chamber prior to any substantial formation of scales on the body. In this chamber a powder of metals and metallic oxides which fuse at the temperature of the body are blown against it and melt. On cooling this melt hardens to form a thin glassy, enamellike coating which ruptures in the region of any surface flaws to indicate the presence of the latter and which protects the body from further scaling as it fully cools.

3,633,651

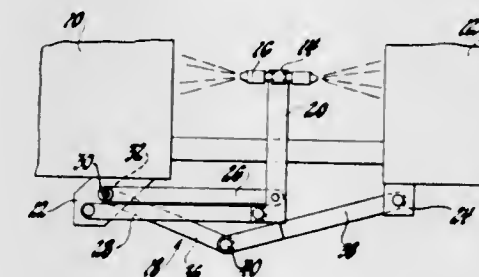
AUTOMATIC MECHANICAL DIE SPRAY APPARATUS
Gerald K. Ruhlandt, Madison Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 19, 1970, Ser. No. 21,056

Int. Cl. B22d 17/22

U.S. Cl. 164-267

2 Claims



A spraying apparatus is moved between two dies upon die opening and positively removed therefrom during die closing by a mechanical linkage affixed to the dies and to the spraying apparatus, the linkage being operated by movement of the dies.

3,633,652

MACHINE FOR CASTING AND STACKING INGOTS
Jacques Chambran, Tarascon sur Arlege, France, assignor to Pechiney-Compagnie de Produits Chimiques et Electrometallurgiques, Paris, France

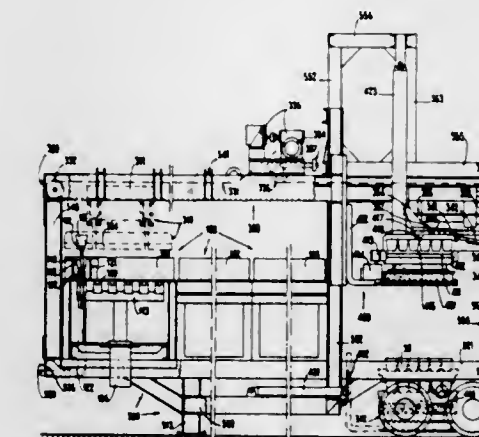
Original application Dec. 6, 1966, Ser. No. 599,605, now Patent No. 3,498,364. Divided and this application May 7, 1969, Ser. No. 870,741

Claims priority, application France, 41149; Jan. 6, 1966, 45036; Aug. 11, 1966, 72779

Int. Cl. B22d 45/00, 47/02, 9/00

U.S. Cl. 164-269

23 Claims



A machine for casting and stacking ingots which includes a casting zone embodying a group of ingot molds with means for pouring molten metal into the molds, means for cooling the molds and means for removal of the cast ingots from the molds; a conveyor for transportation of the ingots released from the molds to a stacking zone including a gripper capable of gripping the entire group of ingots removed from a single group of ingot molds and means which cooperates with the conveyor to displace the group of ingots into side-by-side relationship in a row; and a stacking zone which includes a

table on which the ingots are stacked and in which the table is mounted for rotational movement so that the table can be turned through an angle of 90° after stacking each row of ingots.

3,633,653

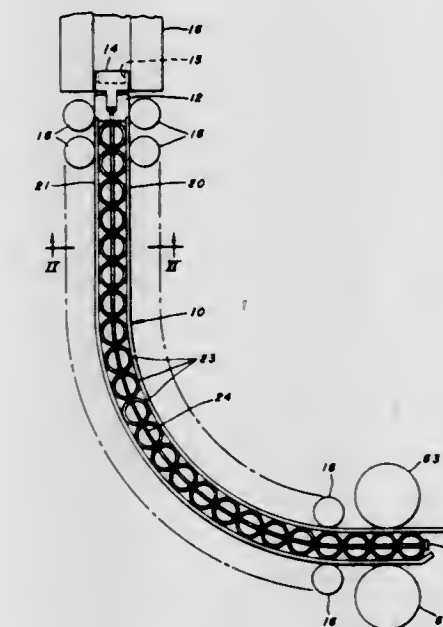
FLEXIBLE STARTER BAR FOR CONTINUOUS CASTING
Richard E. Lyman, Homewood, Ill., assignor to United States Steel Corporation

Filed May 18, 1970, Ser. No. 38,461

Int. Cl. B22d 11/08

U.S. Cl. 164-274

10 Claims



The flexible starter bar of the invention comprises a rigid head portion connected with an elongated flexible body portion. The body portion includes continuous flat thin steel facing pieces spaced apart by a multiplicity of spacing members therebetween, which are strung on a flexible retaining rod connected to the head portion. A slidable connector provides a means for pulling the bar through the bending rolls. An alternative embodiment includes a hinged chillbox for ease in traversing a curved guide roll system.

3,633,654

POURING NOZZLE FOR CONTINUOUS-CASTING MACHINE

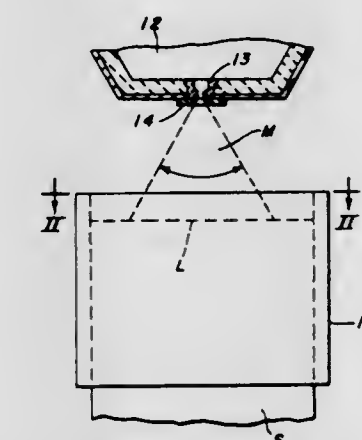
Paul M. Auman, and James B. Wagstaff, both of Franklin Township, Westmoreland County, Pa., assignors to United States Steel Corporation

Filed June 30, 1970, Ser. No. 51,132

Int. Cl. B22d 11/06

U.S. Cl. 164-278

5 Claims



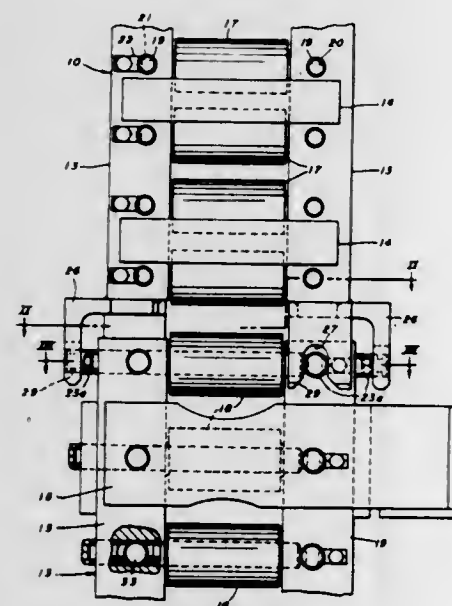
A method and nozzle construction for pouring liquid metal into a receiver, the width of which is several times greater

than the thickness, for example, a continuous slab-casting mold. The metal discharges from a vessel supported above the receiver as a fan-shaped stream broadened in the direction of the width of the receiver. As applied to casting slabs, the invention avoids localized high-temperature areas in the skin of a partially solidified casting as it emerges from the mold. The method and nozzle may also be used to advantage for pouring metal between the belts of a belt-type continuous-casting machine.

3,633,655

CONSTRUCTION FOR CONNECTING AND ALIGNING SECTIONS OF A GUIDE-ROLL RACK
Gottfried Hofmann, Brentwood Borough, Allegheny County, Pa., assignor to United States Steel Corporation
Filed Sept. 23, 1970, Ser. No. 74,807
Int. Cl. B65g 13/11; B22d 11/12
U.S. Cl. 164-282

4 Claims



A construction for connecting and aligning the guide-roll rack sections of a continuous-casting apparatus. The guide rolls are located immediately beneath the mold, and confine the partially solidified casting as it emerges from the mold. The rolls are journaled in racks which are formed in individually removable sections. Invention is a plurality of downwardly directed brackets fixed to the bottom of the section above, and having sockets receiving protruding portions of the uppermost roll shaft of the section beneath.

3,633,656

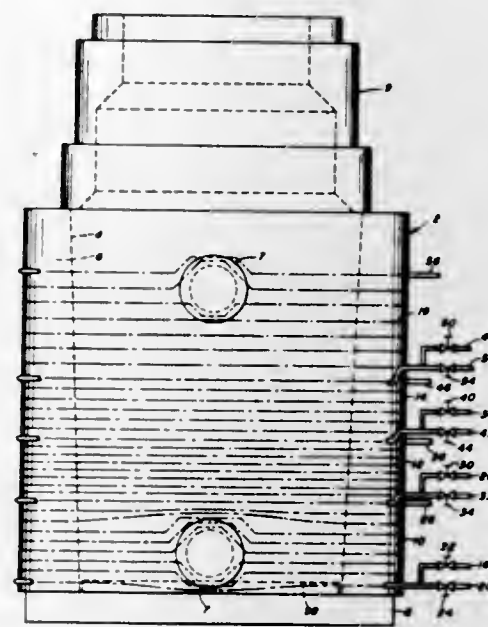
APPARATUS FOR MAKING INGOTS
Leonard M. Saunders, Pine Township, Allegheny County, Pa., assignor to United States Steel Corporation
Filed Feb. 20, 1970, Ser. No. 13,259
Int. Cl. B22d 27/04

U.S. Cl. 164-348

10 Claims

A large generally cylindrical ingot mold is provided with four sections of tubing around its outer surface except for some distance from its top. A valve-controlled water feed and a valve-controlled steam feed are provided to each of the sections. The intermediate cooling sections have a greater cooling effect per square foot of mold surface than the top and bottom sections. After molten steel is poured into the mold, steam is fed into all four sections for several hours. Then at spaced time intervals steam is turned off and water turned on successively to the bottom section, the second section, the third section and finally to the top section. This condition exists for a time period longer than the period with steam on. Then at spaced time intervals water is turned off

and steam turned on successively to the bottom section, the second section, the third section, and finally to the top section.



tion. The steam is turned off prior to stripping of the mold from the ingot.

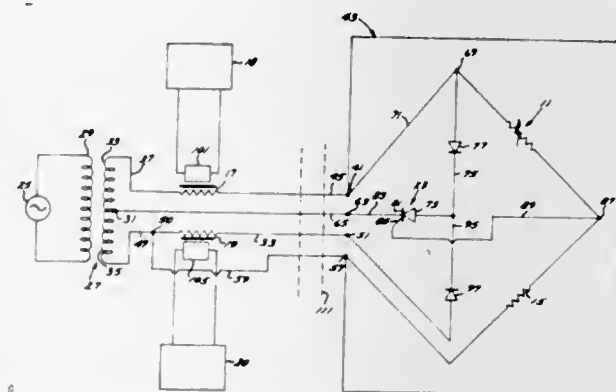
3,633,657

TEMPERATURE CONTROL APPARATUS HAVING COOLING OPERATOR SEPARATE FROM SENSING BRIDGE

James N. Brooks, Hermosa Beach, and William W. Chambers, Anaheim, both of Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Filed June 8, 1970, Ser. No. 44,086
Int. Cl. F25b 29/00

U.S. Cl. 165-26

7 Claims



A temperature control apparatus including an AC bridge formed by four legs connected together to form first, second, third and fourth nodes. One of the legs is in the form of a temperature responsive resistor and a second leg includes a heating operator for operating a heating system. A cooling operator is provided for selectively operating a cooling system. A gate-controlled conduction device is incorporated in the bridge for controlling current to the operators and includes an anode and cathode. Respective first, second and third lead means connects the cathode with the first node, the gate with the second node, the anode with the third node and fourth lead means connects the cooling operator between such anode and the fourth node. Current-directing means is provided for selectively directing current through the third or fourth leads whereby unbalance of the bridge in response to cooling of the temperature responsive resistor will trigger the conduction device and initiate current flow in the heating operator and unbalance of the bridge in response to heating of the temperature responsive resistor will trigger the conduction device and initiate current flow in the cooling operator.

to heating of such temperature responsive resistor will also trigger the conduction device and initiate current flow through the cooling operator without substantially changing the current flow in the temperature responsive resistor to thereby avoid any change in self-heating thereof.

storage tank contents to the prescribed temperature; the "booster" heating unit being employed only on occasion and such as may be requisite to augment the primary heating operation.

3,633,658

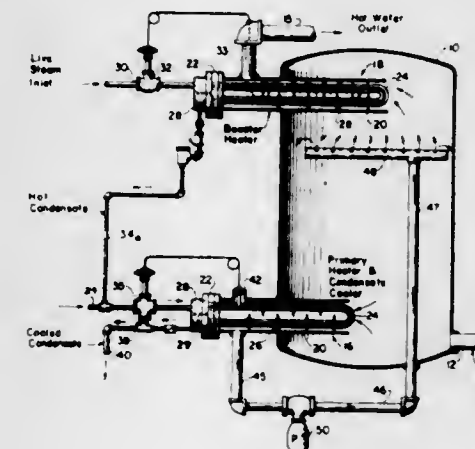
COMBINATION HOT CONDENSATE COOLING AND WATER HEATING AND STORAGE AND DELIVERY SYSTEM

Robert F. Kirschner, Stoughton, Mass.; John A. Clark, Jr., East Stroudsburg, and Lemuel J. Morgan, Stroudsburg, both of Pa., assignors to The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

Filed Aug. 3, 1970, Ser. No. 60,666
Int. Cl. B60h 1/00

U.S. Cl. 165-39

7 Claims



A combination hot condensate cooling and water heating and storage and delivery system is disclosed. The system relates particularly to use in an office or residential or industrial building facility employing steam as a medium for heating the building or operating the industrial appliances. It is of prime importance from the standpoint of environmental preservation to avoid the dumping of hot condensates into the local sewer system; and for reasons of economy it is desired that the heat given up by the condensates when being cooled, be usefully employed. The system consists of a single tank having a cold water inlet into the lower level thereof. A combination condensate cooling and "primary" heater unit is disposed within a first shroud having fluid flow communication at one end with the lower level of the interior of the tank, and is provided with a water outlet connection at the other end thereof. A water-circulating conduit system including a pump is arranged to have its intake end connected into said outlet connection, and terminates at its delivery end in a distributing conduit traversing the upper level of the interior of the tank. A "booster" heater unit of the steam heated tube type is disposed within a shroud arranged in open fluid communication at one of its ends with the upper level of the interior of the tank, and has a heated water delivery conduit leading from the other end of the heater shroud. The "booster" heater unit is arranged to be supplied whenever necessary from a "live steam" source, while the "primary" heater unit utilizes the heat available from hot condensate discharges which require to be cooled before disposal, such as from the building-heating system and from the "booster" heater unit. A temperature sensor in the heated water delivery conduit controls the supply of live steam to the "booster" heater. A second temperature sensor located adjacent the outlet from the "primary" heater shroud selectively controls the input of hot condensate to the "primary" heater unit and/or diversion thereof away from said unit; such as may be required to furnish primary heating of the

3,633,659

ROOF CONSTRUCTIONS

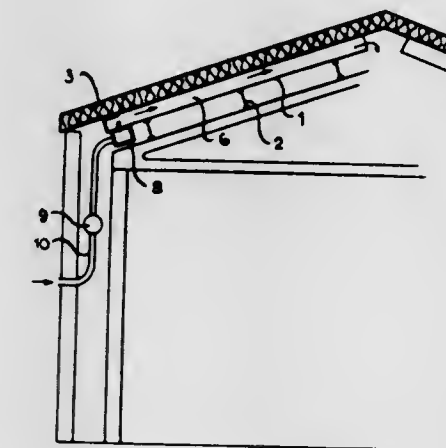
Jarl-Erik Ohlsson, Stockholm, Sweden, assignor to Sisenca S.A., Geneva, Switzerland

Filed Jan. 16, 1970, Ser. No. 3,277

Claims priority, application Sweden, Jan. 20, 1969, 679/69
Int. Cl. F24f 7/06

U.S. Cl. 165-56

3 Claims



A roof construction comprises interconnected corrugated panels and an insulated outer roofing, and the channels formed between the outer roofing and the corrugations of the panels are connected to a ventilating system for ventilating the roof.

3,633,660

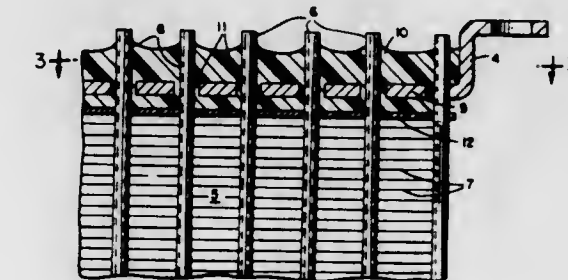
PLASTIC BONDING OF HEAT-EXCHANGER CORE-UNITS TO HEADER-PLATES

Fred M. Young, Racine, Wis., assignor to Young Radiator Company, Racine, Wis.

Continuation-in-part of application Ser. No. 862,596, Aug. 27, 1969, now abandoned. This application Nov. 16, 1970, Ser. No. 89,743
Int. Cl. F28f 9/04

U.S. Cl. 165-69

3 Claims



The essential concept of this invention involves the use of a silicone substance, with "dish-type" headers for heat exchanger core units, for bonding the battery of tubes to the header plates so as to inhere a factor of flexibility when such heat exchangers are used with equipment that would subject the heat exchangers to the possibility of an excessive degree of vibration and some degree of expansion and contraction of the tubes.

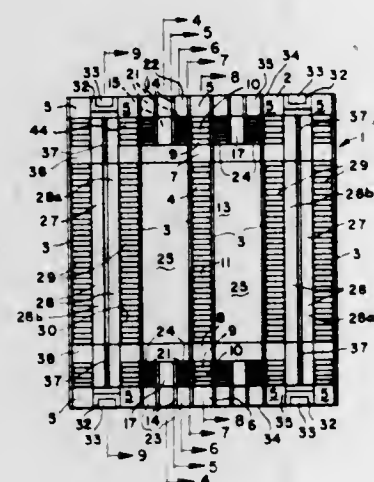
3,633,661

CROSSFLOW PLATE-TYPE HEAT EXCHANGER WITH BARRIER SPACE

Franklin D. Duncan, and Alan G. Butt, both of La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis.
Filed Aug. 14, 1970, Ser. No. 63,820
Int. Cl. F28f 3/00

U.S. Cl. 165—70

6 Claims



A plate-type heat exchanger constructed of plural sections each having a plurality of interleaved rectangular flat first and second passages for conducting respectively first and second heat-exchange fluids in crossflow heat-exchange relationship. Barrier spaces extend between first and second passages as well as along the closed edges of the first and second passages. Barrier spaces also overlie the welded joints connecting the plural sections. A specifically shaped barrier space-closing bar permits relatively easy construction and assembly of the heat-exchanger core.

3,633,662

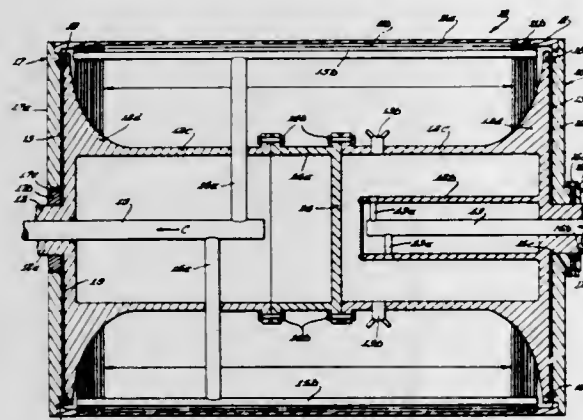
DRYER DRUM ASSEMBLY

Gordon R. Voll, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Jan. 16, 1970, Ser. No. 3,355
Int. Cl. F26d 11/02; F26f 5/02

U.S. Cl. 165—89

10 Claims



An end head assembly for a steam-heated dryer drum wherein an outer portion of the end head assembly provides radial support for the drum shell on the drum journal while being free to move in an axial direction and take up any radial pressure on the shell and an inner portion is rigidly attached to the journals free of contact with the outer portion and the shell and being arranged to take up any axial pressure on the drum. Flexible seals are provided between the inner and outer portion to maintain the steam within the shell

and accommodate relative movements between the inner and outer portions when the shell is subjected to various operating pressures.

3,633,663

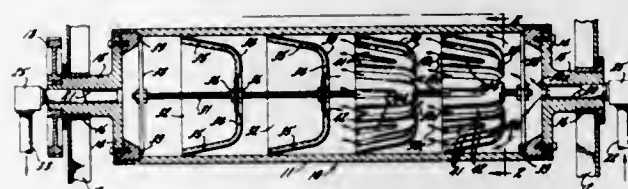
COOLING ROLL

Leonard I. Tafel, La Grange, Ill., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed June 8, 1970, Ser. No. 44,177
Int. Cl. F28d 11/02; F28f 5/02

U.S. Cl. 165—89

7 Claims



A cooling roll for a printing press having a hollow cylindrical roll body and a series of axially spaced baffle members mounted within said body for thoroughly mixing cooling fluid as it passes through the roll body and for directing the flowing fluid against the cylinder walls of the roll body. Each baffle is cup shaped and is disposed within the roll body with the open end of the cup directed downstream of the fluid flow. The end portion and tapered side portions of each cup-shaped baffle are formed with a plurality of flutes which facilitate mixing and directing of the fluid.

3,633,664

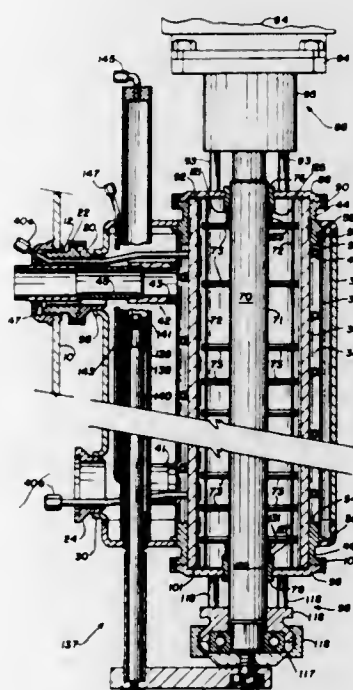
VERTICALLY ORIENTED SWEEP SURFACE HEAT EXCHANGER

John C. Walsh, Winchester, and James A. D'Orsay, Newburyport, both of Mass., assignors to Contherm Corporation, Newburyport, Mass.

Filed Nov. 8, 1968, Ser. No. 784,978
Int. Cl. F28f 7/00

U.S. Cl. 165—94

5 Claims



Many products and other materials may be continuously processed by the vertically oriented swept surface heat exchanger described herein. The vertically oriented cylinder in which the processing takes place has an upper head assembly including a power drive and a lower head assembly

containing a bearing in one embodiment and including a pump integral therewith in a second embodiment. A pump is included with the lower head assembly, for the preparation of ice cream or other aerated comestibles. A rotor extends the length of the unit and includes a drive shaft extending through an upper end plate to engage the power drive. This rotor supports wiping blades which sweep the inner surface of the cylinder. The wiping blades may include nozzles along the length thereof and are affixed to the end of blade pins which extend radially from the rotor. When removing or replacing a rotor in the heat exchange cylinder, the rotor is supported and moved vertically by a releasable latch mechanism until a hydraulic elevator integral with the heat exchanger is moved into place.

3,633,665

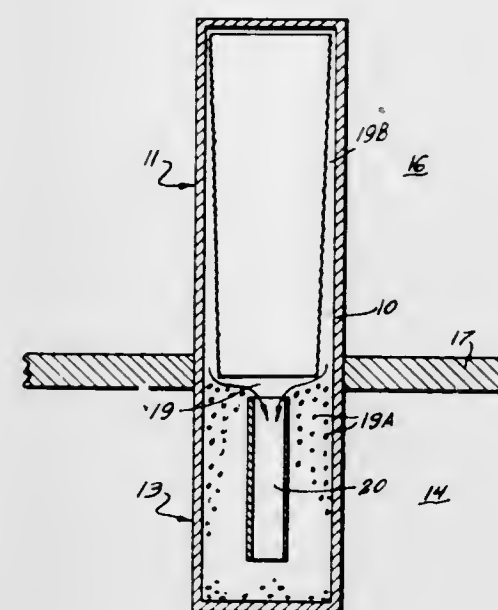
HEAT EXCHANGER USING THERMAL CONVECTION TUBES

David M. France, Lombard, and Michael Petrick, Joliet, both of Ill., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed May 11, 1970, Ser. No. 36,036
Int. Cl. F28d 15/00

U.S. Cl. 165—105

1 Claim



A heat exchanger is constructed with the hotter fluid in a lower region and the cooler fluid in an upper region. A single wall separates the two regions. Vertically mounted thermal convection tubes extending from the hotter fluid to the cooler fluid through the wall act to transfer heat between the fluids. The thermal convection tubes contain a working fluid and provide for substantially isothermal heat transfer, the latent heat of vaporization of the working fluid being the primary mechanism responsible for this heat transfer.

3,633,666

HEAT CONDUCTOR

Robert J. Sparks, 7250 Brecksville Road, Independence, Ohio
Filed July 2, 1969, Ser. No. 838,553

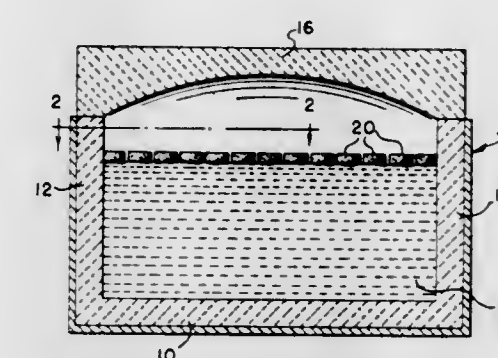
Int. Cl. F28f 7/00; C21b 11/00

U.S. Cl. 165—185

1 Claim

A heat conductor for floating on molten metal in a metal melting furnace to forestall the formation of metal oxide dross on the molten metal surface and for passing heat into the molten metal bath. The heat conductor may be partially hollowed out to enable it to float on the lighter molten metals and, in one form, comprises an open-top, boxlike structure having a floor formed of corrugations forming interior and

exterior transfer fins. The heat conductor is preferably formed of silicon carbide which is an excellent heat trans-



3,633,667

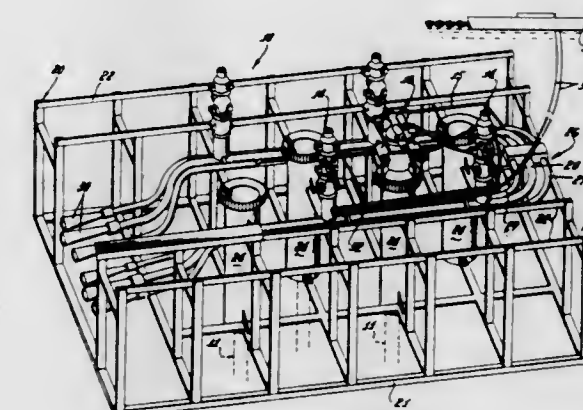
SUBSEA WELLHEAD SYSTEM

Chester B. Falkner, Jr., Whittier, Calif., assignor to Deep Oil Technology, Inc., Long Beach, Calif.

Filed Dec. 8, 1969, Ser. No. 882,992
Int. Cl. E21b 43/01

U.S. Cl. 166—.5

15 Claims



An apparatus and method for a subsea wellhead station having one or more producing well holes wherein an oil production control unit is separate from and adjacent to a wellhead unit for a well hole, each of said units being removable for repair and maintenance at a remote location independently of the other unit. The production control unit contains necessary equipment affording remote control of production of oil, directing such production into test or collection lines, monitoring pressures of production oil from its associated well hole, controlling gas injection into the well hole, and maintaining and controlling desired production oil pressure conditions.

3,633,668

DISASTER VALVE

Gonzalo Vazquez, Dorking, England, and John V. Salerni, Whittier, Calif., assignors to Baker Oil Tools, Inc., Commerce, Calif.

Original application Aug. 13, 1968, Ser. No. 752,366, now Patent No. 3,556,212. Divided and this application May 22, 1970, Ser. No. 39,636

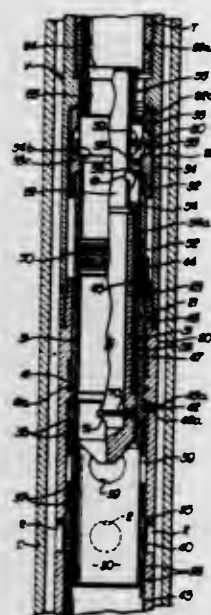
Int. Cl. E21b 33/10

U.S. Cl. 166—135

8 Claims

Disaster valve apparatus for gas or oil wells in which a well pipe is disposed for conducting production fluid to the top of the well, the disaster valve being adapted for location below the top of the well in a control fluid tubing string above a

packer sealingly engaged with the well pipe, the disaster valve having a valve sleeve provided with a central bore closed by a releasable plug, control fluid pressure in the con-



trol fluid tubing holding the valve open against the pressure of well fluid tending to close the valve. Reduction in pressure in, or venting of, the control fluid tubing enables the production fluid pressure to close the disaster valve.

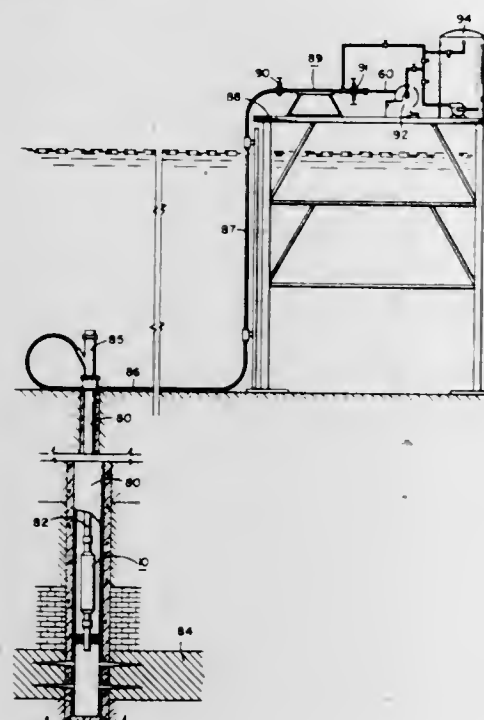
3,633,669

APPARATUS FOR RUNNING IN AND OPERATION OF VALVES AND THE LIKE

Martin E. True, and William E. Kanady, both of Houston, Tex., assignors to Esso Production Research Company
Continuation-in-part of application Ser. No. 850,144, Aug. 14, 1969. This application Aug. 24, 1970, Ser. No. 66,204
Int. Cl. F21b 33/03

U.S. Cl. 166-72

8 Claims



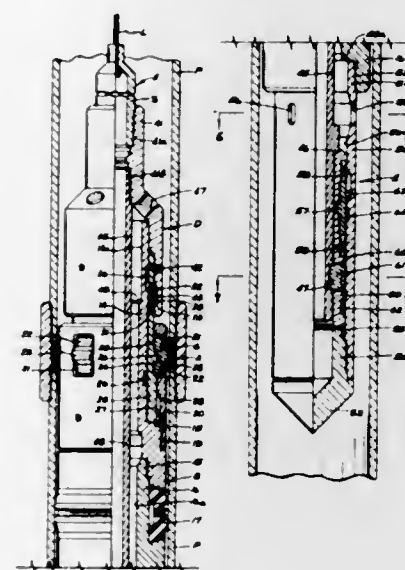
Valves and the like in a well such as a submarine well are operated by running a tubular member into the well production pipe from a reel at the surface and locking the tubular member to said valve and the like apparatus followed by flowing fluid under pressure through the tubular member to operate the valve and the like, the tubular member to operate the valve and the like, the tubular member also being locked by fluid pressure. Thus, a tubular member provided with a telescopic member is run into the well production pipe and locked in a tubular housing connected to the valve and the like.

3,633,670
TOOL STRING ASSEMBLY FOR USE IN WELLS
Cicero C. Brown, and Chudleigh B. Cochran, both of Houston, Tex., assignors to Brown Oil Tools, Inc., Houston, Tex., by said Cochran

Filed Jan. 2, 1970, Ser. No. 272
Int. Cl. E21b 33/12, 23/00

U.S. Cl. 166-125

7 Claims



A tool string assembly adapted to be run in a well bore on a wire line and comprising the combination of several subassemblies including an anchor subassembly, a packer subassembly and a bridging plug subassembly, together with a setting tool subassembly releasably connecting the wire line string to the tool string and operable by appropriate manipulation of the wire line running string to releasably anchor the tool string to the well wall and to open and close communication through the bridging plug between sections of the well above and below the packer subassembly.

3,633,671

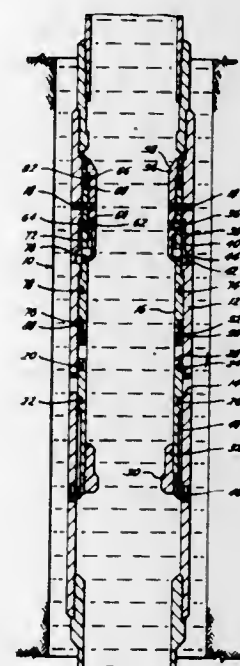
CEMENTING COLLAR

Wayne F. Nelson, Waxahachie, Tex., assignor to G. W. Murphy Industries, Inc., Houston, Tex.
Continuation of application Ser. No. 715,874, Mar. 25, 1968, now abandoned. This application Jan. 19, 1970, Ser. No. 4,171

Int. Cl. F21b 33/134

U.S. Cl. 166-224

10 Claims



A cementing collar having a body and a valve sleeve therein which is releasably held closing cementing ports, a

seat for receiving a plug to move the valve sleeve to cementing position, means for maintaining the valve sleeve in cementing position and means for releasing the maintaining means so that the valve sleeve is moved to a position closing the cementing ports.

3,633,672

INHIBITION OF DEPOSITION OF SCALE

Charles F. Smith, Tulsa, and Thomas J. Nolan, III, Langston, both of Okla., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 11, 1970, Ser. No. 36,463

Int. Cl. C02b 5/06; C09k 3/00; E21b 43/27

U.S. Cl. 166-279

7 Claims

Long term inhibition of the deposition or accumulation of inorganic scale in operations concerned with working or treating, or producing from, an underground reservoir is attained by employing an organic phosphorus-type scale inhibitor then precipitating its salt within said underground reservoir by a polyvalent inorganic metal salt in an aqueous acidic carrier.

3,633,673

THROUGH-TUBING CEMENTING METHOD

Martin B. Conrad, Carpinteria, Calif., assignor to Baker Oil Tools, Inc., Commerce, Calif.

Division of Ser. No. 823,030, May 8, 1969, Pat. No. 3,572,433

Filed June 18, 1970, Ser. No. 47,420

Int. Cl. E21b 33/16

U.S. Cl. 166-291

7 Claims



of the casing but still leave the ports in the tubular mandrel extending well above the uppermost perforations of the perforated interval. Thus, should the well subsequently produce sand or other unconsolidated formation materials, the coiled screen will be covered with such loose materials to provide a filter bed around the screen. In this manner, the connate fluids which are subsequently produced will be strained through the filtering media and pass on through the tubular screen and the perforated mandrel thereabove.

3,633,675

FIRE-RETARDANT FOAM COMPRISING MONTMORILLONITE CLAY FLOAT ASH AND PHOSPHATE ROCK

Edwin W. Biederman, Jr., Hightstown, N.J., assignor to Cities Service Oil Company, Tulsa, Okla.

Filed Dec. 14, 1970, Ser. No. 98,058

Int. Cl. A62c 1/00; C09d 5/18; C09k 3/28

U.S. Cl. 169-1 A

6 Claims

A foam is disclosed which may be sprayed on the side of structures to protect them from fire spread. The foam includes a water-saturated montmorillonite-type clay material as the basic vehicle to which is added float ash and fine-grained phosphate rock. The foam may be readily pumped onto the structure with subsequent dehydration of the montmorillonite-type clay material and insulation provided by the float ash, thereby retarding fire spread.

3,633,674

METHODS AND APPARATUS FOR INHIBITING THE ENTRANCE OF LOOSE FORMATION MATERIALS INTO A WELL BORE

Emmet F. Brieger, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Oct. 14, 1970, Ser. No. 80,547

Int. Cl. E03b 3/18

U.S. Cl. 166-315

10 Claims

As a representative embodiment of the invention disclosed herein, an elongated flexible tubular screen is dependently

3,633,676

FLUSH-TYPE SPRINKLER

Fred A. Gloeckler, Philadelphia, Pa., assignor to Star Sprinkler Corporation of Florida, Philadelphia, Pa.

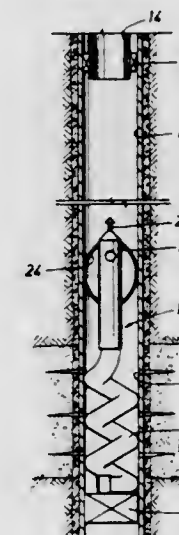
Filed Apr. 1, 1970, Ser. No. 24,596

Int. Cl. A62c 37/08

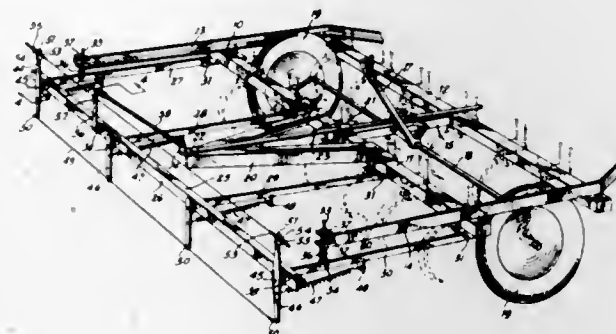
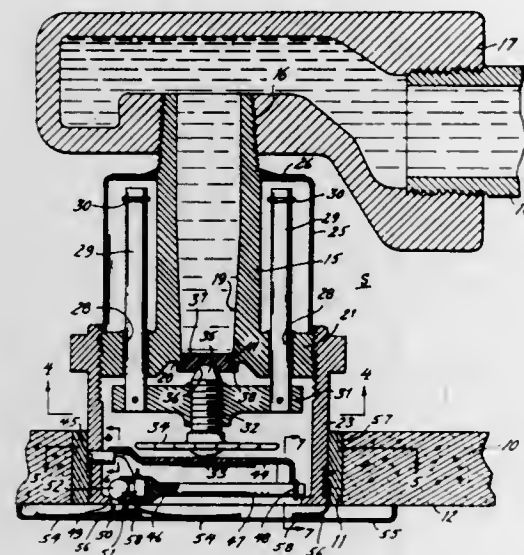
U.S. Cl. 169-40

7 Claims

A sprinkler is provided mounted flush in a ceiling and has an outer escutcheon plate releasably held in place by heat-responsive elements having a selected release temperature. The escutcheon plate is normally in covering relation to a



sprinkler which has a strut containing a heat-responsive element having a different selected release temperature. Heat-reciprocating the cable in the ground to destroy weeds therein as the implement moves over the ground; and spring



means for resiliently resisting cable pressures against imbedded objects as they are encountered.

3,633,677

MOBILE SELF-SUPPORTING TILLER

Franklyn L. Dahlberg, Minden, La., and Willie F. Brewer, Yazoo, Miss., assignors to FMC Corporation, San Jose, Calif.

Filed Oct. 13, 1969, Ser. No. 865,807

Int. Cl. A01b 33/00

U.S. Cl. 172-123

9 Claims

sensing fins movable downwardly below the ceiling line upon release of the escutcheon plate contribute to sensitivity.

3,633,677

TOMATO HARVESTER WITH SINUOUS OSCILLATING SHAKER

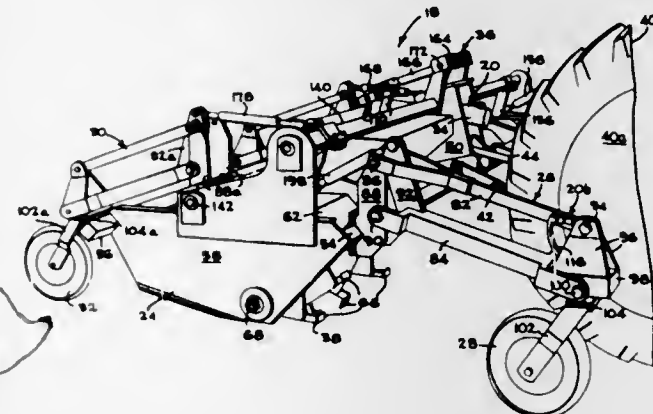
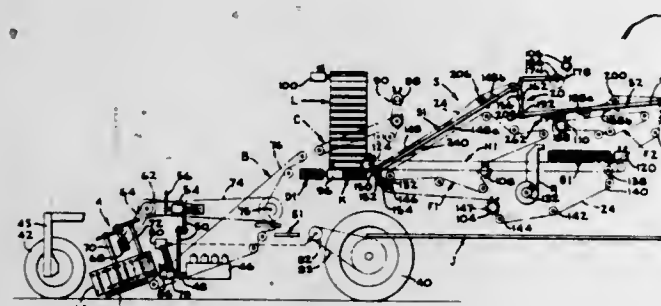
William Bruce Walker, Los Gatos, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Aug. 8, 1969, Ser. No. 848,499

Int. Cl. A01d 17/08

U.S. Cl. 171-27

4 Claims



A tomato harvester feeds a mass of vines and tomatoes to a shaker conveyor wherein the mass is oscillated by a shaker bar and bellcrank assembly in the direction of conveyor travel as well as normal to said direction, to shake the tomatoes loose along a sinuous path. The shaker conveyor is in two sections joined by an oscillating cascade structure.

A self-supporting tiller having a jackknife frame mounted on two front caster wheels and two rear caster wheels. A hydraulically operated lifting mechanism which is included in a tiller control system is carried by the self-supporting tiller and is responsive to speed changes of a power input shaft connected to a rotary ground-working tool and to a hydraulic pump for raising the tiller when forces on the tool cause the speed of the input shaft to drop below a predetermined minimum speed and to effect lowering of the tool when the shaft speed returns to the predetermined minimum speed. The control system includes a manually operated control which bypasses the automatic controls and is used for manual raising of the tool. The control system also includes front caster wheel locks which automatically prevent the front caster wheels from pivoting/out of position which will guide the tiller along a straight forward path when the tool is lowered into tiller position, and which releases the caster wheel for free-swinging movement when the tool is raised. Manually operated rear caster locks are provided for locking the rear wheels in a straight forward position when the rotary tool is raised and is to be transported long distances.

3,633,678

RECIPROCATING WEEDERS

Lucien Leduc, Box 368, Assiniboia, Saskatchewan, Canada

Filed June 17, 1969, Ser. No. 834,046

Int. Cl. A01b 39/19

U.S. Cl. 172-44

8 Claims

A taut weeding cable carried below and transversely from an implement frame, said frame being elevatably mounted on supporting wheels for adjustable lowering of said cable into the ground, and for raising same therefrom; screw means for tightening the cable; power operable means for endwise

3,633,680

LOCKING DEVICE FOR A DISC HARROW WING SECTION

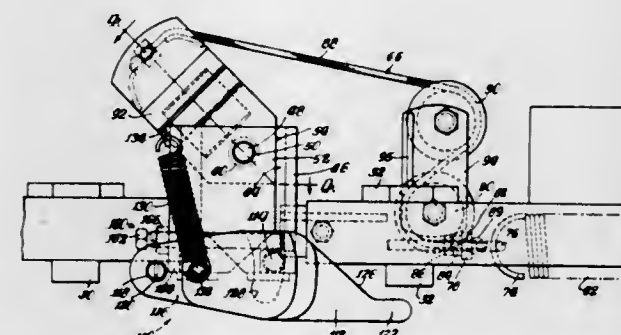
George E. Womble, Kewanee, and Lorrin H. Schwartz, Kankakee, both of Ill., assignors to Kewanee Machinery & Conveyor Company, Kewanee, Ill.

Filed June 9, 1970, Ser. No. 44,793

Int. Cl. A01b 65/02

U.S. Cl. 172-456

5 Claims



A locking device for use with a folding frame implement having one or more extension gang sections pivotally connected on a main gang section functions to automatically engage and hold the extension gang section in a rigid locked relation with the main gang section upon the extension gang section being moved to the extended horizontal position. The locking device has a latch member which is pivotally mounted on the extension gang section adjacent its pivotal connection with the main gang section and which is adapted to engage a pin member extending from the main gang section whenever the extension gang section is moved to the extended position. The latch member has a curved guide surface for directing the pin towards its cam lock slot. A spring member urges the latch member against the pin to cause the pin to ride along the guide surface and into the cam lock slot as the extension gang section is swung into the horizontal extended position.

3,633,681

ROTARY-ACTUATED SPADE

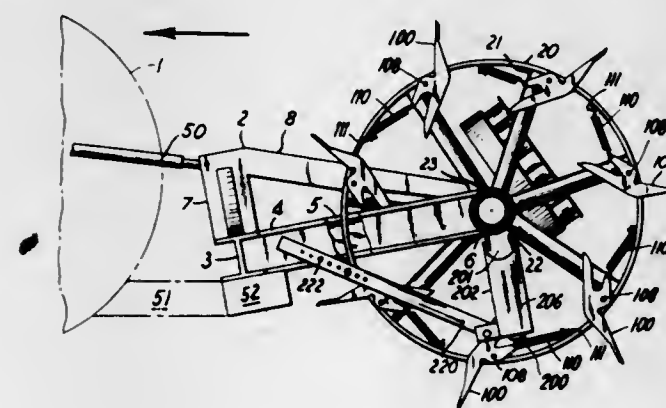
Richard Slpala, Huntington Station, N.Y., assignor to Dapa Research Corp., New York, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,064

Int. Cl. A01b 21/02

U.S. Cl. 172-546

8 Claims



A plurality of small holes are formed for mass shrub planting by an implement pulled by a tractor. The implement comprises a wheel having a plurality of spaced, biased spadelike implements. As the wheel rotates, the spade is forced into the ground, the spade has a lever attachment which strikes a stationary cam holding the spade in position,

3,633,682

DEPTH GAUGE FOR TOOL

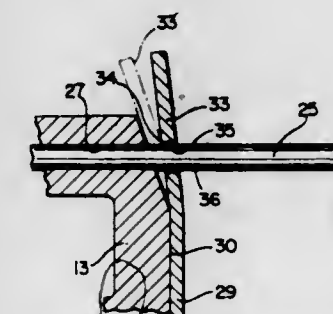
Robert G. Moores, Jr., Cockeysville, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Filed Sept. 18, 1970, Ser. No. 73,437

Int. Cl. B25d 17/00

U.S. Cl. 173-46

6 Claims



A portable power tool including a housing adapted to have an electric motor supported therein. A handle is provided at one end of the housing and has a trigger disposed thereon. A tool bit extends outwardly from the other end of the housing and is rotated and impacted against by means within the housing driven by the motor. A depth rod extends from the housing parallel to the tool bit and engages the work surface when the tool bit has penetrated the work surface to the desired depth. Novel means is provided on the housing to adjustably secure the depth rod thereto.

3,633,683

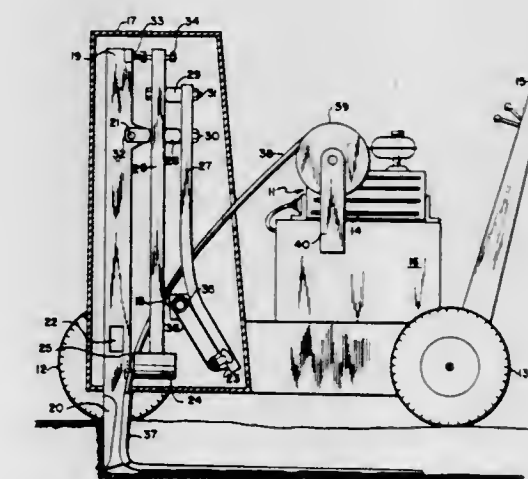
NONLINEAR RESONANT VIBRATORY WORK SYSTEM
Howard L. Shatto, Jr., La Jolla, Calif., assignor to Albert G. Bodine, Jr., Van Nuys, Calif.

Continuation-in-part of application Ser. No. 695,745, Jan. 4, 1968, now Patent No. 3,527,501. This application Jan. 26, 1970, Ser. No. 5,448

Int. Cl. A01b 35/00; B06b 1/16

U.S. Cl. 173-49

6 Claims

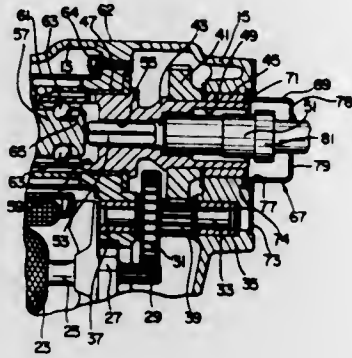


A resonant vibratory system utilizes nonlinear elastic transmission means to operatively connect an oscillator to a work member to provide a nonsinusoidal vibratory system having a high-velocity work stroke and a low-velocity return stroke for greatly reducing draft or propulsive load on a work member. The oscillator is coupled to the transmission means so as to be isolated from high-velocity impulses delivered to the work member.

3,633,684 TOOL BIT RETAINER

Robert G. Moores, Jr., Cockeysville, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed Sept. 14, 1970, Ser. No. 71,635
Int. Cl. B25d 11/00; B23b 31/06
U.S. Cl. 173-104

10 Claims

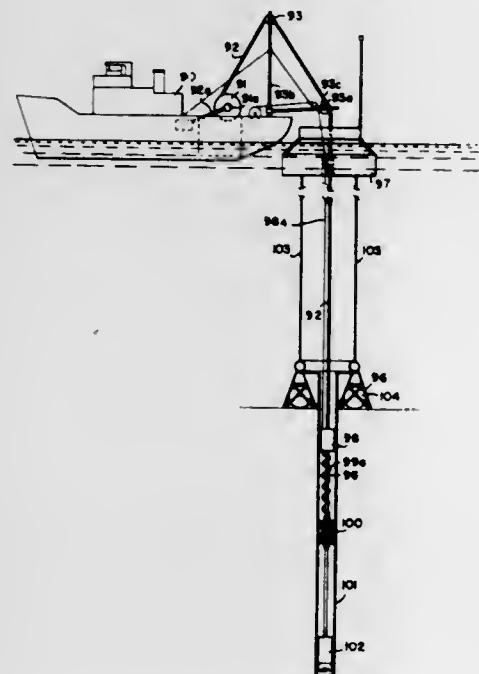


A portable power tool comprising a housing having a motor disposed therein. The motor has an output rotary shaft interconnected with a tool bit supporting member by a gear train to transmit rotation to a tool bit. The motor also drives a reciprocating impacting mechanism adapted to strike the rear end of the tool bit and impart a longitudinal blow thereto. A novel retainer carried at the front of the housing prevents the tool bit from coming out of the housing and is manually movable to free the tool bit for removal and replacement.

3,633,685 DEEP WELL DRILLING APPARATUS

Manuel R. Plexoto, 116 Clay Street, Santa Cruz, Calif.
Filed Mar. 9, 1970, Ser. No. 17,467
Int. Cl. E21b 7/12; E21c 19/00
U.S. Cl. 175-6

7 Claims



Apparatus for drilling deep wells in ocean beds or on dry land. The underwater drilling apparatus employs a drill driven by an electric motor which is lowered to the ocean bed by cables including an electric cable paid out by one or more motor-driven winches. One set of cables is employed for lowering the tripod which may be provided with a casing and an electric hammer for driving the casing through the mud forming the ocean bed. The electric drill is lowered into

a magnetic field located above the casing provided to the tripod to guide the drill thereto. An electrically actuated clamping device is slidably supported on the drill rod above the drill and engages the casing to prevent the drill motor from rotating with respect to the casing. In one embodiment of the invention the tripod is lowered to the ocean floor by winch supported on a pontoon structure that is submerged a short depth below the ocean surface and the hose to the drill and the electric cable to the drill are paid out by motor-driven winches supported in holds of a suitable ocean-going vessel. Another embodiment of this invention employs a buoy structure which may be towed by an ocean-going vessel and which is adapted to support all of the winches and reels required. This buoy is provided with pontoons which support the superstructure thereof above the water surface.

3,633,686 METHOD AND APPARATUS FOR DIRECTIONAL DRILLING

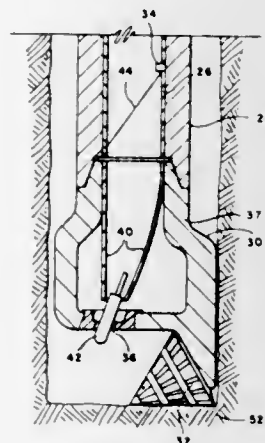
John D. Bennett, Denton, Tex., assignor to Sun Oil Company, Dallas, Tex.

Filed Apr. 29, 1970, Ser. No. 33,015

Int. Cl. E21b 7/04

U.S. Cl. 175-4.5

9 Claims



Method and apparatus for directional drilling using explosive devices. The drill bit used for directional drilling has a bottom opening which is orientated on the side of the wellbore in the radial direction to which the borehole is to be deflected. An explosive device is carried by the drilling fluid out the bottom opening whereupon it explodes upon contacting the formation. When drilling commences, the drill bit will follow the path of least resistance, that being the area fragmented by the explosive device.

3,633,687 APPARATUS FOR SEPARATING AND MEASURING GAS IN DRILLING FLUID

Alfred Gordon West, 3006 Douglas; Chester M. Harden, 501 Scherbor Drive, and Clyde E. Perce, 600 Lidon, all of Midland, Tex.

Continuation-in-part of application Ser. No. 670,559, Sept. 26, 1967, now Patent No. 3,498,393. This application Dec. 12, 1969, Ser. No. 884,502

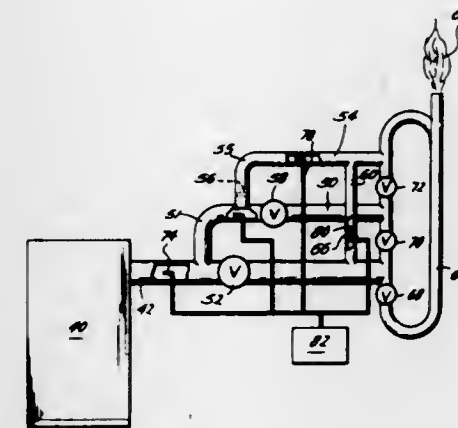
Int. Cl. E21b 21/00, 47/00

U.S. Cl. 175-48

4 Claims

Apparatus is provided for use in wells, allowing the well to be drilled with minimum hydrostatic head and yet insuring against the possibility of blowouts, and for measuring the gas flow rate from a separator which includes a plurality of parallel pipes of differing sizes. Each pipe has a flow rate detector,

and suitable valves are included for passing the gas flow into whichever pipe is desired, depending on the flow rate. If the



flow rate is great, a large pipe is used; if the flow rate is small, a small pipe is used.

3,633,688 TORSIONAL RECTIFIER DRILLING DEVICE

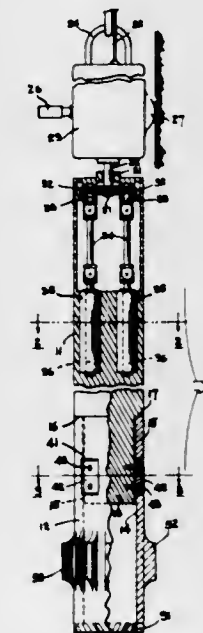
Albert G. Bodine, 7877 Woodley Avenue, Van Nuys, Calif.

Filed Feb. 13, 1970, Ser. No. 11,250

Int. Cl. E21c 3/02

U.S. Cl. 175-55

8 Claims



The sonic energy output of a sonic generator is coupled to a torsional resonant circuit. The output of the torsional resonant circuit is in turn coupled through an acoustic rectifier device to a drive member such as a cutting tool. The rectifier provides unidirectional high level pulses of resonant sonic energy to a cutting tool causing such cutting tool to be rotationally driven in a pulsating manner.

3,633,689 METHOD FOR DRILLING WELLS

Stanley A. Christman, Los Angeles, Calif., assignor to Esso Production Research Company

Filed May 27, 1970, Ser. No. 41,657

Int. Cl. E21b 21/04

U.S. Cl. 175-65

21 Claims

Drilling of wells in subfreezing environments is conducted by using a fluid which contains a major amount of an aqueous medium such as sea water or fresh water, a

heteropolysaccharide produced by the action of bacteria of the genus Xanthomonas, an oxygenated hydrocarbon dispersant which may be a polyhydric alcohol such as ethylene glycol and, optionally, an alkaline medium to provide a desired pH, the polyhydric alcohol aiding in the dispersion of the heteropolysaccharide in the aqueous medium and acting as a freezing point depressant of the drilling fluid.

3,633,690 WELL-DRILLING TOOL

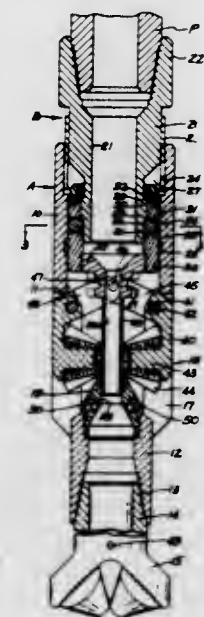
Cleero C. Brown, 5329 Sturbridge Drive, Houston, Tex.

Filed May 13, 1970, Ser. No. 36,810

Int. Cl. F21b 9/26

U.S. Cl. 175-285

10 Claims



A well-drilling tool for rotary drilling comprising a main bit and a set of radially expandable and contractable underreamers actuatable by weight applied through the drill pipe string.

3,633,691 LARGE-DIAMETER EARTH BORING BIT

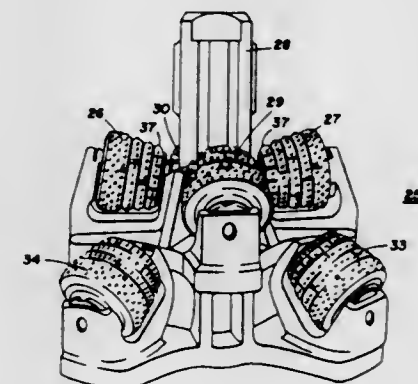
Milton L. Talbert, China Springs, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Mar. 9, 1970, Ser. No. 17,663

Int. Cl. E21c 23/00; E21d 3/00; E21b 9/24

U.S. Cl. 175-334

8 Claims



A bit for drilling large-diameter holes. Cutters are arranged in a staged configuration around a central shaft. The innermost cutters are the same large cutters used at other locations on the bit allowing complete interchangeability. The innermost cutters are turned inward. This reduces the uncut bottom next to the pilot hole and provides a stronger bit

because the central shaft has not been weakened by milling or other operations.

3,633,692

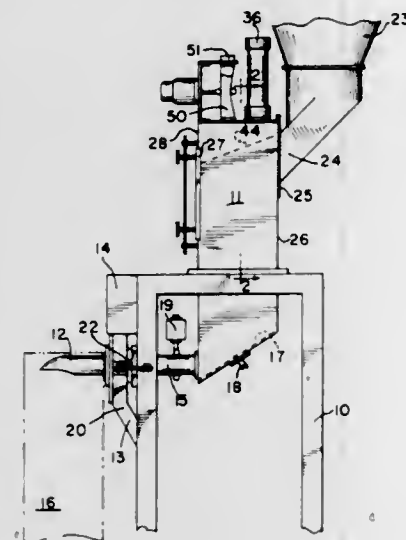
INLET MEANS FOR BAG-FILLING MACHINE

Erwin M. Lau, Dolton, Ill., assignor to Black Products Co., Chicago, Ill.

Filed Oct. 2, 1970, Ser. No. 77,626
Int. Cl. G01g 13/24

U.S. Cl. 177-114

13 Claims



A gate valve, located in the rear wall of the chamber, has a rectangular frame-type seat and a vertically sliding gate overlying same. Guide strips, spaced inwardly from each side edge of the gate so as to leave said side edges unconfined, hold the gate against the seat. An inlet chute communicates with the chamber through said gate. The upper edge of the opening of the inlet chute is spaced below the upper portion of said frame-type seat to provide a free space in the upper part of the chamber, even though the gate is open. An air cylinder closes the gate at the beginning of each bag-filling cycle, and opens it at the end. Air pressure is supplied to the chamber during the bag-filling cycle and vented out at the end of the cycle. Material in the chamber is fluidized during the bag-filling cycle, causing it to move horizontally through the spout and into the bag.

3,633,693

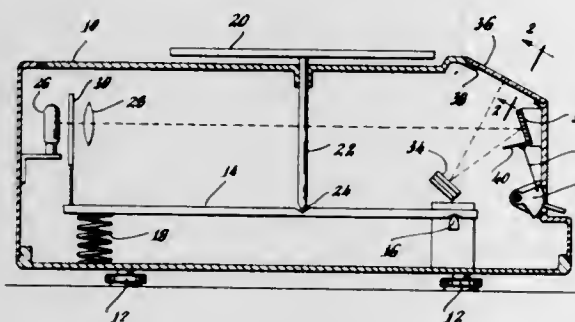
POSTAL SCALE WITH OPTICAL READOUT

Marvin E. Garfinkle, Stamford; Robert E. Schmeck, Old Greenwich, and Einar W. Tangard, Norwalk, all of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Oct. 1, 1970, Ser. No. 77,125
Int. Cl. G01g 23/32

U.S. Cl. 177-178

6 Claims



There is disclosed a postal scale of the type having a housing, a weighing platform atop the housing, and weighing mechanism within the housing including a movable reticle in an optical readout system. The reticle incorporates weight information and is moved through the optical axis of the

readout system to project the proper information to the user. The disclosed scale differs from those of the prior art in that the reticle is projected onto the back surface of a screen which also functions as a portion of the scale housing.

3,633,694

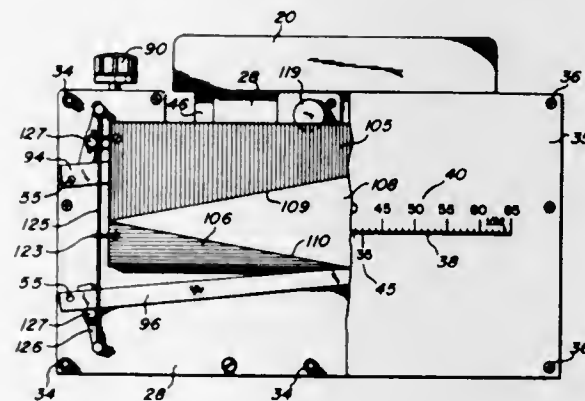
WEIGHING SCALE

Roger W. Riehl, Troy, Ohio, assignor to Allied Technology Inc., Troy, Ohio

Filed May 25, 1970, Ser. No. 40,257
Int. Cl. G01g 13/14, 23/14

U.S. Cl. 177-165

7 Claims



A container of material is weighed on apparatus including a movable platform which is supported by an adjustable balance mechanism. An indicator is connected to move with the balance mechanism and is positioned adjacent a graduated scale to provide a readout of the net weight of the material when the container of material is placed on the platform and the tare weight of the container when the container of material is removed from the platform. The indicator consists of a platelike vertical shutter which moves vertically behind a faceplate having a transparent horizontal slot. The shutter has multiple transparent color zones which cooperate with a light source to indicate the tare and net weights by lines of different colors and corresponding in length to the weights. A tare knob is positioned adjacent the platform and provides for adjusting the balance mechanism to accommodate various containers having different tare weights.

3,633,695

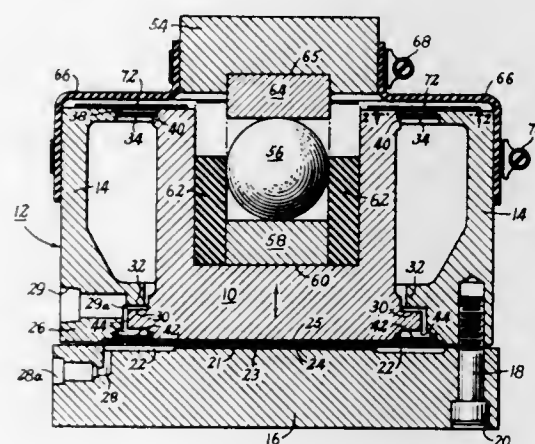
SIMPLIFIED HYDRAULIC LOAD CELL CONSTRUCTION

Chester D. Bradley, Darien, Conn., assignor to The A. H. Emery Company, New Canaan, Conn.

Filed July 30, 1970, Ser. No. 59,629
Int. Cl. G01g 5/04

U.S. Cl. 177-208

14 Claims



A hydraulic load cell of simplified construction has an upper lateral support structure for the piston which

eliminates the need for clamping rings and bolts. The support structure comprises an upper bridge ring disposed between the cylinder and piston members and held by integral flanges on said members. The upper bridge ring, and the lower bridge ring where used, may each be provided with arcuate edges to improve cell accuracy. The cell may also be provided with a supplementary shield against contamination and a simplified loading head structure.

3,633,696

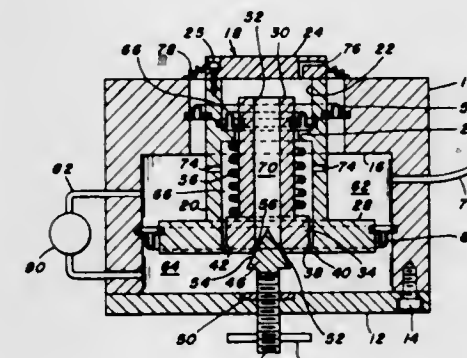
LOAD CELL

William K. Kleysteuber, McCandless Twp., Allegheny Cty., Pa., assignor to United States Steel Corporation

Filed Oct. 15, 1970, Ser. No. 80,863
Int. Cl. G01g 5/04; G01l 13/02

U.S. Cl. 177-208

10 Claims



A load cell comprises two pistons reciprocable with respect to each other and to a surrounding cylinder. Conventional rolling seals seal the pistons and cylinder to each other providing two opposed fluid-pressure chambers acting on different piston areas. Mutually engageable seating surfaces on the pistons constitute elements of regulating valves for balancing fluid pressures in the chambers when a load is applied. Then a difference in chamber pressures indicates the weight of the load.

3,633,697

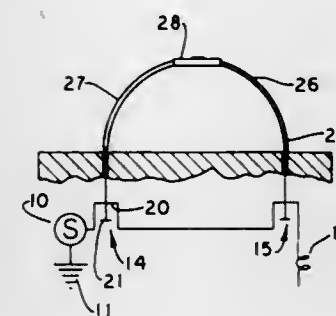
VEHICLE SAFETY DEVICE

Harry Silver, 4810 North Los Altos, Tucson, Ariz.

Filed Sept. 26, 1969, Ser. No. 861,312
Int. Cl. B60r 21/10

U.S. Cl. 180-82

4 Claims



A vehicle safety device for use with a motorized vehicle to insure that the driver is in a safe and proper position to operate the vehicle. Interlock switch means are provided in a motive electrical system of the vehicle such as the ignition system. A driver-worn belt is provided having contact means associated therewith which actuate the switch means to complete the motive electrical circuit only when placed under tension by the driver assuming a normal position at the vehicle controls. An alternate embodiment includes a belt with metal inserts which act to restrain the driver by force from an electromagnetic circuit in the vehicle seat.

3,633,698

MOTOR VEHICLE

Jack Briggs, Derby, England, assignor to Rolls-Royce Limited, Derby, England

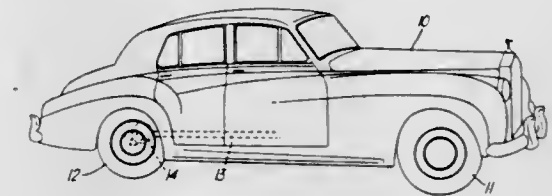
Filed Jan. 16, 1970, Ser. No. 3,389

Claims priority, application Great Britain, Feb. 6, 1969, 6,543/69

Int. Cl. B60g 11/18

U.S. Cl. 180-10

21 Claims



The invention concerns a motor vehicle which has a suspension for the rear wheels which allows pivotal and vertical movement thereof with respect to the sprung mass.

The suspension comprises two coplanar torsion members connected between the sprung mass and each wheel so that a force applied transversely to the sprung mass causes pivotal movement of the wheels in a direction which is opposed by the action of the torsion members.

3,633,699

CONTROL MEANS FOR TRACTOR-MOUNTED DRIVEN IMPLEMENT

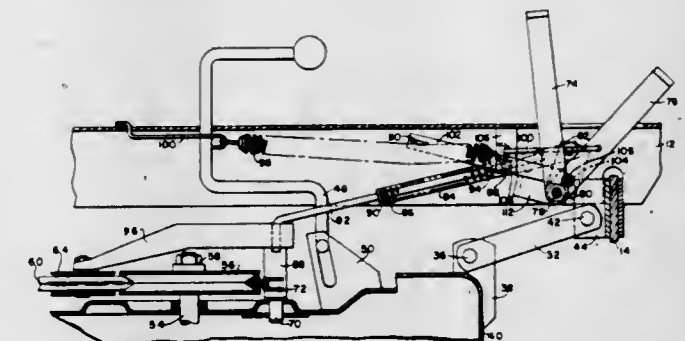
Robert James Bishop, and Lee J. Wanle, both of Horicon, Wis., assignors to Deere & Company, Moline, Ill.

Filed Mar. 2, 1970, Ser. No. 15,327

Int. Cl. B60k 17/28, 25/06; F16h 57/10

U.S. Cl. 180-53 R

20 Claims



A rotary mower is suspended beneath a vehicle chassis and is drivably connected to a motor on a chassis by an endless belt and drive and driven sheaves. The belt is selectively tensioned and slackened by an idler sheave which is mounted on a crank arm. The crank arm is interconnected with a first pedal mounted on the chassis so that upon depression of the first pedal the idler sheave tensions the belt. A latch mounted on the chassis engages the first pedal to hold the same in its depressed position. A second pedal is mounted on the chassis and has a disengaging member connected thereto to disengage the latch when the second pedal is depressed.

3,633,700

DECELERATION CONTROL SYSTEM FOR HYDROSTATIC DRIVE VEHICLES

Ralph W. Matthews, New Berlin; Gerald W. Bernhoft, Wauwatosa, and Michael R. Schmidt, Hales Corners, all of Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Dec. 22, 1969, Ser. No. 886,913

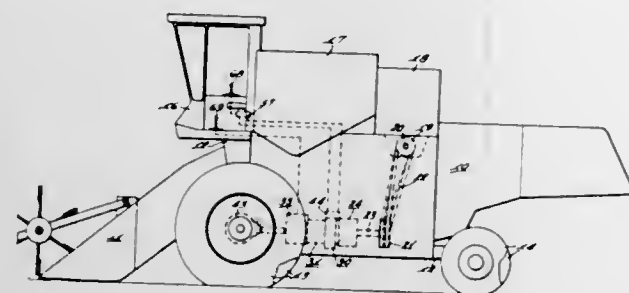
Int. Cl. B60k 17/10, 21/04

U.S. Cl. 180-66 R

6 Claims

A combine harvester having a multiple-speed range mechanical transmission combined with a hydrostatic trans-

mission and in providing valve means for the hydrostatic transmission which valve means is connected to the mechanical transmission so that pressure fluid is supplied to the



hydrostatic transmission resulting in acceleration/deceleration of the harvester commensurate with the particular speed range selected.

3,633,701

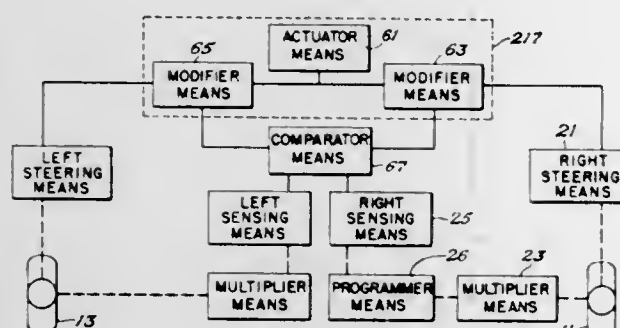
STEERING METHOD AND SYSTEM EMPLOYING ELLIPSOIDAL RELATIONSHIPS

Ted L. LeTourneau, and Hilmer C. Lindahl, both of Longview, Tex., assignors to R. G. LeTourneau, Inc., Longview, Tex.

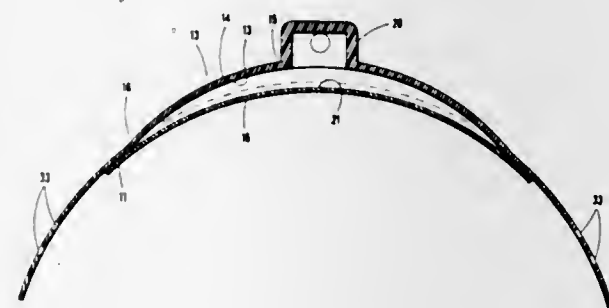
Filed Apr. 27, 1970, Ser. No. 32,048
Int. Cl. B62d 5/04

U.S. Cl. 180-79.1

17 Claims



Method of and apparatus for steering a vehicle having two separately steerable wheels and respective separate steering means characterized by imparting a steer signal to both steerable wheels, comparing the relative degrees of steer of the respective wheels by way of an ellipsoidal programmer and modifying the steer signal to the steerable wheel that departs from its correct relative degrees of steer with respect to the other steerable wheel. The relative degrees of steer are defined by the ellipsoidal programmer. The ellipsoidal programmer employs the equivalent of two identical ellipses that are placed tangential such that their focal points on their major axes form the apices of a rectangle at the position equivalent to zero degrees of steer, are mounted on pivotal shafts located at opposite first focal points and have their other respective and opposite focal points free to move in a plane as the driving ellipse drivingly rotates the driven ellipse through a connection that is equivalent to being retained tangential. The driving ellipse is rotated twice the number of degrees a first steerable wheel is being steered, and the output from the driven ellipse can be compared directly with twice the degrees of steer of the other steerable wheel. A preferred embodiment in which the modifying of the steer signal comprises interrupting the steering signal to the steerable wheel that is being steered more than its correct relative degrees of steer with respect to the other steerable wheel, and specific apparatus are also disclosed.



A stethoscope head made entirely of inexpensive plastic adapted for manufacture as a low-cost item having a diaphragm permanently sealed at its periphery to the diaphragm of a shell. The stethoscope head is provided with an arcuately curved diaphragm adapted to conform to the body or arm of a human with tabs extending therefrom for attachment of straps whereby the stethoscope may be attached to the body.

3,633,702

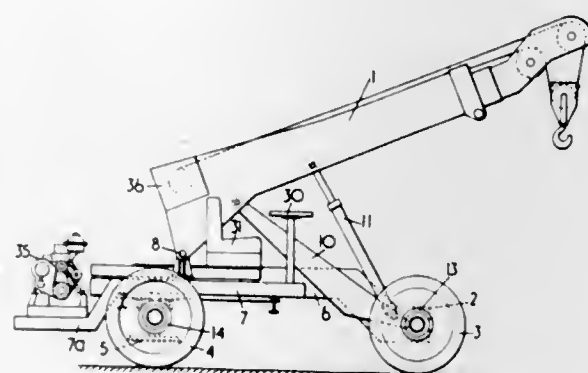
MOBILE LOAD-LIFTING MACHINES

Donald George Shaw, Albrighton, England, assignor to Shaw, Trew & Smith Limited, Shifnal, Shropshire, England, a part interest

Filed Oct. 31, 1969, Ser. No. 872,999
Int. Cl. B62d 5/06

U.S. Cl. 180-79.2 R

6 Claims



In a mobile load-lifting machine such as a wheeled crane in which the front and rear pairs of wheels are arranged for relative extension and retraction in accordance with the load-handling position of the machine or crane and in which at least one pair of wheels such as the front pair are intunable for load-slewing movement of the machine, the provision of means for ensuring appropriate inturning of said pair of wheels according to the extended or retracted position of the front and rear wheels and which consists of a movable member linked to the pivotal mounting of the intunable wheels and cooperating with a stop member which latter is adjustable in accordance with the wheel extension and retraction for permitting corresponding variation in the extent of movement of the movable member and hence of inturning movement of the intunable pair of wheels.

3,633,703

MOTURING DEVICES

David Littmann, Needham, Mass., assignor to Minnesota Mining & Manufacturing Co., Maplewood, Minn.

Continuation-in-part of application Ser. No. 663,423, Aug. 25, 1967, now Patent No. 3,543,875. This application Nov. 27, 1970, Ser. No. 93,108

Int. Cl. A61b 7/02

U.S. Cl. 181-24

9 Claims

3,633,704

STETHOSCOPE

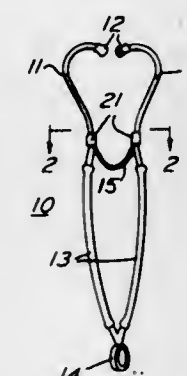
Carrel G. Ziegler, Flourtown, and Albert H. Hoffman, Roslyn, both of Pa., assignors to Dittmar and Penn Corporation, Philadelphia, Pa.

Filed Mar. 25, 1970, Ser. No. 22,440

Int. Cl. A61b 7/02

U.S. Cl. 181-24

4 Claims



A stethoscope is provided having ear tubes connected by a resilient band which permits swinging movement of the free ends of the ear tubes toward and away from each other in a plane for insertion for use and removal but resists displacement of the ear tubes from that plane, the ends of the resilient band having struck out projections engaged in slots in the tubes and having wings extending partially around the ear tubes, the ends of the resilient band being held in engagement with the ear tubes by external tubular synthetic plastic collars.

3,633,705

NOISE-CANCELLING MICROPHONE

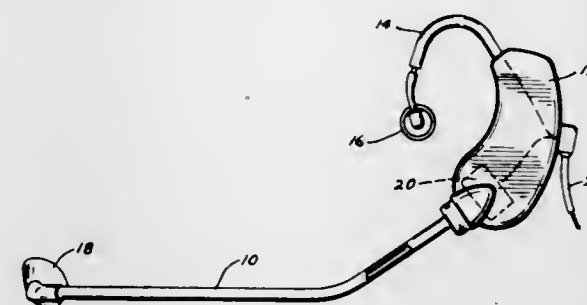
Harry Teder, Minneapolis, Minn., assignor to The Telex Corporation, Tulsa, Okla.

Filed Sept. 21, 1970, Ser. No. 74,029

Int. Cl. G10k 13/00; H04r 1/28

U.S. Cl. 181-31 B

8 Claims



A noise-cancelling microphone in which a differential diaphragm assembly is mounted on one end of a hollow, sound conducting acoustic tube that has an electroacoustic transducer mounted on its other end for translating sound conducted through the tube into corresponding electrical signals. The differential diaphragm assembly includes a small, inner diaphragm which seals off the end of the acoustic tube and a larger, outer diaphragm which is mounted in front of the inner diaphragm and is connected in its central region to the central region of the inner diaphragm. The outer diaphragm is exposed on both surface to the ambient atmosphere so as to receive sound waves on both its inner and outer surfaces, thereby acting as a noise-cancelling element in which background noise or distant sounds that impinge on one side of the diaphragm will be cancelled out by the same noise or sound impinging on the other side of the diaphragm.

3,633,706

NOISE SUPPRESSION ASSEMBLY

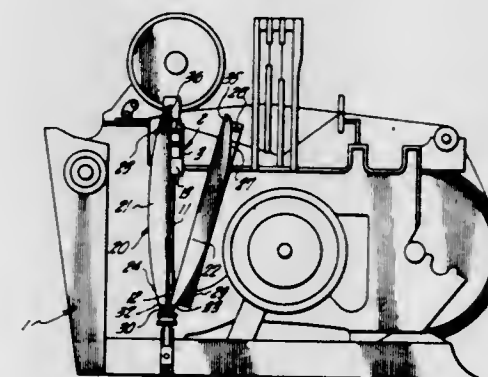
Harry R. Kennedy, Greer, S.C., assignor to The Richen Co., Inc., Greenville, S.C.

Continuation of application Ser. No. 866,223, Oct. 14, 1969, now abandoned. This application Aug. 3, 1970, Ser. No. 64,151

Int. Cl. G10k 11/00; D03d 49/02

U.S. Cl. 181-33 K

17 Claims



A noise suppression assembly adapted for use with a shuttle loom or a weaving machine. The assembly includes a pair of plates which are to be mounted on the loom, one of the plates being mounted on the lay and the other on the frame of the loom. The plates have a sound-absorbing material secured to the inner surface.

3,633,707

SAFETY DEVICE FOR CONVEYING APPARATUS

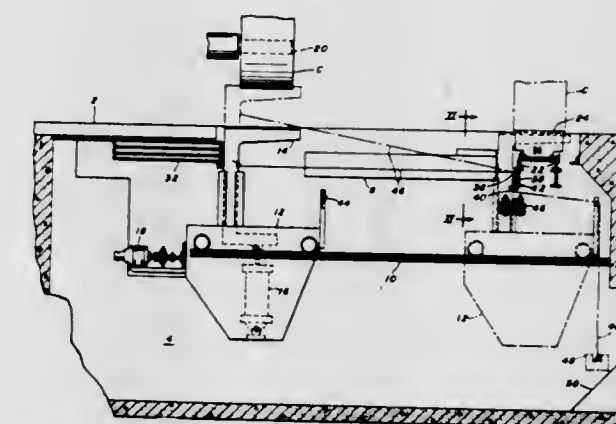
Joseph R. Ambruster, Middletown Township, Bucks County, Pa., assignor to United States Steel Corporation

Filed Oct. 8, 1970, Ser. No. 79,157

Int. Cl. A62b 37/00

U.S. Cl. 182-139

10 Claims



Conveying apparatus in which a car travels longitudinally in an open channel includes a belt having one end attached to the car. The belt extends generally horizontal to a fixed roll and is maintained under such tension that it can support the weight of a man. The belt edges are close to the sides of the channel so that a workman falling on the belt cannot fall off the belt.

3,633,708

FLEXIBLE LADDER

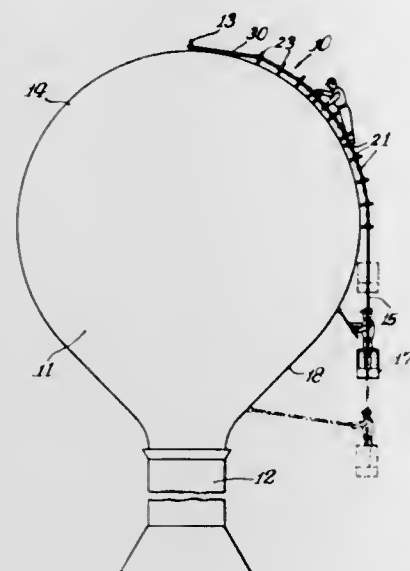
Jens A. Heilskov, 1500 Midlothian Road, Mundelein, Ill.

Filed Oct. 12, 1970, Ser. No. 79,962

Int. Cl. E06c 1/397, 1/56

U.S. Cl. 182—150

14 Claims



A ladder for use such as in painting spherical structures permitting facilitated movement of the ladder about the structures for facilitated work on the structures such as painting thereof. The ladder includes wheel means for permitting facilitated movement thereof about the structures and includes flexible side members to provide for accommodation of the ladder to the spherical configuration.

3,633,709

FOLDABLE SAWHORSE

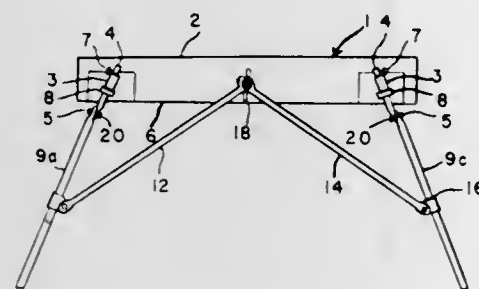
Wilton C. Weser, 2541 Church Street, Des Plaines, Ill.

Filed Aug. 31, 1970, Ser. No. 68,397

Int. Cl. F16m 11/00

U.S. Cl. 182—155

7 Claims



A foldable sawhorse including a crossbeam, hinge members rotatably mounted on each side of the crossbeam and near each end thereof, support legs hingedly secured to said hinge members, first brace means hingedly affixed to said support legs for attachment to another support leg to hold in spaced apart relation and second brace means hingedly affixed to said support legs for attachment to said crossbeam to hold the support legs in a fixed position in angular relationship to said crossbeam. The said hinge members rotatably mounted on each side of the crossbeam enable the support legs hingedly secured thereto to be rotated and moved to a position substantially parallel with said crossbeam when the first brace means are detached from corresponding support legs and the second brace means are detached from the crossbeam, the hinged brace means also being foldable to a position substantially parallel to said support legs and to said

crossbeam. The entire assembly when the brace means are detached may thus be folded into a compact unit with the support legs and brace means being substantially in parallel relationship with and in close proximity to the crossbeam for easily carrying and storing in a compact space little larger than the size and configuration of the crossbeam itself.

3,633,710

RAIL BRAKE

Franz Preinfalk, Lagenfeld, Germany, assignor to August Thyssen-Hütte Aktiengesellschaft

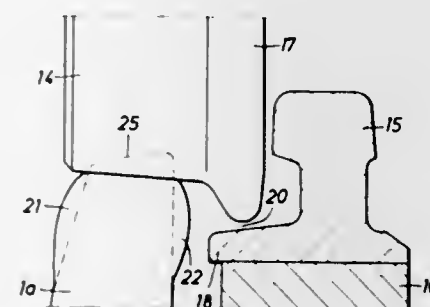
Filed Dec. 17, 1969, Ser. No. 886,051

Claims priority, application Germany, Dec. 19, 1968, P 18 15 615.5

Int. Cl. B61k 7/02

U.S. Cl. 188—62

10 Claims



In a rail brake wherein a rubber rail section is brought into contact with the rolling wheel of a car, the rubber section is so profiled that it increases in thickness from the top to the bottom whereby as the weight of the wheel thereon increases a greater volume of the rubber is brought into play with each increasing increment of penetration of the rubber by the wheel.

3,633,711

THREAD BRAKE

Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

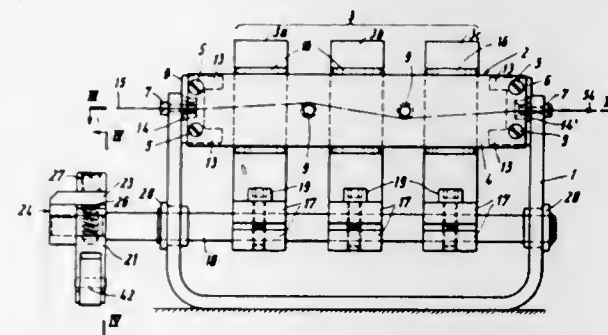
Filed Oct. 21, 1969, Ser. No. 868,165

Claims priority, application Switzerland, Oct. 23, 1968, 15884/68

Int. Cl. B65h 59/16; D03d 47/00

U.S. Cl. 188—65.1

8 Claims



A thread brake includes a horizontal abrasion-resistant strip-shaped flexible overlay on a resilient backing, pivotally supported about a horizontal axis at the half height of the strip, and a plurality of cylindrically curved braking elements supported at the ends of levers on a common shaft about which the levers are rotated to engage successively against the overlay. In another embodiment the strip is rocked about an axis displaced from itself into engagement with stationary braking elements.

3,633,712

VEHICLE BRAKE SYSTEMS

Glyn Phillip Reginald Farr, Kenilworth, England, assignor to Girling Limited, Birmingham, England

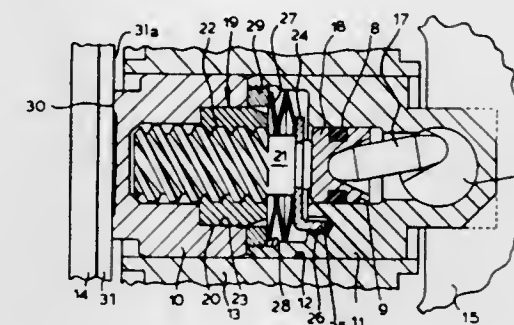
Filed June 8, 1970, Ser. No. 44,331

Claims priority, application Great Britain, June 18, 1969, 30,748/69

Int. Cl. F16d 65/56, 55/18

U.S. Cl. 188—71.9

12 Claims



The invention relates to an automatic slack adjuster for vehicle brakes including first and second screw elements having a reversible screw thread connection therebetween. The reversible screw thread effects automatic adjustment responsively to excess travel of the brake actuator piston whereby to automatically reduce the slack. To prevent over adjustment taking place due to brake deflection when applying the brakes heavily, the brake thrust is transmitted through friction surfaces which act as a clutch to prevent unwanted rotation at the screw thread connection.

3,633,713

ONE-WAY SELF-ALIGNING TORQUE UNIT

Joseph A. Marland, and Charles W. Hill, both of La Grange, Ill., assignors to Marland One-Way Clutch Co., Inc., La Grange, Ill.

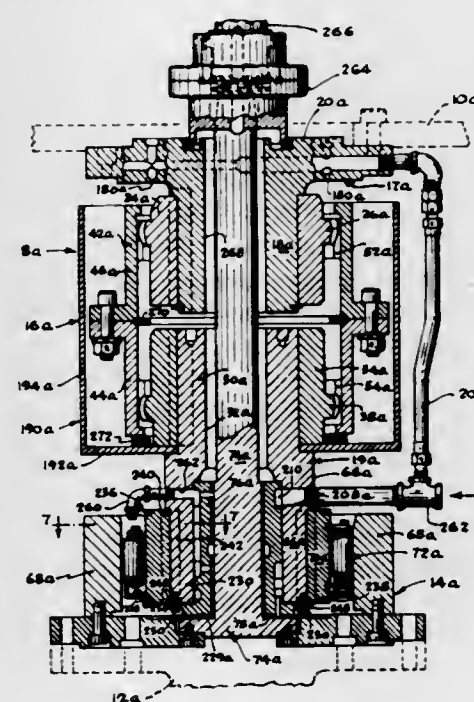
Continuation-in-part of application Ser. No. 737,965, June 18, 1968, now abandoned. This application May 23, 1969,

Ser. No. 827,400

Int. Cl. F16d 63/00

U.S. Cl. 188—82.84

3 Claims



A one-way, self-aligning torque unit well suited for heavy duty on a vertical shaft subject to misalignment with respect

to coaxing torque applying structure. The unit comprises a one-way torque coupling and an alignment coupling integrated together for mounting on a vertical shaft and providing for compensation for misalignment of the shaft with reference to coating structure which applies torque to the shaft in only one direction through the assembly. Working parts of the alignment coupling and underlying working parts of the torque coupling are continuously bathed in flowing lubricant that descends through a succession of comating working parts all to the end that the unit will operate reliably for many years in locations where access for service is impractical. A reversible cam ring in the unit permits adaption of the unit to transmit torque to the shaft in either direction without structural modification of components of the unit.

3,633,714

FULL DISC BRAKE WITH ROTATING BRAKE DISCS

Hermann Klaue, Tour d'Ivoire 24e, Montreaux, Switzerland

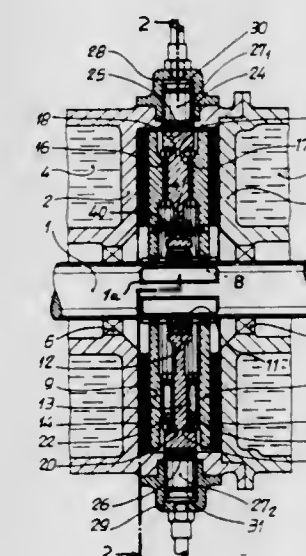
Continuation-in-part of application Ser. No. 831,305, June 9, 1969, now abandoned. This application Aug. 1, 1969, Ser.

No. 846,704

Int. Cl. F16d 59/00

U.S. Cl. 188—134

2 Claims



A full disc brake assembly including a pair of full rotatable brake discs, nonrotatably mounted on a shaft and movable axially to engage a fixed encircling housing to brake the shaft upon relative rotational movement of an actuating disc located between the brake discs. Said relative movement can be caused manually or by fluid pressure or electromagnetic means or the like acting on the outer periphery of the actuating disc. The encircling housing can be formed in several parts of different materials and can include a cooling space which may be spiral in shape on each side of the housing. A hollow brake lever filled with said cooling fluid can be used to act against the actuating disc. The brake can be placed into the vehicle axle for better heat dissipation.

3,633,715

DISC BRAKE WITH SPRING BRAKE AND PRESSURE-COMPENSATING SELF-ADJUSTER

Richard T. Burnett, South Bend, Ind., assignor to The Bendix Corporation

Filed Jan. 5, 1969, Ser. No. 669

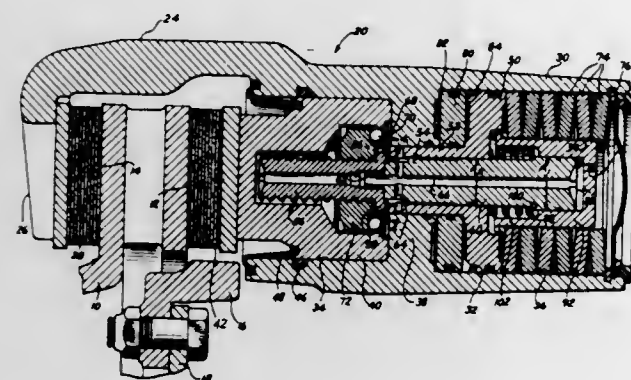
Int. Cl. F16d 65/24

U.S. Cl. 188—170

3 Claims

A disc brake actuator is disclosed which includes a piston for urging the brakeshoes toward a rotor and an automatic adjuster to properly position the piston in the actuator housing. The adjuster is actuated by relative movement between it and the piston and is mounted on a member that reciprocates

with the piston during high-pressure brake applications thus precluding adjustment, but is held stationary during low-pressure applications to permit operation of the adjuster. Such a



compensated adjuster is particularly useful when mechanical actuation is provided in addition to the usual hydraulic actuator.

3,633,716

SYNCHRONOUS DEVICE FOR CHANGE-SPEED GEARS ESPECIALLY FOR MOTOR VEHICLES

Gunther Gortz, Wustenhäusen, Germany, assignor to Firma Dr.-Ing. h. c. F. Porsche K.G., Stuttgart-Zuffenhausen, Germany

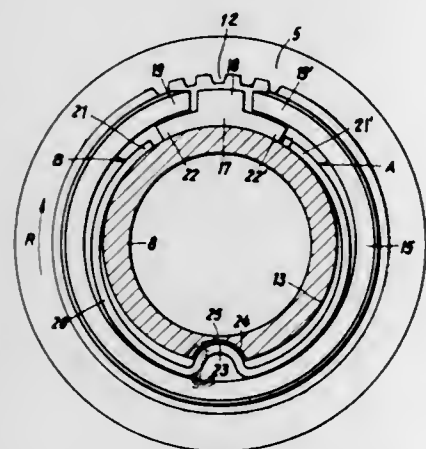
Filed Apr. 14, 1970, Ser. No. 28,471

Claims priority, application Germany, Apr. 16, 1969, P 19 19 294.0

Int. Cl. F16d 23/04

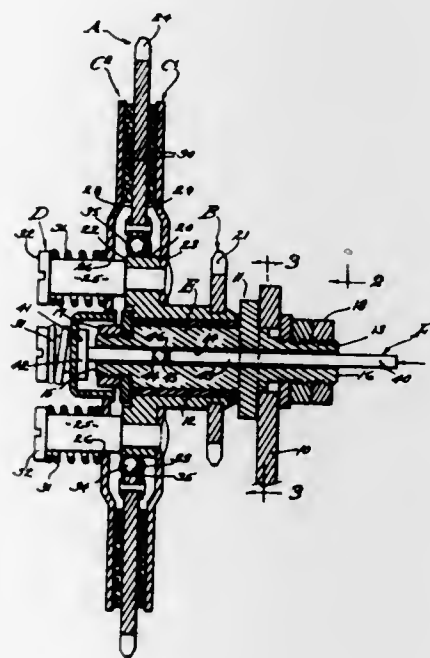
U.S. Cl. 192-53 C

9 Claims



A synchronous device for change-speed gears, especially for motor vehicles, wherein slotted rings are under the influence of a locking means for increasing the servo effect which are arranged between each of the springy slotted rings and the hub of its associated clutch body. The locking means includes a slotted band having a camlike form body in the shape of an arched depression disposed in a recess in the associated clutch body and cooperates with a slidable stop extending between the ends of the ring. The working direction which serves for the reverse shifting of a speed is provided with a larger, effective gripping length than is provided for shifting to a higher gear.

3,633,717
TRANSMISSION IDLER AND CLUTCH
Virgil H. Stair, 14826 Enadl Way, Van Nuys, Calif., and
James L. Glover, 8070 Langdon Avenue, Van Nuys, Calif.
Filed Apr. 15, 1970, Ser. No. 28,766
Int. Cl. F16d 19/00
U.S. Cl. 192-96
15 Claims



A transmission idler and clutch comprising separable drive elements concentrically journaled on a common bearing body that is fixed on a support, wherein one of said drive elements carries opposed plates yieldingly urged into pressured engagement onto the other of said drive elements embraced therebetween, and wherein clutch control means reacts on the center axis of the bearing body to release the opposed plates and thereby separate the drive elements.

3,633,718 TRANSMISSION AND BRAKE FOR STOPPING CONVEYORS

Rudolf Wanner, Aystetten; Berthold Mader, and Theodor Mayr, both of Augsburg, all of Germany, assignors to Firma Bower, Bohler & Weber KG, Maschinenfabrik, Augsburg, Germany

Filed Nov. 4, 1969, Ser. No. 873,944

Claims priority, application Germany, Nov. 6, 1968, P 18 07 364.8

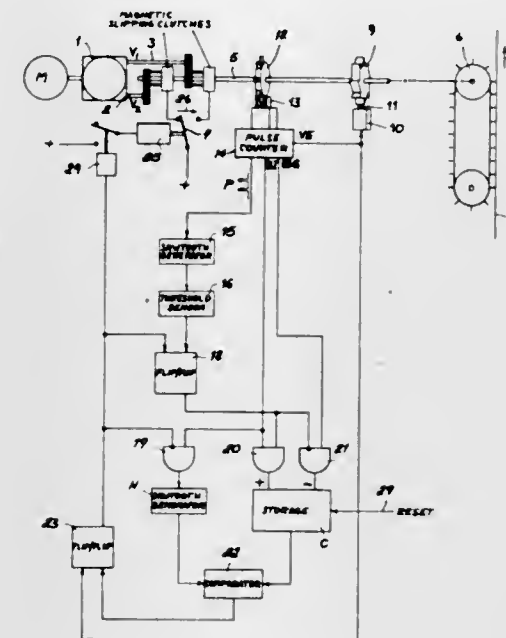
Int. Cl. F16h 57/10

U.S. Cl. 192-146

7 Claims

A drive shaft of an intermittently movable conveyor is alternately entrainable, via respective slipping clutches, by a high-speed and a low-speed input shaft, the switchover to low speed occurring shortly before the arresting of the drive shaft at the end of an operating cycle. A pulse counter excited by the drive shaft measures a braking interval in the final phase of each operating cycle and, at the inception of that interval, triggers a generator of progressively increasing voltage whose output causes the switchover upon reaching a reference value registered in a storage circuit. Depending upon the

length of time required for the drive shaft speed to reach its lower limit, the stored reference voltage is either increased or



reduced to delay or advance the switchover point to a predetermined instant slightly preceding the end of the cycle.

3,633,719 SUPPORT ASSEMBLY FOR A CONCRETE MIXER CHUTE

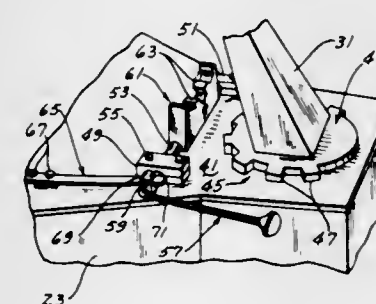
Cecil G. Lynch, Waterloo, Iowa, assignor to Construction Machinery Company, Waterloo, Iowa

Filed Feb. 17, 1969, Ser. No. 799,741

Int. Cl. B65g 11/12, 11/18

U.S. Cl. 193-10

3 Claims



A support assembly for a concrete mixer chute including a support member rotatably secured to the concrete mixer frame below the mixing drum discharge opening. The upper end of the chute is connected to the upper end of the support member and is connected intermediate its length to the lower end of the support member. The chute and support member are rotatable about a vertical axis with respect to the mixer so that the concrete can be directed to the desired unloading point. A first gear segment is rigidly secured to the support element for rotation therewith and a second gear element is movably mounted on the mixer frame. The second gear segment is movable into and out of engagement with the first gear segment to permit the chute and supporting member to be locked in various positions of their rotatable movement to maintain the chute in the desired unloading position. Means are also provided to maintain the second gear segment in its engaged position and its disengaged position with respect to the first gear segment.

3,633,720 ALPHANUMERIC PRINTING DEVICE EMPLOYING MAGNETICALLY POSITIONABLE PARTICLES

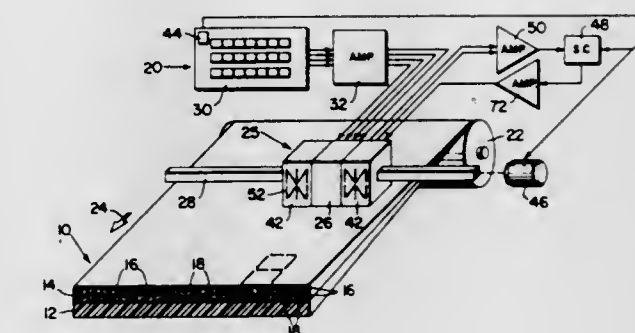
Tommy N. Tyler, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 25, 1969, Ser. No. 861,062

Int. Cl. G01d 15/12

U.S. Cl. 197-1

3 Claims



A printing device is shown that uses a specially adapted paper upon which alphanumeric characters may be printed without impact and from which erroneously printed characters may be removed. The alphanumeric character to be printed is selected by a keyboard which electrically energizes core elements within a recording head. The core elements generate a force field that reorients preoriented highly reflective flakelike particles within the specially adopted paper. The reorientation causes the reflective flakelike particles to become absorptive for forming a dark contrasting trace upon the paper which represents the selected alphanumeric character. If an error is made, the recording head may be utilized to remove the erroneously selected alphanumeric character by again reorienting the reflective flakes into their previous light-reflective orientation.

3,633,721 CARRIAGE DRAW AND ROLLER BEARING MONITORING DEVICE

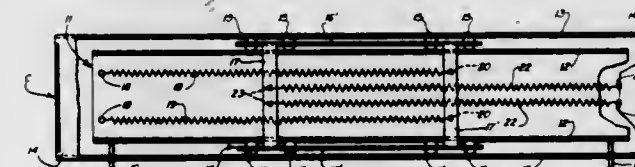
Kurt Werner, and Lothar Kuhn, both of Frankfurt am Main, Germany, assignors to Adlerwerke vorm. Heinrich Kleyer A.G., Frankfurt am Main, Germany

Filed Dec. 17, 1969, Ser. No. 885,939

Int. Cl. B41j 19/00

U.S. Cl. 197-60

2 Claims



A motive source for yieldably urging a roller bearing supported typewriter carriage in letter feed direction characterized in that the roller bearing retainer serves as an anchor for linear springs extending therefrom in opposite directions to frame and carriage anchors. The springs act as a single carriage feed spring; the connection to the intermediate anchor point provided by the retainer also serves to control and maintain the position of the retainer intermediate opposite frame and carriage spring anchors.

3,633,722

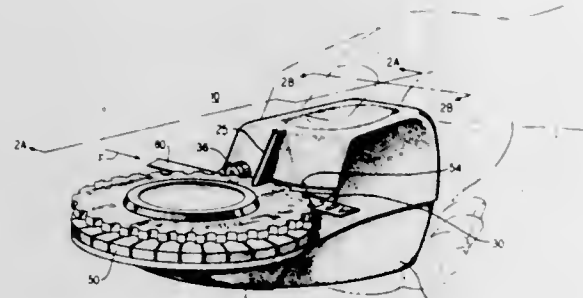
HAND-OPERATED EMBOSsing MACHINE

Arnold R. Bone, Needham, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.
Continuation-in-part of application Ser. No. 830,009, June 3, 1969, now abandoned. This application Sept. 9, 1969, Ser. No. 875,601

Int. Cl. B41j 1/30

U.S. Cl. 197-6.7

28 Claims



A miniaturized embossing machine formed by a housing which carries a dialable embossing wheel assembly and a guide assembly for a material that is to be embossed. In addition, a spring-loaded actuator is pivotally mounted with respect to the lower portion of the housing. When the actuator is depressed it brings about the desired embossment; when the actuator is subsequently released the material is controllably advanced along the guide assembly.

The lower portion of the guide assembly includes a shaft-mounted ratchet assembly with a ratchet wheel that is operated by the same spring used with the actuator. The other end of the assembly ratchet, beyond the ratchet wheel, is serrated for securely holding a drive tire that extends through an opening in the guide assembly into contact with the lower surface of the material to be embossed. The upper surface of the material is in contact with a feed wheel, also attached to the guide assembly. An integral extension of the guide assembly serves as a control detent for the ratchet wheel.

As the actuator is depressed and the material embossed, the spring is carried over the ratchet wheel to an operating position. Undesired movement of the ratchet wheel is forestalled by a shoulder that is integral with the detent. When the actuator is released, the end of the spring which operates the ratchet wheel causes the latter to rotate by a prescribed amount that is regulated by the detent. This in turn causes the strip to be advanced by the drive tire so that the next interval of the strip is at the embossing station.

3,633,723

POWER-OPERATED TYPEWRITER

Paul Louis Marie Kesters, St. Oedenrode, Netherlands, assignor to Sperry Rand Corporation, New York, N.Y.

Filed Feb. 17, 1970, Ser. No. 11,982

Claims priority, application Netherlands, Feb. 24, 1969, 6902852

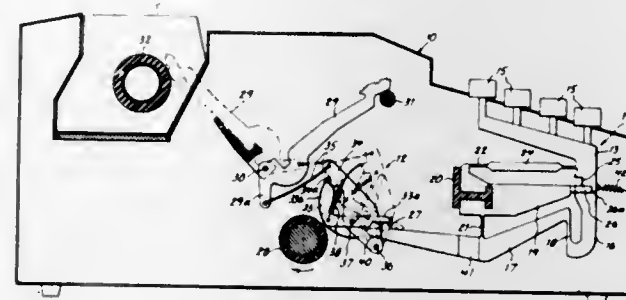
Int. Cl. B41j 23/08

U.S. Cl. 197-17

15 Claims

A power-operated typewriter in which a key action mechanism cooperates with a power-operated mechanism to transmit type key depression into power-actuated movement of a respective typebar. The key action mechanism comprises an integrally formed, flexible, parallelogram-shaped structure of which a portion of the key lever forms one side and a portion of the actuating lever forms another side. A support lever, fixed to the typewriter frame, and a fourth lever form the other two sides. All the levers are connected by relatively more flexible joints and the lengths of the levers are chosen so that key depression translates into upward movement of the actuating lever. A cam lever has an arm in contact with

an extension of the actuating lever and upward movement of the actuating lever causes the cam lever to rotate about a first pivot to bring its gripping surface into contact with the power roll. A bellcrank lever connected to the cam lever at the first pivot point is caused to rotate about a second pivot



3,633,724

ELECTRIC TYPEWRITER KEY AND KEYBOARD ARRANGEMENT

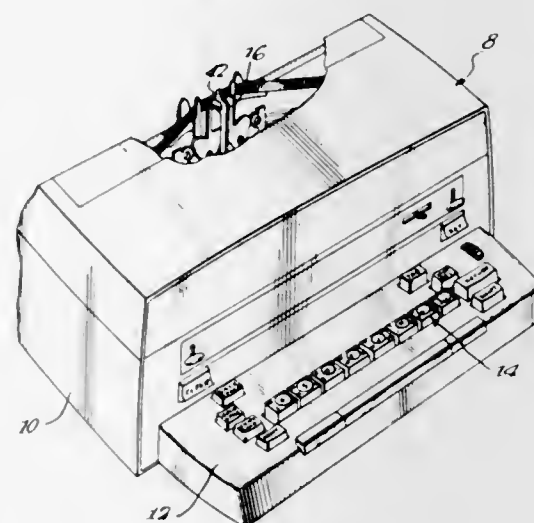
Ronald A. Samuel, 5030 South Loomis Street, Chicago, Ill.

Filed Jan. 22, 1970, Ser. No. 5,064

Int. Cl. B41j 5/16

U.S. Cl. 197-100

16 Claims



A keyboard arrangement for use with a standard electric typewriter in which the conventional complement of standard keys are replaced by eight polygonal-shaped key members, each of the eight key members being operable to actuate five adjacent levers of the typewriter. Each of the eight key members is movable both axially and pivotally on the arcuate edges of a respective four-sided key support member to selectively depress one of five upstanding, symmetrically arranged key lever actuating posts positioned at the center and each corner, of the respective key member. Indicia on the face of each key member at each corner and the center thereof designate which key lever will be actuated upon depressing or pivoting the key member.

3,633,725

HANDRAILS FOR ESCALATORS AND TRAVOLATORS

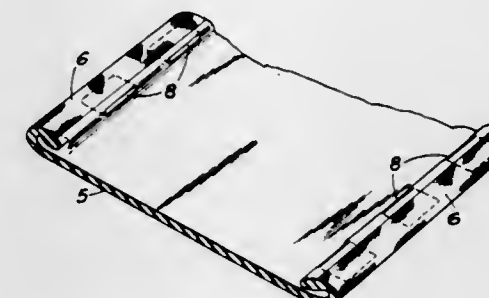
Edward Peter Smith, London, England, assignor to BTR Industries Limited, London, England

Filed June 23, 1969, Ser. No. 835,651

Int. Cl. B66b 9/12

U.S. Cl. 198-16

6 Claims



A handrail for an escalator or travelator and comprising a strip of generally C-shaped cross section. A lengthwise succession of transverse slots through the arms of the C-shaped cross section facilitate bending of the strip about its transverse axis.

3,633,726

CONTINUOUS ELEVATORS HAVING AUTOMATIC CHARGING AND DISCHARGING

Claude Carlier, Montreuil, France, assignor to Saunier Duval, Montreuil/S-Bois (Seine), France

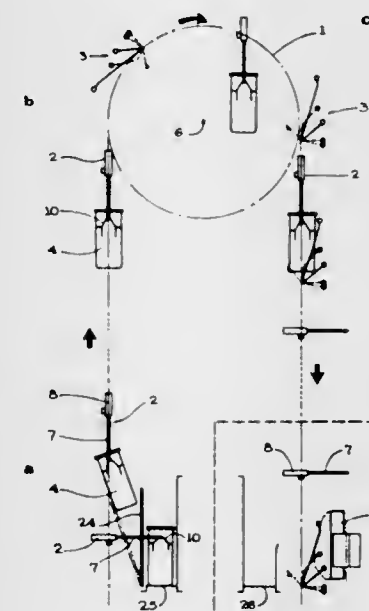
Filed Oct. 20, 1970, Ser. No. 82,417

Claims priority, application France, Oct. 24, 1969, 6936475

Int. Cl. B65g 47/00

U.S. Cl. 198-20

5 Claims



The present invention relates to continuous elevating and lowering devices disposed in back-to-back relation utilizing balancers carrying containers and mobile ejectors for removing the containers from the elevator. The mobile ejectors of the present invention include an ejection arm subject to pivotal movement controlled by a cam which cam provides successive movements for removal of a stop which prevents swinging of the container; begins disengagement of the container from the elevator by a push arm and ends the pushing of the container into disengaged position by a second push arm. The mobile ejector removes the containers from the elevator without balancing them and the containers remain in a substantially vertical position during removal.

3,633,727

DEVICE FOR FEEDING BOOK PADS TO A TRIMMING MACHINE

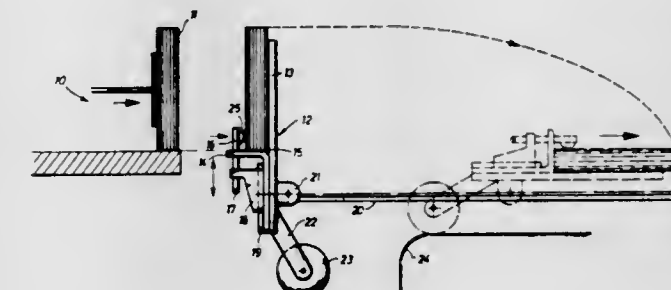
Hermann Brenner, Kocherstetten, Germany, assignor to Walter Sigloch Grossbuchbinderel, Kunzelsau, Germany
Filed Mar. 20, 1969, Ser. No. 808,729

262.3

Int. Cl. B65g 47/00

U.S. Cl. 198-27

10 Claims



A device for feeding book pads to a trimming machine in which a book pad is conveyed horizontally, while maintained in a vertical position, to an alignment angle means which clamps the book pad and transports same to a trimming machine by means of a sled and track arrangement. During transport, the book is rotated to a horizontal position by means of a swing axle associated with the angle alignment means.

3,633,728

MULTILANE SINGULATOR FOR SORTING PEACH HALVES

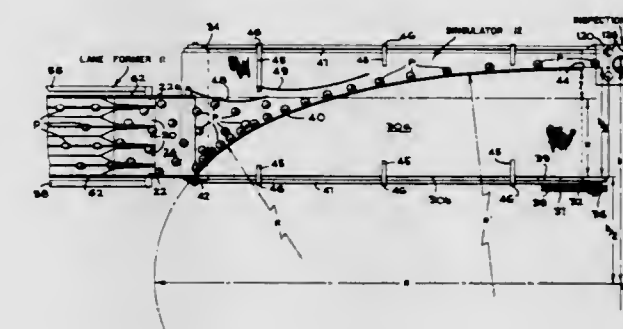
Donald W. Chamberlin, Los Gatos, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Mar. 2, 1970, Ser. No. 15,527

Int. Cl. B65g 47/26

U.S. Cl. 198-32

4 Claims



Peach halves are fed through a shaker for removing the pits and the pitted halves are delivered as a plurality of lanes to a singulating conveyor. The singulating conveyor belt runs beneath two curved walls, each for half of the lanes. The curved walls are in the form of an element of an ellipse disposed for providing a progressively decreasing retardation of the peach halves as they are slid along the walls by the conveyor belt, thereby causing each peach half to move somewhat faster down the conveyor than the one directly behind it. As a result, the peach halves from all the lanes are eventually singulated and presented to inspection devices which can reject those peach halves which retain pit fragments.

3,633,729

CONTAINER-ORIENTING APPARATUS

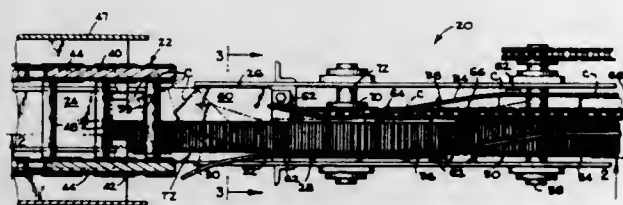
James L. Reimers, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Jan. 9, 1970, Ser. No. 1,660

Int. Cl. B65g 17/46, 47/24

U.S. Cl. 198—33 AB

2 Claims



An orienting apparatus for orienting a spaced series of containers while moving along a path at high speed between a position wherein their axes extend transversely of the path to a position wherein their axes are in alignment. Singulated containers are received with their axes extended transversely of the path. Each container has one of its ends received on a dead plate and has its other end received on an endless turning conveyor having a high coefficient of friction and being driven at a higher speed than that of the incoming containers. A stationary magnet is disposed under the turning conveyor causing said other end of each container to be firmly gripped by said turning conveyor thereby turning the containers to a position wherein their axes are aligned. Guide means are provided to deflect the aligned containers transversely off the turning conveyor onto a take-away conveyor.

3,633,730

SORTING DEVICE FOR CYLINDRICAL VESSELS

Ulrich Deutschbein, Russelsheim, Germany, assignor to Vereinigte Kapselabriken Nackenheim GmbH, Nackenheim(Rhine), Germany

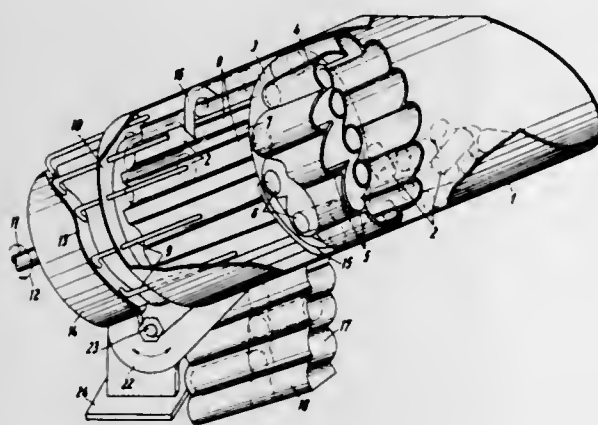
Filed July 9, 1970, Ser. No. 53,398

Claims priority, application Germany, July 29, 1969, P 19 38 474.8

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA

14 Claims



A sorting device for cylindrical vessels having a length greater than the diameter, such as bottle caps or the like, including a container for actuating disordered vessels in which the vessels are picked up in the container by a conveyor paddle wheel rotating about an inclined axis and having internal axial parallel conveyor pockets in which the vessels are aligned axially parallel with an opening through which they fall into individual channels of an aligned magazine drum rotating coaxially and synchronously with the conveyor paddle wheel, with central retaining rods projecting approxi-

mately to the longitudinal center of the channels in position to engage the vessel bottoms with the rods mounted for relative movement axially of the channels responsive to operative engagement with a stationary cam, with those vessels having apertures facing away from the rod and those with the apertures facing the rod being removed from the magazine drum along separate conveyor routes.

3,633,731

BAG WICKETTER

Elwyn David Jones, Beloeil, Quebec, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada

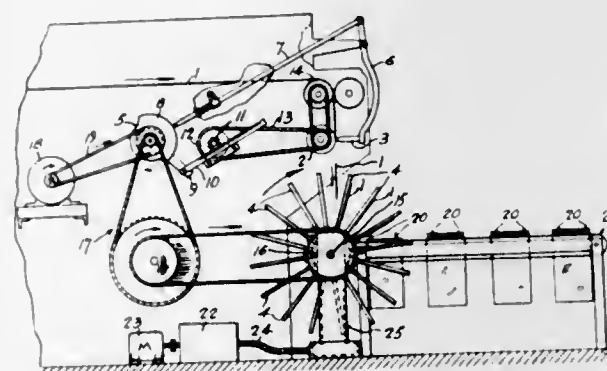
Filed June 2, 1970, Ser. No. 42,664

Claims priority, application Canada, June 9, 1969, 53,868

Int. Cl. B65g 57/08

U.S. Cl. 198—35

7 Claims



A machine for assembling plastic bags on wickets as a step in the production of packets of plastic bags. A plastic bag having a flap provided with mounting holes is fed vertically downward between the suction transfer arms of a rotating double set of transfer arms which carry the bag to wickets mounted in register with the flap holes. By feeding the bags vertically downward between the suction transfer arms the problems of transfer caused by static charges and glossy surface are minimized.

3,633,732

APPARATUS AND METHOD FOR FILLING BOXES WITH A PRESELECTED QUANTITY OF DISCRETE ARTICLES

Kenneth F. Russell, deceased, late of Claremont, Calif.; Marie D. Russell, Claremont; Thomas L. Russell, San Rafael, and Douglas O. Russell, all heirs, Los Angeles, all of Calif., assignors to Brogdex Company, Pomona, Calif.

Original application July 13, 1967, Ser. No. 653,239, now Patent No. 3,492,779, dated Feb. 3, 1970. Divided and this application July 7, 1969, Ser. No. 840,602

Int. Cl. B65g 43/00

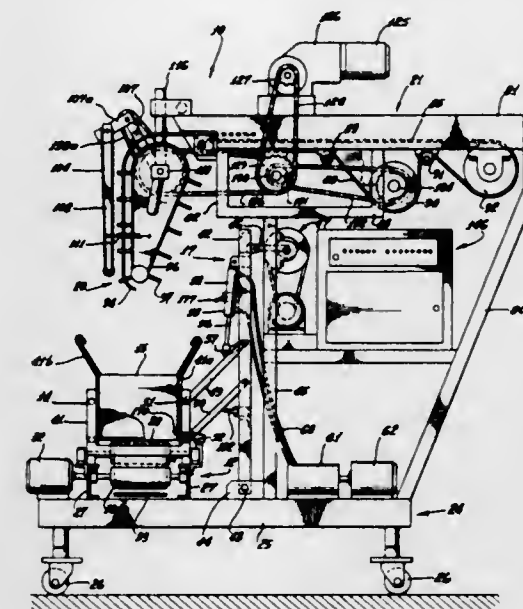
U.S. Cl. 198—40

7 Claims

An apparatus and method for filling a box with a preselected aggregate number of articles or a preselected aggregate weight of articles utilizing a vertical feed conveyor having a bottom article release end received within a box being filled to minimize the distance a released article falls to the bottom of the box or to a layer of articles already deposited in the box. The box is raised to enclose the release end of the vertical feed conveyor and as each article is deposited in the box, it is counted. At a preselected intermediate count of articles the box is incrementally lowered a selected vertical interval to provide space for additional articles. In a second example of the invention, the weight of each article as it is placed in the box is sensed and upon reaching a

preselected intermediate weight, the box is incrementally lowered a selected vertical interval. Means are provided for

a series of articles may be collected on the receiving conveyor with such being a predetermined assortment of the different types of articles being handled.



shaking the box during the filling operation to settle and closely arrange the articles in the box.

3,633,733

ARTICLE-HANDLING APPARATUS

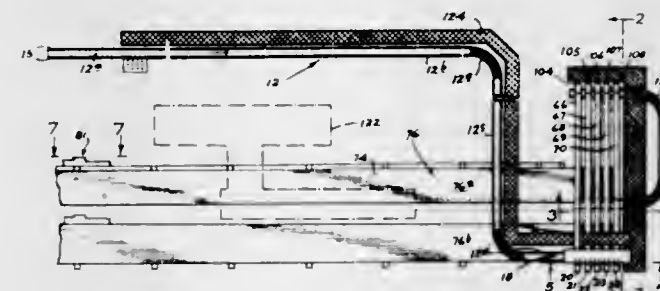
Henry W. Rehr, Concord, Calif., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Feb. 5, 1970, Ser. No. 8,939

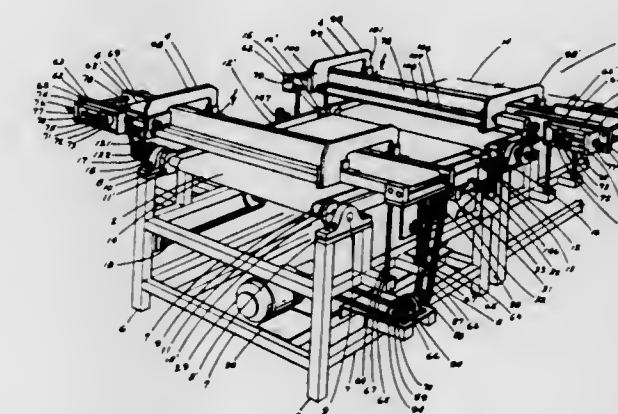
Int. Cl. B65g 47/00

U.S. Cl. 198—45

12 Claims



Article-handling apparatus for the sorting and dispensing of articles. The apparatus includes multiple holding conveyors, stacked one over another, for the temporary, tiered storage of articles passing through the apparatus. Articles travel into the apparatus on a supply conveyor, and are directed to selected ones of multiple, upright gravity operated feed chutes through operation of a remotely controlled diverter. The feed chutes deposit the articles on transfer conveyors disposed at different elevations in the apparatus, and the transfer conveyors then carry the articles to different ones of the stacked holding conveyors. An article-assembling means associated with each transfer conveyor may be actuated to remove a row of articles on a transfer conveyor and deposit such on a holding conveyor. The transfer conveyors also are used in the unloading of holding conveyors, and have off-bearing extremities arranged to deposit articles discharged therefrom into the feed ends of multiple, upright, gravity operated delivery chutes. The delivery chutes deposit articles on a common receiving conveyor. When handling articles of different types, and with these articles sorted by operation of the diverter, a classified storage of articles is produced on the holding conveyors. By controlling the discharge of articles from the delivery chutes,



A conveyor system for discrete articles comprising an infeed conveyor for receiving articles from a supply source in random fashion, a crossfeed conveyor presented upwardly and forwardly of the discharge end of said infeed conveyor and traveling in a direction axially normal thereto for communicating with an article-handling station, relatively high-speed rollers interposed between said infeed conveyor and said crossfeed conveyor; said infeed conveyor being adapted for rockable movement so that when in raised position, articles may be transferred therefrom onto said high-speed rollers which latter, due to their relatively increased angular velocity causes the received articles to be transferred onto said crossfeed conveyor in aligned relationship for sequential presentation at the particular handling station. The relationship between the linear rates of travel between the infeed conveyor and the crossfeed conveyor and the speed of rotation of the rollers is critical for effecting a facile transfer of the articles within the requisite aligned relationship.

3,633,735

APPARATUS FOR FEEDING CIGARETTES OR OTHER RODLIKE ARTICLES

Desmond Walter Molins; David Theodore Nelson Williamson; Alan Keith McCombie, and Horace Alexander Stone, all of London, England, assignors to Molins Machine Company, Limited

Original application Oct. 22, 1968, Ser. No. 778,357, now Patent No. 3,495,696, which is a continuation of application Ser. No. 676,657, Oct. 19, 1967, now abandoned, which is a continuation of application Ser. No. 561,547, June 29, 1966, now abandoned. Divided and this application July 23, 1969, Ser. No. 871,390

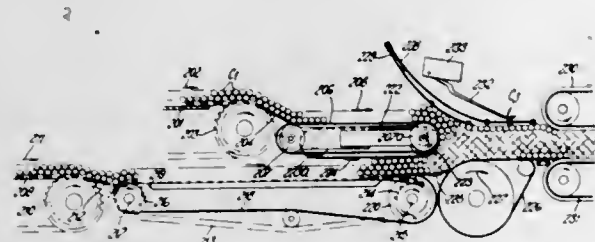
Int. Cl. B65g 37/00

U.S. Cl. 198—82

5 Claims

The speed of an endless band conveying a stack of rodlike articles aligned parallel to one another and moving transversely to their axes is regulated by means of a flap which partly defines a channel for the stack of articles and moves up and down in response to the variable pressure of the articles beneath it. Two endless bands one above the other and each

carrying a stack of the articles may convey the two stacks to a merger zone lying above a third endless band which carries



the merged stack with the aid of a top wall confining the upper surface of the merged stack.

3,633,736

DIAL CONTROL SYSTEM

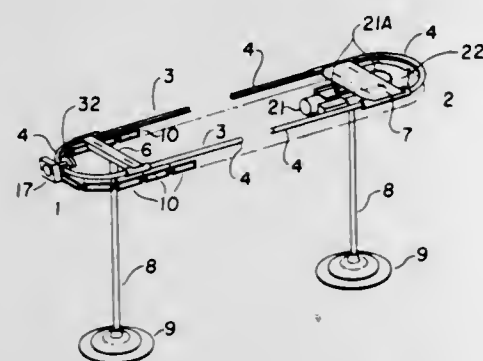
Steve T. Golden, 258 Banner Ave., Ventura, Calif.

Filed Feb. 24, 1970, Ser. No. 13,454

Int. Cl. B65g 23/30

U.S. Cl. 198-110

11 Claims



A control system for a conveyor movable in an endless path effects movement of the conveyor in the direction which will result in the shorter travel of a selected article on the conveyor when being brought to a fixed station. A readily calibrated dial for selecting a given article to be transported by the conveyor, and a circuit including a starting switch and a directionselecting switch operable after such article has been selected as a result of adjustment of the dial, are disclosed.

3,633,737

CONVEYOR, PARTICULARLY FOR HOT MATERIALS

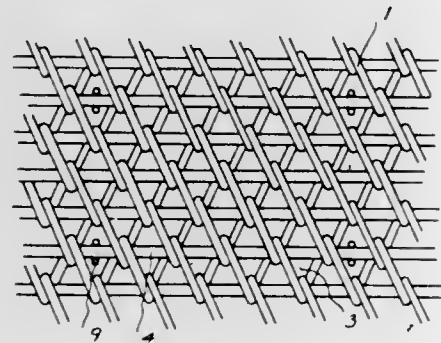
Paolo Magaldi, Via Irno 505, Salerno, Italy

Filed Dec. 16, 1968, Ser. No. 783,878

Int. Cl. B65g 17/10

U.S. Cl. 198-196

1 Claim



A conveyor, particularly adapted to convey hot materials. The conveyor includes a belt made up of a network of inter-

connected elongated members forming a flexible mesh. This belt forms a tractive component of the conveyor. A material-holding means is connected to the belt to be moved thereby and this material-holding means forms a material-carrying component of the conveyor. The material-holding means includes a plurality of material-holding elements distributed longitudinally along the belt and having only limited engagement therewith so as to achieve a high degree of thermal separation between the material-holding means and the belt. A connecting means connects the elements of the material-holding means to the belt and this connecting means has only a highly localized area of engagement with the belt and elements so that the high degree of thermal separation between the material-holding means and belt is maintained.

3,633,738

SEPARATOR FOR HARVESTED NUTS AND DEBRIS

Joseph M. Patterson, Winter Park, Fla., assignor to FMC Corporation, San Jose, Calif.

Original application July 11, 1967, Ser. No. 652,506, now

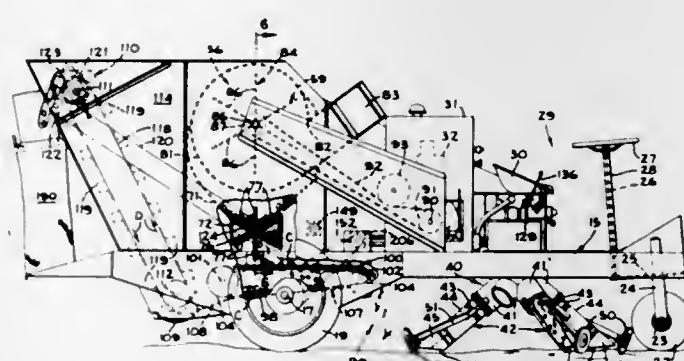
Patent No. 3,520,123. Divided and this application Nov. 10,

1969, Ser. No. 871,316

Int. Cl. B07b 9/00

U.S. Cl. 209-31

3 Claims



A nut-harvesting machine, which moves along the ground, has a rotor with a plurality of suction tubes extending downwardly and outwardly therefrom. The tubes are vertically movable, and the ends thereof, which move in orbital paths, are maintained closely spaced from the ground by gage wheels. A centrifugal blower draws nuts and debris through the suction tubes, rotor, and a suction duct. A centrifugal chamber and a vortex chamber between the duct and the blower separates the light debris from the nuts and heavy debris, which fall through a rotary vacuum sealing valve to a conveyor. The conveyor has an upper run which moves larger debris in one direction and has a lower run which moves the nuts and small debris on a grate in the opposite direction. The grate passes the small debris, and the nuts are carried from the grate by an elevator to a receptacle.

3,633,739

MACHINE FOR ACCUMULATING AND TRANSFERRING ARTICLES

Robert E. Renner, and Stanley D. Premo, both of Rockford, Ill., assignors to Riegel Paper Corporation, New York, N.Y.

Filed Feb. 6, 1970, Ser. No. 9,136

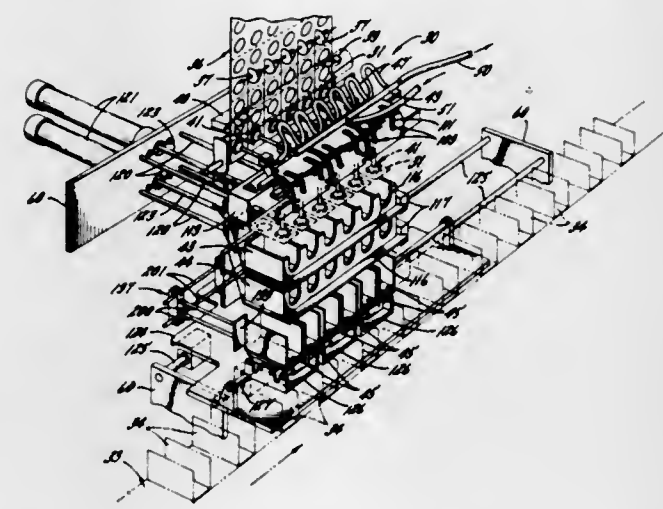
Int. Cl. B07c 1/04

U.S. Cl. 209-72

35 Claims

Packages advanced in edge-to-edge relation from a continuous motion packager are engaged by a series of transfer devices which increase the spacing between the packages while delivering the packages to sets of upper and lower accumulating holders for collection into stacks. The stacks thereafter are dropped from the accumulating holders into a series of transfer holders which subsequently are spread apart to match the pitch of package-receiving buckets on a continuous motion conveyor for delivering the stacks to an automatic cartoner. While being spread apart, the transfer hol-

ders are moved alongside the conveyor at a speed equal to that of the conveyor and, during such movement, the stacks



are shifted out of the transfer holders and into the conveyor buckets.

3,633,740

MACHINE FOR TESTING SMALL INSULATED OBJECTS

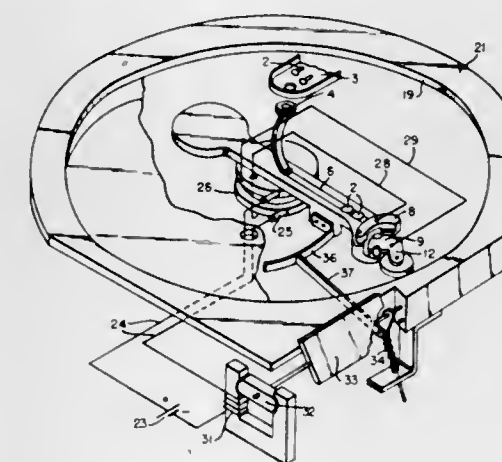
Edward I. Westmoreland, 20 Edes Street, Plymouth, Mass.

Filed Oct. 12, 1970, Ser. No. 79,803

Int. Cl. B07c 5/344

U.S. Cl. 209-73

8 Claims



A machine for automatically testing small insulated objects such as anodized aluminum rivets, by subjecting them to an electric potential and determining whether they pass current. The properly anodized rivets are coated with an insulating layer; the defective ones pass a current which is used to actuate a gate-controlling deflector to separate them from the acceptable ones. A rotary feed arm supplies the rivets by centrifugal force to a testing head at one point in the revolution of the feed arm, and releases them individually at another point in the rotation of the arm after testing, into a path determined by the position of the deflector.

3,633,741

COMPARTMENT SELECTOR DEVICE IN A LOG SORTER

Erkki T. Lehtola, Kaskinen, Finland, assignor to Oy Tahka Ab., Kaskinen, Finland

Filed Apr. 20, 1970, Ser. No. 30,129

Claims priority, application Finland, Apr. 21, 1969, 1173/69

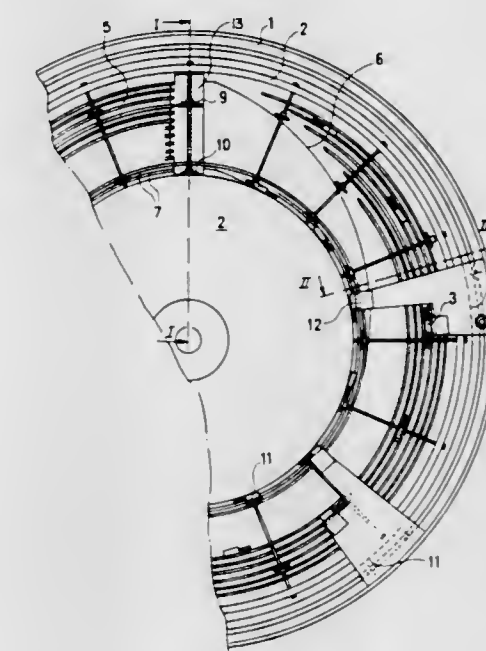
Int. Cl. B07c 5/36

U.S. Cl. 209-74 M

2 Claims

Selector device, in particular a compartment selector device in a log sorter, having rods moving synchronously with the sorting conveyor and connected at both ends with adjacent rods, and on each rod slides movable in their longitudi-

dinal direction, means for stopping the slide set into motion with the aid of gravity by dropping it from the upper end of the rod at desired point on the rod, means for further transfer of the pulse transmitted by the slide to triggering, counting or other elements by electrical means, said elements being placeable at desired points on the path of the rods, and controls arranged to move the slides which have been stopped on the rods into their neutral initial position on the rods. The



3,633,742

METHOD AND APPARATUS FOR CLASSIFYING AND SORTING CLOSURE CAPS

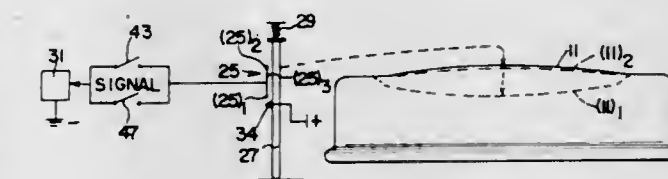
Roger Warren Melton, Waukegan, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed July 1, 1970, Ser. No. 51,432

Int. Cl. B07c 5/00

U.S. Cl. 209-80

16 Claims



Jar caps of the vacuum-indicating, flip panel type are classified and sorted according to panel flexure characteristics. Two different positions of each panel are induced by successively establishing high- and low-pressure differentials across the panel. In each case the panel position is compared to the norm therefor. A memory device information retrieval element is correspondingly conditioned to signalize either deviance or freedom therefrom in respect of both induced positions. The memory device is then investigated and the cap is classified accordingly. Apparatus is provided for automatically classifying and sorting caps. The caps are serially fed to a carrier which traverses a series of cams. The cams actuate switches controlling vacuum, sensing, and memory device components. The memory device retrieval element controls an ejector according to the mode prevailing. The ejector discharges caps from the carrier at different locations ac-

cording to whether a particular cap is rejected or accepted with respect to both comparisons.

3,633,743

PROCESS AND APPARATUS FOR CLASSIFYING FIBRES
Ronald William Gooding, Waltham Abbey, and Noel James Parratt, Loughton, both of Essex, England, assignors to National Research Development Corporation, London, England

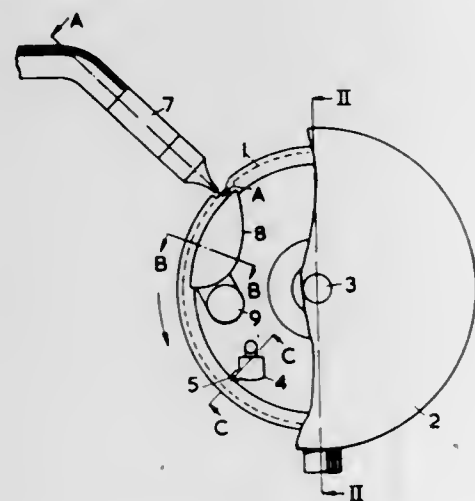
Continuation-in-part of application Ser. No. 610,661, Jan. 20, 1967, now Patent No. 3,490,585. This application May 5, 1969, Ser. No. 821,850

Claims priority, application Great Britain, May 7, 1968 21,473/68. The portion of the term of the patent subsequent to Jan. 20, 1987, has been disclaimed.

Int. Cl. B07b 1/22

U.S. Cl. 209—250

36 Claims



A process and apparatus for classifying fibers for length wherein the fibers are dispersed in a liquid which is tangentially flowed onto a screen, which has a plurality of holes of a size in accordance with the length of fibers desired to be retained on the screen. The screen is in the form of a closed loop which is continuously circulating past the dispersion supply position at a rate sufficient to ensure that only a thin layer of fibers is applied to the screen. After passing the supply position the screen is inverted and a stream of fluid is applied to remove the fibers retained thereon.

3,633,744

ARRANGEMENT FOR CLASSIFYING OF LIQUID SUSPENSIONS

Ladislav Kristek, Antonin Svizela, and Ivo Hampl, all of Prerov, Czechoslovakia, assignors to Prerovske Strojirny, narodni podnik, Prerov, Czechoslovakia

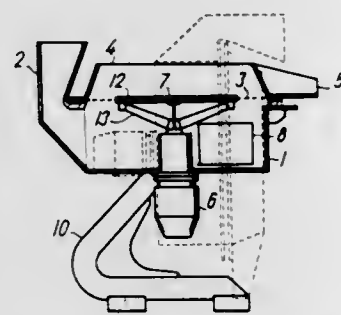
Filed Feb. 26, 1969, Ser. No. 802,566

Claims priority, application Czechoslovakia, Feb. 28, 1968, 1447-68

Int. Cl. B07b 1/28

U.S. Cl. 209—262

4 Claims



Liquid suspensions are classified by means of a substantially horizontal vibrating screen, whereby the suspension is

supplied to the bottom part of the screen. The screened material passes through the screen, taken along by the raising stream of the suspension and is removed from the top part of the screen. The part of material which cannot pass the screen remains in the bottom part, wherefrom it is drained. The screening effect is thus not reduced by solid material settling on the screen surface.

3,633,745

SCREENING MACHINE

Albert Wehner, Haus 35, Germany

Filed July 5, 1968, Ser. No. 742,790

Claims priority, application Germany, July 13, 1967, W 44369

Int. Cl. B07b 1/28

U.S. Cl. 209—310

14 Claims



A screening machine comprises a frame, a flexible screen floor attached at intervals to parallel screen floor supports which are fixed on supporting tubes rotatably mounted in bearings in the frame so that the screen floor supports can rock about the fixed axes of the supporting tubes, and a driving mechanism for oscillating the supporting tubes, and hence the screen floor supports, about their axes in such a way that adjacent supports alternately approach and recede from each other in order to flex and stretch alternately the screen floor between them, thus setting up a stationary wave in the screen floor.

3,633,746

WASTE-DISPOSAL SYSTEM AND METHOD

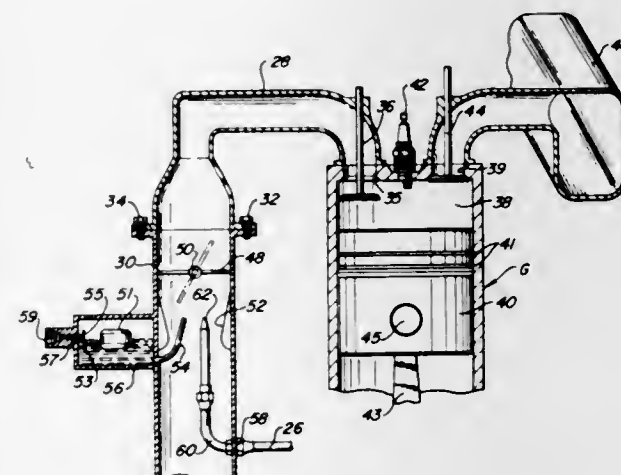
Melvin L. Dieterich, North Olmsted, Ohio, assignor to The Standard Products Company, Cleveland, Ohio

Filed Aug. 6, 1969, Ser. No. 848,029

Int. Cl. B01d 21/00

U.S. Cl. 210—71

12 Claims



A human conveyance has a fuel-burning engine and a toilet which discharges to a waste storage tank. Effluent from the storage tank is fed to an evaporating device where the effluent is subjected to a first temperature which evaporates the effluent to form effluent vapor. The effluent vapor is

directed to a second heating device which subjects the waste temperature to a second temperature substantially greater than the evaporating temperature. The heating device which subjects the effluent vapor to the second temperature may be defined by the intake or exhaust ports of the fuel-burning engine.

3,633,747

FILTER PRESS METHOD AND APPARATUS

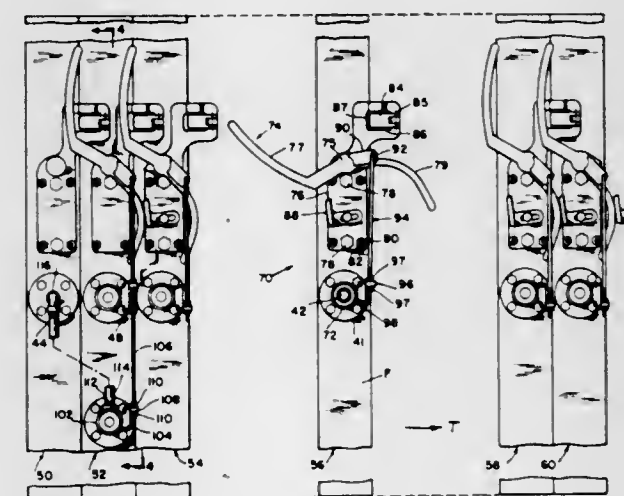
William L. Fismer, Verona, N.J., assignor to T. Shriver & Company, Inc., Harrison, N.J.

Filed Apr. 23, 1970, Ser. No. 31,174

Int. Cl. B01d 23/24

U.S. Cl. 210—81

10 Claims



A filter press with a plurality of filter plates mounted in side-by-side relationship and method and apparatus for cleaning the cake from the plates. The cake is formed upon the opposed side faces of the plates, and each of the side faces is covered by fabric. The fabric is flexed away from the plate by pressurized air which is introduced between the plate and the fabric to remove the cakes. Each plate has an operating unit formed by an air valve for controlling airflow into the plate, a rotatably mounted valve-actuator arm and a pair of abutment members adjacent the opposed top edges of the plate. When removing the cakes the plates are moved sequentially, away from the stack and laterally in the press. During the initial movement of each plate one of the abutment members on an adjacent plate engages and swings the actuator arm of the moving plate so as to open its valve, and the cakes are removed. The cleaned plate is then moved on, and an abutment member on the opposed adjacent plate engages the actuator arm for closing the valve.

3,633,748

PORTABLE WATER-TREATING APPARATUS

James O. Hanley, Minnetonka, and Michael J. Lynch, Bloomington, both of Minn., assignors to Crest Industries, Inc., Minnetonka, Minn.

Filed Jan. 22, 1971, Ser. No. 108,797

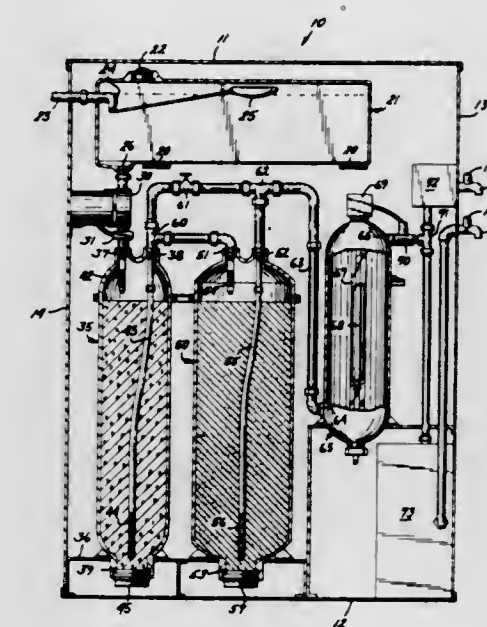
Int. Cl. B01d 23/10

U.S. Cl. 210—97

5 Claims

A housing having a water pump mounted therein so as to receive water from a reservoir by gravity flow and supply water to a first container partially filled with activated carbon. A blend of water flowing directly from the first container and water flowing from the first container through a second container filled with ion exchanger material is introduced into a third container having an ultraviolet radiating lamp mounted therein to eliminate bacteria and virus from

the water. Water from the third container is heated or cooled as desired and is then ready for consumption. The various



3,633,749

AUTOMATIC SWIMMING POOL SKIMMER

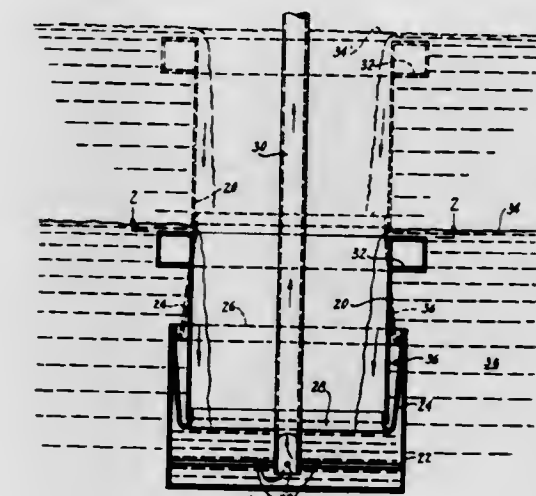
Richard L. Panosh, 717 Front Street, Lisle, Ill.

Filed Apr. 21, 1970, Ser. No. 30,466

Int. Cl. B01d 17/00

U.S. Cl. 210—121

2 Claims



An upper cylinder and a lower cylinder attached to each other by means of a tapered rolled membrane, a tube connected to the lower cylinder for pumping out water, and a flotation collar secured to the upper cylinder for automatically pumping water which is skimmed from the surface of a swimming pool to a filter while adjusting to any variation in the swimming pool water level.

3,633,750

FILTER ELEMENT VALVE MEANS

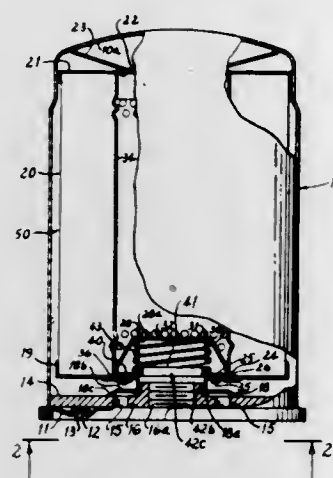
Harvey A. Braun, Moreland Hills, Ohio, and Richard J. Roberts, Somerville, N.J., assignors to Filter Dynamics International, Inc., Edison, N.J.

Filed July 10, 1970, Ser. No. 53,804

Int. Cl. B01d 35/14, 27/10

U.S. Cl. 210-130

3 Claims



An end-reinforcing plate on a filter housing is provided with inlet apertures covered with antidrainback means held in abutment with the plate by an inverted, cup-shaped element formed on an end cap which accommodates an annular filter medium. The end cap also includes relief ports covered by a spring-biased plate which is separable from the end cap to permit oil introduced through the inlet apertures to escape through an outlet aperture when the oil cannot pass through the filter medium.

3,633,751

LAMINA PLATE FILTER

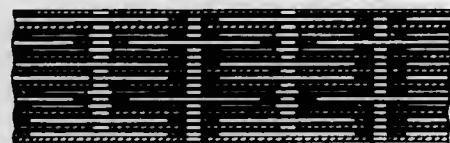
Ronald John Stevens, 30, Coombes Lane West, Kingston-upon-Thames, England

Filed May 8, 1969, Ser. No. 823,057

Int. Cl. B01d 35/06

U.S. Cl. 210-222

6 Claims



Filter elements are provided for use in filtration of fluids, such as petrol, water and air, being made of a pack of laminae with filter gaps designed to facilitate release of entrained material on backflow. Also an associated backflow device is provided which uses a hollow spiral wiping arm to backwash a set of filters sequentially.

3,633,752

IRRIGATION WATER SCREEN

Alfred J. Kurpgeweit, Route #4, P.O. Box 123-F, Yakima, Wash.

Filed Sept. 26, 1969, Ser. No. 864,267

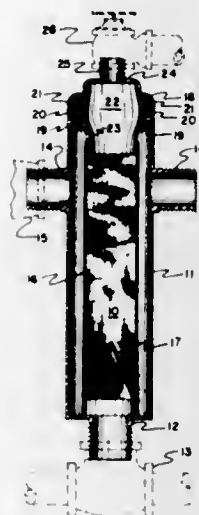
Int. Cl. B01d 29/10

U.S. Cl. 210-232

1 Claim

An irrigation water screen comprising an upstanding cylindrical housing having an entranceway adapted to be connected to an irrigation water supply pipeline and a multiplicity of exitways in the housing, each exitway being adapted to receive a secondary water pipeline, a concentrically disposed cylindrical screen in the housing adapted to cover each of the

exitways and having an inverted V-shaped bottom portion adjacent the entranceway in the housing, and a releasable flushing cap carried by the housing in the terminal end of the housing opposite the entranceway, one of the terminal ends of the caps being engageable with the cylindrical screen in the housing. The flushing cap is provided with a bulbouslike bell-shaped body adapted to be retained in the housing by a retaining spring ring urging against the uppermost shoulder of the cap formed by the body and a return position provided in the housing at the terminal end opposite the entranceway



thereof. The flushing cap may be removed and replaced in the housing by pivoting the cap and articulating the lower recede portion of the cap body about the retaining spring ring in the housing to provide means by which the screen may be removed for cleaning. The flushing cap is provided with a wall in the end opposite the terminal end adjacent the screen in the housing when the cap is in place in the housing, the wall being provided with an exitway adapted to be connected to a commonly known water valve and being operable to flush the irrigation water screen of this invention while the irrigation water system to which it is attached is in operation.

3,633,753

TUBULAR FILTER WITH RESILIENT DEFORMABLE SUPPORT

Elie Raymond Petitjean, Lyon, France, assignor to Comptoir de la Filtration Cofi, Venissieux, France

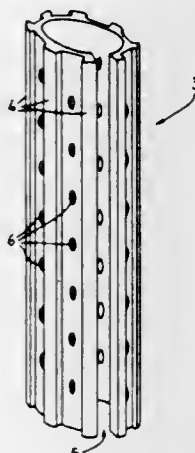
Filed Feb. 4, 1970, Ser. No. 8,594

Claims priority, application France, Feb. 4, 1969, 6902479

Int. Cl. B01d 27/12, 29/14

U.S. Cl. 210-356

5 Claims



A tubular filter for liquids or the like, including a deformable plastic perforate tubular member having a longitudinal slot permitting radial deformation thereof, and a plurality of longitudinal external channels with liquid-flow apertures at their base portions. A perforate cylindrical filter casing en-

compasses the tubular member and is spaced from the channel bases upon deformation of the member so as to allow filter fluid flow at all times.

3,633,754

SELF-CLEANING ROTARY FLUID FILTRATION SYSTEM

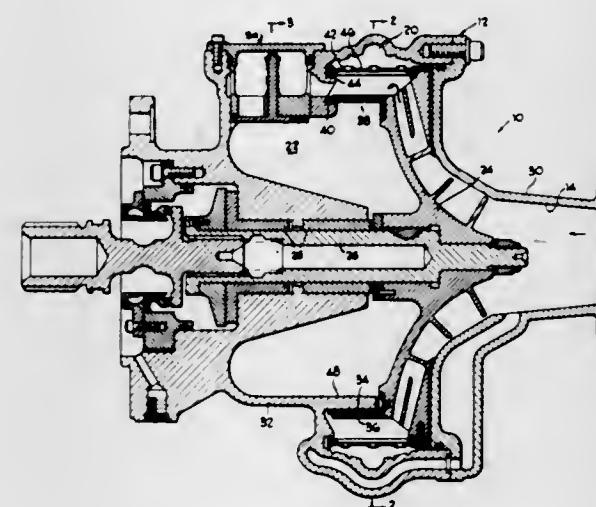
David C. Marsh, Chagrin Falls, Ohio, assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 24, 1969, Ser. No. 887,856

Int. Cl. B01d 33/06

U.S. Cl. 210-360

1 Claim



Fluid from a contaminated source passes through a filter screen; the pressure drop causes contaminants to adhere to the screen. Backflow of fluid through the screen caused by a hydrodynamic or aerodynamic skid removes any contaminants from the screen.

3,633,755

STRAINER OR FILTER FOR CLEANING FLUIDS

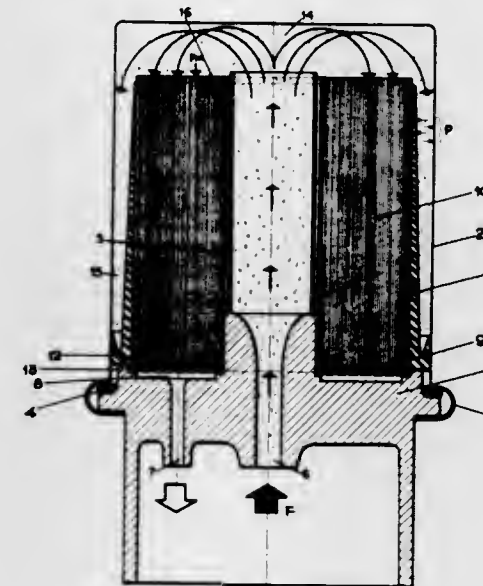
Justo Leonardo Chaneton, Chorroarin Street, No. 1263, Buenos Aires, Argentina

Filed Jan. 20, 1970, Ser. No. 4,262

Int. Cl. B01d 27/00

U.S. Cl. 210-439

9 Claims



A strainer of filter assemblage for cleaning fluids in which a body is provided with a fluid inlet, a fluid outlet, an inlet header and an outlet header. A paper roll is supported by the body between the inlet header and the outlet header and through which the fluid to be cleaned must flow axially from the inlet header towards the outlet header. An elastic deformable sheath adapted to surround and constrict the paper roll is provided within the inlet header and located a

3,633,756

FILTER ELEMENTS FOR LIQUID FILTERS

Kenneth Ernest Buckman, Southampton, England, assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 5, 1970, Ser. No. 8,999

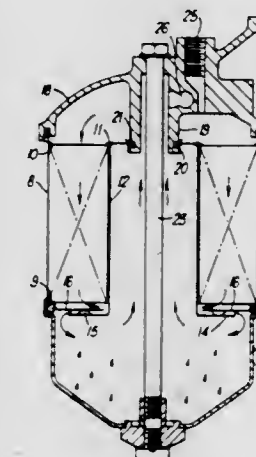
Claims priority, application Great Britain, Feb. 8, 1969,

6,971/69

Int. Cl. B01d 27/06

U.S. Cl. 210-443

5 Claims



A filter element suitable in particular for a liquid fuel filter is formed by folding a strip of crepe filter paper on itself about a medial longitudinal fold line to bring the two halves of one face of the sheet into apposition and then folding the folded sheet in accordion fashion about a regularly spaced series of transverse fold lines, the opposite face of the sheet having lines of adhesive applied to it adjacent its longitudinal edges so that, on each half of the sheet the free edge of one-half of each pleat is sealed to the free edge of an apposed half of an adjacent pleat, the strip being formed into a zigzag folded pocket, the assembly of pleats thus formed being joined at its opposite ends to form a hollow tubular filter element.

3,633,757

FLUID FILTER

Jean-Pierre Madern, Route de Perpignan, Cabestany, France

Filed Sept. 6, 1968, Ser. No. 757,943

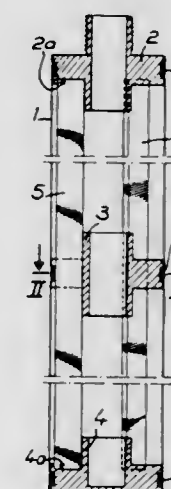
Claims priority, application France, Sept. 13, 1967, 640;

Mar. 1, 1968, 646

Int. Cl. B01d 25/34, 27/04

U.S. Cl. 210-457

6 Claims



A fluid filter including a support and a sheath of filtering material which is fixed to and covers the support. A plurality

of longitudinally flexible plates are disposed radially about an axis and constitute the support and a plurality of cylindrical members having radial grooves in which the plates are engaged to hold them in position.

3,633,758

CATHETER STORAGE RACK

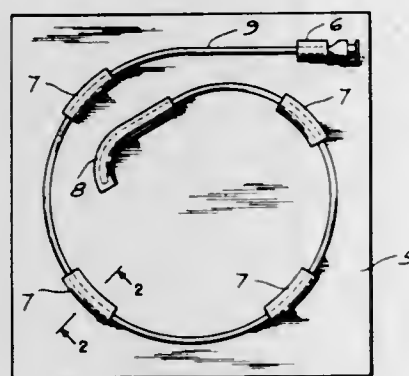
Phillip H. Morse, North Olmstead, Ohio, and James R. Yarter, Glens Falls, N.Y., assignors to North American Instrument Corporation, Hudson Falls, N.Y.

Filed Jan. 9, 1970, Ser. No. 1,791

Int. Cl. A47f 7/00

U.S. Cl. 211-13

3 Claims



This invention is directed to a catheter storage rack that comprises a rigid supporting plate upon which a plurality of spaced tubular guides are mounted and arranged along the locus of the desired configuration of a catheter to be supported on the rack. A curved tubular guide is provided to retain and support the curved distal end of the catheter in its naturally curved configuration.

3,633,759

APPARATUS FOR STORING AND DISPLAYING CARPET SAMPLES OR THE LIKE

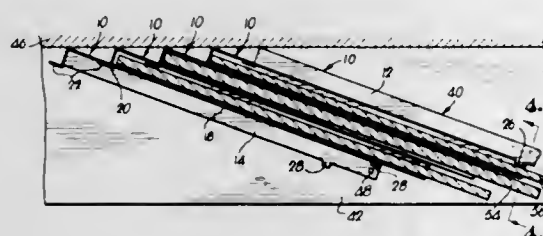
Kenneth J. Jennings, 1007 Massachusetts, Lawrence, Kans.

Filed July 2, 1970, Ser. No. 51,846

Int. Cl. A47f 7/16

U.S. Cl. 211-45

6 Claims



A carpet sample storage and display apparatus utilizes a plurality of interlocked members to hold the samples in overlapping, substantially upright position. A slot in the sidewall of each member receives a tab on an adjacent member and a pair of openings in the same sidewall receive a pair of ears which project from the adjacent member. The members are disposed in overlapping relationship to each other, so that a portion of each of plurality of similarly dimensioned samples is exposed even when in stored condition, and any sample may be conveniently withdrawn for closer inspection when desired. Each member is identical to permit any number of

the same to be interlocked. The members may be supported by conventional structure such as a pair of spaced horizontal shelves and, by virtue of their overlapped relationship, are individually oriented at an angle relative to the front of the support structure.

3,633,760

GARMENT SUPPORT

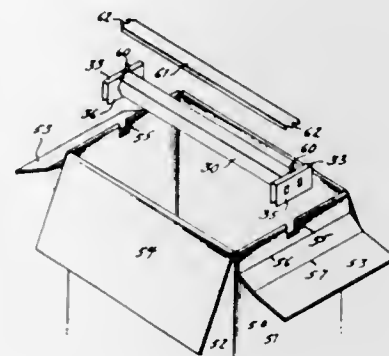
James T. Vosbikian, 7857 Horrocks Street, Philadelphia, Pa.

Filed Nov. 20, 1969, Ser. No. 878,314

Int. Cl. A47k 10/04

U.S. Cl. 211-124

5 Claims



A garment support for use in a carton includes a support bar and inverted channel-shaped brackets secured at opposite ends to the support bar. A cross connection is provided through the interior of the channel, to prevent spreading of the channel and to anchor the garment support in notches of the carton. In a preferred embodiment the support bar passes through an opening in inner channel walls and is secured to outer channel walls. Also, in a preferred embodiment the bracket has tabs which engage in openings in the ends of a clamping strip and extend over the top of the clamping strip to hold it in place and lock coat hangers in position.

3,633,761

FICHE STORAGE AND CLEANING APPARATUS

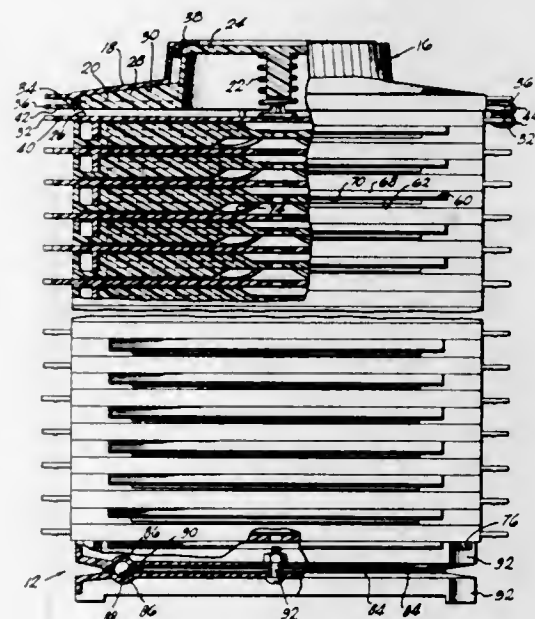
Robert G. Holliday, Ann Arbor, Mich., assignor to Xerox Corporation, Ann Arbor, Mich.

Filed Feb. 24, 1970, Ser. No. 13,276

Int. Cl. A47f 3/14

U.S. Cl. 211-131

19 Claims



A file unit for storing microfiche which keeps the microfiche flat and clean. A vertical column of storage sec-

tions is provided which is four sided and which is on a turntable base to facilitate access to storage spaces opening to each of the sides. Replaceable cleaning elements are mounted at the top of the column to permit cleaning of the microfiche. Separate sections can be added to the column for expansion purposes.

3,633,762

AUTOMATIC SERVICE CONDUIT CONNECTOR DEVICES FOR RAILWAY VEHICLE COUPLINGS

Aldo Gnani, and Giacomo Di Bartolomeo, both of Turin, Italy, assignors to Compagnia Italiana Westinghouse Freni E. Segnall, Turin, Italy

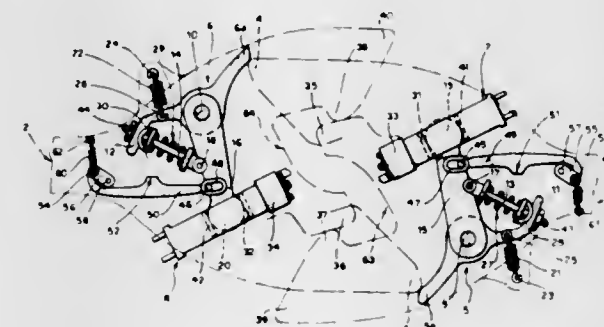
Filed Feb. 24, 1970, Ser. No. 13,412

Claims priority, application Italy, Feb. 25, 1969, 50724-A/69

Int. Cl. B61g 5/06, 5/10

U.S. Cl. 213-1.3

6 Claims



Automatic connectors for service conduits associated with automatic railway vehicle couplings are in this invention displaceable relative to the respective coupling heads into engagement with each other in response to the approach of the coupling heads to interengagement, by a mechanical lever system such that the final interengagement of the connectors occurs only after the frontal impact between the coupling heads.

3,633,763

PRESSURE RELIEF MEANS FOR A HYDRAULIC CUSHION

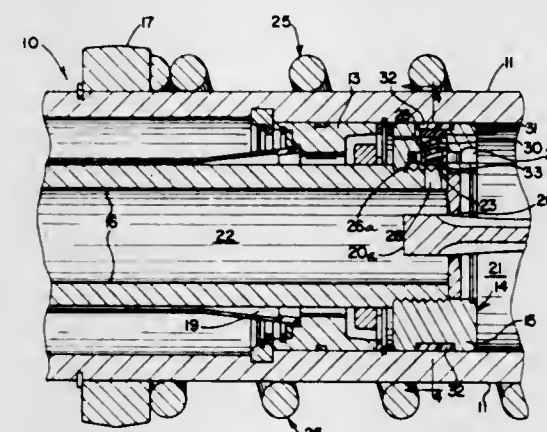
William H. Peterson, Homewood, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 31, 1969, Ser. No. 889,439

Int. Cl. B61g 9/08

U.S. Cl. 213-43

4 Claims



A pressure relief valve arrangement for use in a double-acting hydraulic piston and cylinder cushioning device which prevents buff and draft impacts from damaging lading in a railway car. The pressure relief valve is located in a radial

bore in the movable piston head which connects passages communicating with the high- and low-pressure areas and comprises a cylindrical valve spool biased by a compression spring. The spring maintains the valve spool in a closed position against the end of the passage to the low-pressure fluid thus cutting off fluid flow between the high- and low-pressure areas. When a predetermined pressure is reached in a low-pressure cylinder, indicating an excessively high pressure in the high-pressure chamber, the relief valve will open the passages connecting the high- and low-pressure areas thus providing relief for the high-pressure fluid.

3,633,764

TOOL-CHANGING MECHANISM

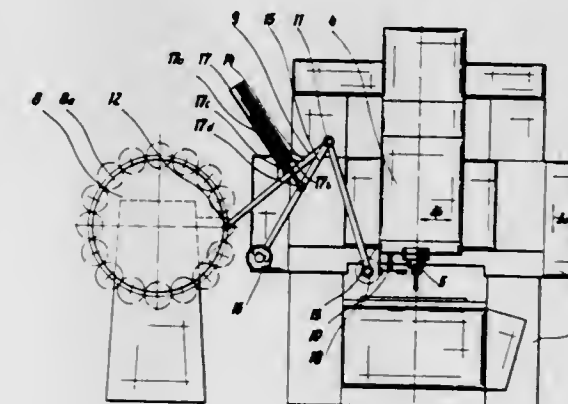
Edwin Nordmann, and Tischer Siegfried, both of Dresden, Germany, assignors to VEB Mikromat Dresden, Dresden, Germany

Filed Jan. 22, 1970, Ser. No. 4,922

Int. Cl. B23q 7/02

U.S. Cl. 214-1 BD

15 Claims



A tool-changing mechanism which transports tools between an indexable magazine mounted on a stationary support and a tool spindle mounted on a holder which is movable toward and away from the magazine support. The mechanism comprises an expandable and collapsible linkage having first and second pivots respectively mounted on the support and on the holder and two links which respectively connect the first and second pivots with a third pivot parallel to the other two pivots. The third pivot carries an oscillatable arm for a gripping unit which can transport tools between the magazine and the spindle holder in response to angular movement of the arm through an angle whose magnitude is a function of the distance between the magazine and the spindle holder.

3,633,765

LOADING AND UNLOADING APPARATUS

Norman J. Bennett, North Kew, and Robert W. Haesler, Blackburn South, Victoria, both of Australia, assignors to Vickers Ruwolt Proprietary Limited, Richmond, Victoria, Australia

Filed Sept. 18, 1969, Ser. No. 859,114

Claims priority, application Australia, Sept. 24, 1968, 43,790/68

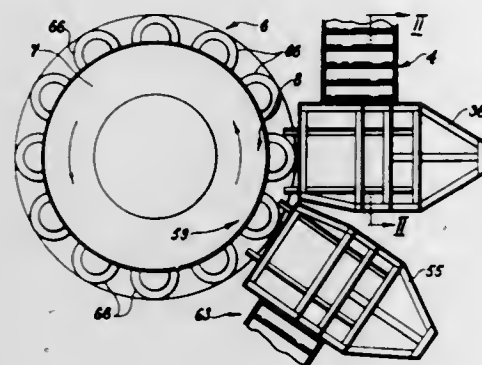
Int. Cl. B65g 47/24, 43/62

U.S. Cl. 214-1 BB

15 Claims

Apparatus for loading substantially cylindrical side filled containers onto a filler machine, including, a cradle assembly for supporting and rotating the container with its axis substantially horizontal, and sensing means for detecting the container filler hole when that hole arrives at a predeter-

mined position. A plunger is operative to locate within the filler hole in response to a signal received from the sensing means thereby holding the container in a desired position for engagement by carrier mechanism which functions to transport the container to a filling station of the filler machine. It is an object to correctly position the container filler hole for



receiving a filler spear of the filler machine before locating the container at the filling station. Preferably, the apparatus is combined with a rotary turret filler machine, and the carrier mechanism is arranged for limited movement with that turret as a container is deposited on the machine, so as to allow substantially continuous operation of the filler machine.

ERRATUM

For Class 291—371 see:
Patent No. 3,633,964

3,633,766

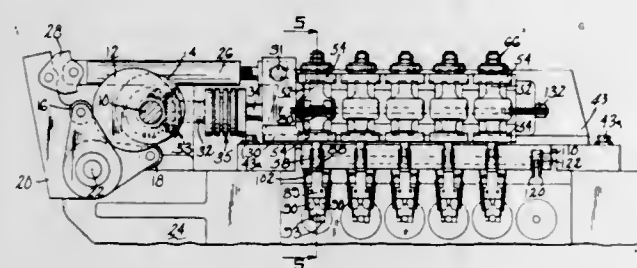
TRANSFER MECHANISM

Erwin B. Byan, Wolcott, and Gregory L. Klein, Cheshire, both of Conn., assignors to Textron, Inc., Providence, R.I.
Filed Dec. 17, 1969, Ser. No. 885,835

Int. Cl. B21d 43/10

U.S. Cl. 214—1 BC

13 Claims



A transfer mechanism capable of transferring and rotating workpieces from one die station to another in a header or similar apparatus, comprising first lever means pivotally mounted to the frame of the machine and bracket means pivotally connected to the first lever means. Sliding and rotating means having finger means thereon, are mounted on the bracket means. Pivotal means act on said sliding and rotating means to raise and lower the finger means to open and closed positions, respectively. First and second drive means are provided to reciprocate the bracket means and ac-

tuate the pivotal means in timed relationship to the bracket means.

3,633,767

PIPE-RACKING APPARATUS FOR OIL WELL DERRICKS OR THE LIKE

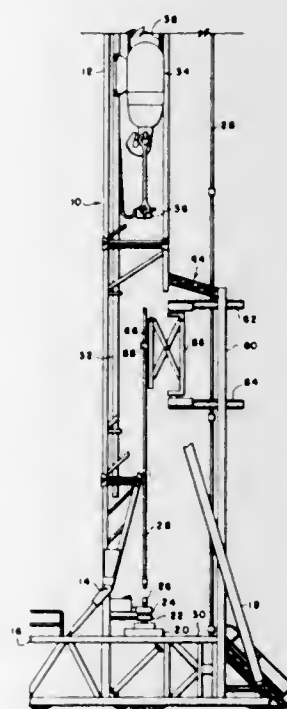
Joseph A. Mitchell, Dallas County, and Norman D. Dyer, Jefferson, both of Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 12, 1969, Ser. No. 849,407

Int. Cl. E21b 19/14

U.S. Cl. 214—2.5

7 Claims



The pipe-racking apparatus disclosed in detail hereinafter is intended for use in a derrick during the drilling of oil and gas wells or the like. During trips into and out of the wellbore, drill pipe is removed or added in the form of stands made up of a plurality of short pipe sections. This pipe-racking apparatus includes a transfer arm that consists of a pantograph mechanism carrying a pipe engaging and supporting member. The transfer arm is movable on tracks whereby the stands of pipe can be moved in the vertical position between the pipe-racking area and the centerline of the wellbore.

3,633,768

STORAGE AND DISTRIBUTION APPARATUS

Jean Guigan, Paris, France, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Aug. 25, 1970, Ser. No. 66,723

Claims priority, application France, Sept. 2, 1969, 6929961

Int. Cl. B65g 59/06

U.S. Cl. 214—8.5 K

8 Claims

The present invention relates to an apparatus for carrying and storing containers. The apparatus, when operated, permits movement of the containers past a device which is adapted to take from the containers material contained therein. Preferably, the containers contain specimens taken from humans which are to be analyzed in an automated system in a continuous manner. The automated system may,

for example, determine the presence in body fluids of diag-

3,633,770

DEVICE FOR PASSING A PRODUCT BETWEEN ZONES OF DIFFERENT PRESSURE

John Alban Howard, Bedford, England, assignor to Lever Brothers Company, New York, N.Y.

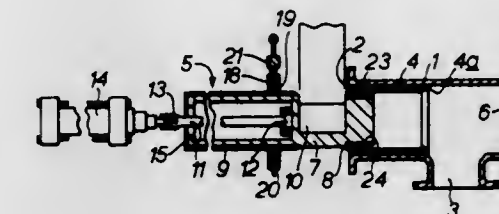
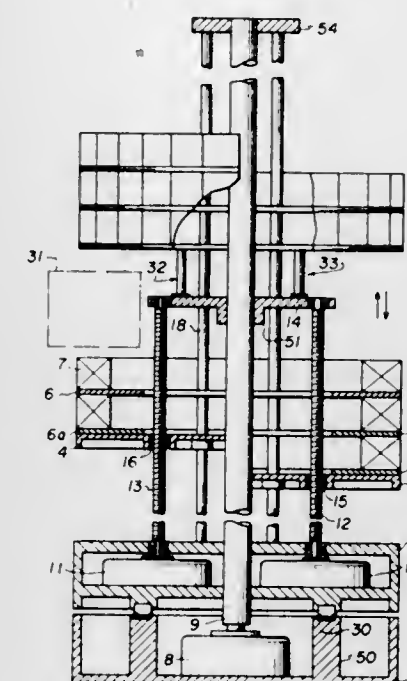
Filed Sept. 8, 1969, Ser. No. 855,841

Claims priority, application Great Britain, Sept. 9, 1968, 42,881/68

Int. Cl. B65g 47/82

U.S. Cl. 214—17 B

2 Claims



A device for transferring a product, such as food to be freeze-dried or puffed, between two zones of different pressure comprises a housing having an inlet and an outlet in communication with the respective zones, and also having a bore in which reciprocates a piston formed with a product-receiving pocket, at least two seals being provided between the piston and the bore, and located so that at least one seal is operative in any position of the piston reciprocation.

3,633,771

APPARATUS FOR MOVING DRILL PIPE INTO AND OUT OF AN OIL WELL DERRICK

Homer J. Woolsey, Joseph R. Woolsey, Cecil Jenkins, all of Tulsa, and Erwin A. Campbell, Bixby, all of Okla., assignors to Lee C. Moore Corporation, Tulsa, Okla.

Filed Aug. 5, 1970, Ser. No. 61,267

Int. Cl. E21b 19/14

U.S. Cl. 214—2.5

9 Claims

3,633,769

STORAGE PREMISES FOR STORING PIECE ARTICLES

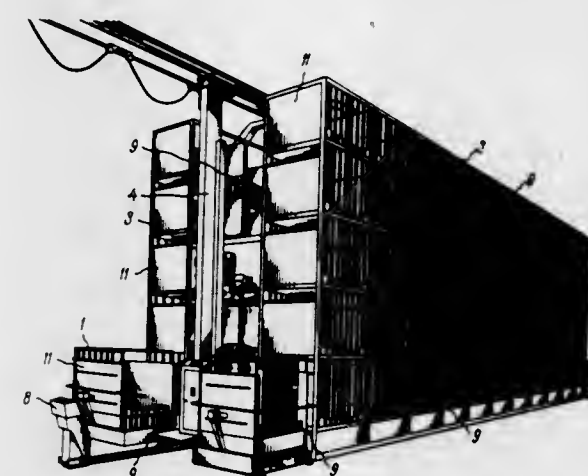
Vladimir Alexandrovich Dublinsky, Brest-Litovsk prospect, 23, kv. 159, and Veniamin Mikhailovich Mats, Tbilissky pereulok, 3a, kv. 21, both of Kiev, U.S.S.R.

Filed June 25, 1969, Ser. No. 836,508

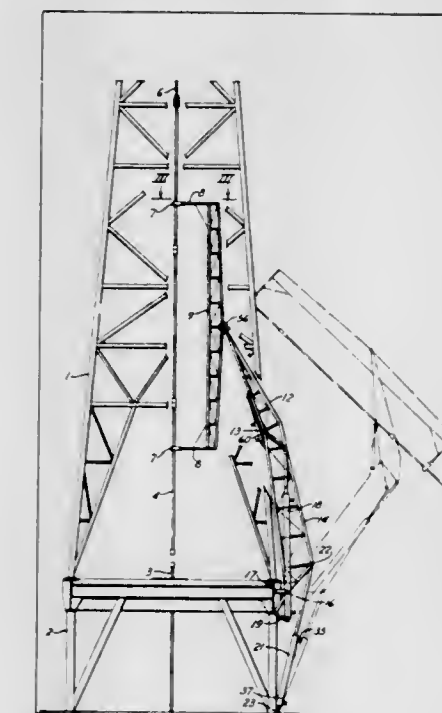
Int. Cl. B65g 1/06

U.S. Cl. 214—16.4 A

3 Claims



Storage premises for storing piece articles, comprising a loading table, an unloading article-delivery table, multilevel and multicell article-storage racks, said machine incorporating a fork catch for handling the articles, the bottom portions of said loading and unloading tables and of said cells of said storage racks being constituted by a plurality of spaced bars, the prongs of said fork catch of the piling machine being adapted to be received in the spaces between said bars.



A boom has an inner end pivotally supported in front of the bottom of an oil well drilling derrick to enable the boom to be swung in a vertical plane toward and away from the derrick. A boom extension is hinged to the outer end of the boom on a horizontal axis and extends upwardly from the boom when the latter is in its raised position. Means are provided for swinging the outer end of the boom extension rela-

tive to the boom in a direction toward the center of the derrick while the boom is being lowered and away from the center while the boom is being raised. Pivotal means, pivotally connected to the outer end of the boom extension on a horizontal axis, supports clamping means for gripping drill pipe. The pivotal means is positioned to allow the gripped drill pipe to swing across the boom and boom extension as the boom is raised or lowered, whereby drill pipe suspended from the elevators can be moved back and forth between upright position in the derrick and forwardly extending position near its bottom.

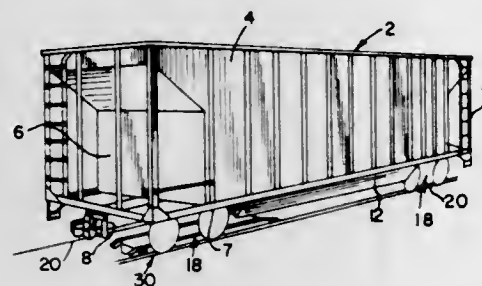
3,633,772
VEHICLE DOOR-OPENING CAM TRACK
ARRANGEMENT

Roy W. Miller, Highland, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Nov. 4, 1969, Ser. No. 873,791
Int. Cl. B61d 7/30

U.S. Cl. 214-63

12 Claims



A ground-mounted elevatable cam track arrangement for operating railroad car mounted hopper discharge door operating linkage, which arrangement includes a movable door-operating linkage cam-supporting structure, and fixed ground-mounted cam support structure having guide means guiding the upward and downward travel of the movable cam support structure and having hydraulic means raising or lowering the movable cam support structure from the elevated in-use position at the railroad trestle to the lowered out-of-use position at the railroad trestle, and adjusting means for limiting the maximum elevation of the movable cam structure.

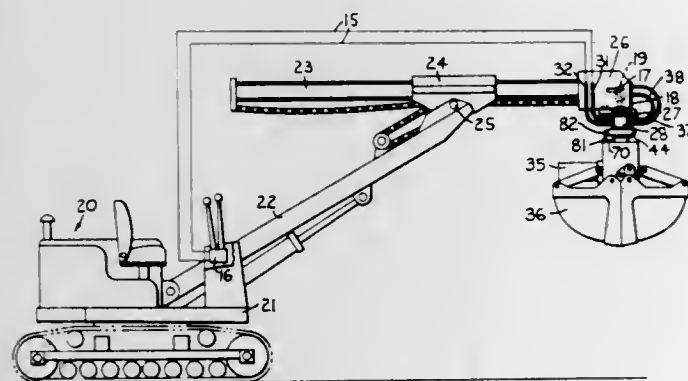
3,633,773
HYDRAULIC ACTUATORS FOR ORIENTING
IMPLEMENTS ON CRANES

Roy O. Billings, 6621 West Wisconsin Ave., Milwaukee, Wis.

Filed Nov. 25, 1969, Ser. No. 879,686
Int. Cl. B66c 3/16

U.S. Cl. 214-147 G

7 Claims



A pressure plate which is adjustably supported on the end of the dipper stick has a depending nonrotatable shaft around

which a circular hydraulic actuator is rotatably mounted, there being provision for removably supporting an implement for rotation around the shaft, together with means for detachably connecting the implement to the actuator so that the latter operates the implement in swiveling movement, hydraulic conduits for the actuator and implement being disposed within the nonrotatable shaft.

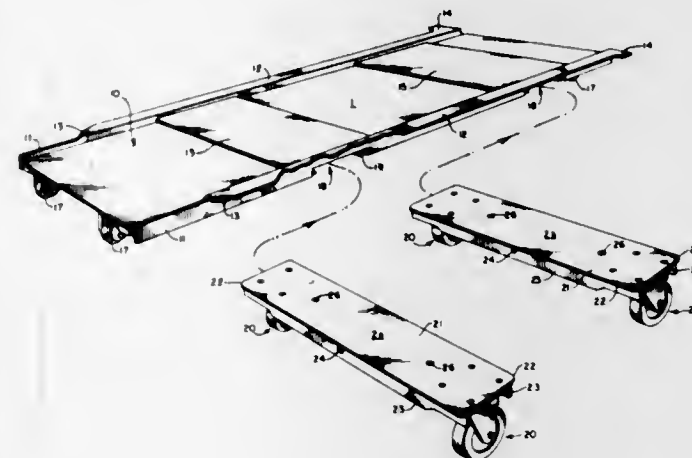
3,633,774
MOVING METHOD

William S. Lee, 760 South Jefferson Davis Parkway, New Orleans, La.

Filed Feb. 6, 1970, Ser. No. 9,223
Int. Cl. B65g 67/02

U.S. Cl. 214-152

17 Claims



A heavy-duty moving system including a sled, two sets of removable heavy-duty castor wheels (FIG. 1) and a lever arm assembly (FIG. 1A) for moving heavy equipment, for example, the "XEROX" copy machines of the 2400 series. The sled is slid under the machine (FIG. 3) and then raised at one end by the lever assembly (FIG. 4), one set of castor wheels then being laterally inserted and locked into the sled (FIG. 5). The opposite end of the sled is raised and the second set of castor wheels inserted and locked into the sled (FIG. 6). Upon lowering, the equipment is then ready for transportation (FIG. 7).

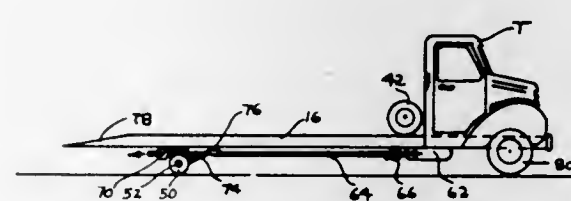
3,633,775
SERVICE VEHICLE

Albert J. Pugliese, 320 Main Street, New Rochelle, N.Y.

Filed Apr. 17, 1970, Ser. No. 29,618
Int. Cl. B60p 1/28

U.S. Cl. 214-506

2 Claims



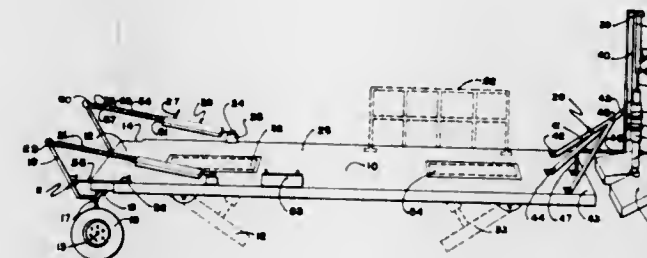
A service vehicle in which the rear chassis can be lowered to a ground-engaging position to haul up a wrecked vehicle on the rear chassis body. The rear chassis may be elevated to its normal riding condition after the wrecked vehicle is on the rear chassis. The lowering and elevation of the chassis body may be accomplished either pneumatically or hydraulically.

3,633,776
HYDRAULICALLY CONTROLLED FLATBED TRAILER
Dan W. Moore, Glenboro, Manitoba, Canada

Filed Feb. 2, 1970, Ser. No. 7,825
Int. Cl. B60p 1/02

U.S. Cl. 214-512

4 Claims



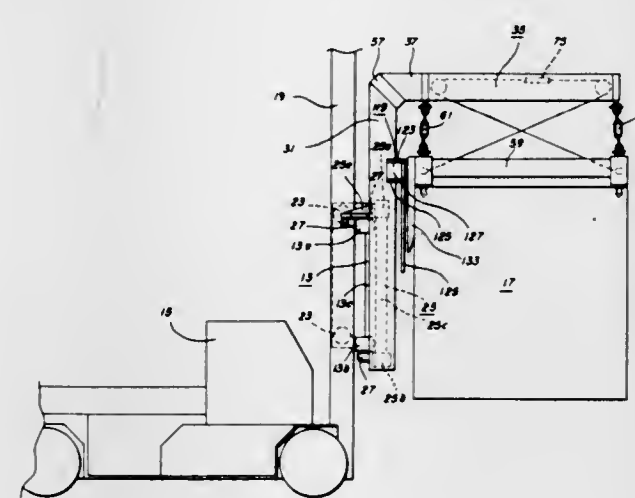
A flatbed trailer that has hydraulically raised and lowered rear wheels and hydraulically raised and lowered front attaching means to a tractor so that the bed can be lowered flat on the ground for loading heavy machinery and equipment thereon.

3,633,777
CARGO CONTAINER HANDLING ASSEMBLY
Murdoch M. Snelling, Jr., and Clancy E. Estes, both of Louisville, Miss., assignors to Taylor Machine Works, Louisville, Miss.

Filed Oct. 26, 1970, Ser. No. 83,907
Int. Cl. B66f 9/14

U.S. Cl. 214-621

8 Claims



A cargo container handling assembly intended to be removably fitted to the fork carriage of a typical forklift vehicle for facilitating lifting and relocating standardized freight handling containers. The handling assembly includes structure for side shifting the container mating structure to expeditiously compensate for an offcenter relationship between the container and the vehicle, yieldably suspended container mating structure allowing out of level containers to be picked up, slewing structure enabling the operator to controllably and properly seat the container mating structure to the container while the lift truck is not perpendicularly situated with respect to the container, i.e., without bumping or touching the sides thereof. Further, the handling assembly includes structure for stabilizing the container after it has been picked up so as to obviate objectionable swinging of the container as

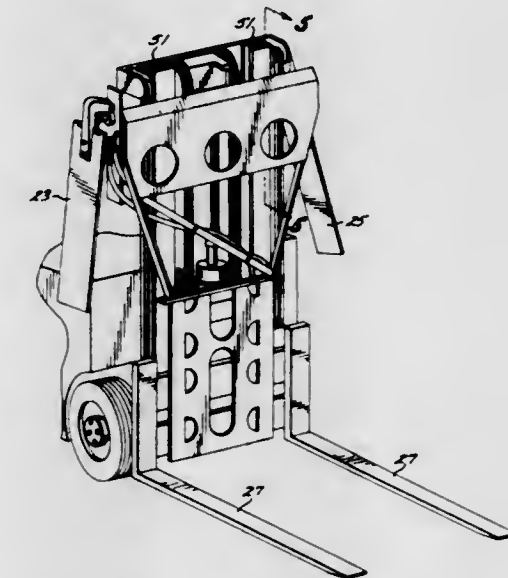
the vehicle moves. Stabilization is accomplished completely within the structure of the handling assembly, i.e., the container does not rest against nor is it touched by any structure other than the usual twistlocks, thus negating external damage to the container while in transit.

3,633,778
LOAD STABILIZING APPARATUS
Allan R. Ide, Cypress, Calif., assignor to Metropolitan Stevedore Company, Wilmington, Calif.

Filed July 27, 1970, Ser. No. 58,280
Int. Cl. B66f 9/18

U.S. Cl. 214-654

6 Claims



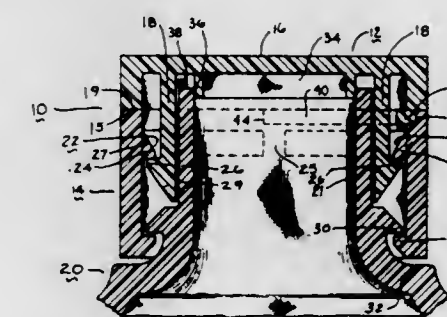
A load stabilizing apparatus for use on a forklift including a load-receiving fork. The stabilizer includes a pair of arms disposed over such fork and mounted to the forklift at their base by means which provides for rotation about a first horizontally extending axis and a second axis extending transversely to the horizontal axis. Actuating means is provided for controlling positioning of the arms whereby such arms may be rotated about the first axis to retract them to a vertical position so the lift truck can be maneuvered into position to project the fork under a load without interference of such arms. The arms may then be rotated about their horizontal axes to be projected horizontally on opposite sides of the load. The arms may then be rotated about their respective second axis to be clamped together on the load and hold it in position as the load is transported to its destination.

3,633,779
ROTATABLE SAFETY CLOSURE
Gerald A. Field, Bloomfield, Conn., assignor to Monsanto Company, St. Louis, Mo.

Filed Jan. 2, 1970, Ser. No. 42
Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

4 Claims



A safety closure to deter children from opening containers used to store potentially dangerous substances. The closure

includes a skirt which is permanently fastened to the container and freely rotatable thereon, an overcap for sealing the container opening and a locking mechanism for securing the overcap to the skirt. The skirt has a generally cylindrical configuration with a portion of the locking mechanism either on the inside or outside of the skirt. The portion of the locking mechanism on the overcap is disengaged from the portion on the skirt when the overcap is rotated to a particular position with respect to the skirt. However, the overcap will remain in a locked position if the skirt is rotated together with the overcap.

3,633,780

PACKAGING CONTAINERS COMPRISING A CONTAINER BODY OF A CHLORINATED PLASTIC MATERIAL

Anders Ruben Rausing, Rome, Italy, assignor to Sobrefina SA, Fribourg, Switzerland

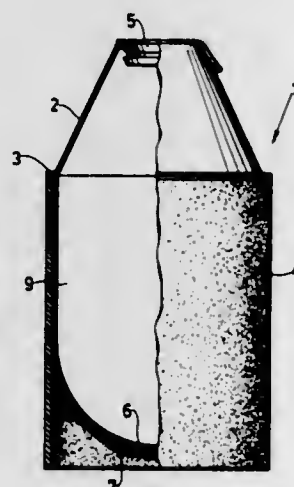
Filed Mar. 12, 1970, Ser. No. 19,044

Claims priority, application Sweden, Mar. 27, 1969, 4285/69

Int. Cl. B65d 11/04

U.S. Cl. 215-12 R

5 Claims



A container composed of at least in part of a chlorinated plastic having associated with it a calcium salt, such as calcium carbonate, which will react with the hydrochloric acid which is liberated when the plastic container is disposed of by burning or incineration and thus eliminate the corrosive affects of hydrochloric acid.

3,633,781

CROWN-TYPE CLOSURE WITH DOUBLE REMOVABLE LINER UNIT ENCLOSING TRAPPED INDICIA

Claudio G. Zapata, Mexico City, Mexico, assignor to Lapata Industries Inc., Frackville, Pa.

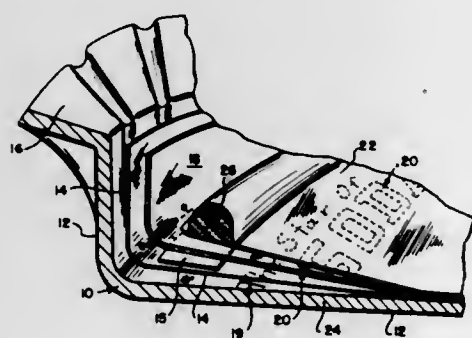
Original application Dec. 16, 1968, Ser. No. 785,443, now Patent No. 3,581,690, which is a continuation-in-part of application Ser. No. 731,852, May 24, 1968, now abandoned.

Divided and this application July 8, 1970, Ser. No. 61,004

Int. Cl. B65d 41/10, 23/00

U.S. Cl. 215-39

8 Claims



The closure cap or crown for bottles disclosed, comprises a crown shell having a print covered by a size coat, a remova-

ble liner unit including a first removable liner coating in the shell over the size coating carrying printed indicia, such as a question, and being either transparent or opaque, a second liner coating of transparent plastic material covering the first liner coating and the printed indicia thereon, and an annular sealing ring at the periphery of the second liner coating.

3,633,782

KNOCKOUT BOX FOR AN ELECTRICAL SWITCH AND RECEPTACLE

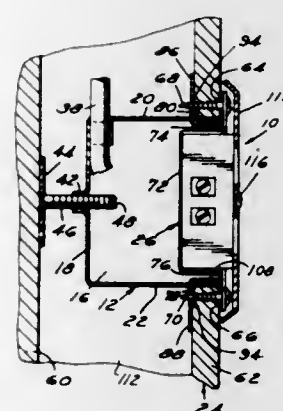
Alvin R. Bellinger, 8576 Freeland, Detroit, Mich.

Filed Mar. 16, 1970, Ser. No. 19,856

Int. Cl. H02g 3/12

U.S. Cl. 220-3.5

10 Claims



An outlet box is provided for mounting on a wall in the space between the usual spaced apart panels defining the wall structure. The outlet box has spaced apart pressure structures which, after insertion of the box through an opening in one of the panels into the space between the panels, are spread apart to make pressure engagement with the interior wall surfaces and firmly mount the outlet box in place.

3,633,783

REFRIGERATION APPARATUS CABINET CONSTRUCTION

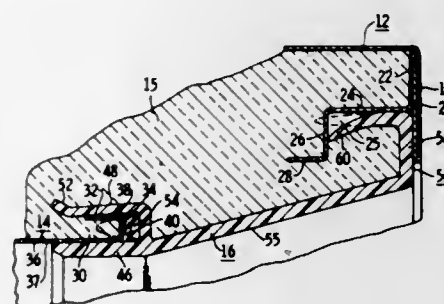
John R. Aue, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 21, 1970, Ser. No. 4,500

Int. Cl. B65d 25/18

U.S. Cl. 220-9 G

6 Claims



The invention provides a thermal breaker trim strip which is snapped into place between the refrigerator inner liner and outer wrapper. This trim strip is put in place before the foaming operation on the refrigerator cabinet and maintains a seal for the expanding liquid polyurethane foam insulation. Accordingly, the trim strip is provided with a forklike end which compressingly envelopes the outer end of the inner liner and a wand end which is disposed in a channel arrangement formed by the outer wrapper. The forklike end includes flexi-

ble, compressed fingers which tend to move the trim strip outwardly while the wand end of the trim strip includes a bent over end portion that tends to oppose this motion so that the breaker strip forms a tight seal at both the inner liner and outer wrapper.

3,633,784

HYDROSTATIC REACTOR CAVITY SEAL

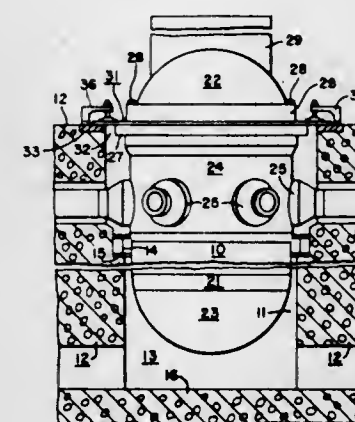
William G. Taft, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 9, 1968, Ser. No. 704,416

Int. Cl. A47j 27/10

U.S. Cl. 220-13

7 Claims



A reactor cavity seal comprises a large flat ring used to cover and seal the annulus around the reactor vessel during the refueling time period in which the area is flooded with water. The seal is effected by compressing large diameter O-rings between the flat ring and machined surfaces on the reactor vessel and on a ring set in the surrounding concrete. The O-rings are compressed by using the hydrostatic pressure of the water above the seal ring. Because an absolute seal must be maintained at all times during refueling, auxiliary clamps are utilized to provide the seal compression force required during the low water pressure periods when the refueling canal is being flooded or being drained. These clamps are also utilized to lift and support the seal ring a sufficient distance above the seal surface during plant operation to permit the flow of reactor cavity cooling air.

3,633,785

HOT FOOD CONTAINER

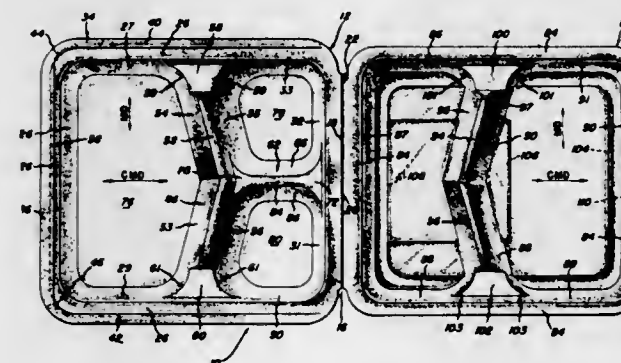
Steven J. Cyr; Mark W. Whelan, both of Chippewa Falls, Wis., and Kenneth L. Jones, Fullerton, Calif., assignors to Standard Oil Company, Chicago, Ill.

Filed Aug. 25, 1969, Ser. No. 852,753

Int. Cl. B65d 1/24

U.S. Cl. 220-20

9 Claims



Disclosed is a foamed-plastic hot food container including a tray and a cover hinged to the tray. Both the tray and cover

3,633,786

BAKING PAN

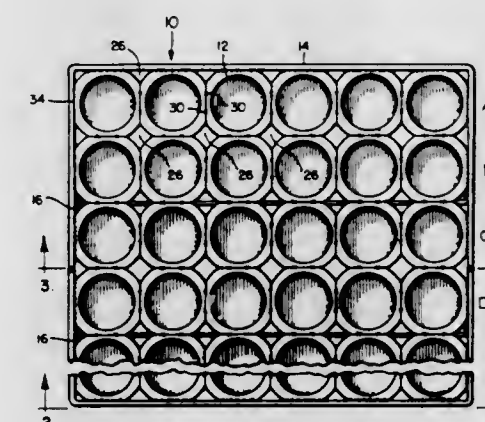
Edwin H. Leedy, Hinsdale, Ill., assignor to Ekco Products, Inc., Wheeling, Ill.

Filed Apr. 22, 1970, Ser. No. 30,911

Int. Cl. B65d 21/02

U.S. Cl. 220-23.2

3 Claims



A baking pan comprising a plurality of individual cups joined together in side-by-side relationship. The individual cups are joined together on first outer edge portions of flanges which extend outwardly from the sidewalls of adjacent cups and which coincide with the sides of a polygon. A circumferential band encompasses the cups to complete the basic pan assembly.

3,633,787

TAMPERPROOF CLOSURES FOR WALL-MOUNTED RECEPTACLES AND THE LIKE

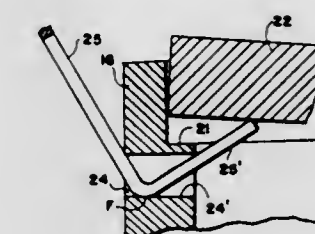
Jacob M. Katz, 155 West 68th Street, New York, N.Y.

Filed Mar. 12, 1970, Ser. No. 18,824

Int. Cl. B65d 43/04

U.S. Cl. 220-43 R

11 Claims



The internal annular shoulder offered by the counterbored mouth of a wall-mounted receptacle, seats a push-fitted disc closure whose perimetrical edge does not pass through the plane of the receptacle's mouth rim. The upper surface of said disc is smooth and cannot be gripped for removal. The fit is so fine that nothing can be entered in the parting line between said disc and receptacle wall. Out of view at the rear, the receptacle wall has an accessible small aperture immediately below the seat, for receiving the short leg of an L-shaped element, which when inserted, serves as a bellcrank

to lift the closure disc at its perimeter, thus tilting it to expose it for removal; the bottom wall of said aperture supporting the vertex of said L form to serve as a fulcrum. Points on the closure disc circumference diametrically opposite the region of lift, are supported to serve as fulcrums on the seat and the wall of the counterbore, for the closure disc swing. When either the disc or receptacle is of material having some resilient quality, tongue and groove engagement means may also be provided thereon to releasably hold the disc in closing position.

3,633,788

LID FOR HIGH-PRESSURE CONTAINERS

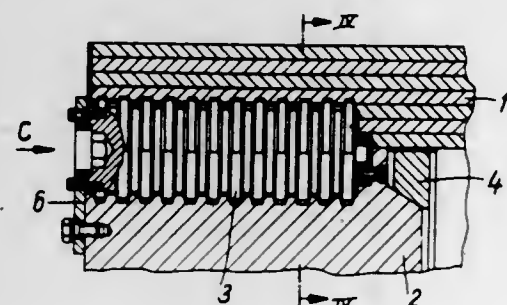
Joachim Ehle, Essen, Germany, assignor to Fried Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany
Filed June 2, 1970, Ser. No. 42,819

Claims priority, application Germany, June 3, 1969, P 19 28 217.8

Int. Cl. B65d 53/00

U.S. Cl. 220-46 MS

3 Claims



A cover closing system for high-pressure containers which comprises a cover adapted to be introduced into a cylindrical container head and to be locked thereto, and also comprises a plurality of rotatable bolts distributed over the circumference of said cover and provided with semiannular teeth for selective locking engagement with corresponding grooves in said container and said cover respectively.

3,633,789

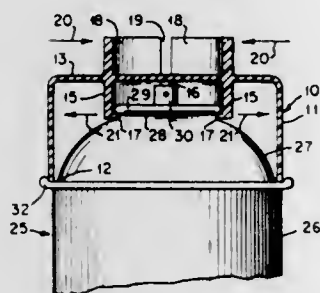
PROTECTIVE CAP FOR A CONTAINER

Israel J. Markowitz, 17 Morrison St., Closter, N.J.
Filed July 10, 1970, Ser. No. 53,855

Int. Cl. B65d 55/02

U.S. Cl. 220-60 R

7 Claims



A protective cap or cover for a container wherein a generally cylindrical skirt has one end edge engageable with one end of the container, the other end of the skirt being closed by a cap top, and jaws depending interiorly of the cap top for engagement beneath an enlargement, collar or head on the container, while projections are provided exteriorly on the cap top operatively associated with respective jaws for effecting resilient displacement of the latter away from each other to release the enlargement or head.

3,633,790

AQUARIUM FRAME

Josef Voss, 11-15, Cacilienstrasse, 576 Neheim-Husten, Germany

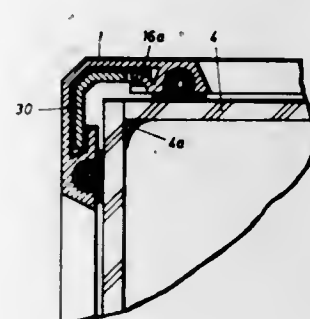
Filed Aug. 19, 1970, Ser. No. 64,970

Claims priority, application Germany, Oct. 14, 1969, P 19 51 720.5

Int. Cl. B65d 25/54

U.S. Cl. 220-82 R

2 Claims



An aquarium frame serving to hold aquarium panes and consisting of profiled parts of angular cross section, which meet in miter joints at the corners and are interconnected by angle pieces inserted in grooves provided in the profiled parts. The legs of each profiled part are provided with grooves open towards the pane and capable of accommodating a projecting strip of soft plastics material, the glass pane resting against the latter. The ends of the profiled parts are provided with flanges which form an angular cavity over the apex of the structure. In each corner three profiled parts are interconnected by one single angle piece with three arms, the arms being adapted to the respective angular cavities of the profiled parts and inserted therein. The flanges of the profiled parts are pressed against bearing surfaces in recesses of the angle piece, in such a way that the profiled parts are pressed together at the corner, with prestressing in respect of the miter joint.

3,633,791

ROTARY RIVET DISPENSER

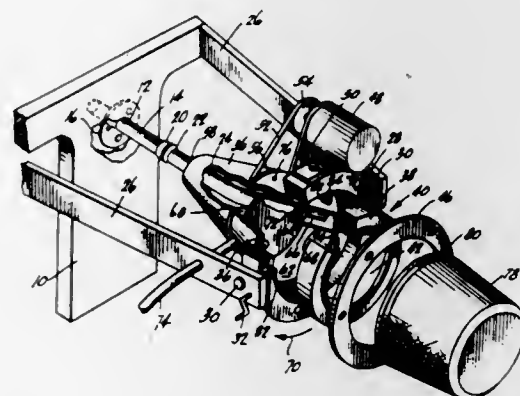
Earl K. Kelly, Lynwood, Calif., assignor to McDonnell Douglas Corporation

Filed June 1, 1970, Ser. No. 42,265

Int. Cl. B65g 47/14

U.S. Cl. 221-167

3 Claims



A rotary rivet dispenser for feeding slug rivets to an injector mechanism on the head of an automatic riveting machine. A rotary rivet slug container with an inner scoop aligns rivet slugs in the container for movement into a delivery tube by gravity feed assisted by intermittent air pressure.

3,633,792

SMALL ARTICLE DISPENSER

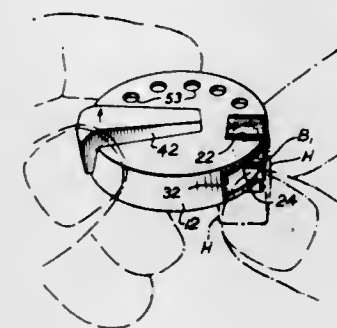
Carl J. Steigerwald, Wauconda, Ill., assignor to Beltone Electronics Corporation

Filed Nov. 17, 1969, Ser. No. 877,259

Int. Cl. B65d 83/04

U.S. Cl. 221-267

9 Claims



A dispenser for hearing aid batteries comprises upper and lower interfitting disc portions forming a hollow housing. An annular passage is formed within the housing for carrying the batteries and a cam, operated by an exterior handle, is moveably arranged in the annular passage to either urge the batteries from the passage through an opening to the housing exterior or to urge batteries from the exterior through the opening into the passage by movement of the cam in opposite directions.

3,633,793

DEVICE FOR STORING AND DISPENSING CUT WIRES AND THE LIKE

Harold E. Edmundson, Beaverton, Oreg., assignor to Scappoose Industries, Inc., Scappoose, Oreg.

Filed Sept. 10, 1969, Ser. No. 856,752

Int. Cl. B65d 83/02

U.S. Cl. 221-311

1 Claim



Each of a plurality of elongated, hollow tubes has a plurality of male and female locking segments spaced about its outer periphery for interlocking with other tubes to form a composite unit. Each tube also is closed at its bottom end and is provided with a side opening adjacent said bottom end for removal of cut wires and the like stored in the tube.

894 O.G.-23

3,633,794

PACKING, SHIPPING AND DISPENSING CONTAINER FOR BULK MATERIAL

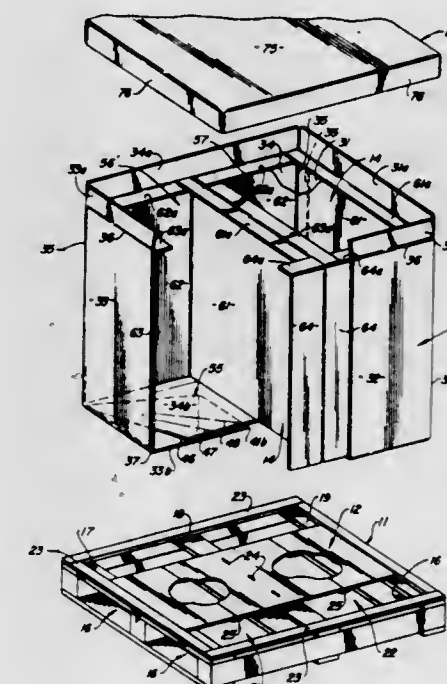
Thomas E. Croley, Worthington, and Richard Morgan, Columbus, both of Ohio, assignors to Corco, Inc., Columbus, Ohio

Filed Dec. 12, 1969, Ser. No. 884,636

Int. Cl. B67b 7/24

U.S. Cl. 222-88

10 Claims



A corrugated container and pallet construction including a main container body having a bottom structure composed of flaps integrally connected to the sidewalls of the body and to each other and scored to provide a dispensing spout when they drop downwardly. The container body is supported on a pallet with its bottom structure reinforced by a panel which rests on the pallet and normally prevents dropping of the bottom flaps, but which is provided with a tear strip to release the bottom structure of its support so that the flaps will drop downwardly for dispensing of the material packed in the container.

3,633,795

FOAM DISPENSER

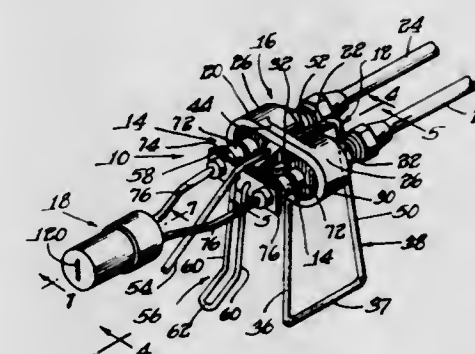
William R. Brooks, Elmhurst, Ill., assignor to Insta-Foam Products, Inc., Addison, Ill.

Filed Dec. 16, 1969, Ser. No. 885,445

Int. Cl. B05b 11/00

U.S. Cl. 222-134

5 Claims



Dispenser apparatus for multicomponent products comprises a pair of dispensing valves and a manually graspable support bracket. A valve-supporting assembly, mounted on

the bracket and substantially defining the posterior portion of the apparatus, attaches the valves to the bracket and includes a pair of rearwardly extending tubular inlet members for connection to a remotely located product supply container. The apparatus further includes a dispensing nozzle unit spaced apart from the dispensing valves, and tubing connecting each of the dispensing valves with the latter unit. A linkable plate connects a manual trigger to each of the dispensing valves for actuation of the valves in unison.

3,633,796

APPARATUS FOR SPREADING OR SOWING GRANULAR OR PULVERULENT MATERIAL

Petrus Wilhelmus Zweegers, Nieuwendyk 46, Geldrop, Netherlands

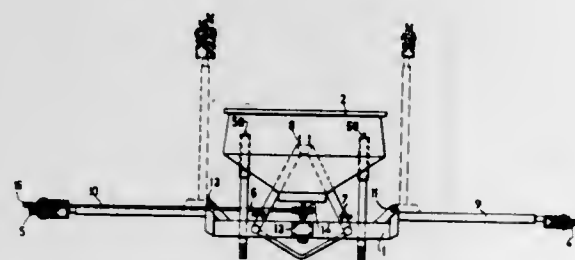
Filed Apr. 2, 1969, Ser. No. 812,805

Claims priority, application Netherlands, Apr. 11, 1968, 6805161; Feb. 19, 1969, 6902577

Int. Cl. A01c 15/18

U.S. Cl. 222-176

39 Claims



Material-spreading apparatus having a driven endless belt which carries a series of pivotable trays and is bodily movable in transverse direction. Each tray has a pin which rests on a stepped supporting ledge so that it can pivot for discharging its contents when it reaches the end of a step of the ledge. A central hopper fills both runs of the belt.

3,633,797

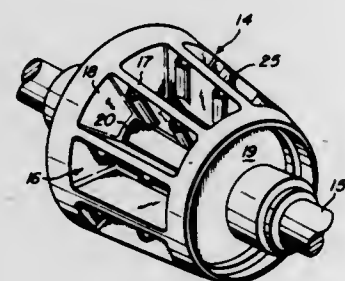
ROTARY VALVES

Russell M. Graff, c/o Longview Fibre Co., Longview, Wash. Continuation-in-part of application Ser. No. 850,905, Aug. 18, 1969, now abandoned. This application June 24, 1970, Ser. No. 49,313

Int. Cl. B67d 5/54

U.S. Cl. 222-194

15 Claims



A material-handling valve particularly advantageous for use in processing fibrous materials, including a valve rotor having circumferentially spaced pockets defined by radially projected vanes, the trailing surfaces of which incorporate means defining radially oriented passages opening directly at the base of the related pocket. Means are provided to align with and direct steam to move inwardly of and through said passages to impact on the base of each rotor pocket, first as it approaches the valve outlet, thereby to load the pocket

contents from the rear and to facilitate its discharge on exposure to the valve outlet, and to secondly scour said passages and the walls of each pocket on a full registration thereof with said outlet.

3,633,798

AEROSOL VALVE

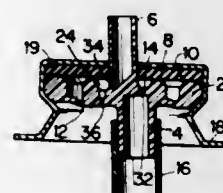
Milo E. Webster, Braintree, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Dec. 22, 1969, Ser. No. 887,165

Int. Cl. B65d 83/14

U.S. Cl. 222-402.22

7 Claims



An aerosol dispenser valve comprising a single valve member having inlet means, outlet means, first chamber means in communication with the inlet means, second chamber means in communication with the outlet means, and means for separating the first and second chamber means, the separating means being biased in separating position, the valve member being movable to remove the separating means from separating position, whereby to permit flow of material through the valve.

3,633,799

COLLAR TRIMMING AND PRESSING APPARATUS

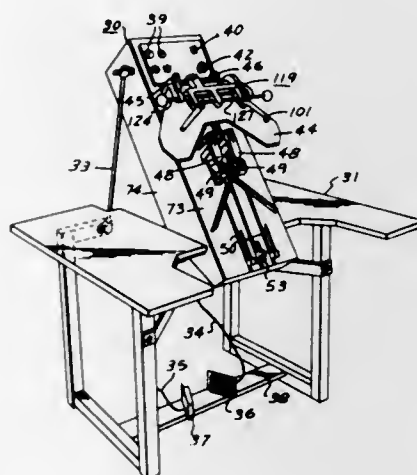
Robert F. Pettit, Reading; Kenneth C. Haas, Mohnnton, and Leslie W. Gibson, Jr., Reading, all of Pa., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Feb. 16, 1970, Ser. No. 11,469

Int. Cl. A41h 43/00, 33/00

U.S. Cl. 223-2

30 Claims



A collar-pressing die assembly mounting system and operating control mechanism. The die assembly mounting system includes the operating parts of a pressing die assembly not determined by the shape of the collar to be pressed so that each new die assembly for a differently shaped collar requires only the shaped pressing parts corresponding to the collar shape. Quick-locking indexing clamps and pressing shoes pivot mounts are provided for rapid interchange of pressing dies, and quickly detachable parts of the pressing drive system permit mounting of conventional complete

pressing die assemblies. The control system employs two pedals to respectively perform collar trimming and collar pressing by automatically acting power mechanisms which are actuated by the pedals.

3,633,800

PLEAT COMPUTING AND FORMING APPARATUS

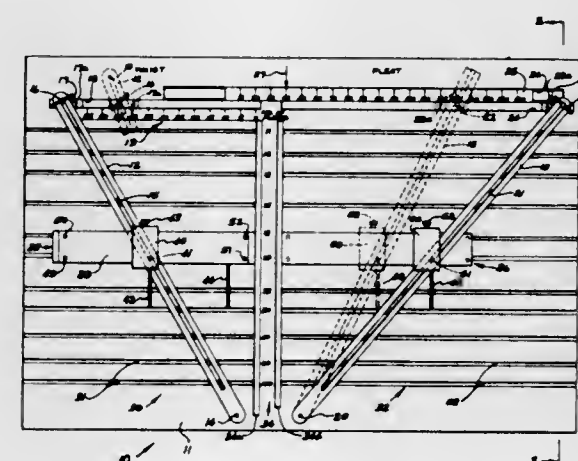
Samuel P. Wallace, 929 Georgia, S.E., Albuquerque, N. Mex.

Filed July 24, 1970, Ser. No. 58,122

Int. Cl. A41h 43/00; D06j 1/00

U.S. Cl. 223-28

18 Claims



An analog computer for simultaneously solving for unknown pleat dimensions and positioning movable forming mechanisms in a location representative of said dimensions. The computer includes left and right arms which are pivoted along the lower end of a mounting board and are secured at their free ends to longitudinally movable indicators disposed in left and right longitudinal slots formed along the upper portion of the board. The left slot is associated with a fixed scale formed on the board and the right slot is associated with a movable scale which is adjustable longitudinally through the board. A pin and slot connection between the arms and indicators moves the indicators through their respective slots as the arms are rotated. A fixed, center scale extends laterally between the top and bottom of the board and carries markings identifying individual grooves which form left and right sets of grooves extending longitudinally to the right and left of the center scale. Left and right forming components are removably positioned in each set of grooves astride respective arms and each component includes a longitudinally movable forming slide which movably engages the associated pivoted arm through the pin and slot connection. By placing guides in the forming components in selected grooves, adjusting the right horizontal scale, and rotating the arms to move the left and right indicators to positions corresponding to known input values, the forming slides are automatically positioned to provide unknown pleat dimensions. The forming components are then removed from the board and coupled together with the rods extending from the components providing physical structures for holding and marking the material to be pleated.

3,633,801

CARRYING DEVICE FOR GARMENT HANGERS AND THE LIKE

Samuel G. Bonasso, 2768 University Ave., Morgantown, W. Va.

Continuation-in-part of application Ser. No. 838,543, July 2, 1969, now abandoned. This application July 10, 1970, Ser. No. 53,714

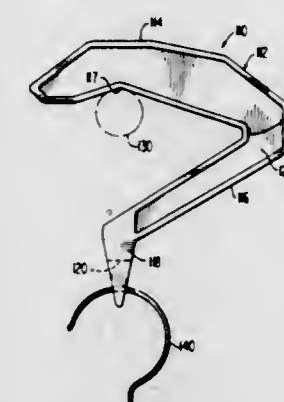
Int. Cl. B65d 61/00

U.S. Cl. 224-45 T

2 Claims

A device for carrying hangers of garments having a substantially C-shaped body member having a handle portion

with a recess in its lower surface adapted to cooperate with a closet pole, and another portion disposed below the handle portion. A depending apertured member mounted on the



other portion. A depending apertured member mounted on the other portion is in substantial vertical alignment with the recess and is adapted to receive and support the end portions of hangers.

3,633,802

CLOTHES CADDY

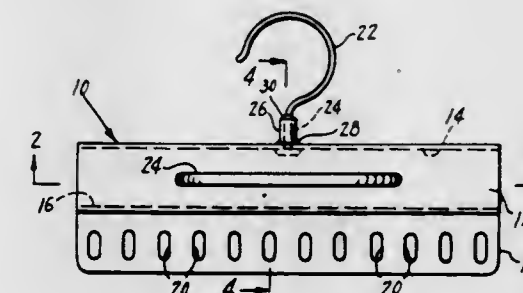
Harold W. Webster, 1812 Brier Way, Carmichael, Calif.

Filed Feb. 5, 1970, Ser. No. 8,964

Int. Cl. A45c 11/00

U.S. Cl. 224-45 T

2 Claims



An elongated sheet metal or similar body is provided at the top centrally thereof with a supporting hook and at the side thereof with a carrying handle, and a depending elongated flange is provided with horizontally spaced openings to receive the hooks of coat hangers for the manual carrying of a plurality of articles of clothing.

3,633,803

METHOD AND APPLIANCE FOR RECORDING INFORMATION STORED ON PUNCHED CARDS

Jean-Claude Kourganoff, 9, Avenue de Saint-Mande, 75 Paris 12e, France

Filed June 4, 1970, Ser. No. 43,512

Claims priority, application France, June 9, 1969, 69 18 908

Int. Cl. B26f 3/00

U.S. Cl. 225-93

12 Claims



The appliance consists of a storage tray spaced to one side and slightly above a punch table. From a stack of cards on the tray the top card is moved through a first passage on to the punch or marked then moved through a lower passage to the bottom of the cards on the tray.

3,633,804

TAPE-DETECTING DEVICE FOR TAPE RECORDERS

Ryozo Kitazawa, Kawasaki, Japan, assignor to Nippon Chemical Kabushikikaisha (Nippon Columbia Co. Ltd.), Tokyo, Japan

Filed June 22, 1970, Ser. No. 48,025

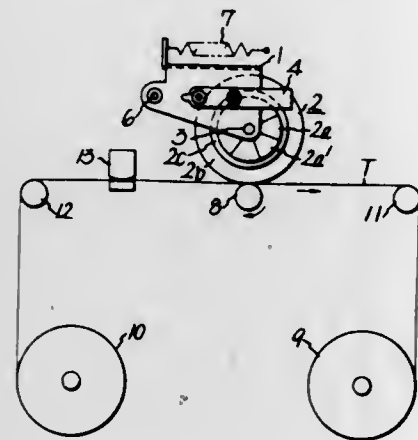
Claims priority, application Japan, June 27, 1969, 44/50767;

44/50768; Dec. 29, 1969, 45/135

Int. Cl. B65h 25/32; G11b 15/16

U.S. Cl. 226-11

13 Claims



A tape-detecting device having a discontinuous conductive member, a conductive member making contact therewith, and a power source for supplying a voltage between the discontinuous conductive member and the conductive member. In this case an electric signal is derived from between the discontinuous conductive member and the conductive member both rotating according to the travel of a tape.

3,633,805

DEVICE FOR FEEDING DIFFERENT GAUGE FILMS ON INDUSTRIAL EDITING AND SYNCHRONIZING TABLES

Luigi Vaghi, Via Gaffredo Mameli, 24, Lainate (Milano), Italy

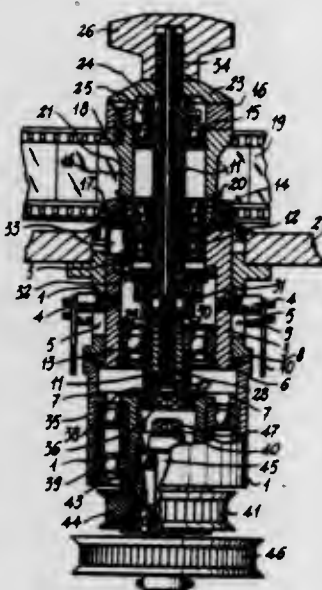
Filed Dec. 2, 1969, Ser. No. 88,145

Claims priority, application Italy, Dec. 5, 1968, 24647

Int. Cl. G03b 1/24

U.S. Cl. 226-76

6 Claims



Device for feeding different gauge films on industrial editing and synchronizing tables, comprising a sprocket having two pairs of toothed crowns for drawing films of two different gauges, this sprocket being axially movable relative to a fixed body for causing a film, as drawn by one pair of crowns, or a film, as drawn by the other pair of crowns, to take a same distance relative to said fixed body, said sprocket

automatically taking different speeds of rotation under the conditions where it is moved to different distances relative to said fixed body. The device also comprises a knob which can be rotated relative to the sprocket so as to make the latter idle on its rotational axis and, on continued rotation of the knob, so as to lock said sprocket relative to said fixed body.

3,633,806

MAGNETIC TAPE CARTRIDGE

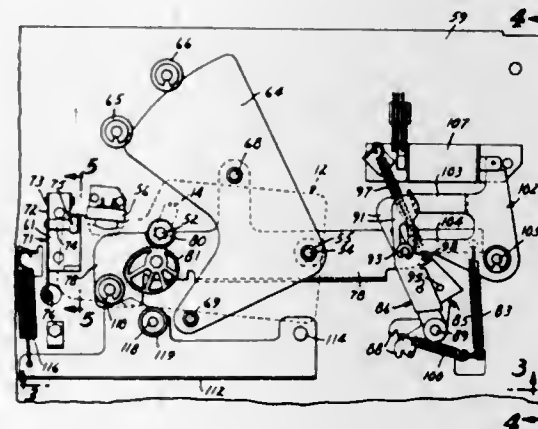
Sheldon Lee Pastor, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 12, 1970, Ser. No. 2,121

Int. Cl. G11b 15/66

U.S. Cl. 226-90

5 Claims



A tape recording and/or reproducing machine utilizing a cartridge which is formed to mate complementarily with the machine and pivot thereon for moving a pressure roller supported in the cartridge against a capstan having an axis parallel to and spaced from the cartridge pivot axis to press a length of tape in the cartridge against the capstan.

3,633,807

MAGNETIC TAPE BIN

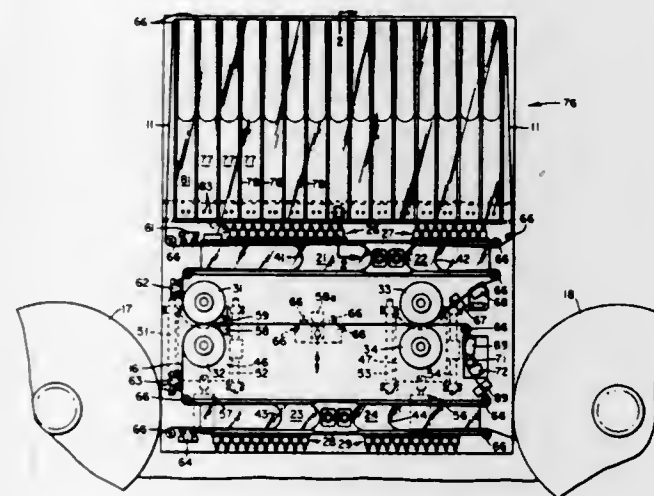
David Williams, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Apr. 1, 1970, Ser. No. 24,647

Int. Cl. G11b 15/58

U.S. Cl. 226-97

5 Claims



In a tape duplicating machine the master tape is arranged in endless loop form and is stored in a bin having a large number of tape loop vacuum storage columns. The front and back walls of the columns confronting the tape loop edges, are inclined to diverge outwardly from top to bottom so that, with equal airflows drawn by a vacuum source through

3,633,808

NOZZLE FOR JET LOOMS

Vladimir Svaty, Liberc, Czechoslovakia, assignor to Elitex, zavody textilního šojtrenstí generalni reditelsto, Liberc, Czechoslovakia

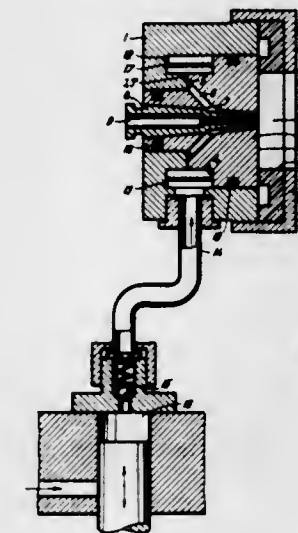
Filed June 2, 1970, Ser. No. 42,764

Claims priority, application Czechoslovakia, June 6, 1969, PV 4013-69

Int. Cl. B65h 17/32

U.S. Cl. 226-97

8 Claims



A nozzle provided with a body having a bore, a piston mounted in the body bore, the piston having a bore, and a yarn carrier mounted in the piston face. The carrier has a smaller dimension than the piston bore to define an annular orifice. The piston and body are formed with cooperating engaging surfaces forming a valve seat. The piston is provided with channels connecting the surface to the piston bore. Means are provided for forcing a fluid between the engaging surfaces, opening the valve seat and allowing the fluid to flow out of the annular orifice.

3,633,809

ANTISLACK UNIT

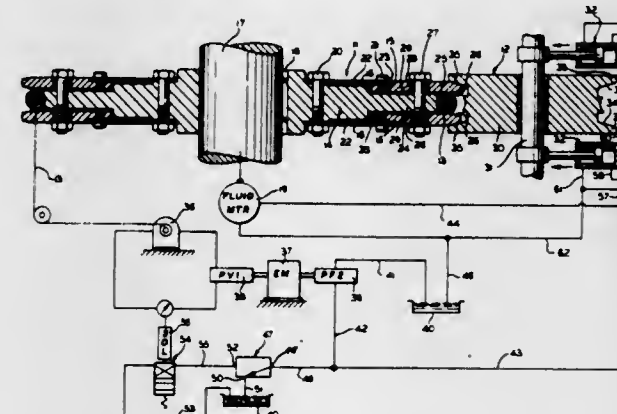
Ellis H. Born, Columbus, Ohio, assignor to Abex Corporation, New York, N.Y.

Filed Dec. 5, 1970, Ser. No. 578

Int. Cl. B65h 79/00

U.S. Cl. 226-183

9 Claims



Antislack unit for maintaining tension on cable including a sheave with a hub having a periphery against which a cable may bear, a pair of clamping sideplates coacting with the hub

3,633,810

COMBINED STAPLER AND CLIPPER FOR FURNITURE SPRING CLIPS

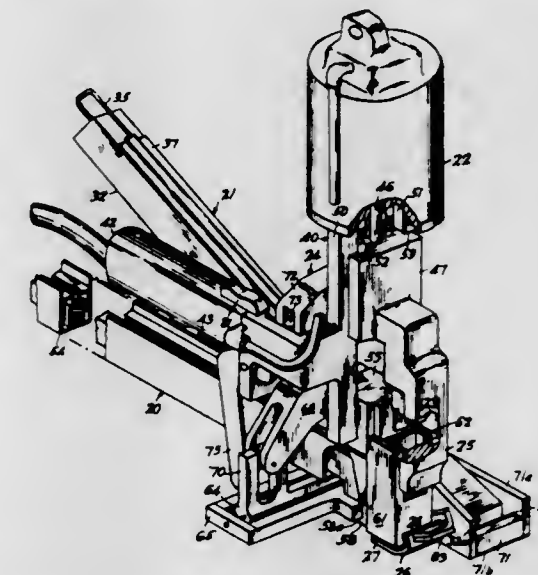
Daniel Krakauer, Great Neck, and Edward M. Fischer, Kew Garden Hills, both of N.Y., assignors to Kay Manufacturing Corp., Brooklyn, N.Y.

Filed Apr. 27, 1970, Ser. No. 32,277

Int. Cl. B25c 5/06

U.S. Cl. 227-20

10 Claims



Compactly nested, generally V-shaped clips, each intended to hold the end of a sinuous spring, are stacked in a chute. U-shaped staples or nails are separately stacked in a magazine. In each clip there are two angularly related flanges, both perforated for fasteners. The clip to be fastened is machine fed to a fastening station where the clip is secured by a first fastener and the upper flange of the clip is bent into position to hold the spring securely. The end of the sinuous spring is then inserted between the flanges and a second fastener may then, if desired, be driven through both flanges. When and if the second fastener is driven, no clip can be advanced from the clip stack, the clip transfer mechanism being manually rendered inoperative.

3,633,811

APPARATUS TO DRIVE VARIOUS FASTENING MEANS

Gunther Ploen, Kaltenkirchen Holstein, Germany, assignor to Joh. Freidrich Behrens, Ahrensburg, Germany

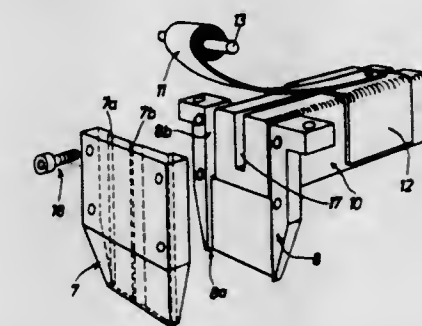
Filed Feb. 9, 1970, Ser. No. 9,890

Claims priority, application Germany, Feb. 18, 1969, P 19 08 012.7

Int. Cl. B25c 5/06

U.S. Cl. 227-109

9 Claims



This apparatus has means for driving fastening means such as staples, nails and/or pins. It has a guide channel arranged

to guide the drive plunger and also staples, nails or pins. The magazine rail has a pusher slidable thereon and arranged to urge staples, nails or pins to the guide channel.

3,633,812

WELDING TORCH OSCILLATOR

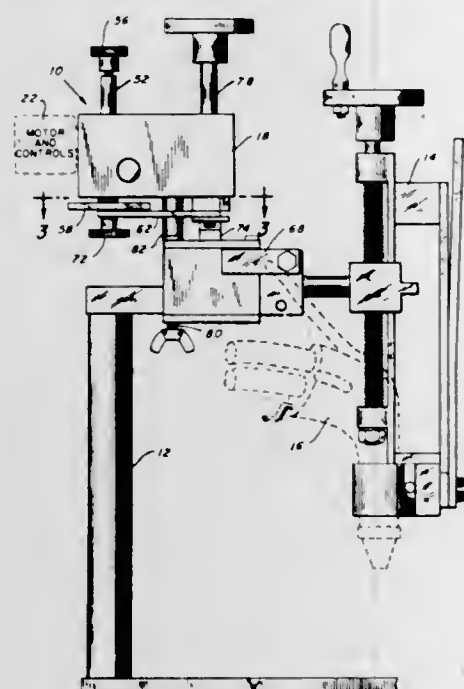
John R. Haynes, 2630 East 15th Pl., Tulsa, Okla.

Filed May 1, 1970, Ser. No. 33,602

Int. Cl. B23k 1/00, 5/00

U.S. Cl. 228—27

2 Claims



A power driven welding torch oscillator includes a hand operable clutch for controlling the oscillatory movement of a welding torch.

3,633,813

INTERNAL PIPE LINEUP CLAMP

Robert L. Looney, and John S. Work, both of Tulsa, Okla.

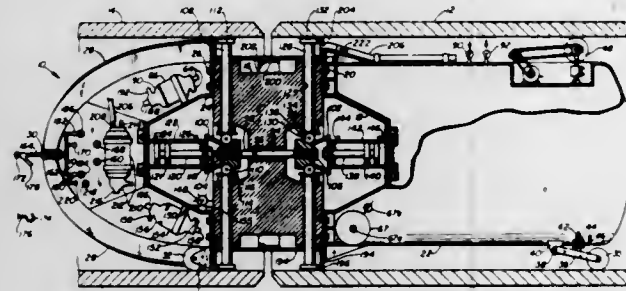
assignors to Work-Way Corporation, Tulsa, Okla.

Filed Mar. 21, 1969, Ser. No. 809,272

Int. Cl. B23c 19/00

U.S. Cl. 228—44

54 Claims



In internal pipe lineup clamp for properly aligning adjacent pipe sections prior to welding, is self powered for all of its operations. All components of the device are mounted in a body portion which includes a compressed air tank to supply the motive means for driving air motors which operate the various components including a pair of powered wheels which propel the device through pipe sections. The device includes a latch which assures proper location with regard to two adjacent pipe sections and two sets of similar radially extending members which come into proper alignment, each set adjacent one end of each pipe section ready to be powered by hydraulic means to be urged against the internal surface of the pipe sections and to form the adjacent pipe sections into a similar and uniform radius. Air motors supply the power for the hydraulic pumps. Sealing means are provided for the area of the pipe section adjacent to the radially

extending members so that vacuum may be supplied to this area in order to draw molten welding metal into the space between the pipe section to insure better weld. Also described are means to supply welding flux to the edges of the pipe sections being welded from a position between the radially extending members. Means are also provided to control the amount of vacuum applied to the weld area in relation to the amount of weld area remaining open. Means are also provided to control the presentation of flux to the weld area in relation to the speed of welding.

3,633,814

CHANGING CONTOUR CARTON

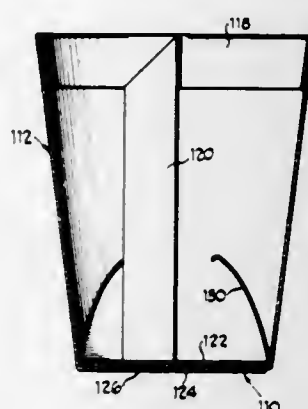
Louis C. Michetti, Santa Clara; Grover C. Haines, Saratoga, both of Calif.; William F. Taylor, Chattanooga, Tenn., and Paul A. Nemoede, Los Gatos, Calif., assignors to Container Corporation of America, Chicago, Ill.

Filed Sept. 15, 1967, Ser. No. 667,922

Int. Cl. B65d 3/00, 3/04

U.S. Cl. 229—21

1 Claim



A tubular carton having a rectangular bottom wall, a round top, and a continuously curved sidewall with a gradually changing configuration from the rectangular contour of the carton bottom wall to the round configuration of the carton top without any sharp corners being visible on the outside surface thereof.

3,633,815

SEALABLE FOLDED CARTON

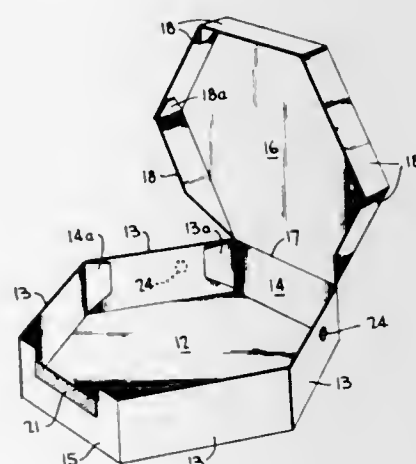
Charles W. Rosenberg, Jr., North Tonawanda, N.Y., assignor to F. N. Burt Company, Inc., Buffalo, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,531

Int. Cl. B23k 19/00

U.S. Cl. 229—33

4 Claims



Sealing means for a reclosable folded carton wherein a flap is provided in the front panel of the carton, the flap being folded along its tear line against the front panel, and the cover for the carton being adhesively secured to the folded

flap. Upon opening, the flap is severed along its tear line and, after severance, the severed flap provides additional friction to keep the cover tight upon reclosing. Also, opposite side panels of the carton are provided with cut scores surrounding glue spots for preventing the sides of the cover from flaring. Upon cover opening, the cut scores permit easy breakaway.

3,633,816

FANFOLD ENVELOPE ASSEMBLY

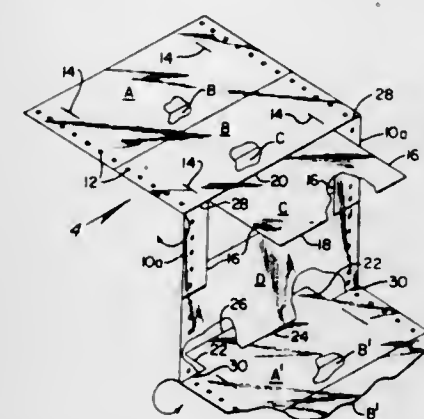
Thomas W. Alton, Phoenix, Ariz., assignor to Pak-Well Corporation, Denver, Colo.

Filed June 18, 1970, Ser. No. 47,456

Int. Cl. B65d 27/10

U.S. Cl. 229—69

5 Claims



Continuous web of shingle overlapped envelopes adhesively secured together adjacent side edges of same at the overlap areas, characterized by slits in certain of the envelopes which permit repetitive sets of envelopes to be articulated along hinge lines into a fanfold stack. The slits are in repetitive pairs, each pair being of different length and different orientation with respect to its envelope than the length and orientation of the other pair.

3,633,817

DATA PUNCHING MACHINE

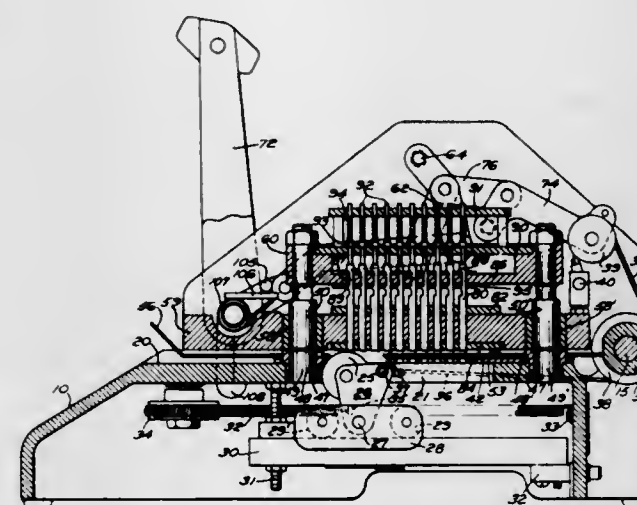
John H. Edwards, Warwick, R.I., assignor to The Entwistle Company

Filed Dec. 29, 1969, Ser. No. 888,237

Int. Cl. G06k 1/20

U.S. Cl. 234—35

5 Claims



This disclosure relates to a machine which will punch a form in a particular code pattern under the control of a template. It will also imprint letters that are raised from the surface of the template. This is accomplished by providing two portions which are hinged together and which have a template holding plate therebetween. One of the portions carries

a plurality of individually movable plungers that are adapted to enter perforations provided in the template held on the template support and pass through the template and into a form held by the other portion when the two portions are brought together by an operating handle. Means are provided on the template support plate to properly orient the template relative to the two portions and the plunges are operated by the handle being coupled thereto through a linkage arrangement. Additionally coupled to the handle is a printing pressure roller which passes across the raised lettering that is provided on the template so that an imprinting action will occur simultaneous with the punching of the form.

3,633,818

VEHICLE PASSENGER COUNTER APPARATUS

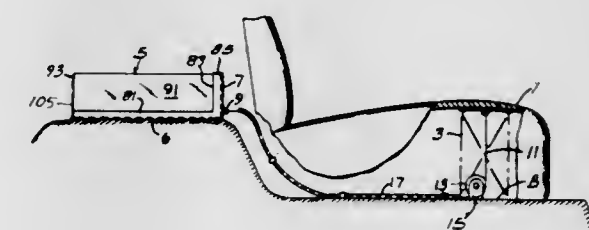
Terrell L. Heath, Box 21, Waynesville, Mo., and Larry E. Van Hooser, 669 Clark, Lebanon, Mo.

Filed Feb. 8, 1971, Ser. No. 113,506

Int. Cl. G07b 13/00

U.S. Cl. 235—30 A

16 Claims



Apparatus for counting the number of passengers occupying a seat, as in a taxicab, includes a tension member having one end vertically movable with a resilient passenger supporting surface, and its other end secured, by means of a lost-motion tension connection to an element resiliently biased in the opposite direction so that the flexible tension member is in tension when the seat is unoccupied and the resiliently biased element is movable away from the seat when the seat is occupied and the tension member is relaxed, the resiliently biased member having a lost-motion connection to the input lever of a counter to move the same in one direction responsive to its biasing means, and in the opposite direction responsive to the application of tension to the tension member, and means for slowing movements of the resiliently biased member irrespective of the rate of movement of the tension member.

3,633,819

AUTOMATIC REPEAT MECHANISM

William C. Reboulet, Kettering, and David C. Werner, Dayton, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed June 29, 1970, Ser. No. 50,419

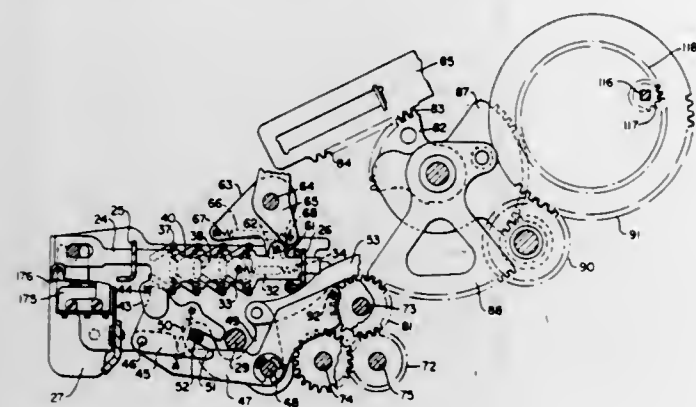
Int. Cl. G06c 21/00

U.S. Cl. 235—62 F

10 Claims

A mechanism in a business-orientated machine for repeating a machine operation a predetermined number of times, which number is controlled by a key on the keyboard, the

mechanism including an automatic cycle control mechanism which controls the position of a key-representing rack member during consecutive machine operations, and a



sequence control mechanism which is controlled by the automatic cycle control mechanism for operating the machine through the predetermined number of cycles of operation.

3,633,820

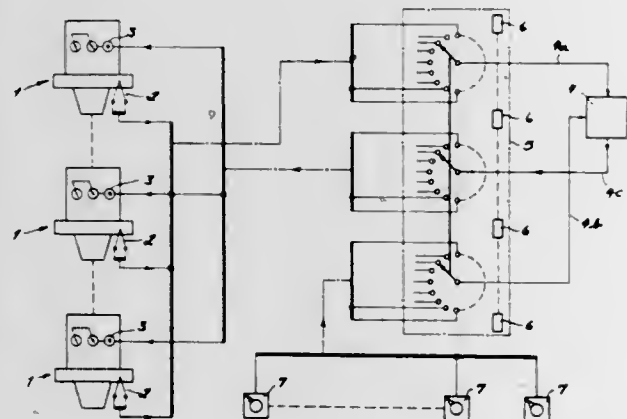
FURNACE INSTALLATION WITH COMMUTATIVE CONTROL SYSTEM

Karl-Helmut Weissohn, Essen, Germany, assignor to Matthias Ludwig Industrieofenbau GmbH, Essen, Germany
Filed Dec. 18, 1969, Ser. No. 886,310
Claims priority, application Germany, Dec. 21, 1968, P 18 16 373.0

Int. Cl. F23n 3/00

U.S. Cl. 236-46 F

4 Claims



A plant for heat treating metallic bodies in a number of hood-type furnaces has a commutative control system in which a single control unit, for example a proportional comparator, is successively switched into circuit with a temperature sensor at each of the furnaces, a respective temperature controller at each of the furnaces and a temperature-setting device assigned to each of the furnaces, at a rate which is small relative to the heat treatment time of the metal goods in the furnace.

3,633,821

FLUID-PRESSURE CONTROL VALVES

Levi J. F. Austin, Atherstone, England, assignor to Clear Hooters Limited, Bedworth, Nuneaton, Warwickshire, England

Filed Jan. 30, 1970, Ser. No. 7,047

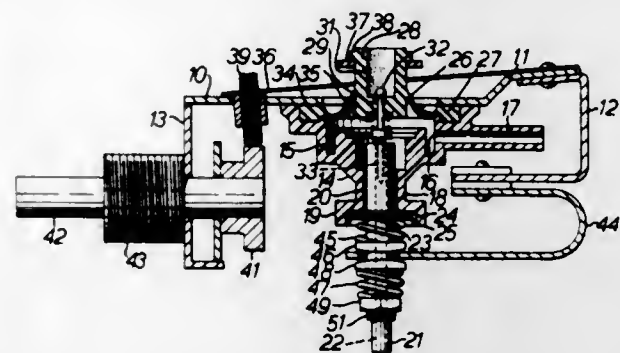
Int. Cl. G05d 23/185

U.S. Cl. 236-87

3 Claims

A valve for modulating the vacuum supply to a servosystem is manually set by adjusting a spring supporting a

diaphragm against atmospheric pressure and the setting of



the valve is varied in accordance with the ambient temperature by a bimetallic strip.

3,633,822

LIQUID DISCHARGE NOZZLE WITH AIR INJECTION FEATURE

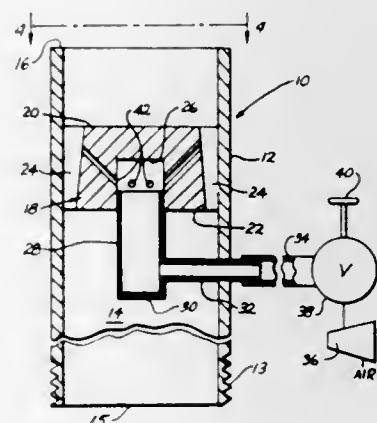
John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corp., Burbank, Calif.

Continuation-in-part of application Ser. No. 784,541, Dec. 9, 1968, which is a continuation-in-part of application Ser. No. 691,111, Dec. 8, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 492,389, Oct. 4, 1965, now abandoned. This application July 6, 1970, Ser. No. 52,447

Int. Cl. B05b 17/08

U.S. Cl. 239-17

16 Claims



A liquid discharge nozzle containing no moving parts and including a hollow body defining a liquid inlet opening at one end and a liquid outlet opening at the other end. The body has an internal chamber arranged in communication with both the inlet and outlet ends of the body. A plug is disposed across the chamber adjacent the body outlet end. Liquid flow passage means are defined through the plug by a plurality of grooves formed in the side walls of the plug, the grooves providing the only flow path of liquid from the liquid inlet opening to the exterior of the body. Means are provided for injecting compressed air into the grooves at locations between the ends of the grooves.

3,633,823

INJECTION SYSTEM FOR DIESEL ENGINES

Anton Steiger, Illnau Zurich, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed Oct. 24, 1969, Ser. No. 869,264

Claims priority, application Switzerland, Nov. 1, 1968, 16363/68

Int. Cl. F02m 45/10

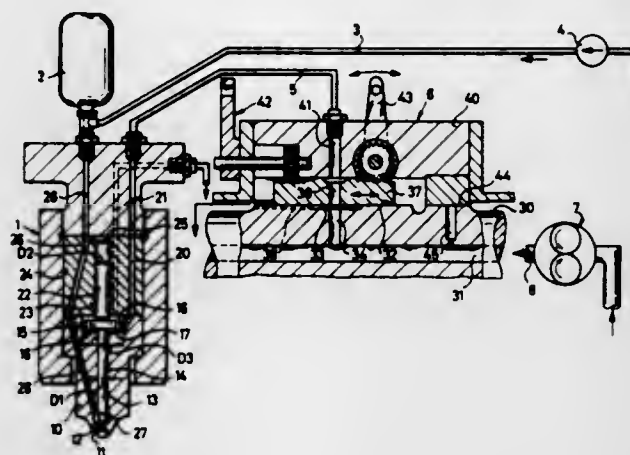
U.S. Cl. 239-94

10 Claims

The needle valve is seated against the valve seat by the differential pressure of the fuel. Lifting of the needle valve is

caused by transmitting a control pressure sufficient to overcome the differential pressure under the piston. This control

as concentrated pesticide are introduced into the axially



pressure is delivered via the control member which selectively opens and closes the control line to the flow of pressure medium.

3,633,824

SPRAY-PRODUCING DEVICE IN WHICH THE OUTPUT JETS ARE AERATED

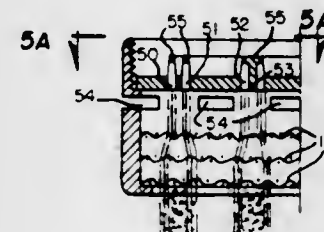
Elie P. Agnides, Hotel Pierre, 795 Fifth Ave., New York, N.Y.

Filed July 8, 1969, Ser. No. 839,848

Int. Cl. E03c 1/084

U.S. Cl. 239-428.5

24 Claims



A shower head or other device producing a spray in which there are a plurality of high velocity individual jets that at no time overlap each other and which pass through a screen or screens. The screens are so related to the velocity and size of the jets that the jets essentially retain their direction. The jets do not, when they pass through the screens, enlarge to the extent that they touch each other and they do not otherwise coalesce. The output jets form a showerlike discharge of a novel character, each jet being laden with bubbles due to the aerating action resulting from passing through the screens in the presence of air.

3,633,825

FOGGING APPARATUS

David W. Waldron, 120 East Park Ave., Valdosta, Ga.

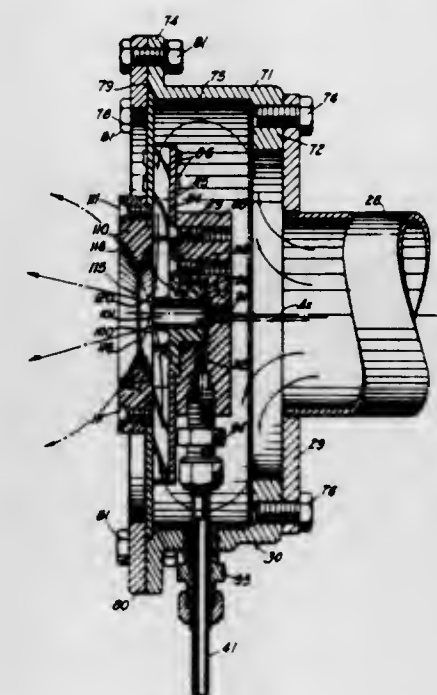
Filed Mar. 17, 1970, Ser. No. 20,364

Int. Cl. B05b 7/03

U.S. Cl. 239-135

7 Claims

A fogging apparatus including a prime mover driving a blower for supplying air under pressure to a nozzle assembly. The nozzle assembly discharges the air therethrough along a plurality of circumferentially spaced spiral paths and along a centrally located axial path. Minute quantities of liquid such



directed discharging air and combined with the spirally directed discharging air to produce a fog.

3,633,826

LAWN SPRINKLER

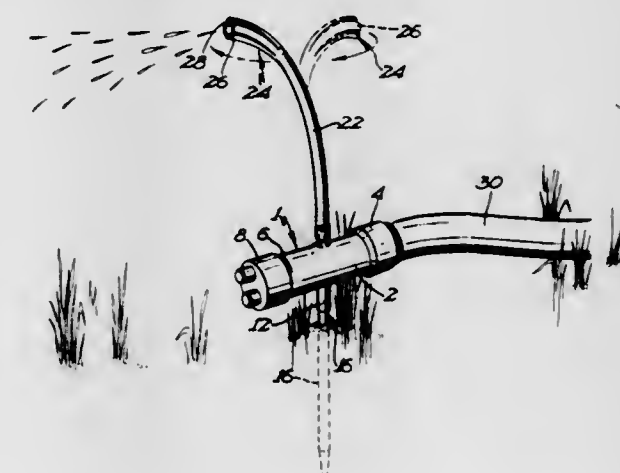
Slade H. Baker, Mankato, Minn., assignor to T. Robert Bur-night, Battle Creek, Mich., a part interest

Filed Feb. 4, 1970, Ser. No. 8,629

Int. Cl. B05b 3/00

U.S. Cl. 239-229

8 Claims



A lawn sprinkler comprised of only an elongated, tubular body threaded on at least one end thereof for connection to a hose, a ground engaging support means on said body, and a flexible discharge tube removably attached to an outlet fitting on the top of the tubular body. The flow of pressurized water through the discharge tube, preferably an 8 to 10 inch length of rubber tubing, causes the flexible discharge tube to rapidly rotate through an arcuate path to thereby distribute water in an even pattern.

3,633,827

WINDSHIELD WASHER UNIT

Ronald L. Novak, La Porte, Ind., assignor to Sprague Devices Inc., Michigan City, Ind.

Filed Apr. 27, 1970, Ser. No. 31,933

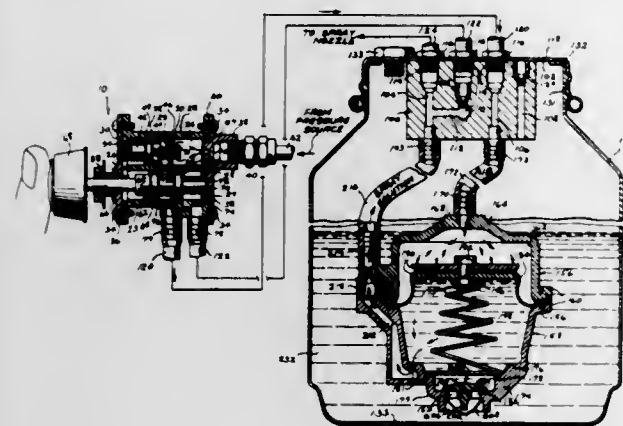
Int. Cl. B05b 1/10

U.S. Cl. 239-284

8 Claims

A windshield washer unit includes a reservoir for a spray solution, a pressurized air-actuated pump having an inlet sub-

merged in said solution and a passageway adapted for communication with windshield spray nozzles. A control valve having an inlet adapted for communication with a pressurized air source and a passageway in communication with



said pump is provided for introducing pressurized air into said pump. Means are provided for purging the spray nozzles of solution upon the discontinuation of the introduction of air into said pump.

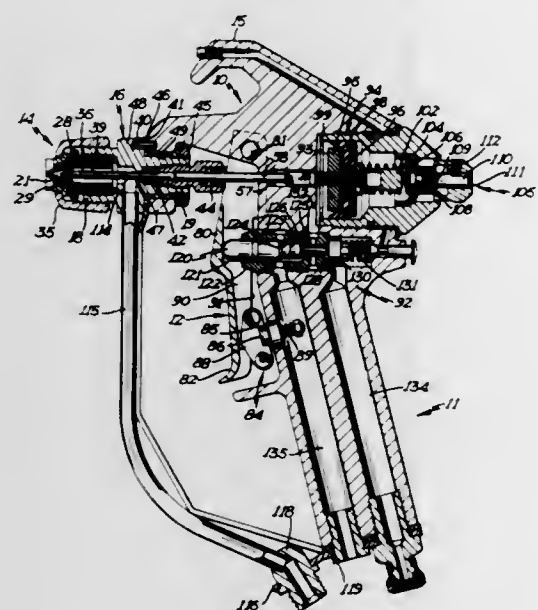
3,633,828 SPRAY GUN

James H. Larson, Amoka, Minn., assignor to Graco Inc., Minneapolis, Minn.

Filed Jan. 19, 1970, Ser. No. 3,889
Int. Cl. B05b 7/12

U.S. Cl. 239-412

18 Claims

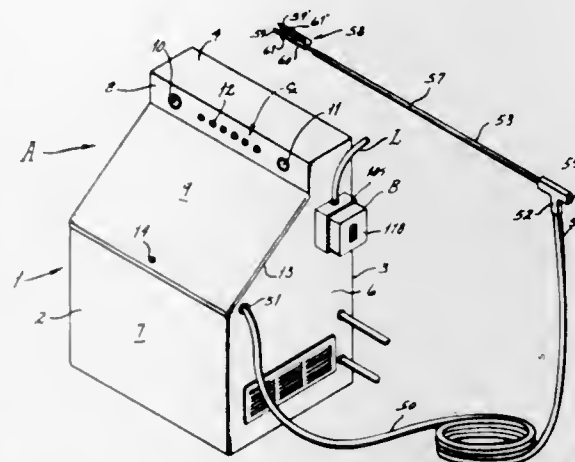


An improved airless spray gun suitable for fine finish spraying. The spray gun includes a body with a spray nozzle assembly secured to its forward end. The nozzle assembly houses a valve assembly and more particularly a valve seat of special shape and location and a needle designed to cooperate with the seat. Contact between the valve seat and the needle defines a closed position, whereas the needle and seat may be moved relatively apart to an adjustably controlled open position, permitting paint or other fluid under pressure to flow at an adjustable controlled flow rate through an annular passageway between the valve seat and the needle, to be formed by the shape and location of the parts into a thin annular cone-shaped sheet, with its vertex impinging at a spray nozzle opening, and to be forced through the nozzle and atomized thereby producing a spray pattern suitable for fine finish spraying.

3,633,829 MULTISTAGE SPRAYER George R. Adams, Florissant, Mo., assignor to Adams Equipment Company, Incorporated, St. Louis, Mo. Filed May 22, 1970, Ser. No. 39,634 Int. Cl. B05b 7/06

U.S. Cl. 239-428

12 Claims

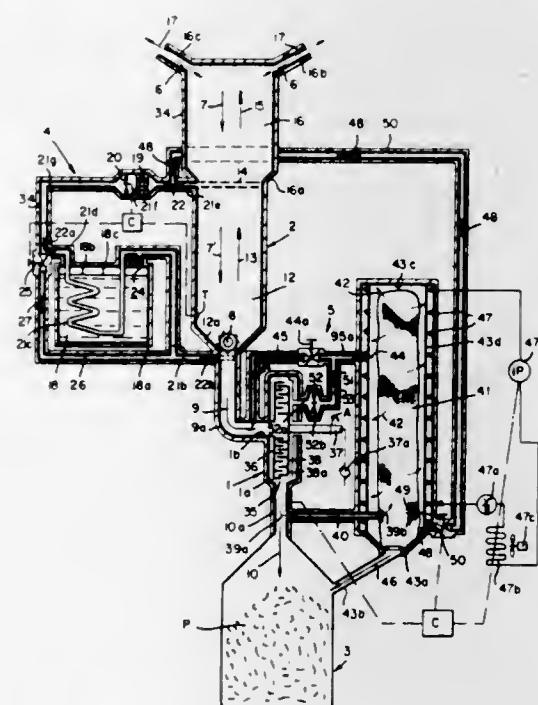


A multistage sprayer utilized for cleaning, coating, and etching metals prior to painting adapted to serially clean the surface to be painted with a soap solution at a relatively high pressure, rinse the cleaned surface, coat the surface with a zinc phosphate-nitric acid solution at a relatively low pressure, rinse the phosphatized surface, and finally etch the surface with an acid solution for strengthening corrosion resistance. The sprayer incorporates a novel injector arrangement to obtain emission of a 20 percent zinc phosphate solution at a substantially relatively decreased line pressure for safe, effective phosphatizing.

3,633,830 PROCESS AND APPARATUS FOR THE COMMINUTION OF SOFT MATERIAL Jakob Oberpriller, Balerbrunn, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany Filed May 12, 1969, Ser. No. 823,809 Claims priority, application Germany, May 10, 1968, P 17 78 559.0

Int. Cl. B02c 11/08, 21/00
U.S. Cl. 241-18

28 Claims



Process and apparatus for the comminution of pieces of relatively soft material, e.g., elastomers, synthetic resins, wherein the pieces of soft material are passed countercurrent

to a circulating chilling-gas stream and into direct contact therewith to rigidify the pieces. Thereafter the rigidified pieces are milled prior to substantial warming thereof.

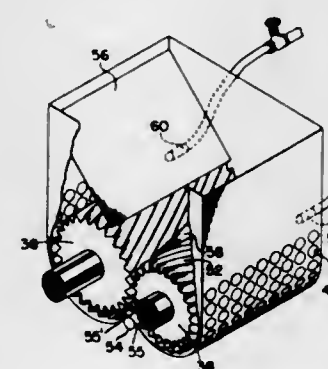
3,633,831 GRANULATOR DEVICE AND HELICAL-SHAPED CUTTERS THEREFOR

Marshall A. Dodson, Marengo, and Henry J. Flair, Franklin Park, both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Original application Apr. 29, 1968, Ser. No. 724,833, now Patent No. 3,529,777, dated Sept. 22, 1970. Divided and this application Jan. 26, 1970, Ser. No. 5,615
Int. Cl. B02c 21/00

U.S. Cl. 241-61

11 Claims

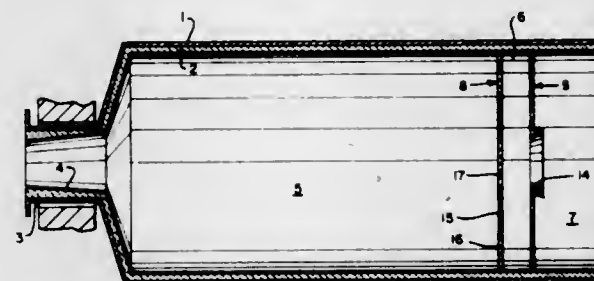


Granulator device for quietly shearing brittle or stretchy materials such as various types of plastics as well as thin metal into small pieces which can be easily handled. A pair of meshing cutters used in the device comprise helical-toothed members such as gears which have each had their tooth shapes modified from a standard form so as to exert a scissors-type cutting action on work material fed to them as a continuous web, as individual pieces, or a combination of the two.

3,633,832 APPARATUS FOR GRINDING MINERAL MATERIALS Gunnar Rindal Fagerholt, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., New York, N.Y. Filed Jan. 9, 1969, Ser. No. 790,020 Claims priority, application Great Britain, Jan. 16, 1968, 2,366/68

Int. Cl. B02c 17/06
U.S. Cl. 241-70

4 Claims

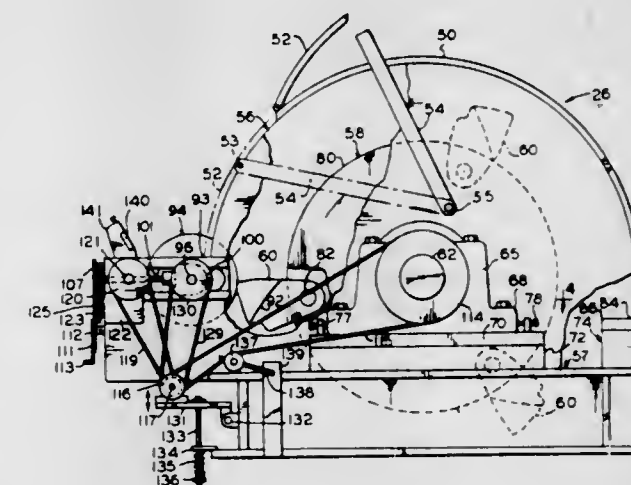


Granular mineral materials are ground in a rotating mill having at least one partially confined grinding compartment. The material is fed through a constricted opening into one end of this compartment, atmospheric air being permitted to enter in the same way. The coarse material is gradually ground down into finely divided form and is discharged through a constricted opening into an adjoining collection compartment and thence discharged from the mill. The rate of feed of the coarse material into the grinding compartment

and the rate of discharge of the ground material therefrom are so controlled that a pool of the finely ground material is maintained in the grinding compartment which is so fluidized that it behaves like a liquid. The apparatus is a tube mill having one or more grinding compartments. If there is only one grinding compartment a narrow collection compartment is located on the downstream side and if there are two grinding compartments the second one is on the downstream side of the narrow compartment. The wall of this compartment adjacent the grinding compartment includes a screen section, and the opposite wall a dam ring and overflow opening.

3,633,833 MACHINE WITH SELF-SHARPENING MEANS FOR CUTTING SCRAP MATERIALS INTO CHIPS Stanley V. Ehrlich, 3016 N.E. 51st Ave., Portland, Oreg. Filed Dec. 4, 1969, Ser. No. 881,948 Int. Cl. B02c 23/00, 13/28; B24b 3/00 U.S. Cl. 241-101 M

7 Claims



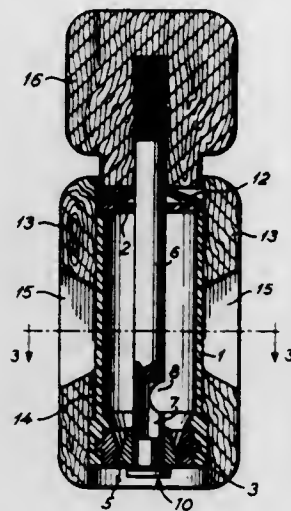
The machine has a series of hammerlike knives which rotate about a common axis to cut scrap material fed across an anvil into small chips. In one embodiment, each knife has a massive head including a blunt front face with a V-shaped bottom cutting edge defining a pair of downwardly projecting prongs. In a second embodiment, the head of each knife has a V-shaped cutting edge defining a single downward projection. The cutting edge of both knife embodiments is straight as viewed in the cutting plane of the anvil. The bottom of the head just rearwardly of the cutting edge includes a pocket to trap and fragment by impact chips severed by the cutting edge. The cutting edges of all knives are sharpened at the same time as they rotate by a grinding cylinder which is fed either manually or automatically at a fixed rate into engagement with beveled forward faces of the knives. The grinding cylinder and its automatic feed are driven by the same means that drives the knives.

3,633,834 GRINDING DEVICE Richard Bent Nissen, 8870 Langa, Denmark Filed Jan. 20, 1970, Ser. No. 4,241 Claims priority, application Denmark, Jan. 20, 1969, 292/69 Int. Cl. A47J 42/04

U.S. Cl. 241-168
The present invention relates to a grinding device for or in a pepper mill to be used on a table and comprising a receptacle for peppercorns being at its bottom provided with a stator and a rotor having cooperating grinding surfaces of a frustoconical shape converging upwardly, said rotor being

6 Claims

secured to a shaft carried through the receptacle and rotatably mounted in a bearing in the top of the receptacle. According to the invention an aperture for supplying pepper-

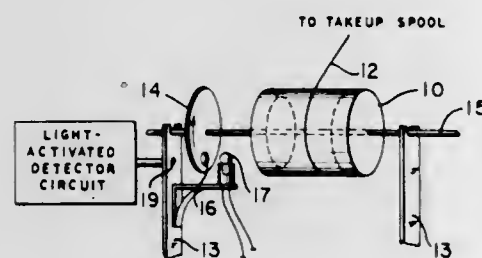


corns to the receptacle is provided in the rotor and the grinding surfaces of the stator and rotor are urged against each other in working relationship by spring means acting directly or indirectly upon the shaft and the receptacle.

3,633,835
FILAMENT BREAK DETECTOR UTILIZING PHOTOELECTRIC MEANS FOR DETECTING SPEED OF SUPPLY SPOOL

Raymond M. Beers, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.
Filed July 10, 1970, Ser. No. 53,885
Int. Cl. B65h 25/04, 63/00; G01d 5/34
U.S. Cl. 242-36

2 Claims



A break detector useful for the determination of breaks in the winding or rewinding of a filament is disclosed. The detector is characterized by the fact that none of its components contact the filament during revolutions of the supply or takeup means. Filament breaks are sensed by interruption of a light-sensitive device responsive to variations in the revolution rate of the filament letoff or spool feed means.

3,633,836
WINDING MACHINE WITH A RECIPROCATING YARN GUIDE

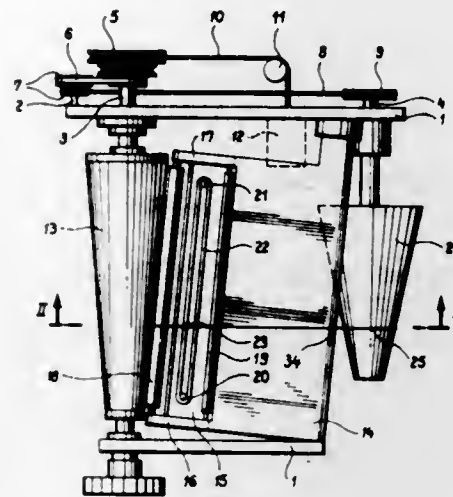
Karl Haag, Reutlingen, Germany, assignor to Eugen Hirschburger KG, Reutlingen, Germany
Filed Feb. 6, 1969, Ser. No. 797,076
Claims priority, application Germany, Feb. 7, 1968, P 17 10 077.5

Int. Cl. B65h 54/28

U.S. Cl. 242-43

11 Claims

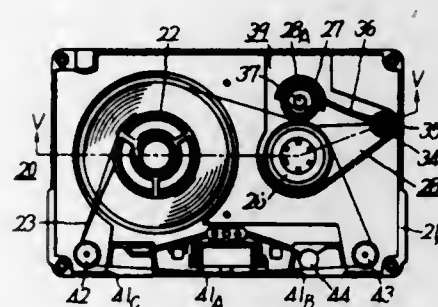
The invention relates to a bobbin winding machine for yarn products in which the yarn is traversed reciprocally during winding by means of a traversing device guided in an endless manner over two guide shafts and incorporating a freely rotatable yarn guide which thus adopts its own rotary position suited to the path of the yarn at any particular moment. The traversing device may conveniently consist of an endless flexible belt or a length of coil spring the ends of



may be varied in length by stretching to control the winding length.

3,633,837
ENDLESS TAPE CARTRIDGE
Hanjiro Esashi, and Tetsuo Machida, both of Miyagi-ken, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed July 17, 1969, Ser. No. 842,595
Int. Cl. B65h 17/48
U.S. Cl. 242-55.19 A

12 Claims



An endless magnetic tape cartridge is formed of a top and bottom, each having a pair of openings, which are mutually aligned when the top and bottom are joined to define an oblong case with two through apertures positionable on a conventional two-shaft tape recording and reproducing device. An endless tape coil is carried in one end of the cartridge on a reel rotatable about one of the apertures while a pin at the other end of the cartridge pivotally mounts a sector-shaped plate which in turn rotatably mounts an auxiliary capstan and resiliently biased pinch roller. The auxiliary capstan has a toothed center opening to be driven by one shaft of the recorder while the reel idly turns about the other shaft of the recorder when the cartridge is placed in the device so that tape is withdrawn from the inner convolution of the tape coil past guide means, a magnetic head, a driving capstan, then between the auxiliary capstan and pinch roller to return to the outer convolution of the tape coil.

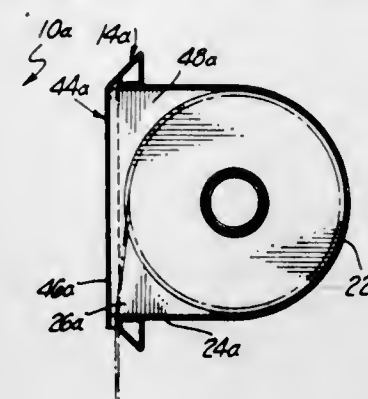
3,633,838
DISPENSING HOLDER FOR ROLLED SHEET MATERIAL
August G. Krueger, 584 Saint Paul St., Pomona, Calif.
Filed Sept. 5, 1969, Ser. No. 855,504
Int. Cl. B65h 19/00

U.S. Cl. 242-55.53

11 Claims

A dispensing holder for a roll of sheet material, such as tissue, including a front opening housing to be flush mounted in a wall recess and the roll support frictionally fitted within the housing. The roll support has a spindle for rotatably receiving the roll and a locating flange surrounding the spindle for

positively locating the latter in a fixed position within the

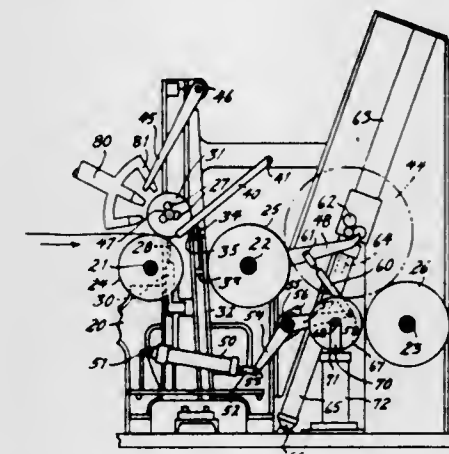


housing, wherein the roll is free to turn without rubbing contact with the housing.

3,633,839
WINDING SHEET MATERIAL WITH THREADING DEVICE

William Russel Clark, Jenkintown, Pa., assignor to Eddystone Machinery Company, Chester, Pa.
Filed Jan. 29, 1970, Ser. No. 6,856
Int. Cl. B65h 19/20, 19/28
U.S. Cl. 242-56 R

3 Claims



In a multidrum winder for sheet material, commonly called a cloth winder, in which a roll of sheet material first winds on a shell supported on the entering drum and then winds on a shell supported on the takeoff drum or on the middle drum and the takeoff drum, improved threading devices are provided to assure that the forward cut end of the sheet material will not only start a reverse bend around the new or rear shell, but will continue backwards following the outside of that shell. In one form of the invention pneumatic jets are provided blowing the forward cut end against the new or rear shell at the side remote from the takeoff drum. In other forms of the invention the forward cut end of the sheet material is secured to the new shell as by adhesive tape or by staples.

3,633,840
WINDING SHEET MATERIAL WITH THREADING DEVICE

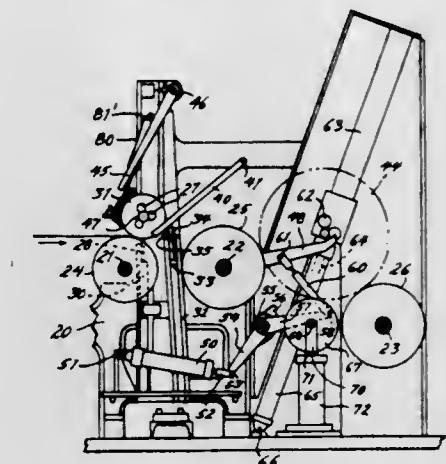
William Russell Clark, Jenkintown, Pa., assignor to Eddystone Machinery Company, Chester, Pa.
Filed Mar. 2, 1970, Ser. No. 15,455
Int. Cl. B65h 19/20

U.S. Cl. 242-56 R

9 Claims

In a multidrum winder for sheet material, commonly called a cloth winder, in which a roll of sheet material first winds on a shell supported on the entering drum and then winds on a shell supported on the takeoff drum or on the middle drum and the takeoff drum, improved threading devices are provided to assure that the forward cut end of the cloth or other sheet material will not only start a reverse bend around the new or rear shell, but will continue backwards following the

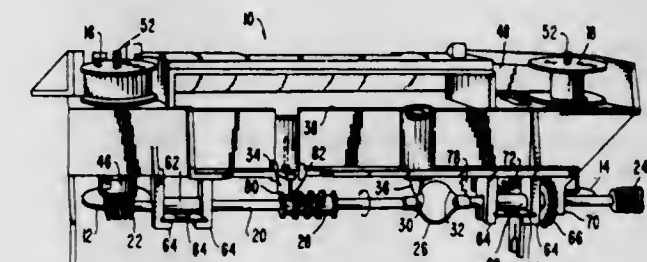
outside of that shell. In one form threading fingers, preferably spring urged toward the shell, hang down below a threading device. In another form, a threading device turning with the new or rear shell, such as a belt or wheel, has teeth



which grip the sheet material near its forward end, to assure that it will feed smoothly around the new shell on the first turn. In another form, the rotary threading device is driven at a forward speed slightly greater than the speed of progression of the forward cut end.

3,633,841
PRINT RIBBON DRIVE AND REVERSING DEVICE
Donald L. Bumgardner, Union Lake, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Feb. 6, 1970, Ser. No. 9,153
Int. Cl. B65h 17/02; B41j 33/22, 33/51
U.S. Cl. 242-67.4

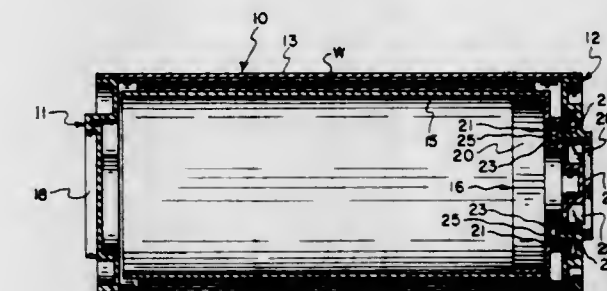
6 Claims



Print ribbon feed apparatus embodies a translator for alternately applying drive in opposite directions to one of a pair of print ribbon spools and includes mechanism to responsively remove drive from the wound spool and to apply drive to the unwound spool.

3,633,842
WEB TAKEUP DEVICE
Arthur C. Rissberger, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed June 19, 1969, Ser. No. 834,702
Int. Cl. G11b 23/10
U.S. Cl. 242-71.1

10 Claims



A takeup device is disclosed having a rotatable takeup core and a guide surface for directing the strip around the core. The core is supported with respect to the guide surface in a unique floating manner so that the core is urged towards

a portion of the guide surface. As a strip is directed around the rotating core, the core facilitates feed of the strip to a cinching position and thereafter, the core floats away from the guide surface as the strip is wound onto the core.

3,633,843

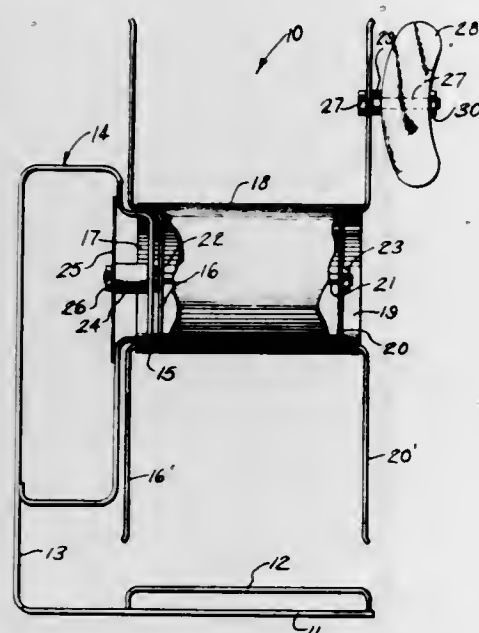
CORD CONTAINING AND WINDING DEVICE

Edwin Clement Sutton, 7 Haseler Cresc., Howick Auckland, New Zealand

Filed Apr. 15, 1970, Ser. No. 870,231
Int. Cl. B65h 75/40

U.S. Cl. 242-96

1 Claim



A device for winding and storing cord of all types. This device includes a frame portion having a handle to which is attached a rotatable frame containing a spool, the spool serving to take up the cord, the bottom portion of the device including a guide wire for guiding the cord as it is wound upon or taken off of the spool.

The rotatable frame portion of the device includes a winding handle which allows the cord to be easily wound or unwound from the spool.

3,633,844

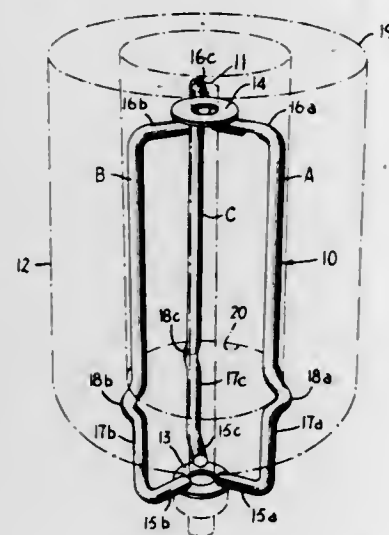
CREEL ADAPTER

William B. Sordani, Forty Fort, and Frank S. Westawski, Plains, both of Pa., assignors to Sterling Engineering and Manufacturing Company, a division of Public Service Enterprises of Pennsylvania, Wilkes-Barre, Pa.

Filed Aug. 19, 1970, Ser. No. 65,172
Int. Cl. B65h 49/02; D03j 5/08

U.S. Cl. 242-130

8 Claims



Described herein is an adapter useful in mounting large diameter spools on small diameter arbors. The adapter

generally comprises two small diameter bearings attached to a relatively rigid cage assembly; the bearings being suitable for mounting on the arbors and the cage being suitable for supporting the spools. Other features of the invention appear in the following specification.

3,633,845

MOUNTING ARRANGEMENT FOR AN ELONGATED RECORD CARRIER

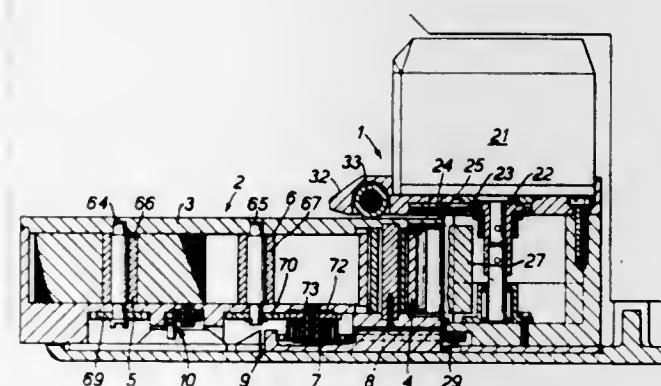
Edric Raymond Brooke, Bishops Stortford, England, assignor to English Numbering Machines Limited, Enfield, England
Filed Oct. 17, 1969, Ser. No. 867,285

Claims priority, application Great Britain, Oct. 23, 1968, 50,342/68

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-198

7 Claims



A mounting arrangement for an elongated record carrier is disclosed in which a cassette is engageable in an operative position in a receptacle. A guide path comprising a rib member projecting from the floor of the receptacle and a cooperating groove in the cassette are provided for guiding the cassette into and out of an operative position in the receptacle.

The cassette is provided with spools which are locked by spring loaded locking means when the cassette is not located within the receptacle. As the cassette is inserted in the guide path, the spool locking means are so engaged by a projecting abutment in the receptacle that the spools are unlocked as the cassette is moved towards its operative position.

The receptacle is provided with a retaining member which can be displaced from an initial position by depressing a button mounted on the wall of the cassette receptacle when the cassette is located in its operative position. The retaining member may then be displaced to such a position that it so engages a part of the body of the cassette, that the cassette cannot be withdrawn from the receptacle until the retaining member is returned to its initial position.

3,633,846

EXPANDABLE AERODYNAMIC FIN

Lawrence M. Biggs, Jr., Annandale, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed May 28, 1970, Ser. No. 41,461
Int. Cl. F42b 25/00

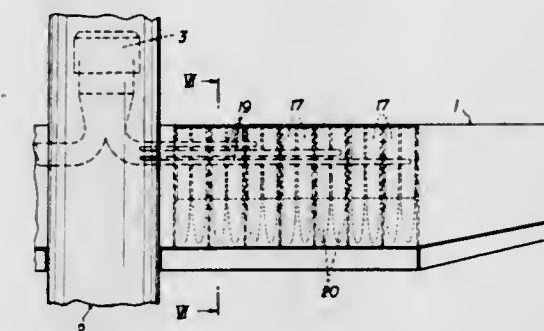
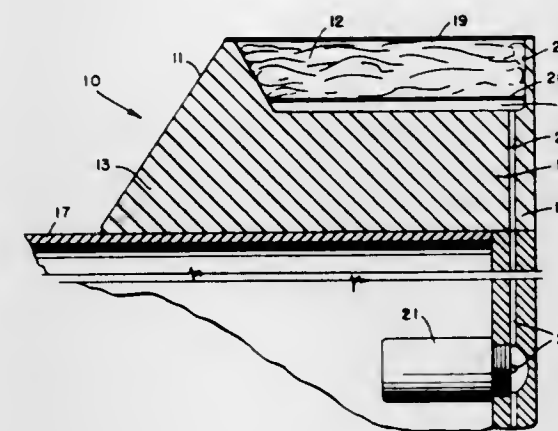
U.S. Cl. 244-3.27

3 Claims

An expandable aerodynamic fin comprising a hollow primary fin housing provided with a recess within which is sealed a secondary fin composed of a flexible membrane in the form of a pouch being attached at its edges to the periphery of the inner wall of said primary fin. A pressurization device is positioned adjacent the primary fin base with gas pressure lines leading through the base to the recess. Upon actuation of this device sufficient gas pressure is

created to fill the secondary fin and force it to expand

is arranged to receive the working gas and to exhaust it into the interior of the wing means, whereby the working gas entrains air from the source to form a flowing air-gas mixture.



thereby rupturing the seal and fanning out to become an integral part of the primary fin.

A discharge provided on the underside of the wing means is arranged to discharge the air-gas mixture generally in a downward direction

3,633,847

AIRCRAFT WITH LIFT-AND-CRUISE FANS

Wilhelm Fricke, Buchholz, and Werner Hoose, Ahrensburg, both of Germany, assignors to Hamburger Flugzeugbau GmbH, Hamburg-Finkenwerder, Germany

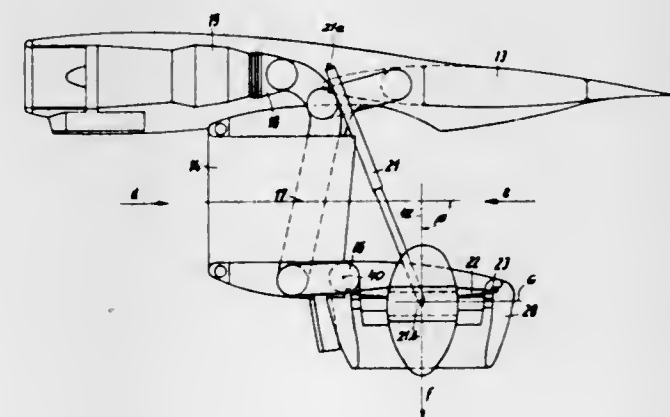
Filed Jan. 13, 1970, Ser. No. 2,590

Claims priority, application Germany, Jan. 15, 1969, P 19 01 707.3

Int. Cl. B64c 29/00

U.S. Cl. 244-12 A

10 Claims



A propulsion-and-lift fan assembly for STOL-type aircraft in which the fan is driven by hot gases produced by a gas generator (turbine) and the fan assembly is mounted in a duct opening at one axial end toward the forward-flight direction. The fan assembly includes a blade arrangement serving as air guide. The assembly is swingable through an angle of 0° to more than 100° about an axis perpendicular to the longitudinal axis or forward-flight direction so that there is negligible loss as a consequence of air diversion, and air-flow control flaps and жалюзи are avoided.

A flying craft comprised of a rotating outer body and a stationary cabin pivotally mounted therein about three axes which are in perpendicular succession to each other.

3,633,850

FLEXIBLE SAIL ROTOR DEVICES

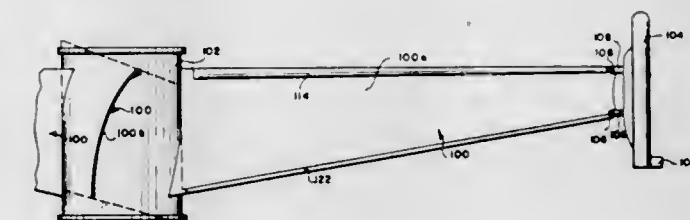
Lewis Feldman, 15 Ireland Place, Amityville, N.Y.

Filed Jan. 6, 1969, Ser. No. 789,328

Int. Cl. B64c 27/00

U.S. Cl. 244-17.11

33 Claims



3,633,848

LIFT-PRODUCING MEANS IN WINGED AIRPLANE

Hans Flimml, 4, Klausenerstrasse, Innsbruck, Austria

Filed Mar. 9, 1970, Ser. No. 17,578

Claims priority, application Austria, Mar. 17, 1969, A 2567/69

Int. Cl. B64c 29/00

U.S. Cl. 244-12 B

4 Claims

An engine is operable to burn fuel and produce a working gas. An ejector conduit communicates with an air source and

A launched, self-sustaining station-keeping vehicle is maintained in flight by flexible rotor blades deployed and ten-

sioned by the centrifugal forces acting on a mass (which takes the form of a rocket or the like) located at the tip of each rotor, the rockets sustaining rotation of the rotor blades. The blades are wrapped around a normally rotatable spool portion of the vehicle during launch. A spin is imparted to the vehicle during flight which aids in deploying the blades when the tip rockets are released. A vehicle-mounted control system controls stabilization and station keeping through control of the blade angle setting of the rotor blades. Improvements of general application include improving the aerodynamic shape of such blades by securing appropriately shaped fairings thereto.

3,633,851

VERRIDE DUAL CONTROL DEVICE FOR AIRCRAFT

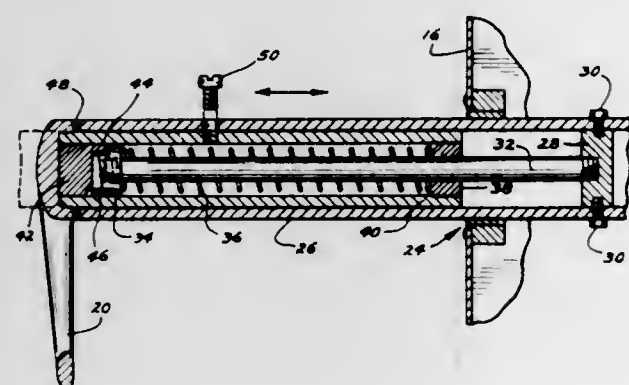
Egon Marte, 2335 Argonne Drive, Minneapolis, Minn.

Filed Feb. 9, 1970, Ser. No. 9,616

Int. Cl. B64c 13/12

U.S. Cl. 244-84

6 Claims



This invention is a dual control device for aircraft in which the student's control system includes a yieldable spring release mechanism so that the instructor may take over full control of the airplane if the student becomes panicked and "freezes" by pulling his control tightly towards himself.

3,633,852

AIRCRAFT SEAT EJECTION SAFETY SYSTEM

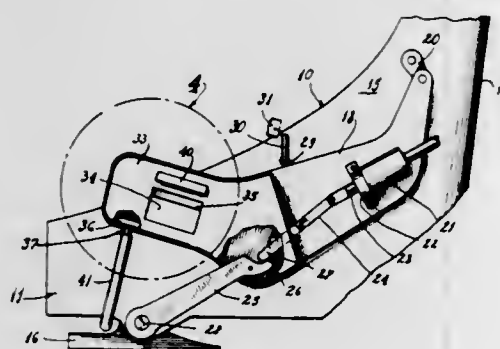
David Forman, Centerport, and Angelo C. Scandalis, Northport, both of N.Y., assignors to Fairchild Hiller Corporation, Montgomery County, Md.

Filed Mar. 31, 1970, Ser. No. 24,281

Int. Cl. B64d 25/10

U.S. Cl. 244-122 A

10 Claims



An aircraft seat ejection safety system for aircraft ejection seats that have an ejection-actuating arm on each side of the ejection seat that includes a locking mechanism on the ejection-actuating arms for permitting the ejection-actuating arms to be secured in their inoperative positions until one of the locking mechanisms is manually released and a member that interconnects the locking mechanisms and hold the ejection-actuating arms in their inoperative positions until the

manual release of one of the locking mechanisms. The locking mechanism includes a manually operable lever for releasing the locking mechanism and a manually operable safety mechanism is also provided that normally prevents the manually operable lever from being operated.

3,633,853

ESCAPE DEVICES FOR AIRCRAFT

Roy T. J. Collins, Ferndown, England, assignor to British Aircraft Corporation Limited, London, England

Filed July 1, 1970, Ser. No. 51,581

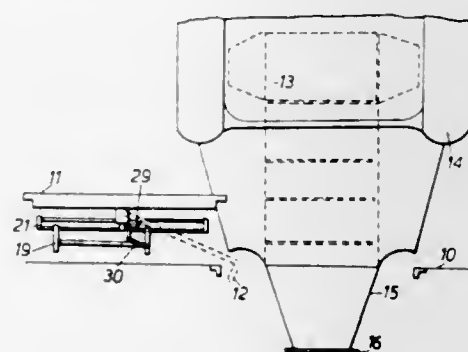
Claims priority, application Great Britain, July 1, 1969,

33,130/69

Int. Cl. B64d 28/14

U.S. Cl. 244-137 P

5 Claims



An aircraft having an external door carried by a parallel linkage includes an escape slide stowed in a container secured to a carriage which is movable relatively to the door on a support also carried by the parallel linkage, the carriage being so constrained that, as the door opens, the carriage moves through the door opening and then to one side.

3,633,854

SPEED CONTROLLER

Hans-Dieter Buchholz, Oberuhldingen, and Hans-Peter Reerink, Meersburg, both of Germany, assignors to Bodenseewerk Geratetechnik, Ueberlingen/Bodensee, Germany

Filed Apr. 30, 1969, Ser. No. 820,429

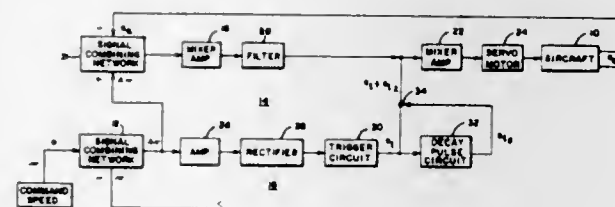
Claims priority, application Germany, Oct. 10, 1968, P 18 02

255.4

Int. Cl. B64c 13/18

U.S. Cl. 244-77 D

4 Claims



A servocontrol loop is described, having a speed-regulating means, and means for providing a control signal to the speed-regulating means for varying aircraft speed when aircraft speed deviates from a command speed. A servo loop signal Δv representative of this aircraft speed deviation is applied to means including a signal amplitude sensor which exhibits a threshold response established at a signal level representative of a predetermined speed deviation from the command speed. A value of Δv exceeding the threshold level causes the application of a control signal to the servo loop for counteracting the excess of speed deviation from the threshold value.

3,633,855

SUPPORT STRUCTURE

Hans Alfred Nell, Klippe 17, 5602 Langenberg, Germany

Filed Mar. 27, 1969, Ser. No. 811,146

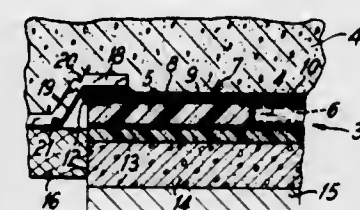
Claims priority, application Germany, Mar. 30, 1968, P 17

59 108.1

Int. Cl. E01d 19/04; A47g 29/00

U.S. Cl. 248-1

21 Claims



A support structure includes a base element and a supported element which is supported on the base element. Support means is interposed between the elements and includes at least one load-centering first support member carried by the base element and at least one second support member overlying the first support member at least coextensively therewith. The second support member supports the supported element and is unconnected with the first support member so as to have slight freedom of movement relative thereto but transmitting loads originating from the supported element into the first member in all positions relative thereto.

3,633,856

ENGINE SUPPORT BUSHING ASSEMBLY

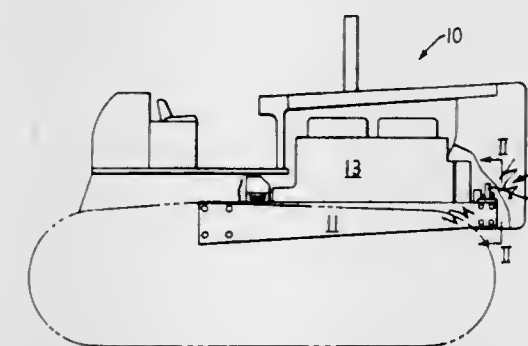
Donald R. Crews, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed June 25, 1969, Ser. No. 836,512

Int. Cl. F16m 5/00

U.S. Cl. 248-9

5 Claims



A bushing assembly is mounted between a cross strut forming an integral part of a vehicle's frame and a trunnion secured to an engine block to dampen vibratory motion occurring therebetween. The bushing assembly comprises inner and outer rings having a slightly compressed annular elastomeric member or bushing mounted therebetween. A thin coating of polytetrafluoroethylene is formed on the outer surface of the inner ring to reduce the coefficient of friction between the inner ring and the bushing.

3,633,857

HANGER FOR CABLES

Lewis J. Logan, 11820 Edgewater Drive, Lakewood, Ohio

Filed Jan. 15, 1970, Ser. No. 3,002

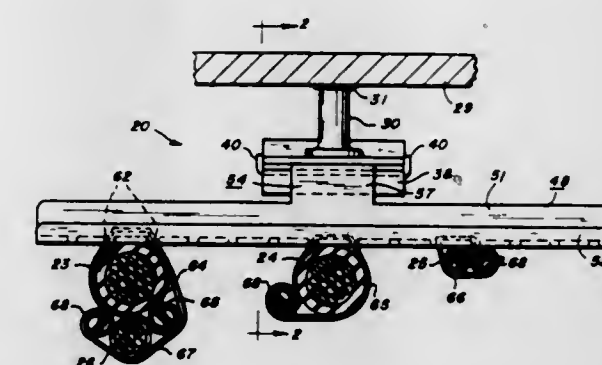
Int. Cl. F16l 3/14

U.S. Cl. 248-62

6 Claims

A hanger for pipes, cables and the like including a lug member secured to a wall and having a slot to receive the hook portion of a channel member. A locking member is provided to hold the hook portion in the slot in a shock-ab-

sorbing manner when the assembly is complete. The channel member has slots which receive banding material to individually secure pipes or cables to the underside of the channel member. The banding material is secured by taking the two free ends and rolling the same tightly into a roll about an axis which is generally parallel to the pipe or cable



being secured. In cases where high-shock loads are to be encountered, a second strip of banding material is rolled about the first and preferably it is rolled in an opposite direction. A tool is provided for rolling the banding material and an additional tool is provided to cooperate with the first in removing the first from the rolled banding material without disturbing or weakening the tight roll.

3,633,858

CLAMPING ASSEMBLY FOR AERIALY SUSPENDED CABLES

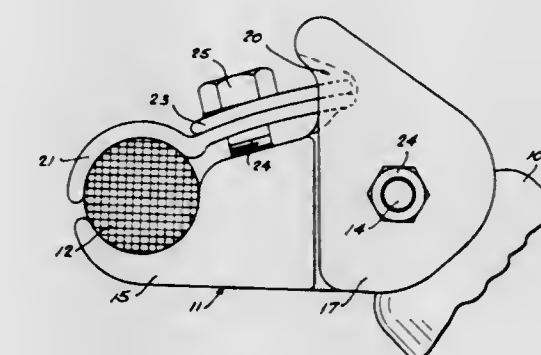
Herbert James Houston, Oakville, Ontario; Robert Gordon Baird; Kenneth Dale Bolt, both of Burlington, Ontario, and Adolf Gretzinger, Ancaster, Ontario, all of Canada, assignors to N. Slater Company, Division of Slater Steel Industries Limited

Filed June 2, 1969, Ser. No. 829,263

Int. Cl. F16l 3/12

U.S. Cl. 248-63

4 Claims

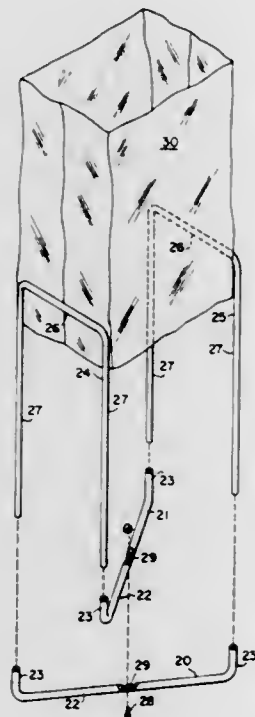


A cable clamping assembly which has a main clamp member which cooperates with a spring clamp member to firmly hold a cable therebetween. Holding means extend through the clamp members to hold the cable so as to substantially eliminate relative movement. The spring clamp member possesses sufficient resiliency and strength to accommodate rearrangement of physical characteristics within the assembly during repeated temperature cycling so as to substantially maintain an original set of installation conditions.

3,633,859 BAG SUPPORT

Manuel Vosbikian, 3 Sharpless Road, Melrose Park, Pa.
Filed Mar. 12, 1970, Ser. No. 19,007
Int. Cl. B65b 67/12
U.S. Cl. 248-97

1 Claim

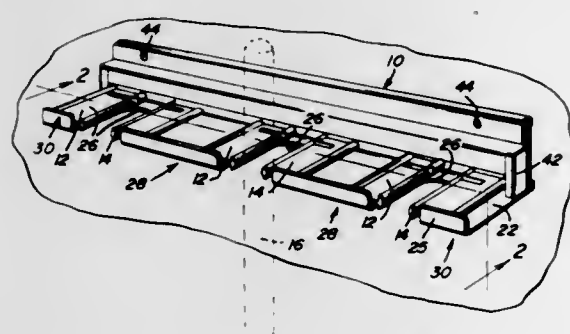


A bag support consists of a pair of lower U-shaped elements and a pair of upper U-shaped elements, the lower elements defining by the arms of the U's a rectangular configuration, the arms of the U's of the upper elements telescoping with respect to the arms of the U's of the lower elements and the bases of the U's of the lower elements cross-connecting from one lower element to another. In the preferred embodiment the bases of the U's of the lower elements cross one another and are fastened together. In one embodiment a dispenser for bags is mounted on the vertical structure

3,633,860 MOP AND BROOM HOLDER

Pablo (Figuerola) Navarro, PB 13 St. 274 Country Club, Rio Piedras, P.R.
Filed June 4, 1970, Ser. No. 43,438
Int. Cl. A47b 81/02
U.S. Cl. 248-113

6 Claims

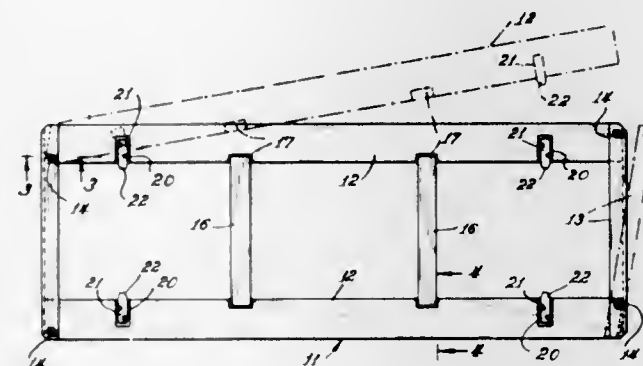


An L-shaped mounting bracket has slots formed in a horizontal flange portion for receiving an article to be held. Confrontingly positioned jaw members are pivotally mounted on the bracket and are spaced over lateral edges of the slots to allow the passage of an article through the slots. Bias means are connected to the jaw members for automatically urging them into clamping engagement with the article as it passes between the jaw members.

3,633,861 CASKET PALLET

George C. Hillenbrand, Batesville, Ind., assignor to The Batesville Casket Company, Inc., Batesville, Ind.
Filed Aug. 20, 1970, Ser. No. 65,612
Int. Cl. B60p 7/06; B65d 19/00
U.S. Cl. 248-119 R

8 Claims

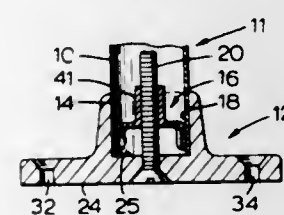


A pallet for supporting a metal burial casket shell during trimming, lining, final inspection, warehousing, transportation and delivery to a funeral home.

3,633,862 SAFETY RAIL

William Ross Breen, Toronto, Ontario, Canada, assignor to Hubert Industries Limited, Toronto, Ontario, Canada
Filed May 28, 1970, Ser. No. 41,513
Int. Cl. A47h 1/14
U.S. Cl. 248-251

4 Claims



A safety rail and a connector for adjustably attaching an end piece to a tubular bar of the type used in safety rails. The end piece has a recess adapted to receive an end of the tubular bar and an opening for receiving a screw which passes through the end piece into the bottom of the recess to engage in the connector. The connector includes a crossbar having a lug at each of its ends. The lugs extend outwardly for attaching the connector to an inside surface of the bar. An integral tubular portion of the connector extends inwardly from the crossbar to define a threaded opening to receive the screw for drawing the end pieces to the bar. Each of the ends of the rail has one connector and one end piece.

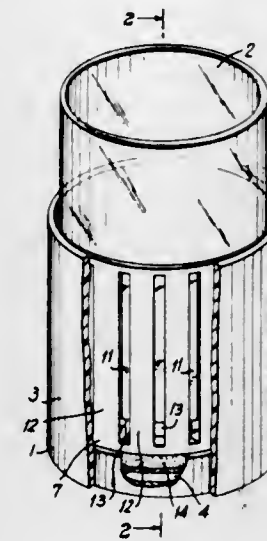
3,633,863 COASTER ARRANGEMENT

Henry Abbey, 711 Shore Road, Long Beach, N.Y.
Filed July 13, 1970, Ser. No. 54,198
Int. Cl. A47b 43/04
U.S. Cl. 248-346.1

11 Claims

A coaster arrangement comprises a receptacle for housing at least the lower part of a tumbler. A support in the receptacle holds a tumbler snugly in the receptacle with the bottom of the tumbler spaced from the bottom plate of the receptacle

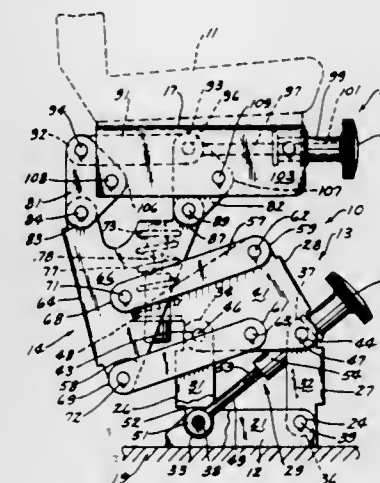
cle and with the sides spaced from the cylinder of the receptacle. The support directs moisture forming on the tumbler soluble adhesive coated on the backing, and a hook member formed from a single length of wire bent to form a pair of



into a basin formed in the plate and prevents such moisture from wetting a surface supporting the tumbler or receptacle.

3,633,864
ADJUSTABLE SEAT SUPPORT
Herscheal W. Miller, 432 Fairmount St., Davenport, Iowa
Filed Jan. 19, 1970, Ser. No. 3,715
Int. Cl. F16m 13/00
U.S. Cl. 248-419

4 Claims

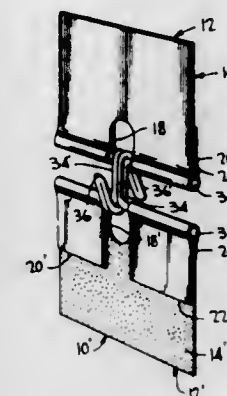


A seat support for mounting a seat to a vehicle, the support adapted for independent and selective adjustments for regulating the height, fore-and-aft position and suspension of the seat. The support includes a base secured to the vehicle, a first adjusting unit pivotally connected to the base and operable to regulate fore-and-aft positioning of the seat relative to the base, a suspension unit pivotally connected to the first adjusting unit for cushioning the seat, a second adjusting unit pivotally connected to the suspension unit and operable to regulate vertical positioning of the seat relative to the base, and a mounting plate pivotally connected to the second adjusting unit for attaching a seat thereto.

3,633,865
ADHESIVE HANGER
James W. Hogg, 6216 Hillsboro Road, Nashville, Tenn.
Filed Apr. 1, 1969, Ser. No. 811,783
Int. Cl. A47i 7/14
U.S. Cl. 248-467

14 Claims

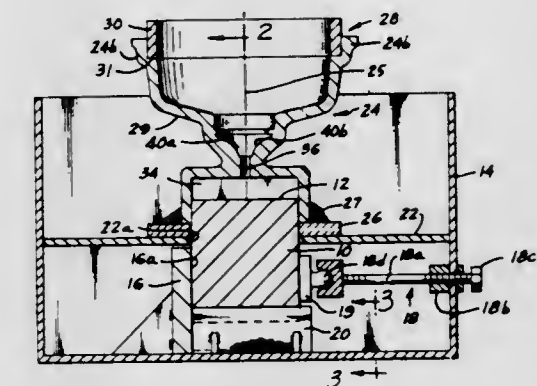
Adhesive hangers having a bifurcated paper backing forming a pair of folded legs with a slot therebetween, a water



arms supported in the legs, a shank connected with the arms and a hook angularly bent from the shank.

3,633,866
APPARATUS FOR CLADDING METAL
Charles F. Funk, Metairie, La., assignor to Shapeweld, Inc., New Orleans, La.
Original application Sept. 18, 1967, Ser. No. 668,486.
Divided and this application Jan. 14, 1970, Ser. No. 7,329
Int. Cl. B22c 9/08; B41b 11/74
U.S. Cl. 249-105

2 Claims



In the metal-cladding method disclosed a body of molten metal is located above the surface of the base metal to be clad. The metal is allowed to flow downwardly toward the surface through a restriction that shapes the metal striking the surface into an elongated narrow stream. The stream is about as long as the longest dimension of the surface being clad. The apparatus of the invention includes a mold having a crucible to hold the molten metal and a slot for restricting the flow of the molten metal into the mold cavity enclosing the surface being clad. The slot shapes the metal into an elongated, narrow stream that is about as long as the longest dimension of the surface being clad.

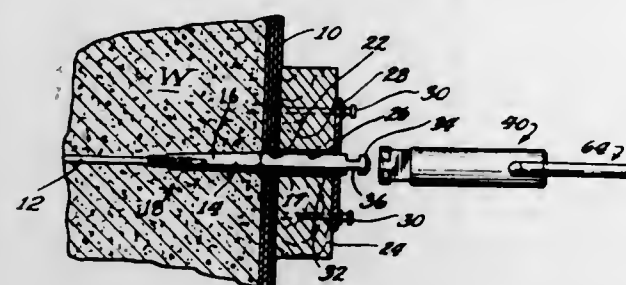
3,633,867
SHE-BOLT AND TORQUE WRENCH ASSEMBLY
George J. Eriksson, Morton Grove, Ill., assignor to Superior Concrete Accessories, Inc., Franklin Park, Ill.
Filed Aug. 8, 1969, Ser. No. 848,481
Int. Cl. E04g 17/08
U.S. Cl. 249-213

1 Claim

A cooperating she-bolt and torque wrench assembly wherein the she-bolt is provided inwards of its outer extremity with a flat web and the torque wrench is forked so that it

may be caused to straddle the web. A crank arm on the torque wrench facilitates spinning of the wrench for the pur-

relative to the seat of the valve so that the stroke of the solenoid is varied without making any adjustment in the electrical characteristics of the solenoid. The valve element is connected to the armature by a bellows and the solenoid unit is



pose of unthreading the she-bolt from its associated tie rod when the latter is embedded in a mass of poured concrete.

3,633,868

SOLENOID-CONTROLLED PILOT VALVE

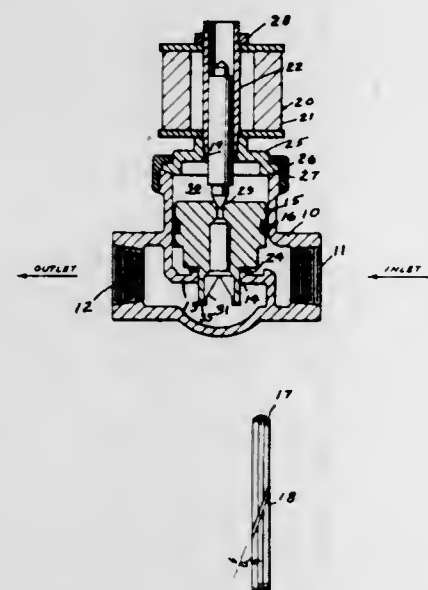
Carmen Catania, Erie, Pa., assignor to Hays Manufacturing Company, Erie, Pa.

Continuation-in-part of application Ser. No. 753,636, Aug. 19, 1968, now abandoned. This application Aug. 3, 1970, Ser. No. 60,727

Int. Cl. F16k 31/143; F16j 9/00

U.S. Cl. 251-30

4 Claims



mounted on the valve bonnet on a threaded portion so that it can be rotated on the thread so the unit as a whole is moved relative to the valve seat to vary the stroke of the solenoid armature without any other adjustment.

3,633,870

WATER REGULATING VALVE

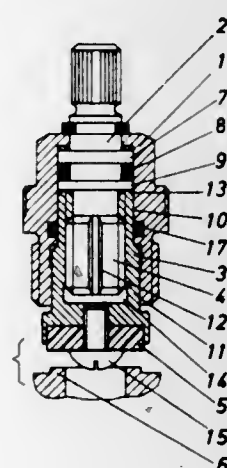
Friedrich Bayer, Dellmingshofen, Germany, assignor to Friedrich Grohe Armaturenfabrik, Hemer, Germany

Filed Oct. 15, 1969, Ser. No. 866,539

Int. Cl. F16k 31/50

U.S. Cl. 251-270

5 Claims



The invention herein involves a pilot-controlled piston-operated valve, where the piston is reciprocally received in a cylindrical chamber. The inlet to the valve is separated from the outlet by a partition having an opening, and the piston has an extension extending into the opening. The piston has a piston ring, which is split at an angle of approximately 15° which acts as a bypass opening from inlet to the space above the piston whereby fluid can flow from the inlet through the split in the piston ring by capillary action to the space above the piston, and when the pilot closes the pilot orifice in the piston, the pressure of this fluid will force the pilot piston to closed position. When the piston is in open position, the liquid will flow directly from the inlet through the opening in the partition.

3,633,869

SOLENOID VALVE WITH ADJUSTABLE STROKE

Rolf-Konrad Lehmann, Flensburg, Germany, assignor to Danfoss A/S, Nordborg, Denmark

Continuation of application Ser. No. 779,657, Nov. 27, 1968, which is a continuation of application Ser. No. 481,751, Aug. 23, 1965. This application July 31, 1970, Ser. No. 64,124

Int. Cl. F16k 31/06

U.S. Cl. 251-129

1 Claim

A solenoid valve in which the solenoid having the valve element connected to the armature can be moved as a unit

An upper valve portion arrangement used for regulating water flow, in which a threaded valve rod is located within the body of the valve and maintains two chambers spaced from each other. The chambers communicate through a duct in the form of a notch or bore in the threaded portion of the valve rod. Two O-rings are provided with one O-ring within the valve body about a cylindrically shaped guide portion of a tapered sleeve located within the interior of the valve body. This O-ring serves to seal off the threaded portion of the valve rod, from the water passing through the valve.

3,633,871

BAFFLE FOR FLUID VALVE

Lothar Kirstein, Bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke, Bad Kreuznach, Germany

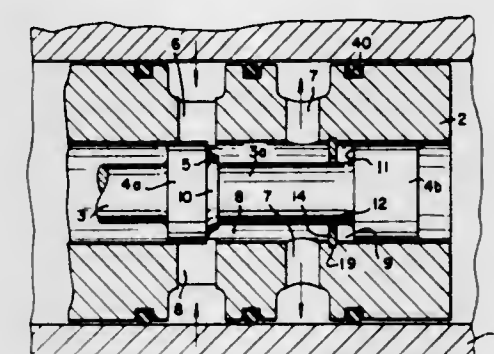
Filed Aug. 7, 1970, Ser. No. 62,011

Claims priority, application Germany, Oct. 21, 1969, P 19 52 811.1

Int. Cl. F16k 39/04

U.S. Cl. 251-282

10 Claims



An annular baffle, designed to act as a barrier interposed between two oppositely facing lands of a pair of piston heads in a fluid valve for controlling the axial thrust due to dynamic pressures reacting upon the piston, consists of one or more elastic arcuate members defining at least one radial gap which allows them to be fitted about a reduced piston portion intermediate the two heads upon introduction through one or more radial apertures in the valve housing; the resilient deformability of the baffle member or members is sufficient to enable such lateral introduction in a folded position.

3,633,872

BUTTERFLY VALVE

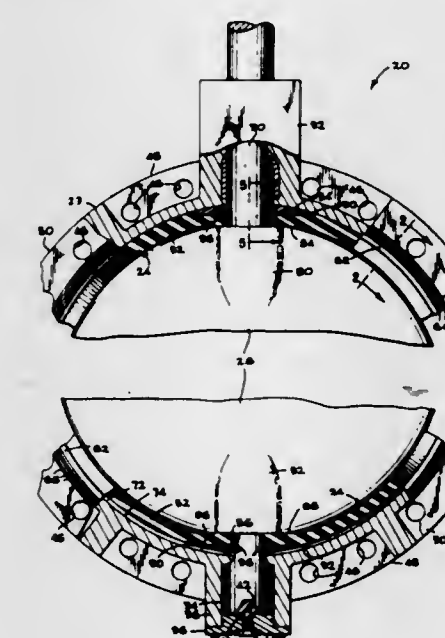
Joseph F. Wright, Houston, Tex., assignor to FMC Corporation, San Jose, Calif.

Filed Nov. 24, 1969, Ser. No. 879,059

Int. Cl. F16k 1/22

U.S. Cl. 251-306

3 Claims



A butterfly valve having a replaceable seat assembly of resilient sealing material received in annular mounting grooves. The seat assembly includes bonded backup segments in the areas where the butterfly stem passes through the seat and secondary seals in the backup segments to prevent leakage around the stem. The method of seal construction permits simplified seal removal and replacement, especially advantageous in large diameter valves.

3,633,873

GATE VALVE STRUCTURE

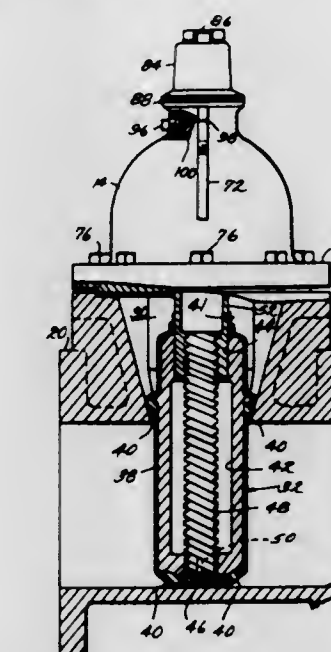
Wilbur R. Leopold, Jr.; John J. Smith; Frank C. Hackman; Lawrence F. Luckenbill, and Joseph L. Daghe, all of Decatur, Ill., assignors to Mueller Co., Decatur, Ill.

Filed Nov. 28, 1969, Ser. No. 880,996

Int. Cl. F16k 31/50

U.S. Cl. 251-326

13 Claims



A gate valve structure for use in mains carrying fluid under high pressure, the gate valve structure utilizing a nonrising stem-type actuating mechanism. The nonrising actuating stem-type mechanism includes telescoping stems threadedly engaging one another and in which the threads of the telescoping stems are protected or sealed from the main fluid at all positions of the gate valve. Additionally, the gate valve structure is provided with means for wiping at least the exterior surface of one stem which telescopes into the gate valve member to further protect the threads of the stems from foreign material, such as dirt, abrasives or the like. The top construction of the gate valve structure permits replacement of the upper stem seal in any position of the gate member, the construction also providing for a positive control of the positioning of the upper valve stem regardless of normal manufacturing tolerances. Compensating spacer means insures a load being placed on the upper stem seal.

3,633,874

DIAPHRAGM VALVE

Hubertus Leonardus Martinus Veugelers, Jr., De Genestetlaan 103, The Hague, Netherlands

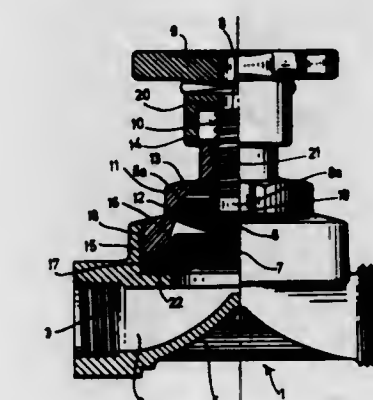
Filed June 23, 1969, Ser. No. 835,350

Claims priority, application Netherlands, June 26, 1968, 6808967

Int. Cl. F16k 7/16

U.S. Cl. 251-330

2 Claims



In a diaphragm valve comprising a fixed diaphragm cooperating with a loose movable central presser member, having a conically shaped periphery.

3,633,875

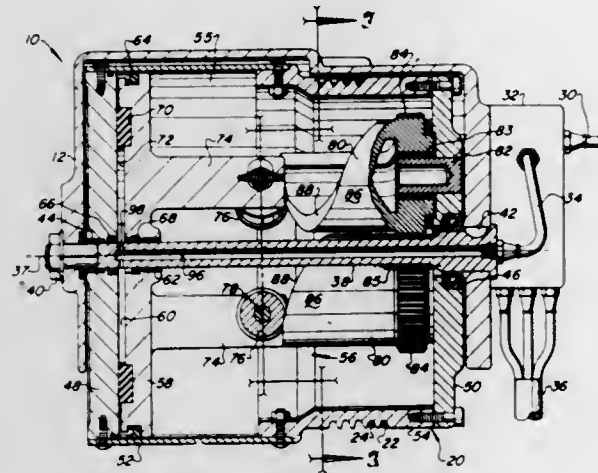
FLUID-OPERATED BALANCING HOIST

William Workman, Jr., Spring Lake, Mich., assignor to Gardner-Denver Company, Quincy, Ill.

Filed Aug. 4, 1970, Ser. No. 60,821
Int. Cl. B66d 1/12

U.S. Cl. 254-168

8 Claims



A pneumatic balancing hoist comprising a frame rotatably supporting a hollow drum upon which is wound a cable or similar flexible element. The hollow drum includes a pressure chamber containing a piston movable in response to pressurization of the chamber. The piston includes a plurality of cam rollers which are each engaged with a rotatable cam member. The cam members are also formed as planet gears of a planetary gear drive in which a planet gear carrier is formed as an end wall of the hollow drum. The planet gears are engaged with a stationary sun gear fixed to the frame. In response to valving compressed air to the pressure chamber the piston and cam rollers force the cam members to rotate whereby the drum is operated to wind the cable thereon to raise and balance a load.

3,633,876

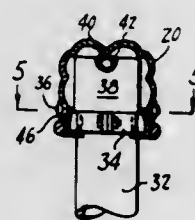
AUTOMOBILE SAFETY BARRIER

Harry W. Irwin, 115 S. Marshall St., Lancaster, Pa.

Filed May 8, 1970, Ser. No. 35,625
Int. Cl. E01f 15/00

U.S. Cl. 256-13.1

3 Claims



A railing open at the bottom thereof and being held up by posts with bracket bands attached to the railing by means of

combination fastening and reflecting elements, the railing providing illuminated directions for passing drivers on either side thereof.

3,633,877

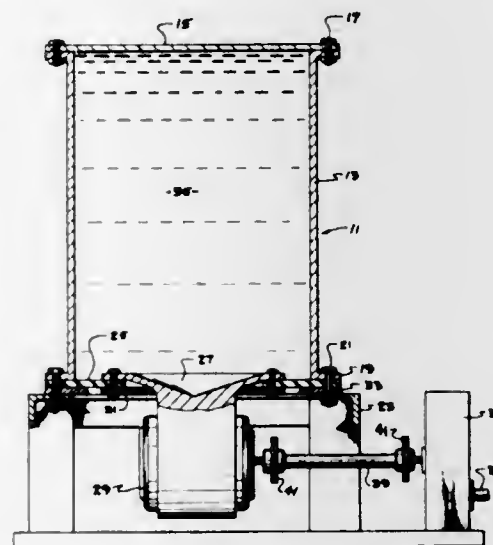
INDUCTIVE CAVITATOR

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif.

Filed Sept. 11, 1969, Ser. No. 856,958
Int. Cl. B01f 11/00

U.S. Cl. 259-72

2 Claims



A tank for containing a liquid whose bottom portion is partially comprised of a housing for an inductive oscillator having a pair of rotors. The rotors move in opposite directions so as to provide an in-phase reaction normal to the base of the tank to establish cavitation in liquid disposed in the tank.

3,633,878

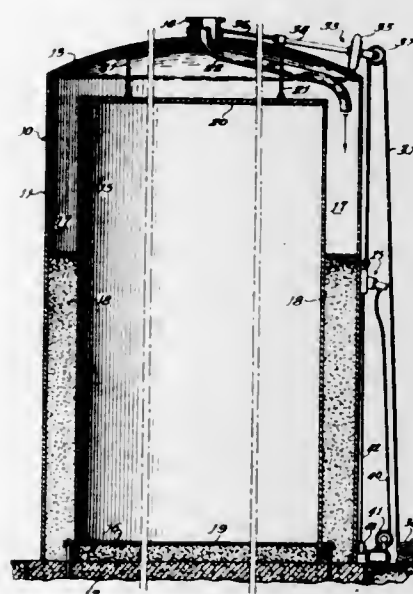
APPARATUS FOR SETTLING INSULATION MATERIAL IN CRYOGENIC TANKS

Carl Mendius, Jr., Naperville, Ill., assignor to Silbrico Corporation, Hodgkins, Ill.

Continuation-in-part of application Ser. No. 774,000, Nov. 7, 1968. This application Oct. 14, 1969, Ser. No. 866,268
Int. Cl. B01f 11/00

U.S. Cl. 259-72

11 Claims



The apparatus comprises a vibrator and a device for anchoring the vibrator to surface of tank wall in such a manner that the bond between the surface-anchoring device and the tank wall surface is releasable. The surface-anchoring device includes either an electromagnet or a permanent

magnet, or a vacuum cup. Release is obtained by deenergizing the electromagnet, or by releasing the vacuum. Cams mounted adjacent the permanent magnet bear against the tank wall and force the pole pieces away from the tank wall to release the magnetic bond. The tank wall vibrates over a considerable area and the vibrations are transmitted to the insulation material to settle same. A rope supports the apparatus when the surface bond is released so that it can be shifted to a different wall portion.

vacuum system through suitable vent openings formed in the barrel enclosing said venting section.

3,633,881

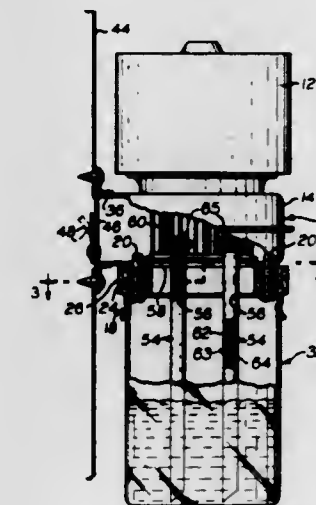
EVAPORATIVE DEODORIZING SYSTEM

Alfred Yurdin, 10 Fenton Drive, Millburn, N.J.

Continuation-in-part of application Ser. No. 929,006, May 14, 1968, now abandoned. This application Oct. 9, 1969, Ser. No. 865,154
Int. Cl. A61l 9/04

U.S. Cl. 261-24

12 Claims



This apparatus for evaporating deodorant liquid into a room, or into an air-circulating system, has a centrifugal blower that draws air through an air supply passage in which a wick for deodorizing liquid is located in position to take advantage of the airflow at subatmospheric pressure on the suction side of the blower. Wick evaporative surfaces are protected from dust and dirt by an air filter that further reduces the air pressure in the air supply passage in which the filter is located. The supply of deodorant to the evaporative surface of the wick is made substantially independent of the amount of liquid remaining at any particular time in the liquid container by having the wick made with an impervious outer wall and fibrous cores, the latter being exposed to liquid in the container only at the bottom of the wick so that the area of absorbent surface of the wick does not change as the amount of liquid in the container is reduced or replenished. In a preferred construction, the apparatus is combined with a central air-circulating system to supply deodorant to the system when needed.

3,633,880

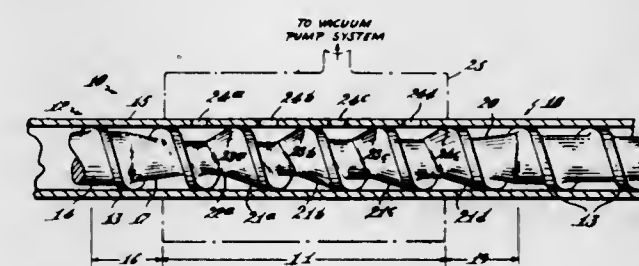
EXTRUSION DEVICE

Larry J. Newmark, Gulderland, N.Y., assignor to General Electric Company

Filed Jan. 8, 1970, Ser. No. 1,424
Int. Cl. B29f 3/03

U.S. Cl. 259-191

11 Claims



A venting section in an extrusion device for venting volatile elements from an extrudate, such as a plastic material, which venting section comprises a plurality of venting segments shaped to alternately compress and decompress said extrudate so as to free from the bulk of the plastic material said volatile elements which can then be carried away by a

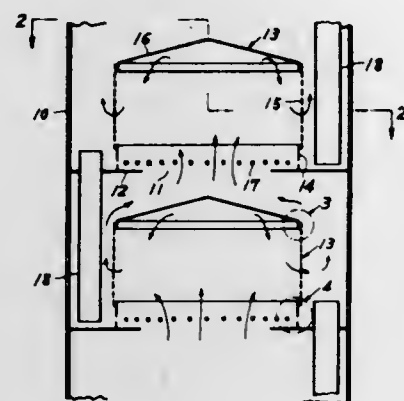
3,633,882
VAPOR-LIQUID CONTACTING APPARATUS
Kouichi Karakawa, Wada, Tamano, and Shogo Tanigawa, Chikuko, Wada, Tamano, both of Japan, assignors to Mitsui Shipbuilding & Engineering Co., Ltd., Tokyo, Japan
Filed July 23, 1969, Ser. No. 844,059
Claims priority, application Japan, Oct. 8, 1968, 43/73307
Int. Cl. B01d 3/26

U.S. Cl. 261-113

9 Claims

A gas-liquid contacting apparatus provided with vertically spaced trays having gas-flow openings therein and a contacting structure provided on the trays, the contacting structure comprising cylindrical walls surrounding said openings and secured to the trays and having apertures at a lower portion thereof. A perforated cylinder is provided atop of the cylindrical wall, and a cover. Liquid is maintained on the tray by a weir means and is discharged through the apertures of said

cylindrical wall into the gas-flow opening and is blown up by vaporized into a permeable membrane diffusion chamber gas ascending from the openings of the tray to form gas-



liquid mixing flow. Suitable flow control means are disclosed for the gas and the liquid respectively.

3,633,883

SUPPORTING AND SEALING MEANS FOR TREATING TRAYS IN FLUID-TREATING APPARATUS

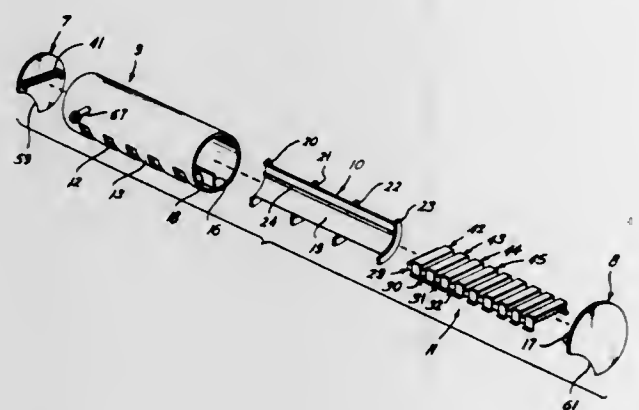
Raymond D. McGlothlin, Box 246, Talco, Tex.

Filed Nov. 4, 1968, Ser. No. 773,076

Int. Cl. B01f 3/04

U.S. Cl. 261-114

2 Claims



A novel sealing and supporting means for treating trays in fluid-treating apparatus in which the fluid-treating apparatus is comprised of a vessel having ledges on inner walls thereof forming liquid-containing chambers and treating tray structure resting on the ledges and supported thereby. The tray structure has flanges depending into the chambers for forming a liquid seal therewith whereby the ascending fluids are prevented from escaping around the peripheries of the trays. The provision of liquid seals at the peripheries of the trays avoids welding or bolt and gasket seals, facilitating the installation and removal of the trays and reducing construction and maintenance costs.

3,633,884

APPARATUS FOR REOXYGENATING A BODY OF WATER

John F. Holmes, Andover, Mass., and Donald P. Foudriat, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Aug. 3, 1970, Ser. No. 60,368

Int. Cl. B01f 3/04

U.S. Cl. 261-122

9 Claims

A body of water is reoxygenated at a controlled rate from a submerged cryogenic container of liquid oxygen which is

through which the oxygen is dissolved into the water in a molecular form.

3,633,885

MOVABLE HEARTH FURNACE

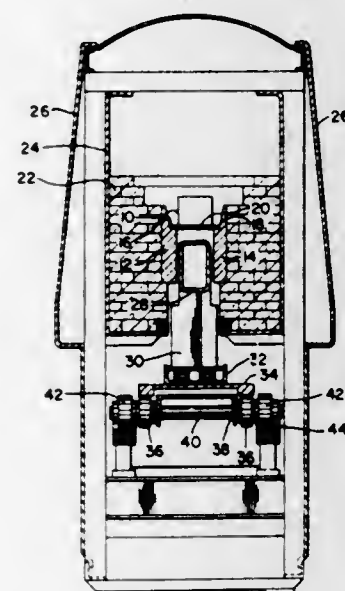
Jacob Howard Beck, Waban, Mass., assignor to BTU Engineering Corporation, Waltham, Mass.

Filed Mar. 20, 1970, Ser. No. 21,303

Int. Cl. F27b 9/14

U.S. Cl. 263-6 A

3 Claims



A furnace especially adapted for high-temperature heat processing in which a work product is efficiently conveyed through the furnace without any conveyance structure within the furnace and without material affect on the cleanliness of the furnace environment. An elongated ceramic member forms part of the furnace hearth and is movable in a cyclic manner to cause stepwise movement of product carriers thereon through the furnace.

3,633,886

HEATING FURNACES

Magnus L. Froberg, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation

Filed Apr. 20, 1970, Ser. No. 29,966

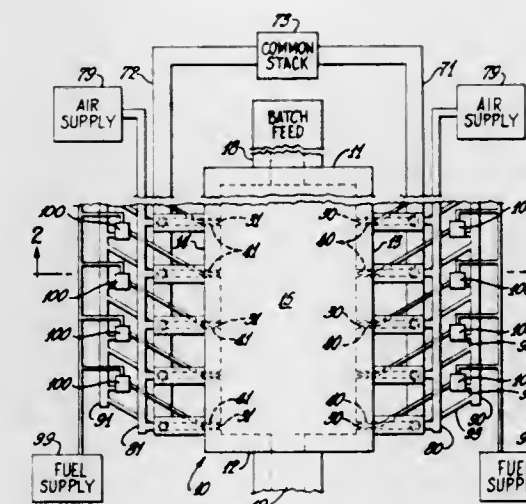
Int. Cl. F23i 15/04

U.S. Cl. 263-15 R

16 Claims

A furnace having sidewalls, end walls, a top wall and a bottom wall defining a heating chamber in which material to be heated enters the heating chamber through one of the end walls and exits through the other of the end walls. A plurality of burner stations are spaced along at least one of the sidewalls. Exhaust port means for each burner station are formed in a wall above its associated burner station whereby

a flow pattern for substantially the combustion products of each burner station is established from each burner station out in a first current over material in the heating chamber and up and back over the first current in a second current to



the exhaust port means above that burner station. Recuperator means are provided for each exhaust port means for passing combustion products from the exhaust port means in heat exchange relationship with combustion air for the burner stations to preheat the combustion air.

3,633,887

METHOD OF AND APPARATUS FOR THE DIRECT HEATING OF FLUIDIZED-BED AND VORTEX-LAYER REACTORS

Horst Bechthold, Frankfurt-Fechenheim; Heinz Dittmar; Ernst Heinz, both of Frankfurt, and Rolf Rennhack, Schwalbach, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft

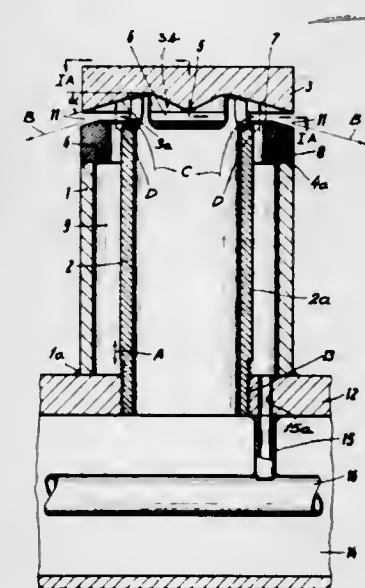
Filed Feb. 11, 1970, Ser. No. 10,582

Claims priority, application Germany, Feb. 12, 1969, P 19 06 895.2

Int. Cl. F27b 15/10

U.S. Cl. 263-21 A

15 Claims



A method of and an apparatus for the direct heating of fluidized-bed and vortex-layer reactors in which the nozzle grate is provided with a plurality of uniformly spaced coaxial tube members, one of the chambers of which is supplied with air while the other is supplied with a liquid (hydrocarbon) fuel. Within the members, there is provided an impingement-type atomizing surface at which the liquid is atomized and mixed with the air just as the mixture enters the reactor.

3,633,888

CONCENTRIC FLUIDIZED BEDS

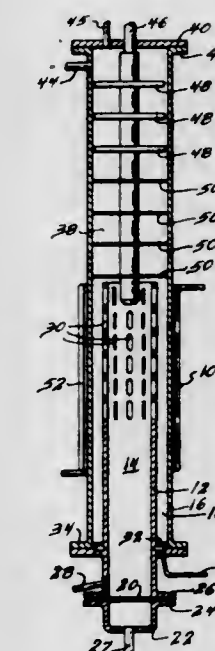
Douglas C. Killian, and Arthur P. Roeh, both of Idaho Falls, Idaho, assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 19, 1970, Ser. No. 12,643

Int. Cl. F27b 15/00

U.S. Cl. 263-21 A

3 Claims



A fluidized bed burner has a center tube defining an inner fluidized bed, constituting a first-stage burner, and an outer tube concentric to the inner tube and spaced radially outward from the inner tube to define an annular-shaped fluidized bed. The upper portion of the center tube wall separating the fluidized beds is perforated to permit a free flow of material between the two beds for improved heat transfer and temperature control. The upper portion of the outer tube extends substantially above the top of the center tube to define a second-stage burner area above the fluidized beds.

3,633,889

COOLING ARRANGEMENT FOR THE PRODUCT OF ROTARY FURNACES

Erich Bade, Beckum, and Johannes Thelen, Bergisch Gladbach, both of Germany, assignors to Walter & Cie Aktiengesellschaft, Cologne Dellbrück, Germany

Filed Jan. 21, 1970, Ser. No. 4,603

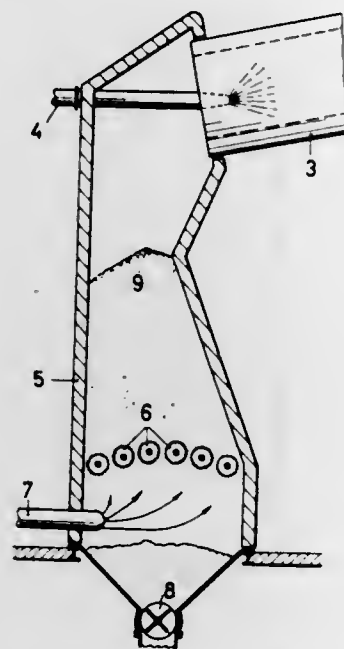
Int. Cl. F27b 7/00

U.S. Cl. 263-32

43 Claims

A rotary furnace serves for treating flowable solids and has an output through which the treated flowable solids issue at elevated temperature. A stationary upright cooling conduit receives in its upper portion the treated flowable solids from the furnace, and has a lower portion downwardly of the upper portion. Intercepting means is located in the lower portion for intercepting the treated flowable solids so that the same accumulate to form a substantially conical mound on the intercepting means in the cooling conduit. The solids forming this mound are discharged in downstream direction at a controlled rate by the intercepting means. The withdrawing means is downwardly spaced from the intercepting means and receives discharged treated solids and withdraws them

from the cooling conduit. Supply means directs streams of passed and wherein it is completely burned before it is passed cooling air upwardly through the accumulated intercepted to the atmosphere. The stators are heated radiantly around



treated solids from the region between the intercepting means and the withdrawing means.

3,633,890

GLASS TANK FURNACE

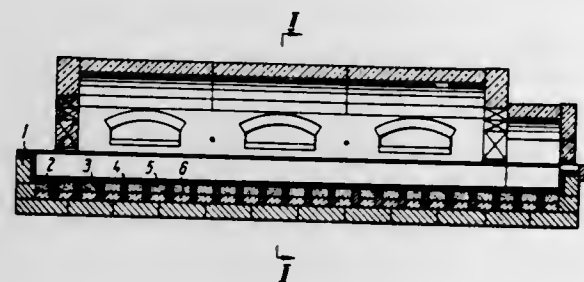
Mikhail Ivanovich Kozmin, ulitsa Shmidta, 31, kv. 6, Konstantinovka Donetsk Oblasti, U.S.S.R.

Filed Dec. 11, 1968, Ser. No. 782,904

Int. Cl. F27b 3/02; C03b 5/00

U.S. Cl. 263-40 R

3 Claims



A glass tank furnace comprises sidewalls and a bottom each having an underlying refractory brick base. Metal plates are mounted on and cover the refractory brick of the sidewalls, and in succession on the brick base of the bottom are a layer of foam-type refractory heat insulative material, a granular refractory material and metal plates. The metal plates on the bottom and the sidewalls have a melting point above 1,400°C.

3,633,891

METHOD AND APPARATUS FOR HEATING ANNULAR WORKPIECES

Robert F. Heran, 1842 Donna Drive, West Lake, Ohio, and Calvin C. Blackman, 24272 West Lake Road, Bay Village, Ohio

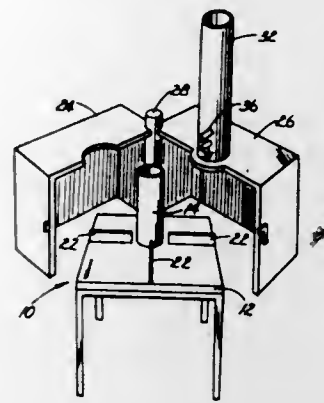
Filed May 6, 1970, Ser. No. 35,216

Int. Cl. F27b 5/14; F27d 3/00

U.S. Cl. 263-42 TH

17 Claims

A heating apparatus is provided which includes a base disposed to support motor stators in stacked relationship, and a radiantly heated tube disposed to extend upwardly through the centers of the stacked stators. An afterburner chamber is provided through which volatile combustible material is



their inner periphery by means of the tube to condition the insulation on the wires to allow removal of the wires.

3,633,892

PLASTIC TRAY STRUCTURE AND METHOD OF PRODUCTION

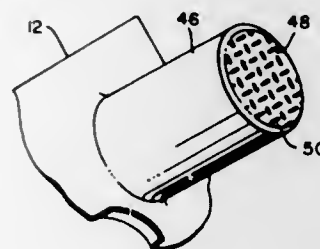
Danforth Holley, Grosse Pointe Shores, Mich., assignor to Holley Plastics Company, Warren, Mich.

Filed Jan. 29, 1970, Ser. No. 6,699

Int. Cl. F27b 21/04

U.S. Cl. 263-47 A

7 Claims



A plastic tray for supporting ceramic members or the like during firing thereof which will disintegrate after the ceramic members have attained sufficient strength to be self-supporting and a method of production of the tray is disclosed. The tray disclosed includes a plurality of cylindrical cups vacuum formed in a plastic sheet for receiving individual members to be fired which cuts have bottoms including intermittent, perpendicular reinforcing corrugations therein. The corrugations in the bottom of the cups are produced in vacuum forming the trays due to a screen positioned beneath the female die used in forming the trays.

3,633,893

METHOD OF OPERATING A REFRACTORY REGENERATIVE FURNACE

Robert H. B. Forster, Tadworth, England, assignor to The British Oxygen Company Limited, London, England

Filed Apr. 17, 1970, Ser. No. 29,537

Claims priority, application Great Britain, Apr. 24, 1969, 20,989/69

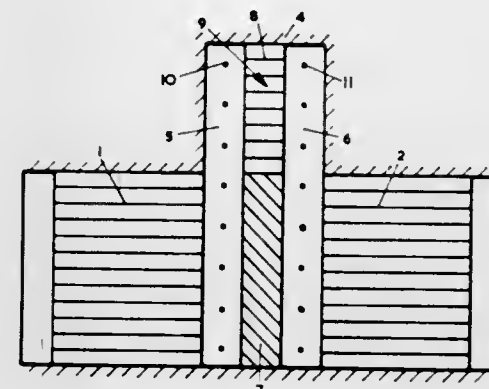
Int. Cl. F27b 1/22

U.S. Cl. 263-52

2 Claims

A method of operating a refractory regenerative furnace having a combustion chamber located between two heat-

regenerative masses and a baffle means located in the combustion chamber, wherein the greater part of the fuel for to close off the quench chamber. A storage tank positioned above the quench chamber dumps liquid into the quench



combustion is introduced into the combustion chamber upstream of the baffle means.

3,633,894

METHOD OF MAKING CALCINED MINERALS WITH REDUCED SULFUR CONTENT

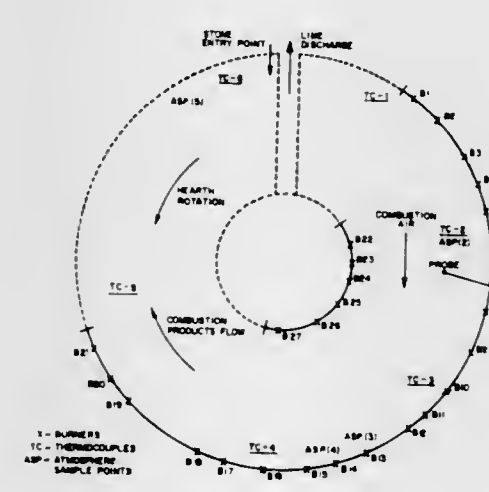
Carl E. Sunnegren, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

Filed Jan. 12, 1970, Ser. No. 2,014

Int. Cl. C04b 1/02

U.S. Cl. 263-53 R

6 Claims



A method for reducing the sulfur impurity content of basic flux material such as calcium or magnesium oxides in which the kiln atmosphere is changed from oxidizing to reducing during the latter part of the calcining operation.

3,633,895

VACUUM WATER DUMP QUENCH

Kurt Genrich, Oak Park, and Gerald L. Scott, Glenview, both of Ill., assignors to Sola Basic Industries, Inc., Milwaukee, Wis.

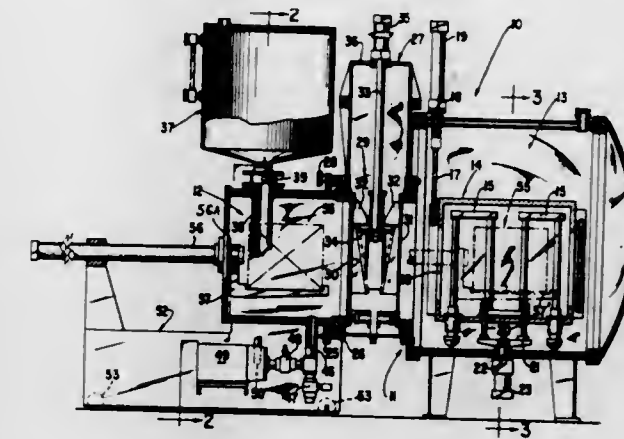
Filed May 6, 1970, Ser. No. 35,212

Int. Cl. C21d 1/64

U.S. Cl. 266-4 A

9 Claims

A heating furnace and a quench chamber are horizontally spaced from each other in a chamber which may be evacuated to a subatmospheric pressure. A transfer mechanism moves a load between the quench chamber and heating furnace, and a hydraulically actuated gate valve is vertically movable between the quench chamber and heating furnace



3,633,896

SHEET MATERIAL PRESSING DEVICE

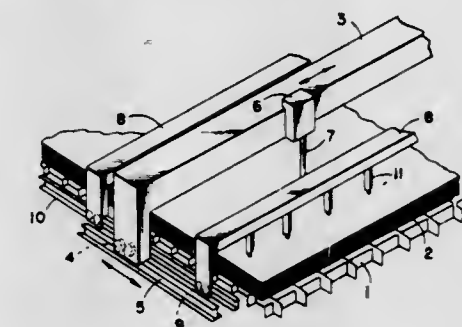
Masataro Muto; Masaaki Yagasaki, and Ken Hozumi, all of Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 20, 1970, Ser. No. 30,207

Int. Cl. B23k 7/10

U.S. Cl. 266-23 K

5 Claims



Two support structures, each having a plurality of downwardly extending, substantially equally spaced pressing members connected thereto, each with a hydraulic jack interposed therebetween, are provided extending over the entire width of a stack of sheet materials to be cut on both sides of the torch of an associated gas cutting apparatus. During a cutting operation, the support structures and those pressing members which are located within a predetermined range around the torch are operated incident to movement of the torch under the control of a numerical control system, thereby to hold the individual sheet materials in tight pressure contact with each other at portions where they are to be cut, as the torch moves.

3,633,897

SHAFT FURNACE OPERATING WITH RELATIVELY HIGH GAS PRESSURES AND METHOD OF CHARGING THE SAME

Rudolf Vogel, Wendemuhlenbergstrasse 20-22, Salzgitter-Bad, Germany

Filed Feb. 6, 1969, Ser. No. 796,997

Claims priority, application Germany, Feb. 6, 1968, P 16 08

004.9; June 26, 1968, P 17 58 552.3; P 17 58 556.7;

Jan. 18, 1969, P 19 02 500.4; Feb. 3, 1969, P 19 05 117.3

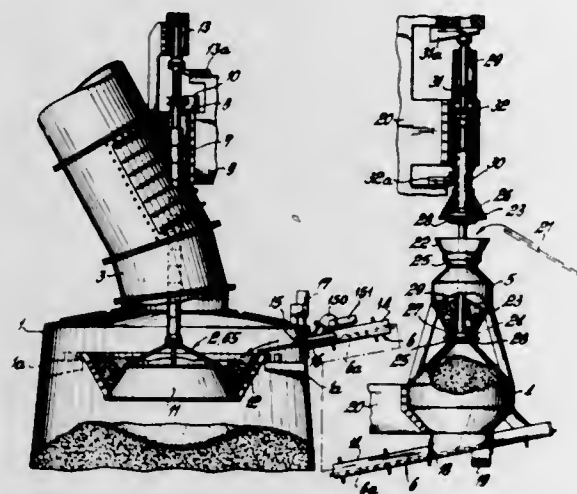
Int. Cl. F27b 3/18

U.S. Cl. 266-28

17 Claims

A shaft furnace, particularly a blast furnace, includes a furnace head having a gas pipe extending substantially centrally therefrom. A charge distributing means in the furnace head

includes a frustoconical bell associated with a reversely directed frustoconical pan normally resting on the bell. The bell is rotatable and vertically displaceable. When the bell is moved downwardly, a lip on the pan engages a fixed support so that the bell separates from the pan for charging of the material into the furnace. Charge storage and conveying means are interchangeably associated with the furnace. The charge material is delivered into the storage means by a sim-



ple pouring operation, and is released to fall substantially freely into a self-supporting pile at one end of a conveyor which extends transversely between the storage means and the furnace head, and is pressure sealed. The conveyor preferably slopes slightly from the storage means to the furnace head, and means are provided to seal off the furnace head when the conveyor and the storage means are disconnected from the blast furnace.

3,633,898

MEANS FOR GAS-FLUSHING METAL MELTS

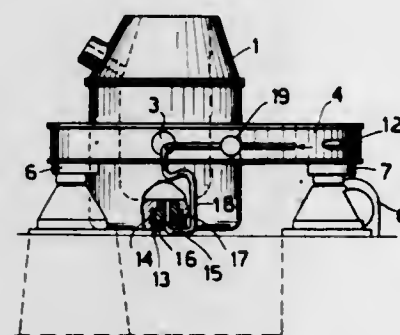
Erik Anders Ake Josefsson, and Lars Gosta Almhed, both of Borlange, Sweden, assignors to Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden

Filed June 6, 1969, Ser. No. 831,283

Int. Cl. C21c 7/00

U.S. Cl. 266-34 A

7 Claims

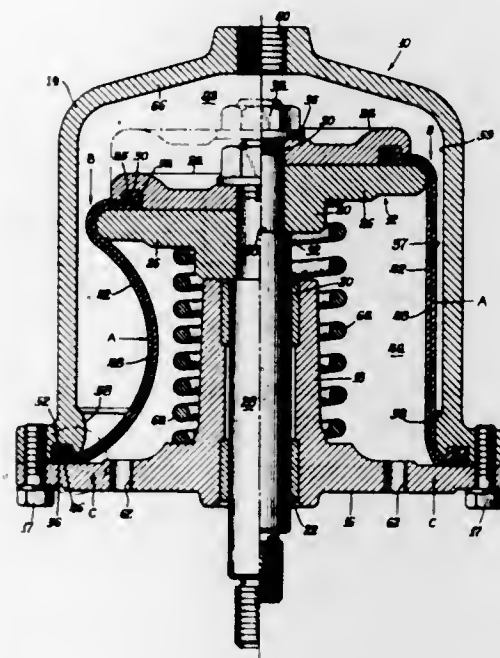


A molten metal in a container is treated with a gas. The gas is supplied through an opening, preferably a slit-shaped opening, in the bottom or lower wall portion of the container, thus forming bubbles which ascend in the molten metal. The container is rotated or shaken or vibrated so that a flow is created in the molten metal relative to the wall of the container. The molten metal thus passing by the gas supply opening removes the gas bubbles from the gas supply opening before the bubbles have had time to grow to the size they would have reached in stagnant molten metal.

3,633,899
PROJECTED AREA FLUID SPRING OR ACTUATOR
Bennett O. Blout, Chicago, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.
Filed Dec. 5, 1969, Ser. No. 882,636
Int. Cl. F16f 5/00

U.S. Cl. 267-122

10 Claims



A piston having a circular head connected to a push rod is located within a cylindrical cavity. A flexible cylindrical diaphragm is connected at one end to the periphery of the head and at the other end to the lower end of the cavity thereby dividing the cavity into two cavities. A pressure differential between the two cavities creates a force on the head moving it downwardly in a known manner. Air in one cavity further passes around the head between the walls of the cylindrical cavity and diaphragm and forces the diaphragm inwardly toward the push rod creating an additive force on the piston that pulls the head toward the lower end of the cylindrical cavity.

3,633,900

THREE-JAW MACHINE VISE

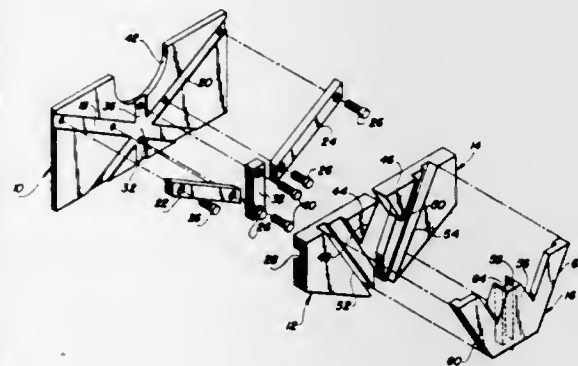
Gunnar E. Olson, West St., Columbia, Conn.

Filed June 19, 1970, Ser. No. 47,777

Int. Cl. B25b 1/02; B23q 3/06; B25b 1/24

U.S. Cl. 269-156

8 Claims



A three-jaw machine vise having universally movable jaws which are supported on carriers movable relative to a backplate or base and so constructed that an elongated workpiece can be loaded from the top or side between a pair of the jaws and in movement toward the third jaw.

3,633,901

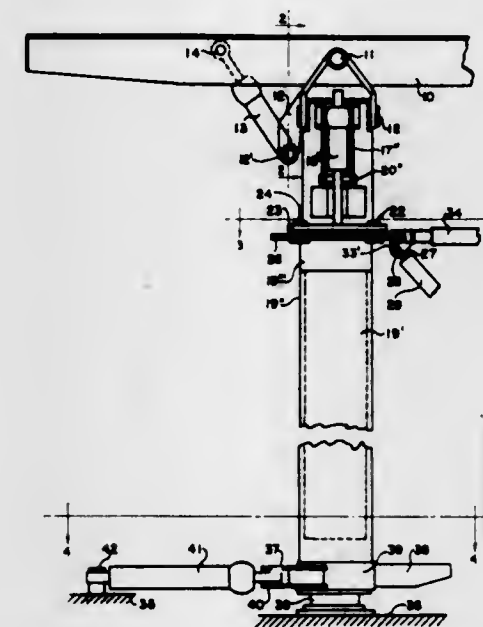
ARRANGEMENT IN OPERATING TABLES FOR BIG ANIMALS

Per G. E. Lindquist, Farsta, Sweden, assignor to Aktiebolaget Thugus Mekaniska Verksstad, Enskeda, Sweden
Filed Oct. 27, 1969, Ser. No. 869,570

Claims priority, application Sweden, Nov. 25, 1968, 16011/68
Int. Cl. A61d 3/00; A61b 13/00

U.S. Cl. 269-323

8 Claims



An operating table for large animals such as horses and the like. The table has a surface for supporting the animal, which table is mounted on a generally horizontal shaft extending therethrough and about which the table is rotatable. This shaft is connected to a bridge which is mounted on a second horizontal shaft generally perpendicular to the first shaft, the bridge being turnable about said second shaft. The bridge is then mounted on a vertically elevatable pole and means are provided for moving the pole vertically, and further means are provided for turning the pole about its axis. The supporting surface of the table is thus movable vertically, about the axis of its supporting pole and capable of being inclined about either of two mutually perpendicular horizontal axes.

3,633,902

AIR-BEARING WHEEL ACCELERATOR FOR DOCUMENT-HANDLING APPARATUS

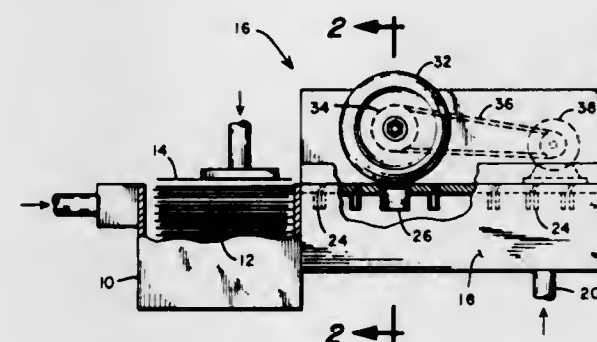
Dale S. Worden, Salt Lake City, Utah, assignor to Sperry Rand Corporation, New York, N.Y.

Filed June 17, 1970, Ser. No. 46,927

Int. Cl. B65h 5/06

U.S. Cl. 271-51

2 Claims



A soft periphery tire mounted on a fixed axle is suspended off a document track by jets of air. A document passing between the tire and the air jets is accelerated by the rotating tire while suspended from the document track by the air jets.

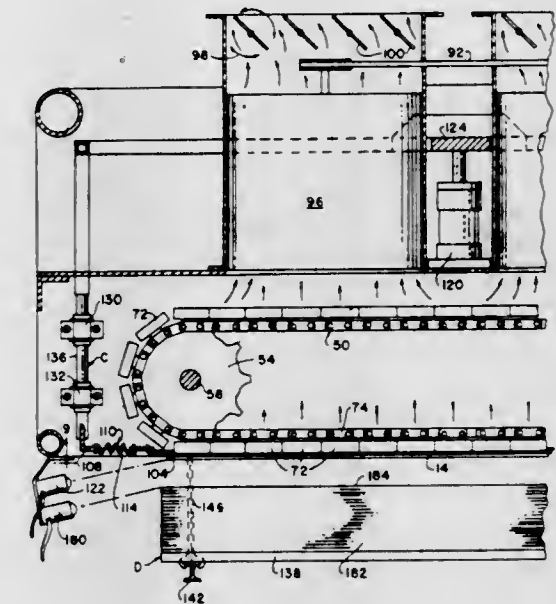
3,633,903

SHEET-TRANSPORTING ASSEMBLY

Joseph E. Foster, Jr., 723 Lincoln Hwy., Exton, Pa.
Continuation of application Ser. No. 730,073, May 17, 1968.
This application Jan. 7, 1970, Ser. No. 1,119
Int. Cl. B65h 29/32

U.S. Cl. 271-74

3 Claims



A sheet-transporting assembly including a continuous suction conveyor which operates continuously to carry previously die-cut and stripped cardboard blanks to a predetermined location whereat a vertically reciprocal grid system actuated by an automatic signal operates to separate the said blanks from the conveyor and deposits the blanks upon a descending pallet elevator system.

3,633,904

ROTARY ELEVATOR OBSERVATION TOWER

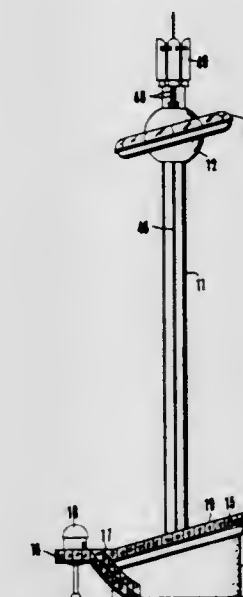
Masayoshi Kojima, Toyonaka-shi, Japan, assignor to Sanyo Co., Ltd., Osaka City, Japan

Filed Jan. 13, 1970, Ser. No. 2,557

Int. Cl. A63g 1/00

U.S. Cl. 272-7

8 Claims



A rotary elevator observation tower. A tower body has an elevator body mounted on the outside thereof for vertical movement on the tower body. An annular observation room is mounted on the elevator body and rotatable therearound at an inclination to the horizon. An annular platform is provided at the bottom of the tower which is also inclined at the

same angle, and surrounds the observation room when the observation room is at its lowest position.

3,633,905

LOG ROLLING APPARATUS

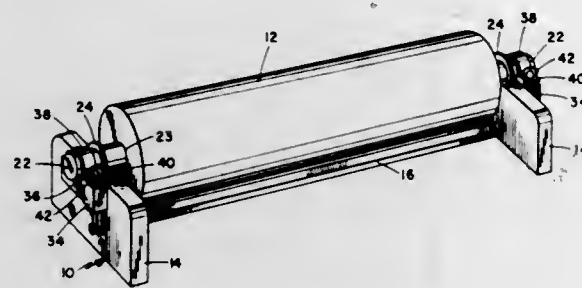
Robert J. L. Etchelecou, 5024 Mount Drive, San Diego, Calif.

Filed Dec. 18, 1969, Ser. No. 886,187

Int. Cl. A63b 23/06

U.S. Cl. 272-60

5 Claims



Log rolling apparatus for amusement and exercise on land, having a simulated log rotatably mounted on a supporting frame. The frame is comprised of two spaced ground-engaging end plates. Fixed axially to the log is a shaft, and each end of this shaft removably carries a bearing cap. The bearing caps are rotatably mounted in the end plates. The rolling freedom of the log is controlled by clamps which adjust the friction between the end plates and bearing caps. A pair of spacer bars extend parallel to the log, one on each side, and interconnect the end plates. These bars are of flattened cross section and are located downwardly and inwardly of the log to minimize the possibility of injury to a rider who slips off the log.

3,633,906

A WALKER WHICH HAS A ROCKING MOVEMENT

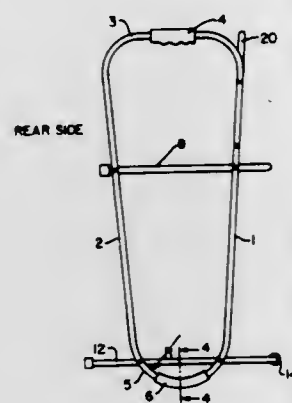
Elmer Fowler, Lyndon, Ky., assignor to Malcolm L. Barnes, Louisville, Ky.

Filed July 3, 1969, Ser. No. 838,788

Int. Cl. A61h 3/00

U.S. Cl. 272-70.3

4 Claims



A walker having a generally upright frame conventionally providing a pair of hand grips at its upper end and characterized by a pair of rounded bottom runners substantially semicircularly curved for forward-and-rearward rocking engagement with the floor between-forwardly inclined and rearwardly inclined positions and a U-shaped lower crossmember for engaging the floor at such positions to restrict rocking movement thereto.

ERRATUM

For Class 272-75 see:
Patent No. 3,633,925

3,633,907

SPRING-BIASED ARM EXERCISING DEVICE

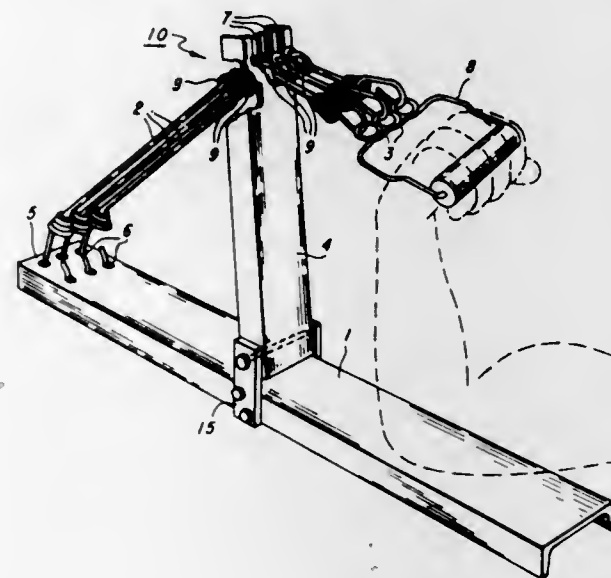
Andy C. Cane, 13900 Jones-Maltsberger Road, and Charles Santos, P.O. Box 32634, both of San Antonio, Tex.

Filed July 10, 1970, Ser. No. 53,901

Int. Cl. A63b 21/00

U.S. Cl. 272-83 R

7 Claims



An exerciser for strengthening a person's muscles having a swing arm connected to a base in a manner allowing the swing arm to pivot about its connection to the base when being operated. One or more tension strips are connected to the base with the tension strips connected to and extending through openings in the free end of the swing arm and then connected to a handle. The swing arm is connected to the tension strips intermediate the ends of the strips.

3,633,908

SLING-TYPE EXERCISING DEVICE

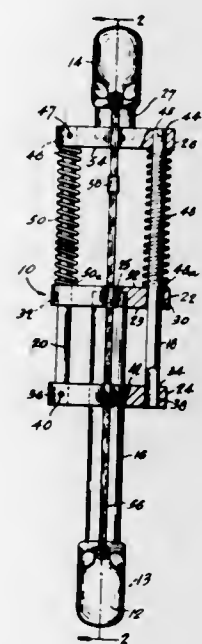
Adolf W. Krauth, Ville Brossard, Quebec, Canada, assignor to Compret N.V., Amsterdam, Netherlands

Filed Aug. 24, 1970, Ser. No. 66,376

Int. Cl. A63b 21/00

U.S. Cl. 272-83 R

4 Claims



A physical exerciser including two handle pieces, a first tube having one end secured to one of the handle pieces and

the other end fixedly received in a first bracket, and second and third tubes extending through bores provided in the first bracket and each having one of their ends connected to a second handle piece through a second bracket and opposite ends of the second and third tubes connected to a third bracket. Coiled springs may be disposed between the second and first brackets to oppose inward movements of the handle pieces. Rubber bands may be connected between the first bracket and the third bracket to resist inward movement of the handle pieces.

3,633,909

BASEBALL PITCHER'S PRACTICE DEVICE

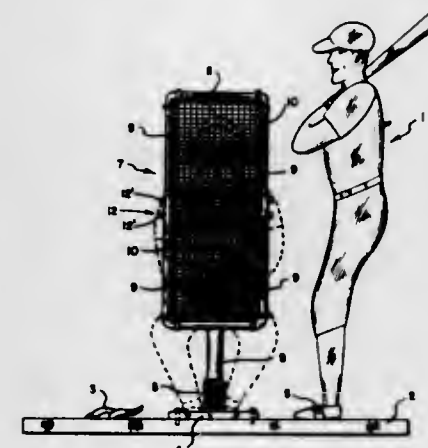
David Doynow, 31 Sherbrooke Road, Hartsdale, N.Y.

Filed Nov. 18, 1969, Ser. No. 877,706

Int. Cl. A63b 69/40

U.S. Cl. 273-26 A

2 Claims



This invention relates to a device for simulating baseball pitching conditions and more particularly to a novel device constructed to represent true baseball pitching conditions by use of a three-dimensional batter in conjunction with an adjustable rectangular "strike zone."

3,633,910

TENNIS RACKET HANDLE HAVING LONGITUDINAL DISPLACEMENT

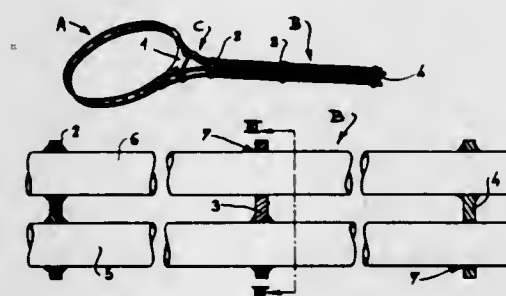
Rene Spenle, Villeurbanne, France, assignor to Michel Chervin, Villeurbanne and Jean Santini-Ormeries, Lyon, France, part interest to each

Filed Mar. 9, 1970, Ser. No. 17,561

Int. Cl. A63b 49/08

U.S. Cl. 273-73 J

3 Claims



The invention refers to tennis rackets in which the frame is formed of two superposed tubes or rods bent to the desired shape, each comprising a pair of rectilinear parallel extensions, the two superposed pairs forming the handle portion of the frame. According to the invention the superposed pairs are connected with each other by means permitting a slight longitudinal respective displacement of a pair with respect to the other when the handle portion flexes in use. In an embodiment the pairs are connected by stays having four perforations for passage of the extensions, these stays being al-

ternately welded to one and to the other pair. In another embodiment the stays are welded to both pairs, but they are somewhat resiliently deformable.

3,633,911

SELF-INDICATING TARGET WITH SLIDABLE TARGET SECTIONS

Bertil Ingvar Burstrom, Boarps 790 S-262 00, Angelholm, Sweden

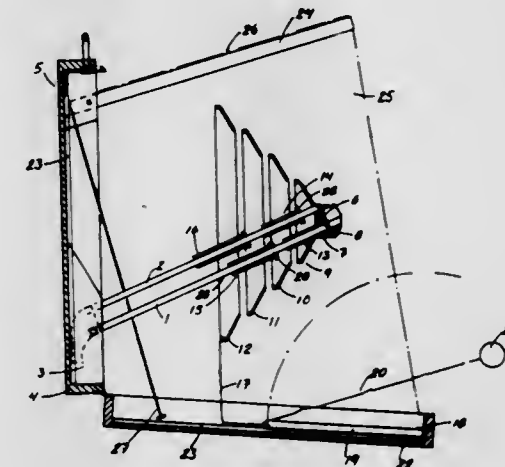
Filed July 16, 1969, Ser. No. 842,282

Claims priority, application Sweden, July 22, 1968, 9890/68

Int. Cl. F41j 7/00

U.S. Cl. 273-102.1 F

5 Claims



A self-indicating target comprises several slidably displaceable target sections each mounted on guiding tubes which are in turn mounted on guiding elements. The target sections are placed behind one another to enable the user to see their movement as one or more sections are displaced, and the guiding tubes are slanted at an angle exceeding the friction angle for the sliding surfaces of the target sections and guiding tubes.

3,633,912

DEVICE FOR FIRING PRACTICE AGAINST A MOBILE TARGET

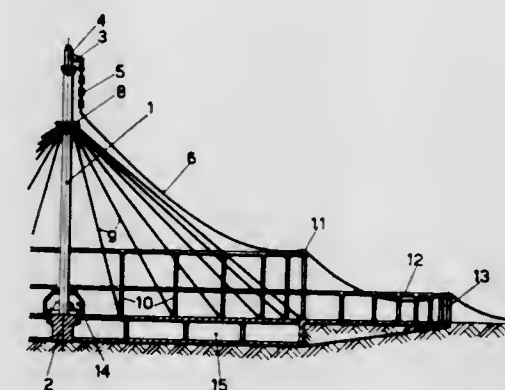
Michele Tarantola, Via della Cafforelletta S., Rome, Italy

Filed Sept. 29, 1969, Ser. No. 861,830

Int. Cl. F41j 9/00

U.S. Cl. 273-105.2

2 Claims



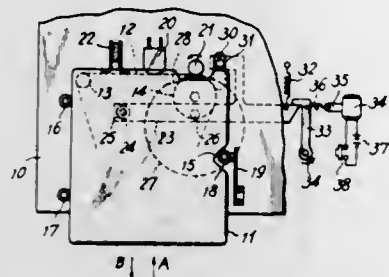
A self-propelled vehicle is tied to the top of a pylon by means of a rope which binds it to move along a circular trajectory the center of which is at the top of said pylon. The unmanned vehicle serves as a target for firing practice. Between said pylon and the circular runway on which said vehicle moves on ground, one or more circular rails are provided which are supported by respective rows of posts of which the height is greater the less is the distance from said pylon; the purpose of these rails being for supporting said

3,633,921

MEANS FOR MOVING MEMBER SUCH AS CARTRIDGE AND LIKE FOR MAGNETIC TAPE CARTRIDGE PLAYER
 Itsuki Ban, 829, Higashi-Olzumimachi, Nerima-ku, Japan
 Filed June 15, 1970, Ser. No. 46,046
 Int. Cl. G11b 5/68

U.S. Cl. 274-4 B

4 Claims



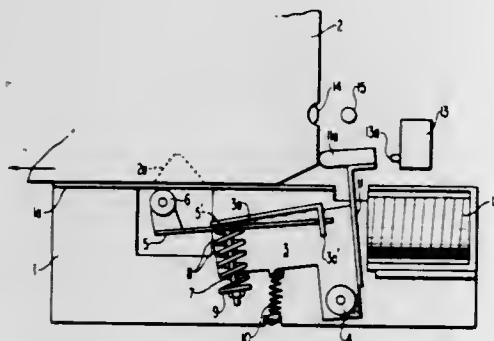
Means for moving members such as a cartridge and the like for a magnetic tape cartridge player, comprising a rotary capstan for driving a magnetic tape, a movable lever, a cam wheel rotatably mounted on the movable lever and rotatably driven by abutment against the capstan as the movable lever is moved, bias means for urging the movable lever in the direction that the cam wheel is pressed against the capstan, a locking means for retaining the movable lever in the position where the cam wheel is not pressed against the capstan, and an actuator attached to the movable lever and engageable with members such as the cartridge and the like. In response to disengagement of the locking means from the movable lever, the cam wheel is rotatably driven by the capstan and the movable lever is thereby moved to allow the actuator to move the members.

3,633,922

INTERLOCKING MECHANISM FOR HOLDING A TAPE CARTRIDGE IN INSERTED POSITION
 Minoru Yokota, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
 Filed Nov. 12, 1969, Ser. No. 876,093
 Claims priority, application Japan, Nov. 11, 1968, 43/97523
 Int. Cl. G11b 5/00

U.S. Cl. 274-4 B

6 Claims



A solenoid is energized by a pushbutton switch actuated by insertion of a cartridge within a tape player recess for electromagnetically pivoting an interlocked roller into a formed recess within the cartridge to retain the tape cartridge in inserted position.

3,633,923

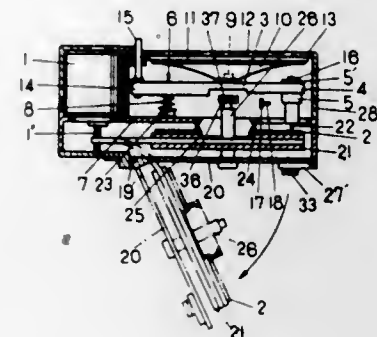
HANDY ACOUSTIC REPRODUCING DEVICE
 Katsumi Watanabe, No. 371 Ozenji, Kawasaki-shi, Kanagawa-ken, Japan
 Filed Dec. 8, 1969, Ser. No. 883,200
 Int. Cl. G11b 3/00; A63h 3/33

U.S. Cl. 274-7

5 Claims

A handy acoustic reproducing device including a presser arm bar extending in the diametrical direction of a disc

which is rotated by actuation of an electric motor, one end of said arm bar resting on a pickup member adapted to normally have a tendency to move towards the outer periphery of the disc, the other end of said arm bar being pivoted to a baseplate and arranged to constantly receive resilient pushing-up force given by a spring, and also including a speaker loosely mounted on a stem provided projectingly in the center of said arm bar, the top face of said speaker being ar-



ranged to be pressed against a perforated top cover member, wherein the other end of said presser arm bar is coupled to an operating rod having an outer end above said top cover member such as to provide a gradually increasing pressing force to the pickup which moves along the grooves on the disc, thereby to suitably control the pressure exerted upon the stylus so as to always keep constant the rotating speed of the disc.

3,633,924

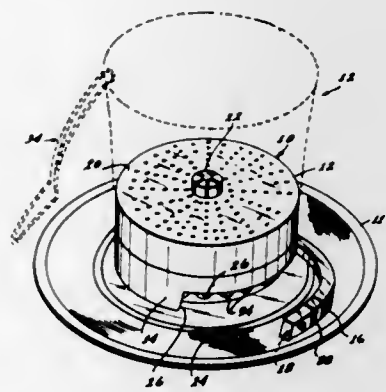
MINIATURE PHONOGRAPH
 Robert L. Cowell; Richard L. May, both of Manhattan Beach; Thomas E. See, Huntington Beach, and Edwin O. Stastny, Santa Ana, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed July 31, 1969, Ser. No. 846,430

Int. Cl. G11b 3/40, 25/04

U.S. Cl. 274-9 C

5 Claims



A phonograph which lies on a stationary disc-type record, including a tone arm which rotates around the record while a stylus thereon moves along the record groove to play back the recording. The phonograph has a cylindrical housing, and the tone arm has the same curvature as the housing, for reception flush therewith for storage. A case for holding the phonograph can be placed on top of the phonograph to serve as an acoustical amplifier.

3,633,925

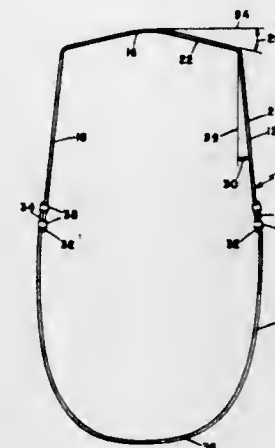
ROPE-JUMPING DEVICE
 Franklin A. Deese, 103 E. Oxford St., Chula Vista, Calif.
 Filed Feb. 6, 1970, Ser. No. 9,219
 Int. Cl. A63b 5/20

U.S. Cl. 272-75

6 Claims

A rope-jumping device that will provide exercise and entertainment for users in jumping, having a U-shaped rod structure with a bowed end rod and depending rod members

that diverge outwardly to clear the sides of the user, and a flexible line secured to the ends of the rod members, which the lip and defining an approach surface meeting the lip edge. The approach surfaces and the lip edge contact the



3,633,926

HIGH-TEMPERATURE SEALS
 Waldemar Hrynyszak, Cullercoats, North Shields, and Robert Porteous Graham, Durham City, both of England, assignors to Clarke, Chapman & Co. Limited, Gateshead, Durham County, England

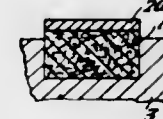
Filed Apr. 28, 1969, Ser. No. 819,547

Claims priority, application Great Britain, Apr. 29, 1968, 20,296/68

Int. Cl. F16j 15/16

U.S. Cl. 277-96

12 Claims



Seals for high-temperature applications have a composite construction including a resilient fibrous ceramic backing layer and a hard surface layer of metal or ceramic supported by the backing layer and providing a sealing face for rubbing contact with the part to be sealed against. Various methods of construction of such seals are described and an arrangement is disclosed in which the density of the backing layer is varied across its thickness to achieve an optimum combination of resiliency with suitable supporting characteristics for the surface layer.

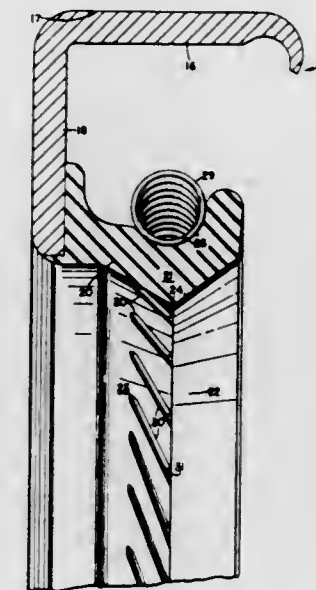
3,633,927

MOLDED-LIP HYDRODYNAMIC SHAFT SEAL
 Dale A. Van Deven, Ann Arbor, Mich., assignor to Federal-Mogul Corporation, Southfield, Mich.
 Filed Feb. 11, 1970, Ser. No. 10,372
 Int. Cl. F16j 15/54, 9/00

U.S. Cl. 277-134

8 Claims

A molded-lip hydrodynamic shaft seal having a plurality of flutes on the air side of the lip extending at an angle with respect to the lip and each terminating in a cylindrical surface segment having the same inner peripheral diameter as

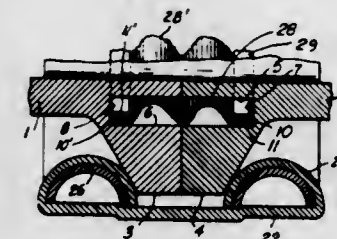


3,633,928

PIPE JOINT COUPLING WITH GASKET SEAL
 Douglas Smith, 30 Highland Ave., Rowayton, Conn.
 Filed Mar. 5, 1970, Ser. No. 16,918
 Int. Cl. F16j 15/08

U.S. Cl. 277-206 R

3 Claims



An apparatus for holding two pipe ends together which are subject to repeated stresses tending to pull them apart in an axial direction comprising a sealing element seated in generally rectangular, open-ended slots provided in each pipe end, and slots facing each other, said element being formed of resilient metal in the configuration of a circumferentially corrugated cylindrical ring, the ends of the ring being folded back upon the body of the ring inwardly toward the axis of the coupling and seated in said facing annular slots.

3,633,929

MULTIJAW DRAWBAR-TYPE CHUCK
 London T. Morawski, and John J. Parker, both of 11487 East Nine Mile Road, Warren, Mich.
 Filed Nov. 17, 1969, Ser. No. 877,203
 Int. Cl. B23b 31/12

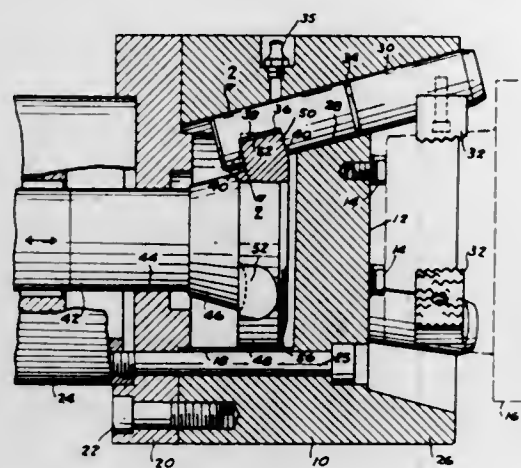
U.S. Cl. 279-1 J

6 Claims

A chuck especially adapted for holding castings and forgings having a plurality of jaws mounted on the outer ends of jaw carrier rods inclined to the axis of the chuck. The jaw

carrier rods are connected at their inner ends to a drawbar in a manner to permit the carrier rods and the jaws mounted

into a peripheral groove in the adjusting nut and may also with the same hand release the locking balls from the adjust-



thereon to rotate slightly to compensate for dimensional variations and surface irregularities.

3,633,930

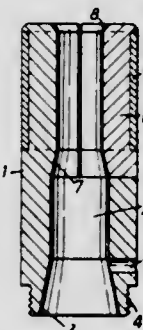
FEED DEVICES FOR AUTOMATIC MACHINES

George Cullen MacFarlane, Swanland, and Harry Billany, Hesse, both of England, assignors to MacFarlane Thirsk (Engineers) Limited, Swinegate, Hesse, Yorkshire, England
Continuation-in-part of application Ser. No. 719,511, Apr. 8, 1968, now abandoned. This application Oct. 16, 1969, Ser. No. 866,841
Claims priority, application Great Britain, Feb. 5, 1968, 5,678/68

Int. Cl. B23b 31/10

U.S. Cl. 279-44

6 Claims



3,633,931

QUICK-CHANGE CHUCKS

Otto Bilz, 73 Esslingen, Waldackerweg 8, Germany
Filed May 12, 1970, Ser. No. 36,580
Int. Cl. B23b 31/22, 31/10

U.S. Cl. 279-75

4 Claims

A quick-change chuck for a machine tool in which by means of only one hand the operator may insert a toolholding socket with an adjusting nut thereon into a shank and lock the same to the shank by means of locking balls engag-



ing nut and withdraw the tool socket with the adjusting nut from the shank.

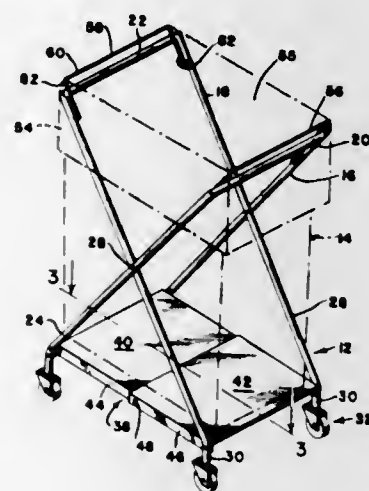
3,633,932

BAG CARRIER WITH CLOSABLE TOP

Robert Stuart Holden, 24 Coleman Rd., Glastonbury, Conn.
Filed Apr. 6, 1970, Ser. No. 25,748
Int. Cl. B62b 3/02

U.S. Cl. 280-36 R

7 Claims



A bag-holding and carrying device formed by a pair of pivotally interconnected inverted U-shaped frame members having a bag supporting platform adjacent the base of the frame which is formed by a pair of pivotally interconnected overlapping plate members adapted to maintain the stability of the device when the frame members are pivoted to an open or extended configuration. Each frame member is provided with a pivotally mounted baillike member having a bight portion extending upwardly along and beyond the top of its associated frame member which is adapted to support a bag inserted in the device and supported at its top by a turned-down cuff portion which extends over the bails and down around the periphery of the frame members. The bail members may be swung together so as to carry the opposite sides of the bag together and close the bag. The cuff portion of the bag then can be pulled to open the bag.

3,633,933

STEERING MECHANISM FOR MOTOR VEHICLES

Barry John Millard, Earley, Near Reading, England, assignor to Adwest Engineering Limited

Filed Feb. 2, 1970, Ser. No. 7,685

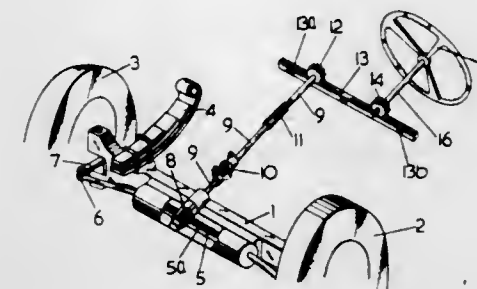
Int. Cl. B62d 3/12

U.S. Cl. 280-96

10 Claims

A motor vehicle steering mechanism having a first toothed rack with at least one end connectable to two steerable road

wheels of the vehicle. A first pinion engages the teeth of this rack. There is a second toothed rack with a second pinion engaging its teeth. A transmission connects together the first



and second pinion and a third pinion engaging the teeth of the second toothed rack is mounted on an input member. The first rack and the steerable wheels are thus controlled from the input member.

3,633,934

SAFETY FRAME FOR AUTOMOTIVE VEHICLES

Karl Wilfert, Gerlingen-Waldstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

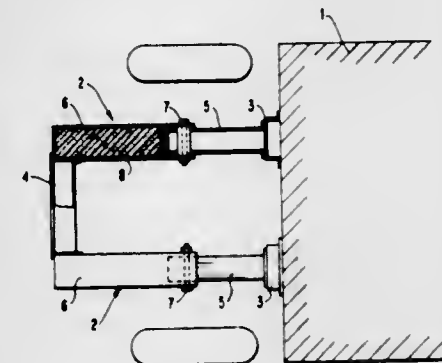
Filed Mar. 14, 1969, Ser. No. 807,216

Claims priority, application Germany, Mar. 14, 1968, P 16 80 029.6

Int. Cl. B62d 21/02

U.S. Cl. 280-106 R

14 Claims



A safety frame formed of telescoping bearing members secured together by a fractureable bolt and including a force-absorbing material in one member serving as a cylinder for absorbing force from the other member serving as a piston upon fracture of said bolt.

3,633,935

AIR LEVELING SYSTEM FOR AN AUTOMOTIVE VEHICLE

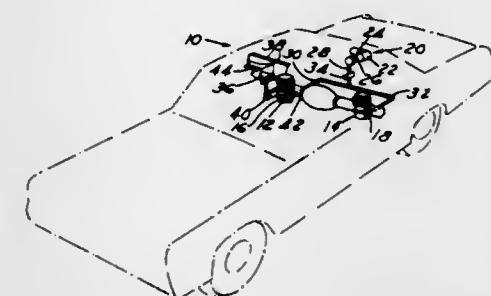
Wesley D. Boyer, 26490 Drummond Court, Franklin, Mich.

Filed June 1, 1970, Ser. No. 42,364

Int. Cl. B60g 11/26

U.S. Cl. 280-124 F

16 Claims



An air leveling system for an automotive vehicle in which a pneumatic means is interposed between a sprung and an un-

sprung component of the vehicle for controlling the height of the sprung component with respect to the unsprung component as a function of the pressure of the air in the pneumatic means. An air compressor driven by an electric motor supplies air to the pneumatic means and the electric motor is connected to a source of electrical energy when the height of the sprung component with respect to the unsprung component is below a predetermined minimum. Also, an electrically operated, normally closed bleed valve is connected to the pneumatic means, and this electrically operated, normally closed valve is connected to the source of electrical energy thereby opening it when the height of the sprung component with respect to the unsprung component is above a predetermined maximum.

3,633,936

AUTOMATICALLY DEPLOYED OCCUPANT RESTRAINT SYSTEM

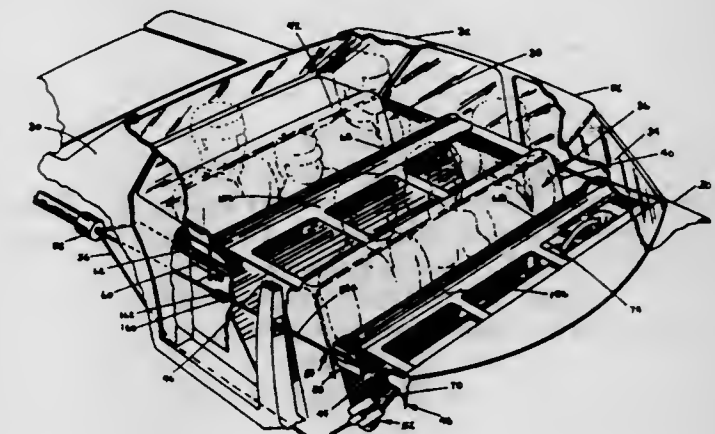
Roy L. Huber, P.O. Box 96, Garden City, Mich.

Filed Oct. 5, 1970, Ser. No. 78,083

Int. Cl. B60r 21/10

U.S. Cl. 280-150 B

25 Claims



A restraining system of the passive or nondependent type for passenger vehicles such as cars to protect the occupants of the car against injury or death in the case of sudden deceleration of the vehicle caused by an impact and which comprises a flexible blanket or barrier extending across the seats of the car from side-to-side each of which is automatically extended due to an impact deceleration of the vehicle and is pressed against all occupants of each respective seat with a force extending from approximately the shoulder portion of the human body downwardly over the hip and thigh portion to completely extend over the upper and lower torso of the human body and restrain the torso of the human body from being propelled forwardly or towards the side depending on the direction of impact force on the vehicle. The restraining barrier or blanket for the front seat of the vehicle is normally retained in a folded or stored position conveniently forming a padded portion of the dashboard of the vehicle and thus is normally indiscernible; the restraining barrier or blanket for the passenger or rear compartment of the vehicle is normally stored in the back of the front seat of the passenger vehicle; the sides of the restraining blanket or barrier are provided with reinforcing members which have guide means supported in guides disposed along the inner body panel of the vehicle such as to guide the barrier upon expansion along a prescribed path; the restraining barrier is extended by means of actuators concealed in the vehicle which are connected by tension members to the reinforced sides of the restraining barrier; the actuators are automatically operated by means of an impact sensing device to instantly deploy the restraining barriers out of the stored position within fractions of a second.

3,633,937

VEHICLE SECUREMENT APPARATUS

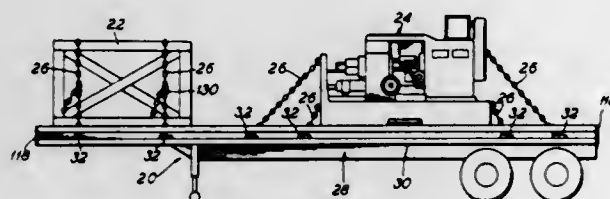
Emil J. Hlinsky, Oakbrook, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.

Filed May 18, 1970, Ser. No. 38,345

Int. Cl. B60p 7/08

U.S. Cl. 280—179 A

13 Claims



An anchor housing with a chain tiedown winch is slidable along an upwardly open channel fastened to the side of a flat bed trailer. The housing is movable to any position along the trailer deck where the winch is needed to secure a load on the deck. The housing has an elongated flange slidably engaging the underside of a downwardly facing track in one of the channel walls to anchor the housing against chain tension and enable it to slide along the channel. A pawl carried by the housing, engages one of several notches in the channel to hold it when endwise movement is not wanted. The winch is offset horizontally within the housing, toward the channel wall which has the downwardly facing track.

3,633,938

TRANSMISSION MECHANISM

Arieh Solomon, Tel-Aviv, and Jechekel Davidovitch, Ramat-Gan, both of Israel, assignors to The British & Foreign Tobacco Co., Ltd., London, England

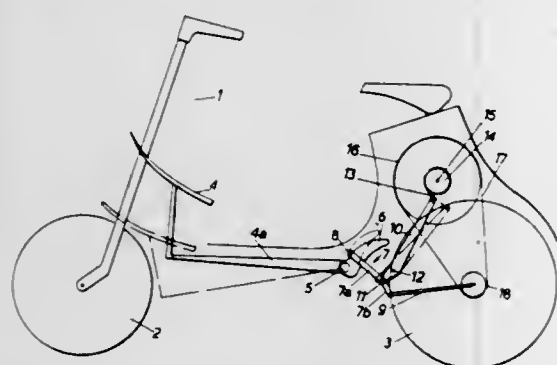
Filed Mar. 9, 1970, Ser. No. 17,592

Claims priority, application Great Britain, Mar. 13, 1969, 13,344/69

Int. Cl. B62m 1/04

U.S. Cl. 280—255

11 Claims



This invention relates to a transmission mechanism for use in converting a reciprocal motion into a rotating motion and which is provided with means for adjusting the transmission ratio. The invention is particularly but not exclusively concerned with transmission mechanisms for use with vehicles, such as, for example, pedal-operated bicycles or the like.

3,633,939

TRAILER HITCH

Brice A. Evernham, and Alvina M. Novick, both of 1949 S. Manchester Ave. Space 99, Anaheim, Calif.

Filed June 8, 1970, Ser. No. 44,188

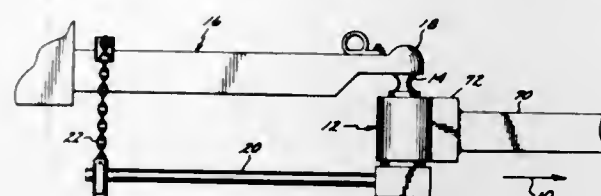
Int. Cl. B62d 53/00

U.S. Cl. 280—406 A

11 Claims

The present invention relates to a trailer hitch that incorporates a snubbing arrangement that acts to dampen-out sidewise movements of the trailer if the trailer tends to wander from the towing track, or tends to weave from side-

to-side behind the towing vehicle. The disclosed hitch comprises a brakelike arrangement that provides the actual



snubbing action as soon as there is a relative rotational movement at the trailer hitch. The operative principles and various embodiments are disclosed and explained.

3,633,940

FIFTH WHEEL WITH SAFETY FEATURES

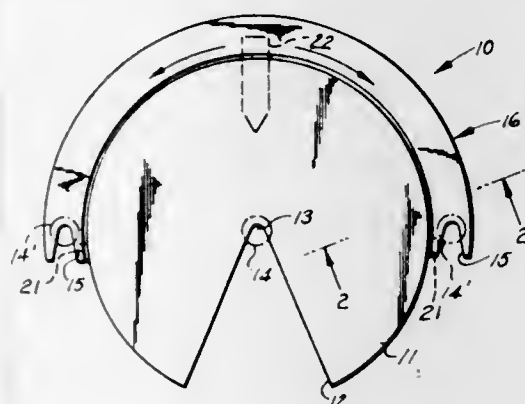
Leo G. Sinnard, 111 1/2 N. Poplar St., Assumption, Ill.

Filed Apr. 1, 1970, Ser. No. 24,724

Int. Cl. B62d 53/10

U.S. Cl. 280—432

5 Claims



A safety fifth wheel device for mounting upon a tractor or other vehicle. This device is secured in a normal manner by a central kingpin which is received within a slot portion of the device. In the event that a kingpin severs or comes loose the device is so constructed so as to prevent loss of control and detachment of the trailer.

3,633,941

REPLACEABLE SHOCK-MOUNTED KINGPIN INSTALLATION

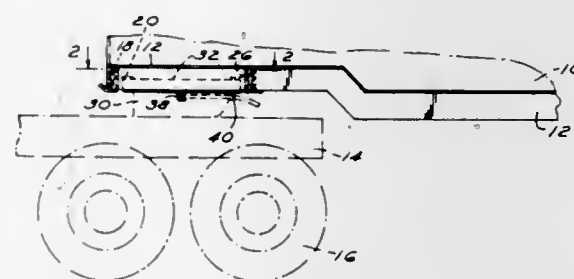
Otto Pleier, St. Clair Shores, Mich., assignor to The United States of America as represented by the Secretary of the Army

Filed Mar. 13, 1970, Ser. No. 19,189

Int. Cl. B62d 53/08

U.S. Cl. 280—440

4 Claims



A kingpin which is replaceable and provides shock attenuation in a vertical, longitudinal and transverse direction especially for transverse direction especially for semitrailers carrying sensitive equipment.

3,633,942

WAND LOCK FOR VACUUM CLEANER

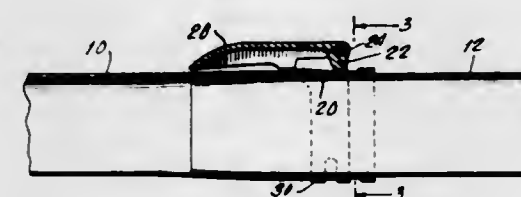
Carl E. Meyerhoefer, Little Neck, N.Y., assignor to The General Signal Corporation, New York, N.Y.

Filed Jan. 8, 1970, Ser. No. 1,387

Int. Cl. F16l 37/18

U.S. Cl. 285—7

4 Claims



A locking mechanism for coupling together tubular sections forming a so-called wand useful in connection with vacuum cleaners and the like. The locking mechanism provides long life in effectively holding together the wand sections, is easy to manipulate and prevents leakage of air from the system.

3,633,943

FITTING AND METHOD OF MAKING THE SAME

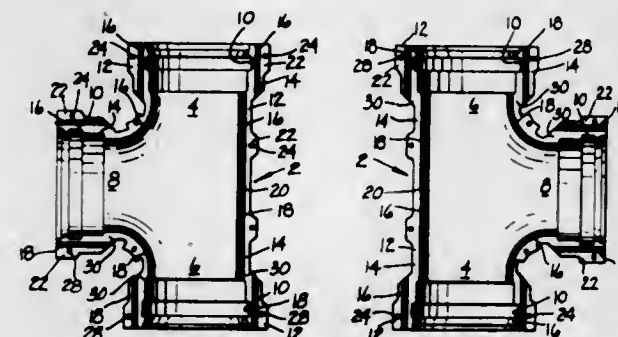
Joseph Louis Ramm, Metairie, La.; Joseph Peter Ferraro, Scotch Plains, N.J., and Joseph Anthony Munder, Westchester, Ohio, assignors to Johns-Manville Corporation, New York, N.Y.

Filed Feb. 13, 1970, Ser. No. 11,043

Int. Cl. F16l 13/02

U.S. Cl. 285—22

13 Claims



A fitting for nonpressure pipe is formed by using a pair of identical half sections wherein each half section is formed by molding a filled thermosetting resin reinforced with glass fibers and the pair of half sections are joined in mating relationship by a layer of adhesive.

3,633,944

TUBE COUPLING

Jacob J. Hamburg, 2003 West Eight Mile Road, Detroit, Mich.

Continuation-in-part of application Ser. No. 885,689, Dec. 17, 1969. This application Nov. 23, 1970, Ser. No. 91,884

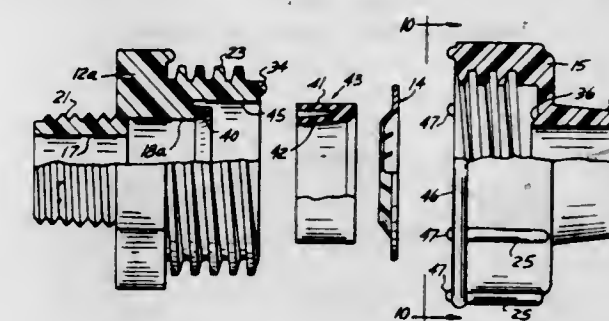
Int. Cl. F16l 17/02

U.S. Cl. 285—81

5 Claims

A slip-in type tube coupling formed of a body having a central bore whose forward end is enlarged, a centrally apertured cap fastened upon the forward end of the body, a springy grab ring having an outer flat edge portion, clamped against the body forward end by the cap, and an inner frustoconical shaped gripping portion. A U-shaped resilient

sealing ring with a corresponding frustoconically shaped base receives the gripping portion in face-to-face contact, with its



outer leg sealing against the wall of the enlarged portion of the bore and its inner leg sealing against the tube.

3,633,945

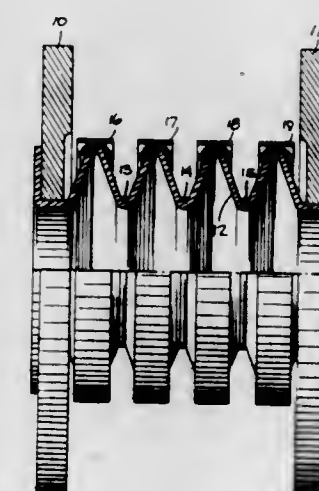
HIGH-PRESSURE CHEMICALLY RESISTANT BELLOWS
Irving D. Press, West Orange, and Henry E. Heigis, Nutley, both of N.J., assignors to Resistoflex Corporation, Roseland, N.J.

Filed Jan. 6, 1970, Ser. No. 972

Int. Cl. F16l 51/02

U.S. Cl. 285—226

6 Claims



A bellows formed from polytetrafluoroethylene resin is reinforced by providing substantially nonexpandable channel-shaped rings surrounding each of the crests of the corrugated tube closely fitting the maximum outside diameter of the corresponding crest at least when the pipe connection is in its original unstrained condition. The rings are preferably adjustable in girth but may be fixed in the diameter.

3,633,946

FLUID FLOW DEFLECTING BAFFLE FOR EXPANSION JOINTS IN FLUID CONDUITS

John Kazmierski, Jr., Ringoes, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,493

Int. Cl. F16l 27/10, 51/02

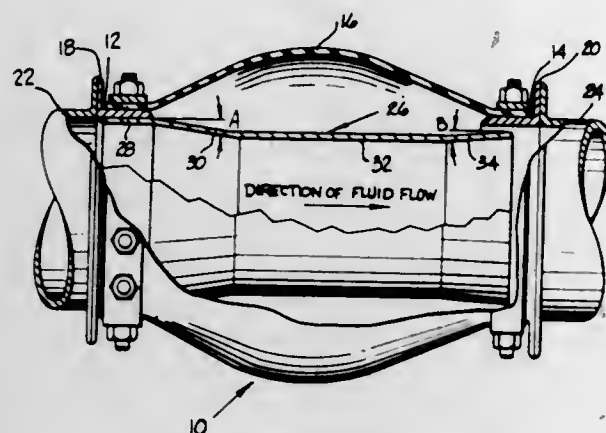
U.S. Cl. 285—229

7 Claims

A fluid flow deflecting and turbulence reducing baffle to circumferentially bridge the interior flow channel through expansion joints in fluid transmitting conduits, comprising in combination with a conduit expansion joint having an intermediate movable section, a circumferential baffle member which is fixed to and in contact with the interior of the upstream terminal end of the expansion joint and thereby supported in cantilever fashion, and extends therefrom to the approximate location of the opposite downstream terminal end of the expansion joint thereby bridging the joint, said circum-

ferential baffle member being shaped, beginning from the position fixed to the terminal end of the expansion joint at its upstream location, with an initial section converging inwardly into the conduit flow path and towards the other terminal end downstream at an acute angle in relation to the approxi-

mate conduit flow path and axis, a following intermediate section extending approximately parallel to the conduit flow path and axis, and a final section diverging outwardly away from the conduit flow path and axis in a direction towards the downstream terminal end of the expansion joint, providing a venturi-type configuration.



3,633,947 COUPLING

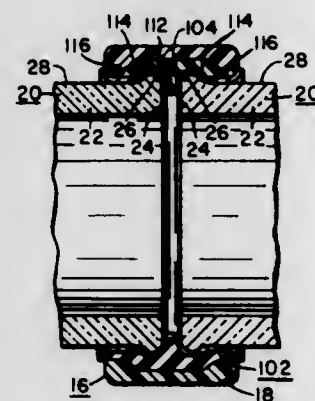
Carl J. Nelson, Elmira, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Feb. 20, 1970, Ser. No. 12,940

Int. Cl. F16I 49/00

U.S. Cl. 285-233

10 Claims



A coupling for joining two pipe end sections, the coupling having a resilient liner surrounding the pipe ends and a force-developing member enveloping the liner and including a flexible, generally cylindrical, one-piece band having end sections capable of overlapping. These end sections have complementary locking means capable of stepped interlocking engagement over a predetermined distance upon application of an external force. The band also includes bridging means for maintaining an essentially continuous inner surface between the band end sections, and optionally, a barrier means may be interposed between the liner and the pipe ends.

3,633,948

ABRASION-RESISTANT PIPE COUPLING

Ronald E. Dickey, 913 June Street, Fremont, Ohio

Filed Jan. 8, 1970, Ser. No. 1,394

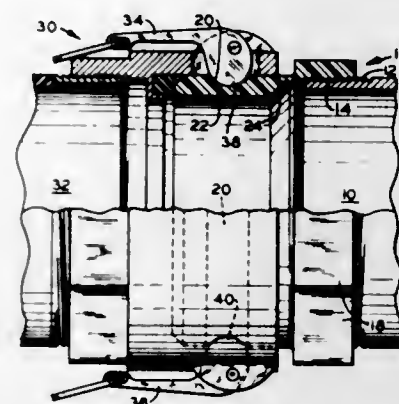
Int. Cl. F16I 37/00

U.S. Cl. 285-312

8 Claims

An abrasion-resistant pipe-coupling element formed of a plastic material having inherent self-lubricating properties

with an abrasion-resistant lining. The coupling construction is particularly useful in cam-locking couplings employed at the



3,633,949

DEVICE FOR SECURING A BODY TO ANOTHER BODY

Helmut Pfluger, Hockdorf-Ziegelhof, Finkenweg, Germany, assignor to Firma Traub GmbH, Reichenbach (Fils), Germany

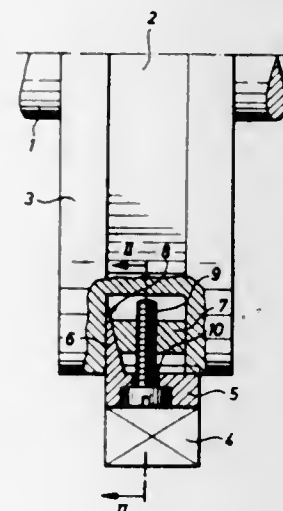
Filed July 1, 1969, Ser. No. 838,298

Claims priority, application Germany, July 20, 1968, P 17 75 261.3

Int. Cl. F16b 2/14

U.S. Cl. 287-20.3

4 Claims



A device for securing one body to another body, for example a switch cam to a cam drum which has a groove for the reception of the first-mentioned body which may be clamped to the sidewalls of the groove under the action of a screw. According to the invention, the first-mentioned body has a holding part adapted to be located on one rim of the groove, this holding part projecting laterally and partially bridging the groove, and further has a wedge-shaped part projecting into the groove on one side thereof. This wedge-shaped part cooperates with a clamping piece threadably tightened by means of a screw designed as a head screw. The clamping piece is arranged adjacent the wedge-shaped part in the groove to tension the first-mentioned body in the groove, and the screw is supported on the holding part through which it passes and is freely displaceable axially relative thereto.

3,633,950

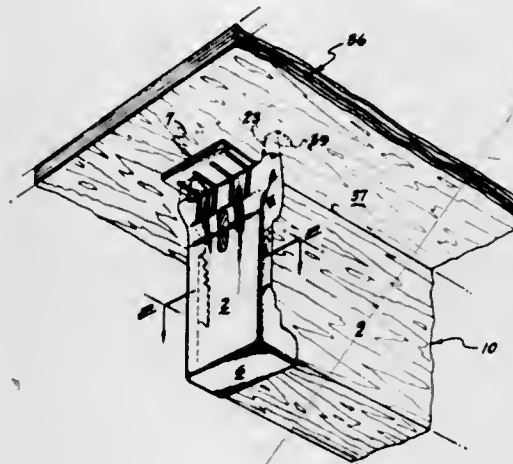
GRIP GROOVE HANGER

Tyrell T. Gilb, Berkeley, Calif., assignor to Simpson Company
Continuation-in-part of application Ser. No. 40,147, May 25, 1970. This application Oct. 8, 1970, Ser. No. 79,121

Int. Cl. F16b 5/00

U.S. Cl. 287-20.94

14 Claims



A metal hanger for wood beams and stiffeners having a formed seat, a back, sides and a top flange; the improvement consisting of a retainer channel member formed as part of the side of the hanger having one or more blunt face members or teeth for cutting a groove into which the member is forced to firmly grip and retain the beam.

3,633,951

ROD END COUPLING WITH DOUBLE HELIX INTERLOCK

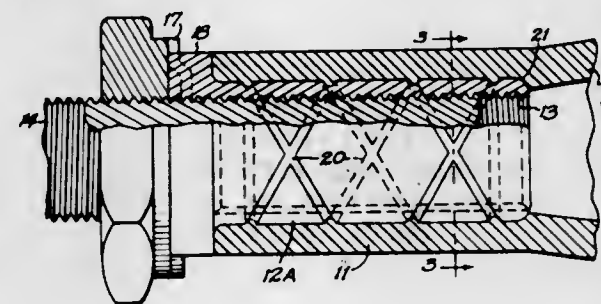
Ewan M. Hinkle, Laguna Niguel, and Robert A. Hoegee, Huntington Beach, both of Calif., assignors to Shur-Lok Corporation, Santa Ana, Calif.

Continuation-in-part of application Ser. No. 834,345, June 18, 1969. This application Mar. 3, 1970, Ser. No. 16,139

Int. Cl. F16b 7/06

U.S. Cl. 287-60

9 Claims



A rod end is anchored in a tube end by swaging the tube end around a hardened internally threaded reinforcing sleeve having crossed helical grooves or annular grooves crossed by a longitudinal groove or grooves, into which the tube is extruded, thus locking the sleeve to the tube against both axial and rotational displacement.

3,633,952

SUSPENDED CEILING GRID JOINT STRUCTURE

Harold W. Nikolaus, Columbia, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed July 17, 1970, Ser. No. 55,834

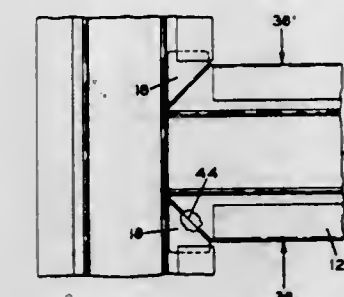
Int. Cl. F16b 7/00

U.S. Cl. 287-189.36A

2 Claims

A ceiling board suspension system has a flexible cross-member with bent-out tabs on opposite ends of its supporting

flanges. The tabs, when the crossmember is compressed, will slide into a cutout slot in the center of the flanges of the main runner and, when the crossmember is released, the tabs of the crossmember will lock into place into the openings formed on the opposite edges of the cutout slot of the main



3,633,953

PUSHBUTTON SNAP LATCH

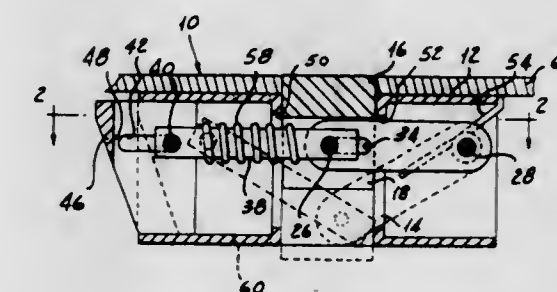
Paul R. Gley, Hillsdale, N.J., assignor to Rex Chainbelt Inc., Milwaukee, Wis.

Filed Jan. 26, 1970, Ser. No. 5,802

Int. Cl. E05c 1/14

U.S. Cl. 292-166

4 Claims



A pushbutton released, snap-locking latch in which a pushbutton mounted for sliding movement transversely of an open-ended housing has slots which receive the ends of a pin which connects one end of a longitudinally extending rod, connected at its other end to a pawl by a pin and slots, to one end of each of a pair of links, pivotally supported at their other ends on the housing. A first spring biases the arms and rod into parallelism to cause the pawl to extend out from one end of the housing. A second spring biases the pawl to an extended position with respect to the ends of the arms to permit the latch to snap past a strike.

3,633,954

UNIT DOOR CLOSER AND LATCH

Keith W. Tantlinger, Grosse Pointe Shores, Mich., assignor to Fruehauf Corporation, Detroit, Mich.

Filed Jan. 31, 1969, Ser. No. 795,631

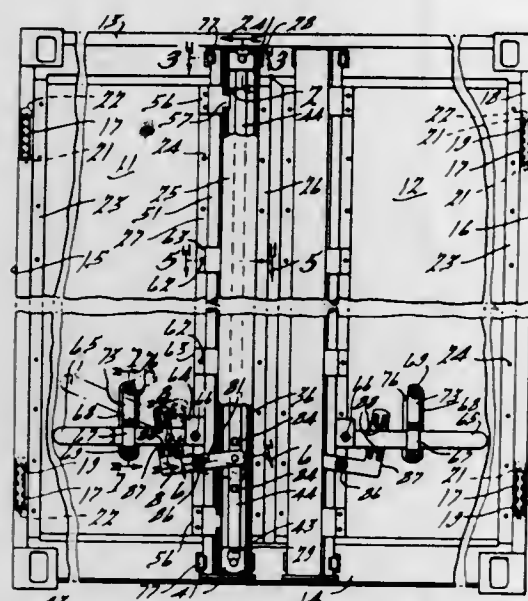
Int. Cl. E05c 7/02

U.S. Cl. 292-217

9 Claims

The unhinged edge of the door has a bolster therealong with its ends extending beyond the top and bottom door

edges and provided with means for engaging elements on the member wherein the hooking member has projections which selectively engage certain slots in the end of the locking rim



header and sill of the door frame for drawing the door to closed position and latching the ends of the bolster thereto.

3,633,955

SWINGING DOOR LOCK CONSTRUCTION

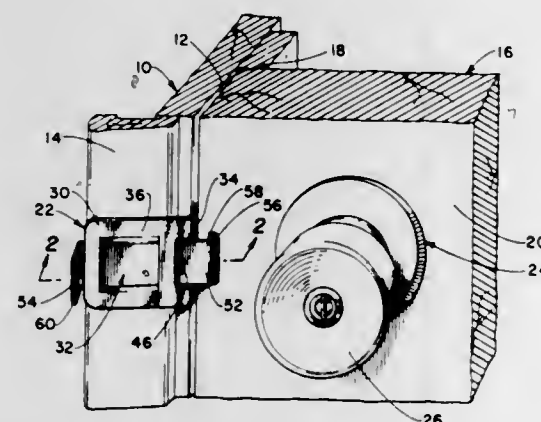
George D. Read, Glendora, Calif., assignor to Ajax Hardware Manufacturing Corp., Industry, Calif.

Filed Jan. 5, 1970, Ser. No. 678

Int. Cl. E05c 19/18; E05b 15/02

U.S. Cl. 292-292

8 Claims



A unitary, sheetlike, L-shaped lock frame has an edge part forming a strike plate and extending flatwise along and secured to a doorjamb edge surface with a frame side part extending flatwise longitudinally along a doorjamb side surface. A bolt opening is formed longitudinally through the juncture between the frame edge and side parts and the frame side part has longitudinally spaced overlying portions separated by intermediate underlying portions longitudinally slideably mounting a sheetlike lock bolt movable through the frame bolt opening. With a swinging door in closed position, the lock bolt may be extended overlapping the door side surface acting as an auxiliary lock and the strike plate of the lock frame edge part may be engaged by a main lock bolt extending from the door edge.

3,633,956

ADJUSTABLE LOCKING RIM FOR SHIPPING CONTAINERS

Heber K. Angell, 509 W. Parkwood Drive, Dayton, Ohio

Filed Feb. 11, 1970, Ser. No. 10,333

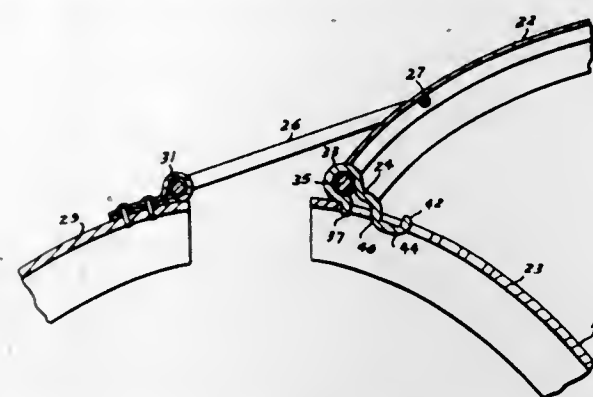
Int. Cl. B65d 45/34

U.S. Cl. 292-256.69

2 Claims

A locking rim for a shipping container having an adjustable hooking member which is attachable to a lever arm closure

member wherein the hooking member has projections which selectively engage certain slots in the end of the locking rim



at plural points of contact. In a modified hooking member certain selected slanted slots engage a plurality of pins on the locking rim.

3,633,957

BAG SEAL WITH EMBOSSED TAPE SHACKLE

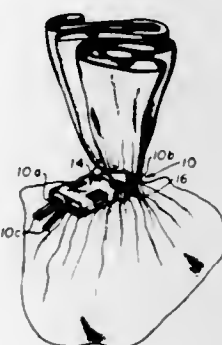
Sigurd M. Moberg, East Orange, N.J., assignor to E. J. Brooks Company, Newark, N.J.

Filed Feb. 20, 1970, Ser. No. 13,095

Int. Cl. B65d 33/34, 55/06

U.S. Cl. 292-308

4 Claims



Tape used as a shackle of a bag seal is embossed with plural indentations on opposite faces thereof. When a lead sealing element, through which the tape is threaded, is deformed with a sealing tool in sealing a related bag, portions of the sealing element are pressed into said indentations and remain therein to prevent slippage of the tape within the lead sealing element.

3,633,958

LEAF PICKER

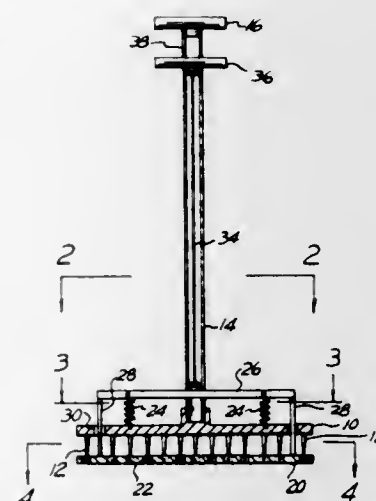
Verti Mesrobian, 7120 Lexington, Detroit, Mich.

Filed June 30, 1970, Ser. No. 51,157

Int. Cl. A01d 9/06

U.S. Cl. 294-61

1 Claim



A manually operated leaf picker which enables a user to go about a lawn or field and without bending to pick up large quantities of leaves by manual manipulation of the handles of

the leaf picker, with such manipulation including also the stripping of leaves off the picker and into a suitable receptacle.

3,633,959

BOBBIN GRASPER

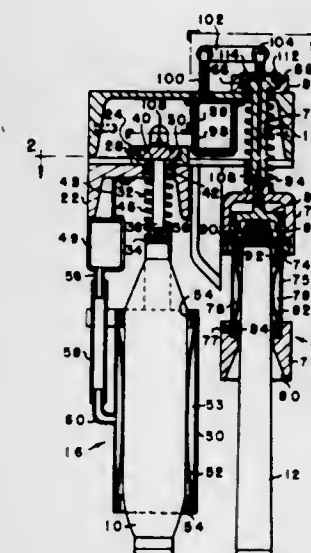
John K. McCollough, 1017 Woodburn Road; Grady H. Sanders, 1586 Old Charlotte Rd., and Charles A. Wethington, 555 Lucerne Drive, all of Spartanburg, S.C.

Filed Aug. 5, 1968, Ser. No. 750,262

Int. Cl. B66c 1/46

U.S. Cl. 294-67 BA

1 Claim



A self-centering compliant bobbin grasper which pneumatically holds empty and full bobbins for transport between a spinning frame and a loading station.

3,633,960

HOOK FOR LOAD-CARRYING DEVICE

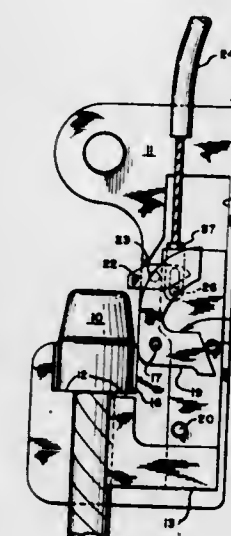
Walker E. Drayton, York, Pa., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed July 8, 1969, Ser. No. 840,001

Int. Cl. B66c 1/14

U.S. Cl. 294-75

9 Claims



An improved hook for a device for carrying loads employing a length of load-supporting line having an enlarged ferrule at one end, said hook including a support member forming a pocket for supporting the ferrule, and remote controlled selectively operable release means for raising the ferrule out of the pocket to drop the load.

3,633,961

POWERED CRANE HOOK DISCONNECT AND OVERLOAD DEVICE

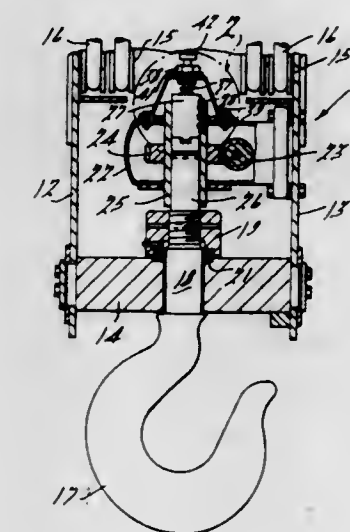
Jaroslav Speransky, and Harry E. Cerny, both of Duluth, Minn., assignors to Microdot, Inc., Greenwich, Conn.

Filed Nov. 12, 1970, Ser. No. 88,731

Int. Cl. B66c 1/36

U.S. Cl. 294-82

6 Claims



A crane hook having power-operated rotating means comprising a tapered radial key connection which drives the hook shank. Should the hook encounter resistance to turning, a plunger carrying the upper element of the key connection will rise, permitting disengagement of the drive and hook. Continued rotation of the plunger will cause reengagement of the key connection, with disengagement again occurring if the overload conditions still exist. A spring is provided for adjusting the resistance of the key connection to disengagement.

3,633,962

BOTTLE CARRIER

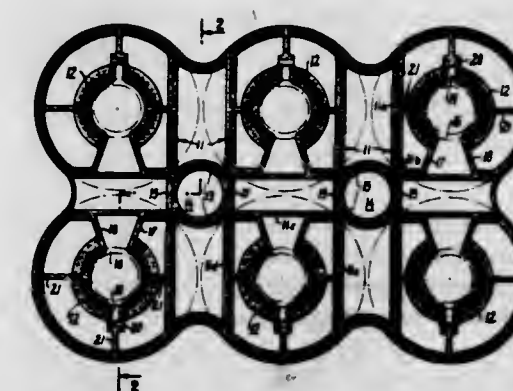
Gerald Erickson, P.O. Box 6175, Surfside, Fla.

Filed Sept. 17, 1970, Ser. No. 73,137

Int. Cl. B65d 71/00

U.S. Cl. 294-87.2

6 Claims



An integrally formed bottle carrier for supporting a plurality of bottles by their necks in which the bottles can be locked into and removed from a plurality of uniformly spaced split bottleneck receiving collars, each mounted within an individual frame interconnected with the other individual frames within the confines of an outer frame.

ERRATUM

For Class 296-24 see:
Patent No. 3,633,970

3,633,963 PULLEY TRAILER

Charles K. Haynes, P.O. Box 176, Canton, Ga.
Filed July 8, 1970, Ser. No. 53,253
Int. Cl. B60r 7/00

U.S. Cl. 296-24 C

13 Claims



A vehicle body including opposite side and end walls and an upstanding center longitudinal partition dividing the interior of the body into opposite side longitudinal compartments. The body further includes a lower bottom wall extending between the lower marginal edge portions of the opposite side and end walls as well as the upstanding center longitudinal partition and also openable top wall panels removably closing the upper ends of the side compartments. Each of the side compartments includes vertically spaced removable longitudinal flooring sections dividing each of the side compartments into vertically spaced individual compartment flights extending longitudinally of the body. One end wall includes openable closure doors with which the corresponding ends of the compartment flights are registered and the flooring sections are each longitudinally shiftable outwardly through the corresponding closure doors for removal from the body. Still further, the sidewalls each include access door-defining portions registered with longitudinally spaced portions of each of the corresponding compartment flights and the lower side marginal edge portions of the body include longitudinally extending generally horizontal step portions upon which workmen loading and unloading the vehicle body may stand.

3,633,964

DEVICE FOR ADJUSTING THE SLOPE OF A CHAIR BACK

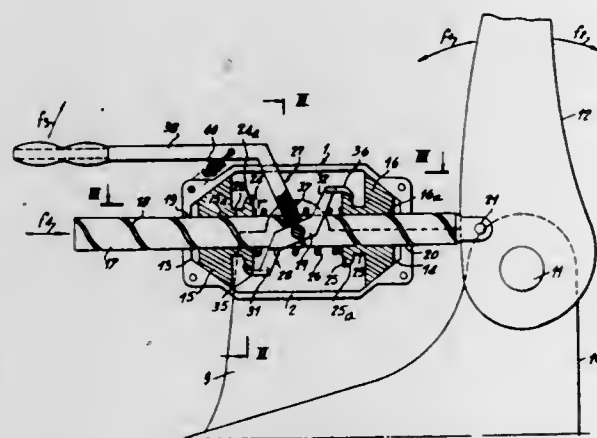
Jean-Claude Andre Bertin, Route d' Evequemont, V., Vaux-sur-Seine, France

Filed Feb. 10, 1970, Ser. No. 9,687

Claims priority, application France, Feb. 13, 1969, 69/03451
Int. Cl. A47c 3/00; B60m 1/02; F16m 11/00

U.S. Cl. 297-375

4 Claims



The device comprises a hollow casing, supported by the seat frame of a chair and delimiting two opposed truncated bearings on which are applied, by the action of at least one resilient recoil member, two truncated cones, also opposed, loosely screwed on to a large pitch helicoidal grooved com-

mon rod, an operating member controlling, against the action of the resilient member, the simultaneous loosening of the truncated cones in relation to the truncated bearings.

3,633,965

SAFETY BELTS

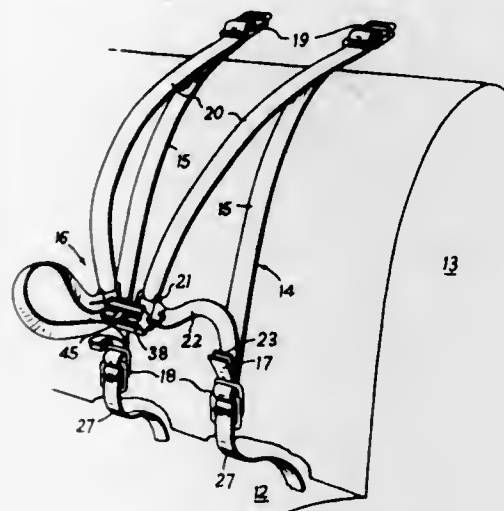
Neville Marshall Norman, 90 Sandyhurst Lane, and Derek Colebrook Morley, Victoria Road, both of Ashford, Kent, England

Original application Apr. 11, 1967, Ser. No. 630,022, now Patent No. 3,512,830. Divided and this application Mar. 5, 1969, Ser. No. 804,611

Int. Cl. A62b 35/60

U.S. Cl. 297-385

17 Claims



The invention provides a safety belt for a vehicle having a backstrap portion arranged to contact the vehicle seat backrest to restrain its forward movement and a front strap portion to restrain the forward movement of the wearer. The invention further provides a combination of a safety belt and child's seat in which the child's seat is restrained from forward movement independently of a child in the seat.

3,633,966

VEHICLE PASSENGER RESTRAINT SYSTEM

Peter C. Epple, Harper Woods, and Alan D. Berg, Washington, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 4, 1970, Ser. No. 16,281

Int. Cl. A47c 31/00; A47d 15/00; B60r 21/10

U.S. Cl. 297-386

8 Claims



The kinetic energy of a vehicle passenger upon sudden deceleration of the vehicle is converted partially into potential energy in an elastically deformed belt, the ends of which

are attached to the vehicle and restrained by an energy releasing anchor and a conventional anchor. The energy releasing anchor includes a cylinder connected to the vehicle and a piston rod having one end connected to the belt and having a piston on the other end thereof moveable in the cylinder. A compressible fluid captured in a chamber formed by the piston, piston rod and cylinder resiliently resists movement of the rod as the belt elastically deforms under a tensile force applied thereto, while triggering means on the piston detects initial contraction of the belt and releases the compressed fluid thus releasing the potential energy of the fluid and of the belt before any significant amount thereof can be transformed back into passenger kinetic energy.

3,633,967

SUPPORT DEVICE

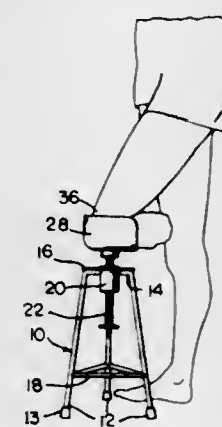
Arthur G. Timmins, Dearborn, Mich., assignor to Alvin H. Maas, Birmingham, Mich.

Filed Dec. 19, 1969, Ser. No. 886,522

Int. Cl. A47c 9/12; A61f 1/02

U.S. Cl. 297-439

3 Claims



The specification discloses a support device especially for use by leg amputees having a portion of a leg removed. The supporting device comprises a base with an element therein for vertical adjustability and having an upwardly opening support at the top adapted for receiving a pad and into which support member the knee or lower end of the amputated leg is receivable.

3,633,968

SEAT FABRIC COVER FASTENER

Isaac W. Sears, Jr., 325 McClellan Blvd., Davenport, Iowa

Filed Oct. 5, 1970, Ser. No. 77,775

Int. Cl. B60n 1/06; A47c 3/00, 7/02

U.S. Cl. 297-458

5 Claims



An improved fastening device for securing a fabric cover to the frame of a contoured seat having a marginal channel. The device includes a guard member frictionally connected to the seat frame and covering the peripheral edge thereof, the guard member having a longitudinal ridge projecting into the channel and adapted to restrain a resilient retainer within the channel to secure the fabric cover to the frame.

Also an integral part of this invention is a method to secure a cover to a seat frame without puncturing the cover or the need for adhesives. The method includes attaching a flexible

edge guard to the seat frame; placing the cover on the frame; tucking the edges of the cover within the marginal channel of the seat frame; and forcing a resilient retainer into the channel to wedge the cover between the frame and retainer and thereby draw the cover taut over the frame and secure the cover thereto.

3,633,969

HASSOCK FRAME ASSEMBLY

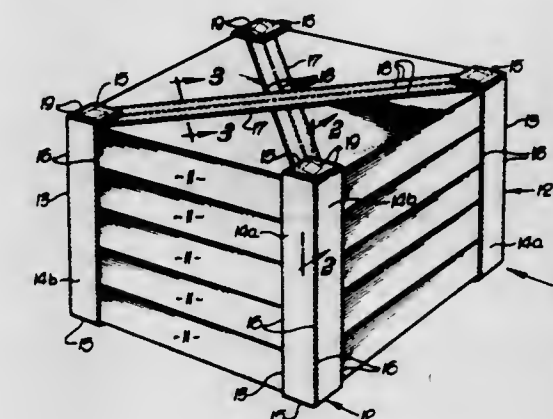
Charles Winger, 1691 N. Garden Drive, Apt. 13, San Bernardino, Calif.

Filed Aug. 11, 1969, Ser. No. 848,861

Int. Cl. A47c 15/00, 31/00

U.S. Cl. 297-462

4 Claims



A hassock frame assembly comprising paired loops adapted to hold cushions in a vertically aligned relationship to form a hassock. The loops may be adjustable to hold a variable number of cushions and are adapted to hold various styles or shapes of cushions.

3,633,970

WELDING TRUCK CONTAINING ALL REQUIRED EQUIPMENT

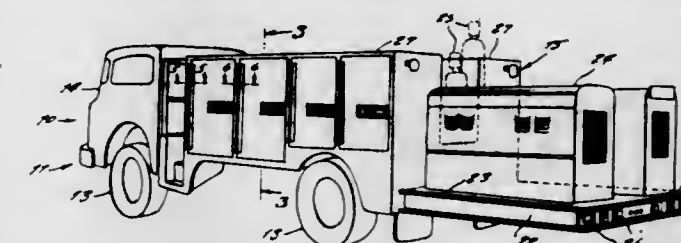
James J. Langhals, Route #3, Columbus Grove, Ohio

Filed Nov. 20, 1969, Ser. No. 878,355

Int. Cl. B60r 27/00

U.S. Cl. 296-24

4 Claims



A specially designed truck body and bed, adapted to contain all the necessary equipment for performing welding operations. The truck bed including a platform at its rear end upon which engines may be mounted, and the truck body including a plurality of cabinets accessible from opposite sides of the vehicle for containing various equipment. The body including an open longitudinally central aisle with access being provided by stairs at the front end of the truck.

3,633,971

HYDRAULIC DUMP BOX

Richard K. Berky, Cedar Falls, Iowa, and Edgar J. Rickel, Leawood, Kans., assignors to Rickel, Inc., Kansas City, Mo.

Filed July 31, 1969, Ser. No. 846,449

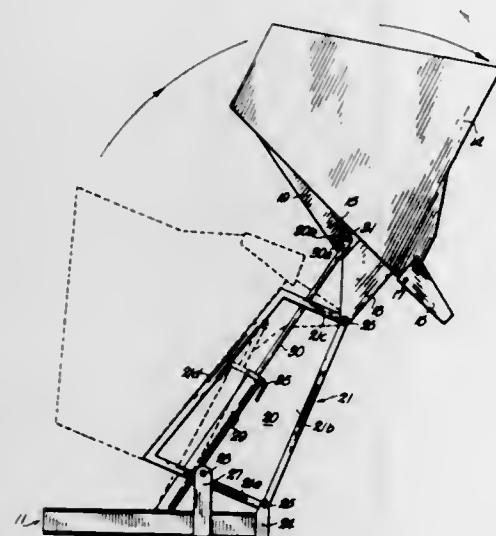
Int. Cl. B65g 67/50

U.S. Cl. 298-10

3 Claims

A side dump box apparatus for mounting on a truck bed. Forced by a hydraulic cylinder, an open-topped container

with a hinged dumping spout is tilted outwardly from the truck bed on a supporting frame pivotally connected to a surface, and a vertically movable platform is periodically



fixed base. The container, which is pivotally connected to the supporting frame, then is rotated upwardly above said frame in order to dump its contents.

3,633,972

GUIDE RAIL DEVICE FOR A LONGWALL MINING MACHINE

Klaus Spies, Dortmund-Wellenböhnen, and Johannes Rinio, Herne, both of Germany, assignors to Klockner-Werke Aktiengesellschaft, Duisburg, Germany

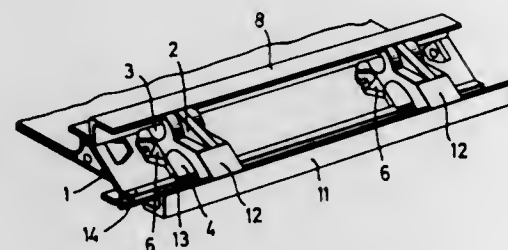
Filed Apr. 28, 1970, Ser. No. 32,601

Claims priority, application Germany, May 3, 1969, P 19 22 669.8

Int. Cl. E21c 25/68

U.S. Cl. 299-34

10 Claims



A positive guide device for a chain-driven mining machine such as a coal plow. It has upper and lower angle iron frame members with interconnecting rungs between them. The rungs are H-shaped to provide channels for movement of the drive chain.

3,633,973

CEMENT RESURFACING MACHINE

Richard E. Chesterman, 543 Chesterton Ave., Belmont, Calif.

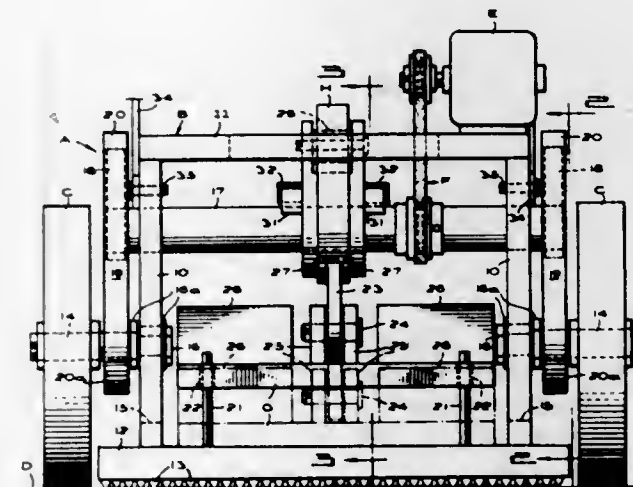
Filed June 4, 1970, Ser. No. 43,339

Int. Cl. E01c 23/09

U.S. Cl. 299-37

3 Claims

A cement resurfacing machine for roughening or scarifying a cement floor or the like, wherein wheels ride along the cement, and the machine has a carriage frame that is periodically raised to permit the machine to be advanced. This carriage frame is provided with a lower horizontal impact plate,



raised and then dropped against the impact plate so as to drive the chisels into the cement.

3,633,974

METHOD OF MAKING TUFTED CONSTRUCTIONS

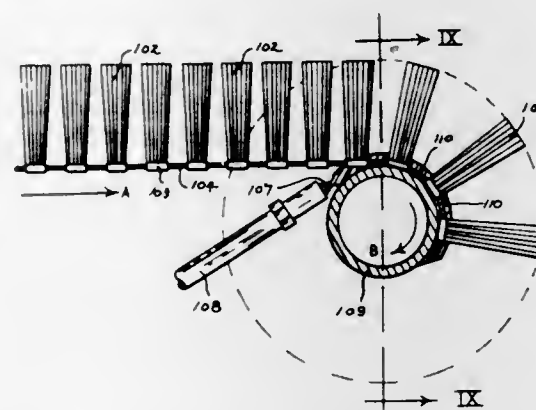
John C. Lewis, Jr., Middlebury, Vt., assignor to Tucel Industries, Inc., Middlebury, Vt.

Continuation-in-part of application Ser. No. 841,160, Oct. 25, 1968, now Patent No. 3,596,999, dated Aug. 3, 1971, and a continuation-in-part of 800,330, Jan. 24, 1969, now Patent No. 3,604,043, dated Sept. 14, 1971. This application Mar. 18, 1970, Ser. No. 20,624

Int. Cl. A46b 3/04

U.S. Cl. 300-21

12 Claims



This invention, consisting of a new method for making brushes, allows tufted brushes and tufted mat components to be manufactured having pretrimmed synthetic filament tufts supported by thin foamed substrates. The method comprises first picking synthetic filament tufts and subsequently assembling the tufts in a predetermined tuft pattern. Secondly, the tufts are then attached to a weblike support. Third, the supported tufts are then set in a foam composition whereby the base of each tuft is surrounded and supported by foam.

3,633,975

METHOD OF MAKING A MOPHEAD

John G. Argeris, 8 Leander, Danielson, Conn., and James A. Atwood, III, Genbren Road, Plainfield, Conn.

Filed Sept. 17, 1970, Ser. No. 73,115

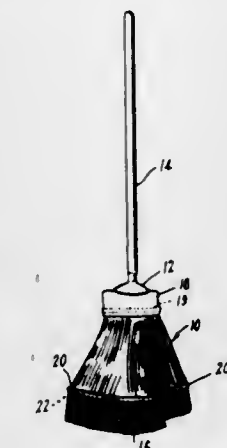
Int. Cl. A471 13/20

U.S. Cl. 300-21

12 Claims

A mophead has generally U-shaped loops extending to both sides of the center band and the loops are extensively

twisted along their lengths. In the method of making the mophead, an assembly of loops formed from twisted yarn is



suspended from adjacent the centerline thereof and is agitated until extensive twisting of the loops along the length thereof is produced.

3,633,976

METHOD OF TRANSPORTING A SUBSTANCE ALONG A PIPELINE

Jan Kruyer, Edmonton, Alberta, Canada, assignor to Research Council of Alberta, Alberta, Canada

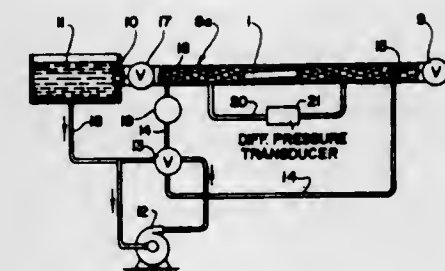
Continuation-in-part of application Ser. No. 779,758, Nov. 29, 1968, now abandoned. This application Nov. 20, 1970,

Ser. No. 91,487

Int. Cl. B65g 51/00, 51/04

U.S. Cl. 302-2 R

15 Claims



A substance is transported by a carrier liquid along a pipeline in the form of discrete articles, for example as mouldings or in containers, each having a cylindrical exterior provided with spacing means of uniform thickness extending circumferentially around at least a portion of the leading half of the article to space the leading half from the pipeline internal surface. The spacing means, which is preferably set back from the leading end of the capsule may be a collar or spaced ridges and is provided to tilt the capsule leading end upwardly to reduce the pressure gradient along the article by the article being conveyed along the pipe on a wedge of liquid. The specific gravity of each article together with the collar thereon is between 0.5 and 1.2.

3,633,977

MICROWAVE ACOUSTIC SURFACE WAVE MIXER AND METHOD OF FABRICATION

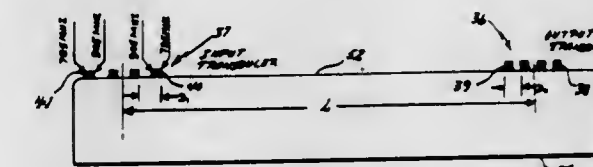
Andrew J. Slobodnik, Jr., Lowell, Mass., assignor to The United States of America as represented by the Secretary of the United States Air Force

Filed Apr. 1, 1970, Ser. No. 24,743

Int. Cl. H03f 7/00

U.S. Cl. 307-88.3

5 Claims



Power density curves of acoustic surface waves generated in piezoelectric substrate members by sum and difference electromagnetic input signals have been found to peak at discrete distances from the input transducer. An effective microwave mixer is provided by positioning an appropriately tuned output transducer on the substrate member at a point coinciding with the desired sum or difference acoustic signal power peak.

3,633,978

PNEUMATIC ANTISKID BRAKING SYSTEM

Paul Remillieux, Paris, France, assignor to Societe Anonyme DBA

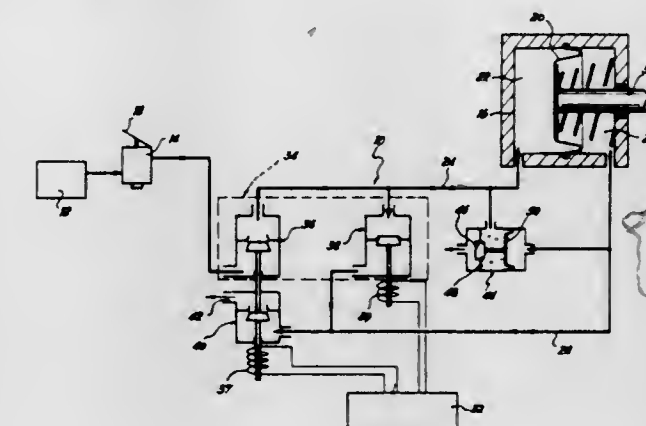
Filed July 6, 1970, Ser. No. 52,222

Claims priority, application France, July 3, 1969, 6922476

Int. Cl. B60t 8/00

U.S. Cl. 303-21 F

2 Claims



A pneumatic antiskid braking system including control valve means adapted, when actuated by antiskid control means in response to a skidding of the vehicle wheels, to connect the two opposed chambers of the wheel brake actuator with one another so as to decrease the braking torque generated thereby. A normally closed exhaust valve controlled by piston means responsive to the differential pressure between these opposed chambers is provided to directly connect the motor chamber to a low fluid pressure reservoir when the above differential pressure falls below a predetermined value.

3,633,979

GRAVITY-ACTUATED SELF-PROPELLING WHEEL CONSTRUCTION

Alme Trudeau, 227 N. E. 26th St. Apt. 6, Miami, Fla.

Filed Feb. 24, 1970, Ser. No. 13,522

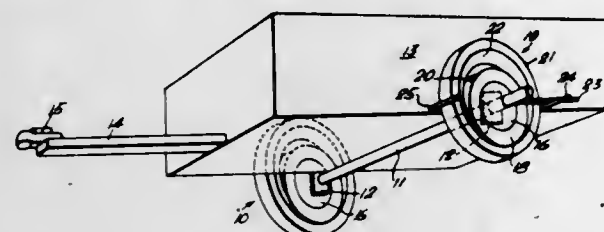
Int. Cl. B62d 55/08

U.S. Cl. 305-7

1 Claim

An annular inner wheel is arranged for planetary motion with respect to the inner periphery of an annular outer wheel

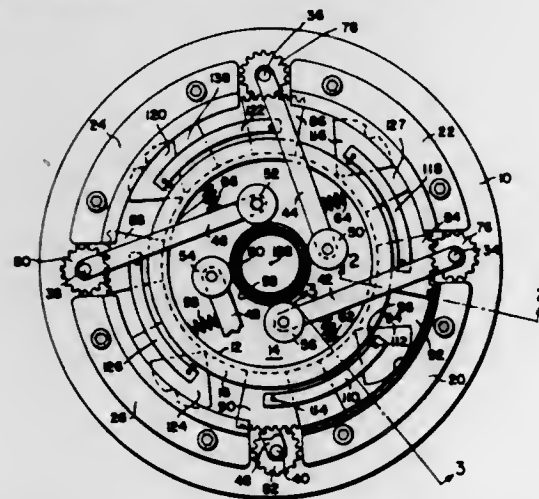
of substantially greater inner diameter than the outer diameter of the annular outer wheel. The annular inner wheel is journaled with respect to a vehicle body whereby, upon the



vehicle being drawn, the inner wheel can ride up within the outer wheel to impose a gravitational force therebetween aiding in the propulsion of the vehicle.

3,633,980 SUPPORT BEARING

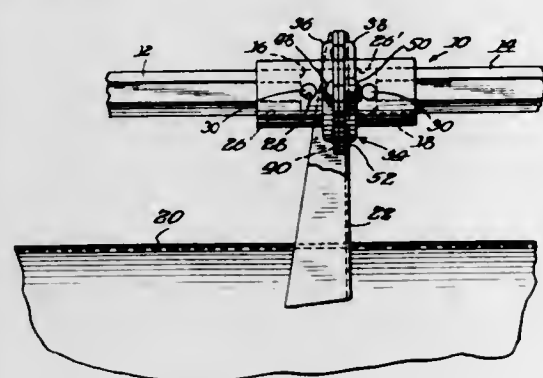
James E. Hunt, Lansdale, and Rene L. Guerster, Maple Glen, both of Pa., assignors to Ametek Inc., New York, N.Y.
Filed Apr. 15, 1970, Ser. No. 28,812
Int. Cl. F16c 1/28; B60t 7/12
U.S. Cl. 308-6 R 2 Claims



A bearing for supporting a telescoping helical spiral tube device against lateral movement comprises a plurality of rollers adapted to engage the outer periphery of the tube. The rollers are interconnected with brake means main become operative to prevent radial movement of any roller except when all of the rollers are equally displaced from the axis of the tube. Thus, the bearing allows expansion and contraction of the tube as it is extended and withdrawn, but positively prevents lateral displacement of the tube.

3,633,981 DRIVE LINE BEARING AND CONNECTOR

James L. Suhr, Kewanee, Ill., assignor to Kewanee Machinery & Conveyor Co., Kewanee, Ill.
Filed Mar. 4, 1970, Ser. No. 16,402
Int. Cl. F16c 35/06
U.S. Cl. 308-27 7 Claims

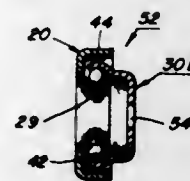


A coupling for connecting adjacent end portions of axially aligned hexagonal-shaped shafts including a unitary coupling

body having a longitudinal extending bore adapted to receive the adjacent ends of the shafts, roll pins secured to the coupling body in transverse relation to the longitudinal bore and limiting inward longitudinal movement of the shaft ends, the pins being removable to allow either of the shafts to be moved longitudinally into the bore, and an antifriction bearing disposed about the coupling body and adapted to be secured to a support hanger for supporting the adjacent ends of the shafts in coupled relation.

3,633,982 METHOD AND APPARATUS FOR MAKING A BALL BEARING

Albert G. Germann, North Caldwell, N.J., assignor to G & H Mechanical Laboratory, Inc., Wayne, N.J.
Filed Nov. 4, 1970, Ser. No. 86,772
Int. Cl. F16c 19/02
U.S. Cl. 308-191 6 Claims



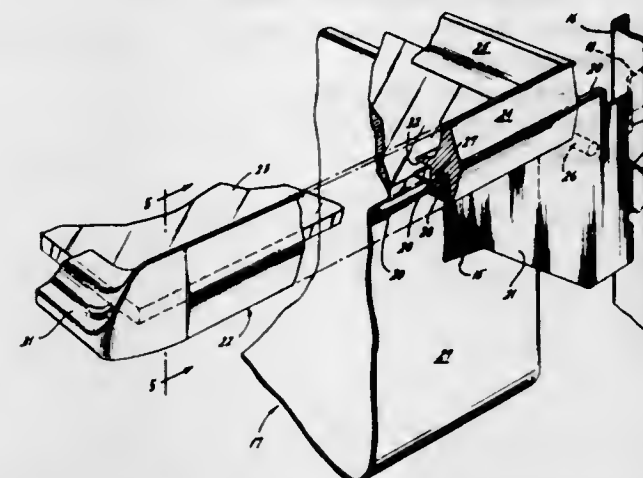
There is disclosed a method and apparatus for manufacturing a ball bearing in which the inner and outer race members are made of sheet metal so as to provide a precision bearing of very low cost. The sheet metal ball bearing of this invention is contemplated to be made with three different styles of internal inner race members disposed to be attached to or used with office furniture, home appliances, conveyors, automotive devices and the like by three different means. Attachment of the bearings may be by spot welding, staking, spinning, bolting, riveting, in press fit seats and other conventional means. These ball bearings are commonly designated as unground cageless bearings wherein the balls are arranged in the raceway with the balls in substantially tangential circumferential engagement with each other so as to provide a bearing having a determined amount of play after the bearing is assembled. The apparatus for assembling these ball bearings contemplates that the manufacture of the ball bearings is with an "in line" assembly system or by a rotary table system. In either system the bearing components are carried through several stations for assembly to a determined configuration. These bearings are contemplated as having an outer flange drawn to a determined diameter which is merely a matter of selection. Size change of this diameter is accomplished by changing of the dies for the production of an outer blank diameter and for drawing the flange to a determined outer diameter. These bearings have inner and outer members which are of sheet metal and after assembly the bearings may be case hardened.

3,633,983 SHELF STRUCTURE

Stuart P. Whitcomb, Willingboro, N.J., assignor to Philco-Ford Corporation, Philadelphia, Pa.
Filed Jan. 12, 1970, Ser. No. 2,264
Int. Cl. A47b 57/00, 51/00, 88/00
U.S. Cl. 312-306 6 Claims

A unitary shelf and food storage pan support structure for cabinets. An extruded member supported on cantilevered shelf brackets includes a pair of opposed runners which frame an imperforate shelf and are provided with a set of grooves that slidably support a food storage pan. The runners include another set of grooves that slidably engage the shelf

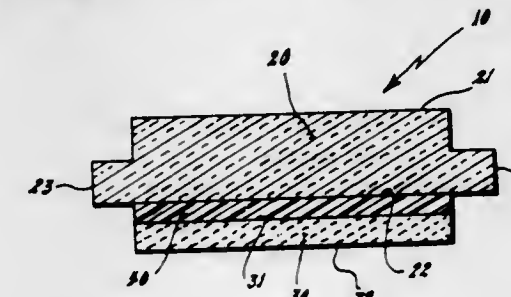
brackets. The arrangement, in combination with selectively lenses having at least one convergent lens and at least one releasable detent means, affords either sliding withdrawal of divergent lens in the first group and at least one concave-convex lens in the second group.



the storage pan relative to the imperforate shelf, or sliding withdrawal of the pan and shelf as a unit.

3,633,984 COMPOSITE, INFRARED TRANSMITTING, STRESS-FREE WINDOW

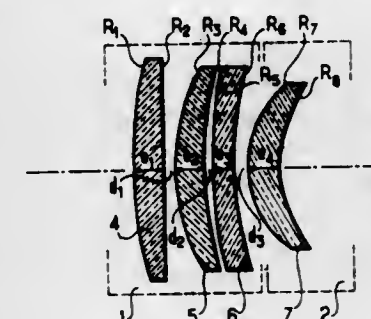
Leonard E. Smollen, Winchester; Ralph I. Larson, Jr., Framingham, and Gerald H. Karr, West Peabody, all of Mass., assignors to The United States of America as represented by the Secretary of the United States Air Force
Filed Mar. 11, 1970, Ser. No. 18,586
Int. Cl. G02b 5/20
U.S. Cl. 350-1 2 Claims



A transmitting filter window assembly for use in high-thermal stress environments. The window assembly is a composite and includes an external window surface of high-strength clear glass to which is bonded, with a clear and transparent rubber bonding agent, an internal near infrared filter window surface of "Schott" glass or equivalent.

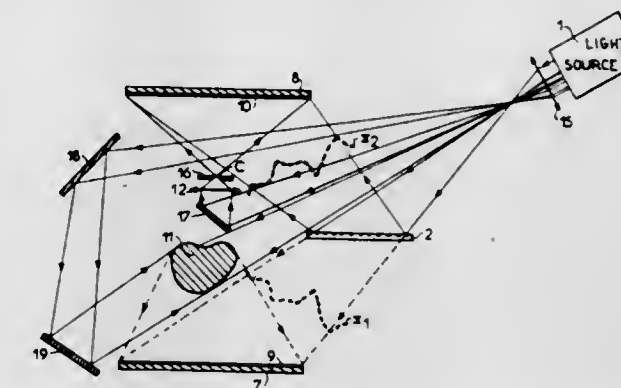
3,633,985 CONCENTRATION OBJECTIVE COMPOSED OF FOUR LENSES

Jacques Mouchart, L'Hay-les-Roses, France, assignor to Compagnie Generale d'Electricite, Paris, France
Filed July 28, 1970, Ser. No. 58,385
Claims priority, application France, July 28, 1969, 6925748
Int. Cl. G02b 9/34, 13/14
U.S. Cl. 350-2 1 Claim



A concentration objective for focusing a parallel monochromatic beam of light is comprised of two groups of

3,633,986
HOLOGRAPHIC RECORDING SYSTEM WITH A SEPARATELY RECORDED REFERENCE BEAM
Georges Broussaud, and Pierre L. Wang, both of Paris, France, assignors to Thomson-CSF
Filed Apr. 1, 1970, Ser. No. 24,751
Claims priority, application France, Apr. 11, 1969, 6911212
Int. Cl. G02b 27/00
U.S. Cl. 350-3.5 17 Claims

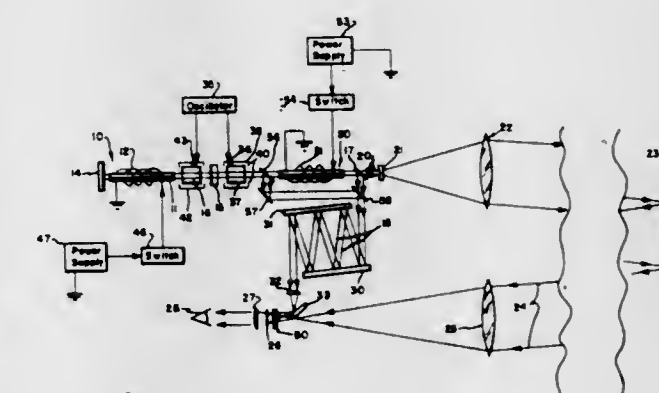


For rapidly constructing holograms with pulsed light issued for example from a pulsed laser the light used to form a normal hologram is also used to form a second hologram by illuminating a second emulsion directly by this light and by a punctual luminous source formed by means of this light.

For the reconstruction of the hologram the second hologram is used as a reference source.

3,633,987 METHOD OF AND APPARATUS FOR HOLOGRAPHICALLY CONTOUR MAPPING OF DISTANT OBJECTS

Robert E. Brooks, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed June 1, 1970, Ser. No. 41,859
Int. Cl. G02b 27/22
U.S. Cl. 350-3.5 16 Claims



A hologram is generated from which an image may be reconstructed of a distant object. This image has a brightness which is modulated so that areas or fringes of maximum or minimum brightness represent contours of equal range. This contour pattern is obtained when the beam of light used to record the hologram has a coherence function, which is periodic with differences in path length. This periodic coherence function in turn is obtained by periodically modulating a coherent beam of radiant energy. The modulation may be either amplitude or phase modulations, the latter including frequency modulation, or a combination thereof.

Since the optical path difference depends directly on the range to different points on the object, the resulting contour pattern directly reflects these differences in length. The hologram may be made by using brief pulses of the light beam, the light being pulsed by pulsing the laser, the hologram, or else the object or the reference beams.

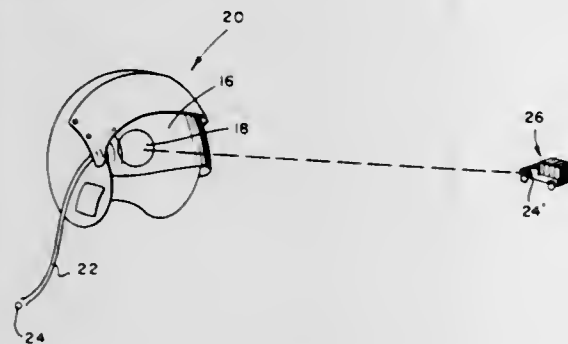
3,633,988

HELMET-MOUNTED HOLOGRAPHIC AIMING SIGHT
Reed A. Farrar, Southfield, Mich., assignor to The United States of America as represented by the Secretary of the Navy

Filed July 10, 1970, Ser. No. 53,724
Int. Cl. G02b 27/34

U.S. Cl. 350-3.5

5 Claims



A head-coupled sighting reticle having a hologram incorporated in a helmet faceplate illuminated by a point source of light. The hologram is constructed by creating a spherical-plane wave-interference pattern. In operation, the pilot looks through the hologram, and superimposes the virtual image of a point source, or other configuration, on the target. The pilot's head position then indicates the direction to the target.

3,633,989

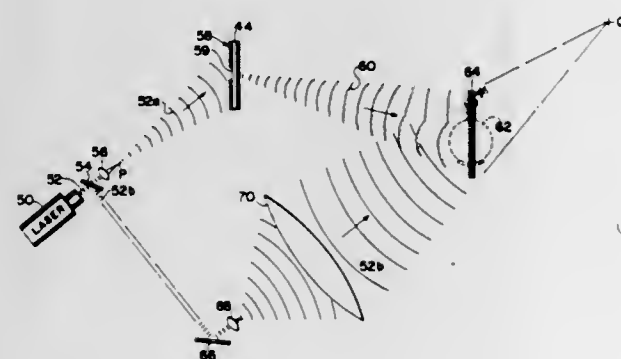
METHOD FOR MAKING REDUCED BANDWIDTH HOLOGRAMS

Stephen A. Benton, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 21, 1969, Ser. No. 868,099
Int. Cl. G02b 27/22

U.S. Cl. 350-3.5

17 Claims



A method for making a low bandwidth stereoscopic hologram of a subject. Vertical parallax is eliminated to reduce information content. The remainder is transformed to a larger area thereby reducing the information spatial density of the resulting hologram. A narrow horizontal aperture is the means for limiting vertical parallax. The resulting hologram is suitable for television transmission. To view a stereoscopic image of the original subject a real image of the aperture is formed from the resulting hologram. An observer looks through the aperture image as if it were a window to view the stereoscopic subject image.

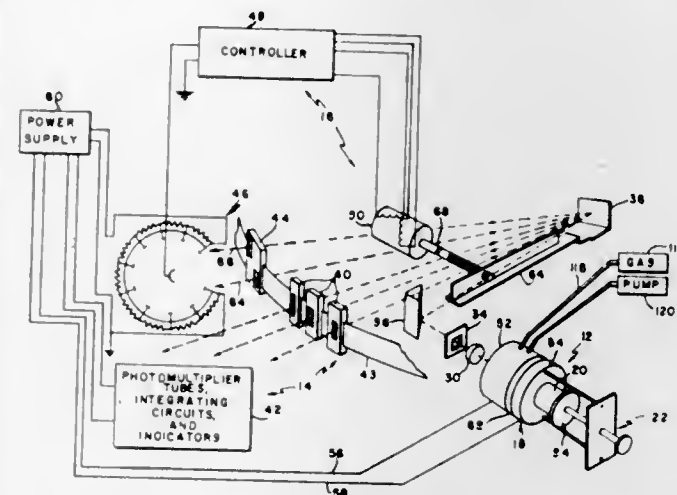
3,633,990
DEMOUNTABLE CATHODE GLOW DISCHARGE TUBE, PARTICULARLY FOR SELF-ALIGNING SPECTROSCOPIC DEVICES

George Balerlein, Needham, Mass., assignor to Bair-Atomic, Inc., Cambridge, Mass.

Filed June 18, 1969, Ser. No. 834,264
Int. Cl. G01j 3/10; H01j 17/04, 17/26

U.S. Cl. 356-80

10 Claims



In a self-aligning spectroscopic device of the glow discharge type, the cathode of a glow discharge tube is formed with a hollow beryllium copper cylinder which is removably seated within the cathode cavity about the tubular beryllium copper anode of the glow discharge tube. The exterior wall of the anode and the interior wall of the cylinder forms a cavity which contains a gaseous discharge medium.

3,633,991

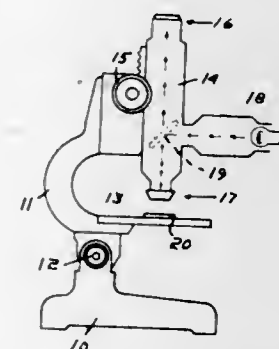
METALLURGICAL MICROSCOPES WITH MIRROR STAGES

Morris Miller, 79 Shirley Ave., Revere, Mass.

Filed Oct. 1, 1969, Ser. No. 862,724
Int. Cl. G02b 21/06

U.S. Cl. 350-91

2 Claims



Metallurgical microscopes are disclosed having mirror stages thus to enable the upper or lower surface of illuminated translucent specimens or translucent portions of specimens to be observed (anterior or posterior) depending on whether the microscope is focused on the specimen or on the reflected image thereof.

3,633,992

FARADAY-EFFECT ELEMENT

Teiji Uchida; Motoaki Furukawa; Shogo Yoshikawa, all of Tokyo; Ichiro Kitano, and Ken Kozumi, both of Kobe-shi, all of Japan, assignors to Nippon Selfoc Company, Limited, Tokyo, Japan

Filed July 7, 1969, Ser. No. 848,380
Claims priority, application Japan, July 5, 1968, 43/47355; 43/47356

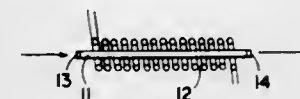
Int. Cl. G02f 1/22

U.S. Cl. 350-151

4 Claims

A novel Faraday-effect element having a refractive index highest along the axis and decreasing toward the surface is

produced by immersing a thin elongated glass body containing an oxide selected from the group consisting of paramagnetic- and diamagnetic-type oxides composed of at least first cations, in a bath of salt including second cations having a



smaller ratio of the electronic polarizability to the third power of the ion radius than said first cations. The bath is maintained at a temperature to permit said second cations to diffuse into said glass body so that said first cations may be substituted by said second cations.

3,633,993

LIGHT MODULATOR FOR PRODUCING LIGHT BEAM HAVING SINUSOIDALLY VARYING INTENSITY

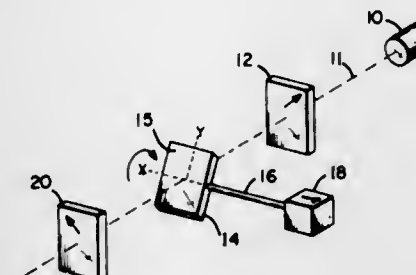
Gerald K. Goldberg, Philadelphia, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Feb. 20, 1970, Ser. No. 12,980

Int. Cl. G02b 27/28

U.S. Cl. 350-157

4 Claims



A light modulator for producing a light beam having a sinusoidal intensity modulation comprising a rotating, uniaxial crystal disposed between a pair of polarizers having mutually orthogonal transmission axes. To produce a light beam having a sinusoidal intensity modulation of a substantially constant modulation frequency, an unmodulated light beam is passed through the modulator only during some portions of each revolution of the uniaxial crystal. Passage of the light beam through the modulator during the portions of each revolution of the uniaxial crystal is achieved either by an electro-optic crystal plus a polarizer located between the source of the unmodulated light beam and the polarizer nearer to the source or by a rotating, slotted cylinder encircling the rotating crystal and having the same angular velocity as the rotating crystal.

3,633,994

LASER BEAM SCANNER

Duane G. Carlson, Bronxville, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 3, 1969, Ser. No. 803,862

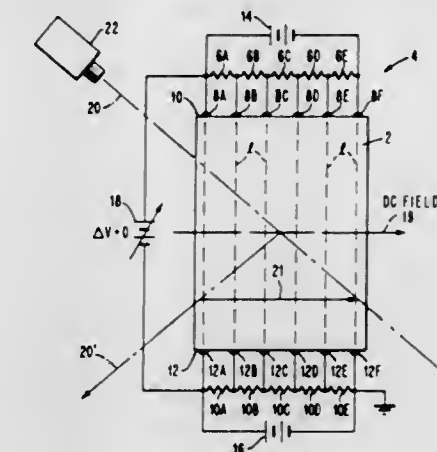
Int. Cl. G02f 1/16

U.S. Cl. 350-160

7 Claims

A laser beam scanner characterized by the use of directionally controlled acoustic gain in a semiconductor to control the deflection angle of an incident laser beam. As an addition to devices in which stimulated Brillouin scattering occurs, a source of gain is employed to control the direction of the Brillouin scattered laser beam. By varying the direction of maximum acoustic gain at the frequency that corresponds to the Bragg angle, the direction of the acoustic

wave can be changed. The direction of maximum acoustic gain is controlled by controlling the direction of a DC elec-



3,633,995

ACOUSTO-OPTIC LIGHT DEFLECTION SYSTEM

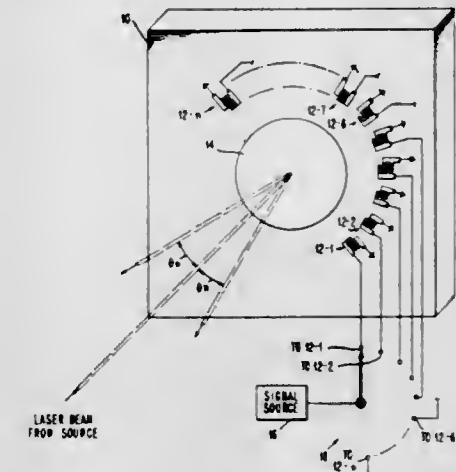
Eric G. Lean, Mahopac; Keith S. Pennington, Somers; Robert V. Pole, and Carl G. Powell, both of Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 17, 1970, Ser. No. 12,004

Int. Cl. G02f 1/28; H01s 3/00

U.S. Cl. 350-161

8 Claims



A system for deflecting a light beam such as a laser beam including a crystal substrate, preferably piezoelectric, having a reflective coating on its surface which functions as a mirror. At least one surface acoustic wave transducer is mounted on the crystal and is actuated by a high-frequency signal source. The transducer propagates surface acoustic waves on the crystal, which produce a periodic deformation on the mirror surface which functions as a phase grating. A light beam directed onto the mirror surface will therefore be deflected at an angle dependent on the acoustic frequency of the surface waves. A plurality of transducers arranged approximately in a semicircle on the crystal and selectively actuated provides a two-dimensional scanning system.

3,633,996

TWO-DIMENSIONAL ACOUSTO-OPTIC DEFLECTION SYSTEM

Eric G. Lean, Mahopac; Robert V. Pole, Yorktown Heights, and Samuel C. Tseng, Ossining, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 4, 1970, Ser. No. 16,445

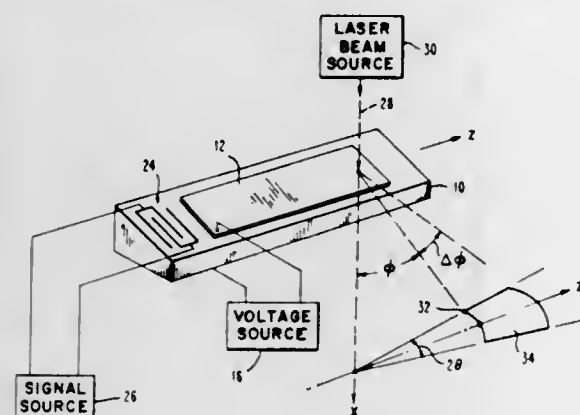
Int. Cl. G02f 1/16

U.S. Cl. 350-161

6 Claims

A system for deflecting a light beam in two dimensions is described. The system includes a piezoelectric crystal having

an acoustic surface wave transducer on its surface for propagating acoustic surface waves on the crystal. Means are provided for applying a nonuniform electric field to the crystal to vary the effective stiffness constant of the crystal in



a nonuniform manner. When a beam of laser light is directed onto the crystal it is deflected in one dimension as a function of the frequency of the acoustic wave produced by the transducer and in a second dimension as a function of the nonuniform electric field.

3,633,997

LIGHT-SOUND INTERACTION CELL

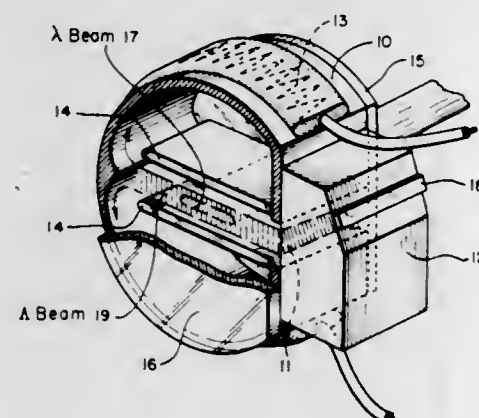
George W. Hrbek, 1501 East Sunset Terrace, Arlington Heights, Ill.

Filed Sept. 2, 1970, Ser. No. 68,833

Int. Cl. G02f 1/32

U.S. Cl. 350-161

3 Claims



A light-sound interaction cell which includes a liquid light-sound interaction medium is heated to a temperature above that of the ambient room temperature, to decrease loss of acoustic energy within the liquid. To further optimize the functioning of the cell, the region of the medium in which the light and sound are made to interact is isolated from the remainder of the medium by one or more baffles fixedly positioned within the medium.

3,633,998

OPTICAL FILTERING METHOD AND DEVICE FOR DATA PROCESSING

Bernard Bourrouilh, Maule, France, assignor to Entreprise de Recherches et d'Activités Pétrolières, Paris, France

Filed June 1, 1970, Ser. No. 42,262

Claims priority, application France, June 10, 1969, 6919089

Int. Cl. G02b 27/38

U.S. Cl. 350-162 SF

10 Claims

The invention concerns an optical method for processing information represented by the transparency of a two-dimen-

sional document such as a photographic record. Optical methods are known wherein the document is illuminated with a parallel beam of coherent monochromatic light and placed in the object plane of a convergent optical conversion system to form in a spectral plane the spectrum of the function that represents the transparency of the document. A



filter is placed in the spectral plane and an optical reconstitution system forms a filtered image of the document. According to the invention, the filter consists of a screen, the transparency of which varies over its surface as the autocorrelation function of the spectrum of the function that represents the transparency of the document.

3,633,999

REMOVING SPECKLE PATTERNS FROM OBJECTS ILLUMINATED WITH A LASER

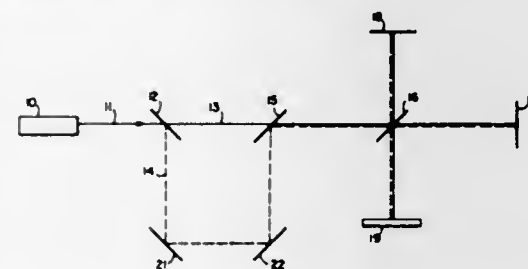
Richard G. Buckles, 491 Middle Court, Menlo Park, Calif.

Filed July 27, 1970, Ser. No. 58,320

Int. Cl. G02b 27/14

U.S. Cl. 350-171

2 Claims



This disclosure is directed to an apparatus and method of removing speckle patterns from objects illuminated with a laser. The laser beam is directed onto or through a beam divider or beam splitter to separate the laser beam into many separate laser beams such that speckle patterns cancel each other when reflected off a surface.

3,634,000

WIDE-ANGLE LENS COMPRISING EIGHT COMPONENTS

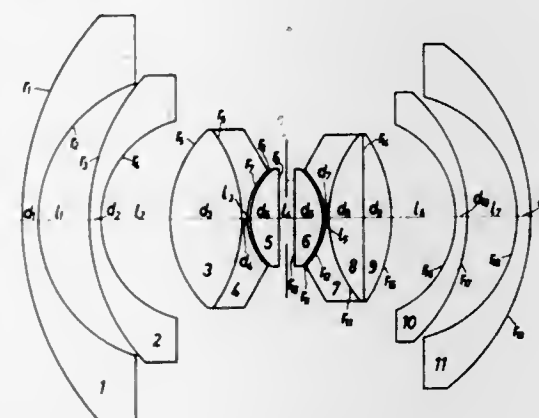
Eberhard Dietzsch, Jena, District of Gera, and Ernst Rumpold, Apolda, District of Erfurt, both of Germany, assignors to Veb Carl Zeiss Jena, Jena, Gera, Germany

Filed May 6, 1969, Ser. No. 824,023

Int. Cl. G02b 9/00, 9/08

U.S. Cl. 350-214

2 Claims



A wide-angle lens comprises eight components and has a relative aperture of 1:5.6 and an angular field of at least 120°. The object side and the image side of a convergent cen-

tral part of the lens are each faced by the concave sides of three divergent menisci.

3,634,001

MODIFIED GAUSS-TYPE LENS SYSTEM HAVING A LONG BACK FOCAL LENGTH

Kunio Shimada, Tokyo, Japan, assignor to Miranda Camera Company Limited, Tokyo, Japan

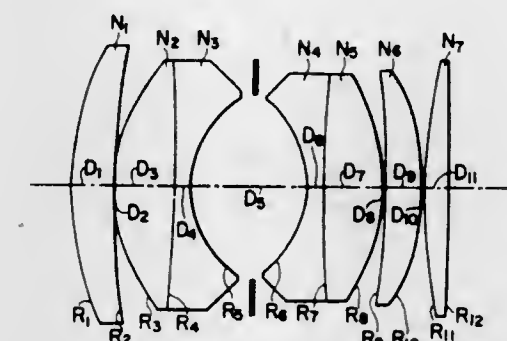
Filed June 8, 1970, Ser. No. 44,193

Claims priority, application Japan, June 7, 1969, 44/44531

Int. Cl. G02b 9/60

U.S. Cl. 350-217

6 Claims



A modified Gauss-type lens system having a long back focal length with a wide aperture is formed from seven lens elements chosen such that the Petzval sum is very small, preferably less than 0.15, and other aberrations are highly corrected. The lens system employs a minimum number of "new-type glass" lenses, which are expensive glass lenses containing rare-earth elements, and may include only one such lens.

3,634,002

REMOTE ELECTRICALLY CONTROLLED REARVIEW MIRROR

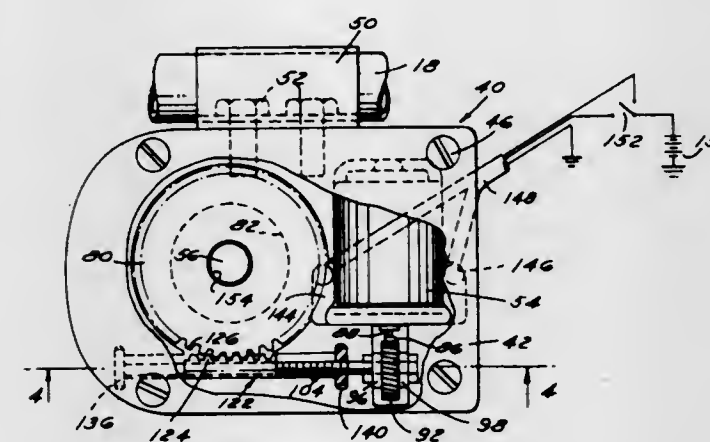
Arthur E. Vollrath, Southfield, Mich., assignor to Electronic Enterprises, Inc., Detroit, Mich.

Filed July 15, 1970, Ser. No. 55,175

Int. Cl. G02b 5/08

U.S. Cl. 350-289

2 Claims



The mirror assembly includes support structure for mounting on a vehicle. The support structure includes means for pivotally mounting a mirror thereon. Actuating mechanism

driven by a reversible electric motor is provided for changing the angular adjustment of the mirror. The actuating mechanism is mounted within a sealed-tight housing which is interiorly compartmentalized to snugly receive the various components of the actuating mechanism without use of fasteners or brackets, the structure permitting direct dropping of the components into the housing. The motor is energized by means of a switch remotely located, normally within the cab of the truck or bus on which the mirror assembly is mounted.

3,634,003

OPTICAL SYSTEM FOR IMAGING SCHEINER APERTURES IN AN OPTOMETER

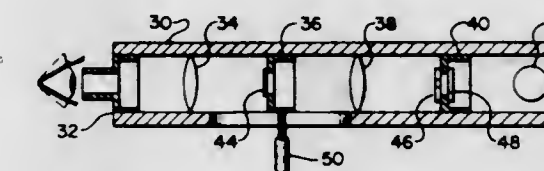
David Guyton, 5505 Huntington Parkway, Bethesda, Md.

Filed Jan. 2, 1970, Ser. No. 235

Int. Cl. A61b 3/00, 3/02

U.S. Cl. 351-17

7 Claims



In an optometer of the type employing Scheiner apertures, an optical system is disclosed for projecting those apertures into a plane proximate to the eye, most commonly the plane of the pupil. According to the arrangement of the system, the plane of projection of the apertures and the plane of refraction, that is, the vertex distance of refraction, are separable.

3,634,004

FRONT PROJECTION COMPOSITE CINEMATOGRAPHY

Thomas W. Howard, Bushey, England, assignor to Metro-Goldwyn-Mayer British Studios Limited, Boreham Wood, Hertfordshire, England, a part interest

Filed May 8, 1968, Ser. No. 727,496

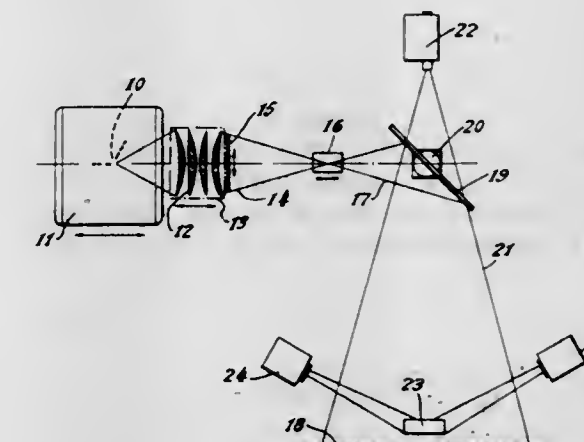
Claims priority, application Great Britain, May 11, 1967,

21,987/67

Int. Cl. G03b 21/32

U.S. Cl. 352-47

11 Claims



A projection system in the process of composite cinematography is known as front projection. A background scene is projected on to a screen using a projector in which the light source and condenser system are located in separate

housings so that the condensers can be positioned to give large screen projection without reduction in photographic quality. A mobile unit is also provided on which the projector, lens, mirror and camera are adjustably mounted in spaced relationship. The slide holder may be adjustably mounted on the condenser housing to give a movable background scene.

3,634,005

MICROFICHE READER

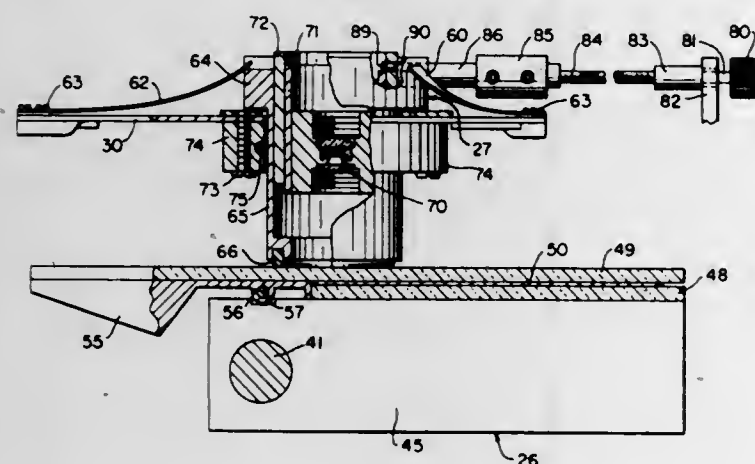
Arnis E. Peters, La Crosse, and Lyle G. Miles, West Salem, both of Wis., assignors to The National Cash Register Company, Dayton, Ohio

Filed Aug. 21, 1969, Ser. No. 851,858

Int. Cl. G03b 3/10

U.S. Cl. 353-101

15 Claims



Apparatus for holding a projection lens assembly of a reader in precise position relative to a transparency, the transparency being a platelike film containing a plurality of reduced images thereon. The lens assembly includes a condenser-type lens for magnifying and for projecting the image in an enlargement thereof onto a screen for viewing the enlarged image, the lens assembly being maintained against the surface of a predetermined image plane by reason of a lens-containing tracking sleeve being spring-urged into contact with the image plane. The lens assembly is spaced from a supporting member by ring means surrounding the tracking sleeve, which permits pivotal action at the nodal point of the lens, to maintain the axis of the lens assembly perpendicular to the image plane for all image-projecting positions of the transparency.

3,634,006

MACHINE FOR PRODUCING PLATES AND PRINTS FROM MICROFILM

Henry C. Hollwedel, Jr., San Francisco, Calif., assignor to George Lithograph Company, San Francisco, Calif.

Filed Mar. 11, 1970, Ser. No. 18,421

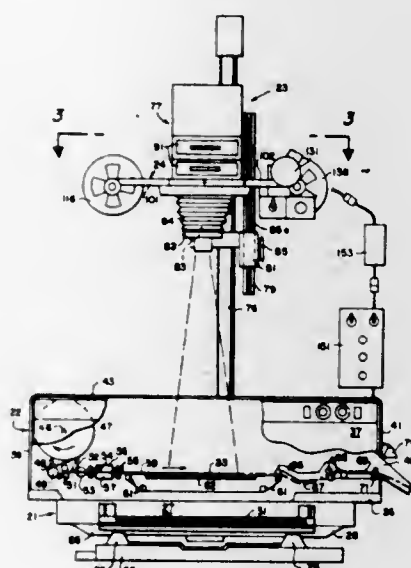
Int. Cl. G03g 15/00

U.S. Cl. 355-3

7 Claims

A machine for making printing plates or prints from positive or negative microfilm rolls has a table movable horizontally in two directions to adjust the position of a portion of an electrostatic copier which rests thereon. The copier has a paper cutter, transport, corona charger, exposure positioner, developer, squeegee, dryer and discharge but omits the scanner and associated elements normally employed in such machine. Above the copier is a photographic enlarger having its film holder replaced by apparatus which accurately advances microfilm frame by frame. The image of each frame is

formed upon a cut sheet of copy paper at rest on the exposure positioner. The exposed sheet is then developed as the



next sheet is advanced to exposure position and the next frame is advanced in the microfilm advance apparatus.

3,634,007

CONDITIONING EQUIPMENT FOR THE COPY PAPER SUPPLY IN COPYING MACHINES

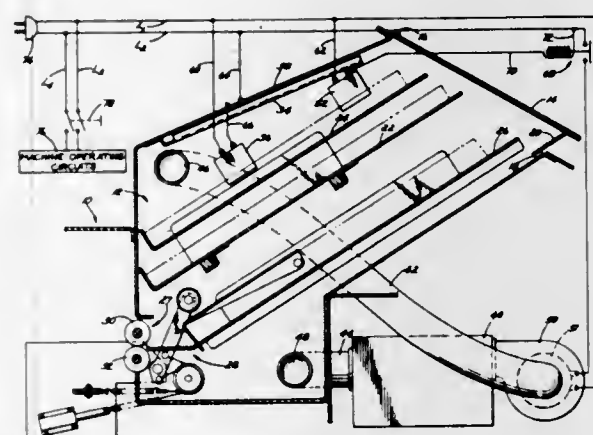
Joseph A. Verderber, Lyndhurst; James A. Fortcamp, Middleburg Heights, and James A. Kolibas, Broadview Heights, all of Ohio, assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Oct. 2, 1969, Ser. No. 863,070

Int. Cl. G03b 27/00

U.S. Cl. 355-3

2 Claims



A machine of the photoelectrostatic copying-type, including a relatively small, confined chamber in which photoconductive sheet material is placed for automatic feeding into the machine. A system is provided for conditioning the atmosphere in the chamber to maintain it at a predetermined level of relative humidity to keep the photoconductive material from becoming distorted and damaged.

3,634,008

AUTOMATICALLY ADJUSTING MOUNTING MEANS FOR STUDIO PICKUP DEVICES

Dexter Robert Plummer, Leicester, and John Denzil Barr, Oadby, both of England, assignors to The Rank Organisation Limited, London, England

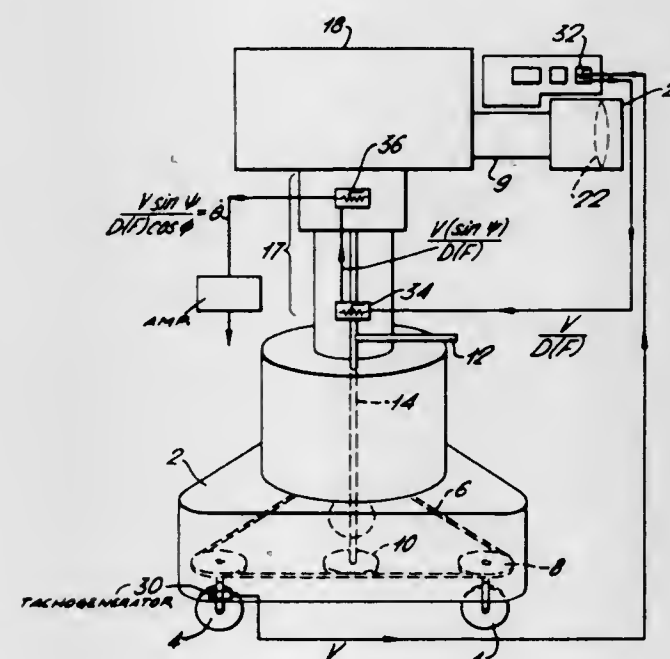
Filed May 17, 1968, Ser. No. 729,953

Claims priority, application Great Britain, May 18, 1967, 23,236/67

Int. Cl. H04m 5/24

U.S. Cl. 355-56

11 Claims



A pickup device such as a camera or a microphone is adjustably mounted on a movable support. Signal-generating means on the support provide signals representing the movement of the support with respect to a subject of the pickup device and these signals are combined to provide a vector displacement signal. A control system mounted on the support receives the vector displacement signal and uses it to adjust the pickup device so that a predetermined relationship between the pickup device and the subject is maintained irrespective of movement of the support or the subject.

3,634,009

METHOD AND PINNING DEVICES FOR ACCURATELY REGISTERING ART MASTERS IN A VACUUM FRAME UNIT AND A PHOTOCOMPOSITION UNIT

David G. Van Dusen, Cresskill; Robert F. Lindahn, Oakland, and James J. O'Connor, Old Bridge, all of N.J., assignors to The Bendix Corporation

Filed Oct. 8, 1969, Ser. No. 864,843

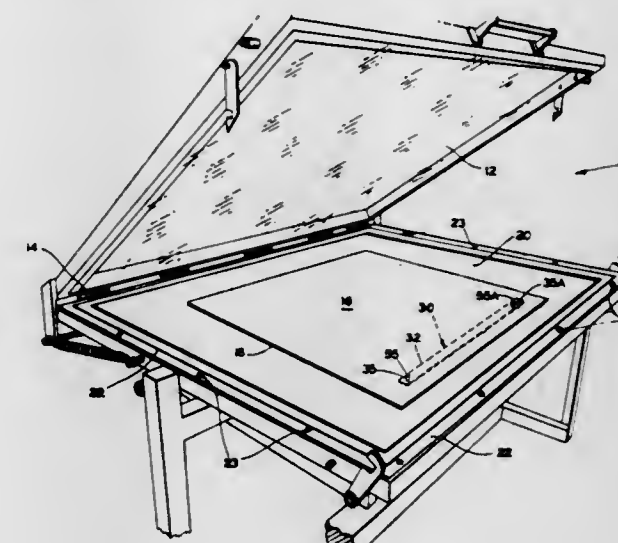
Int. Cl. G03d 3/08

U.S. Cl. 355-93

7 Claims

Method and pinning devices for accurately registering art masters in operative relation in vacuum frame and photocomposition units for use in conjunction one with the other and in which the vacuum frame unit includes an improvement in the provision of a metal strip cemented to an underside of a resilient rubber mat of the vacuum frame unit, together with two locating pins projecting from the strip and through the rubber mat. The locating pins are spring loaded and sealed in cylinders brazed to the strip and project through openings formed in a baseplate of the vacuum frame unit, while the spring loaded pins in the cylinders are arranged so as to project through the mat and through holes accurately punched in a corresponding relation in photosen-

sitive sheets of film of art masters to effectively locate the sheets of film in extremely accurate relation one to the other



on the mat so as to facilitate repeated accuracy in the development of such art work.

3,634,010

ENTRY DEVICE FOR REPRODUCTION MACHINE

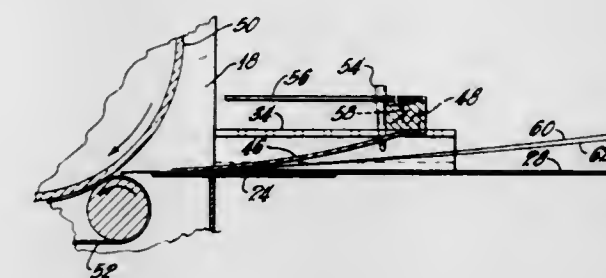
Wilber B. Robnolte, 920 East Elm St., Lima, Ohio

Filed Oct. 21, 1970, Ser. No. 82,738

Int. Cl. G03b 27/02

U.S. Cl. 355-97

10 Claims



An entry device is provided for a reproduction or copying machine, particularly of the type capable of copying large sheets of material. The entry device is mounted on a feed table adjacent an entry opening into the machine. The device includes a pair of supports located adjacent the ends of the entry opening with a bar supported at its ends by the supports and located above the table surface. An entry strip having an edge affixed to the bar has a forward edge extending near or into the opening. The strip flattens and smooths sheet material being fed into the machine and also supports material coming out of the machine above the feed table so that new sheet material can be fed into the machine as other material is emerging.

3,634,011

OPTICAL RANGE FINDER

Karl O. R. Scholdstrom, Lidings, Sweden, assignor to Aga Aktiebolag, Lidings, Sweden

Filed Nov. 10, 1969, Ser. No. 875,407

Claims priority, application Sweden, Dec. 19, 1968, 17510/68

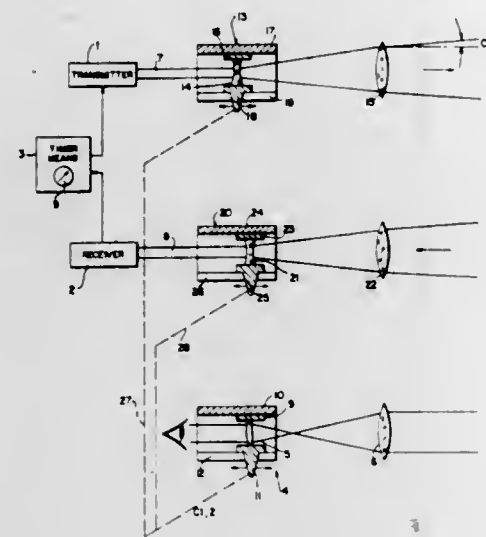
Int. Cl. G01c 3/08

U.S. Cl. 356-5

4 Claims

An optical rangefinder in which light transmitted to and reflected from a distant object is compared to determine that

distance, is improved by providing means to adjust the divergence of the beam of transmitted or reflected light or both to facilitate impingement of the light beam on the object, on the



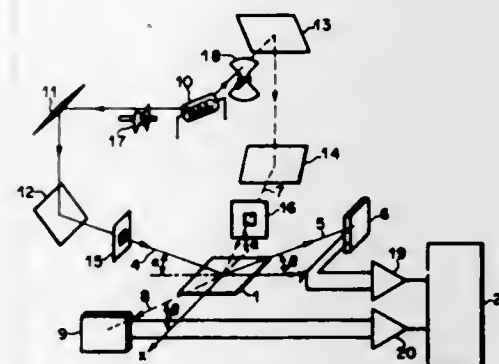
receiver, or both. The improvement is particularly useful in devices which employ a laser light source, particularly a gas laser light source, which transmits a very narrow beam of parallel light.

3,634,012
METHOD AND APPARATUS FOR EXAMINING
INTAGLIO PRINTING
Rudolf Mustert, Brunnenmattstrasse 6, Oberwil/Zug, Switzerland

Filed Apr. 14, 1970, Ser. No. 28,443
Claims priority, application Switzerland, Apr. 16, 1969,
5724/69
Int. Cl. G06k 5/00

U.S. Cl. 356-71

9 Claims



An optical technique for examining a printed surface to ascertain if it has been printed in accordance with an intaglio printing process, wherein a portion of the embossed printed surface is alternately illuminated in directions longitudinal with and transverse to the embossed surface, the reflected light is detected by light-sensitive devices and the responses of the devices are compared to establish the authenticity of the printed surface.

CHEMICAL

3,634,013
AQUEOUS COUPLED HYDRAZONO HAIR-DYEING
COMPOSITION AND PROCESS
Rudolf Maul, Bensheim, and Rolf Rehberg, Düsseldorf, both of Germany, assignors to Therachemie chemisch-therapeutische Gesellschaft m.b.H., Düsseldorf, Germany

Filed May 26, 1969, Ser. No. 827,924
Claims priority, application Austria, May 30, 1968,
A5206/68
Int. Cl. D06p 1/32

U.S. Cl. 8-11

9 Claims

Compositions for dyeing hair comprising a coupling agent and a substituted or unsubstituted 5- or 6-member heterocyclic compound containing a hydrazono group at position 2, 3 or 4, with respect to the hetero atom.

3,634,014
ATMOSPHERIC PRESSURE DYEBOARDING PROCESS
Martin S. Maltenfort, Blue Ball Road, Route 3, Elkton, Md.
Filed June 30, 1969, Ser. No. 837,874
Int. Cl. D06p 5/00

U.S. Cl. 8-18

3 Claims

The dyeing of textile materials by first contacting the same with a liquid dye bath which may be either aqueous or essentially nonaqueous and which is maintained at an elevated temperature and then passing the dyed textile goods through a bath of molten metal maintained at a sufficiently elevated temperature that the aqueous portion of the dye bath liquid retained in the goods is converted to vapor and is completely reacted with the goods before the dyed goods leave the bath of molten metal, whereby the goods are expeditiously dyed and the dye liquid is completely exhausted without recourse to the use of superatmospheric pressures. Furthermore, the spent dye liquid no longer presents a pollution problem in the form in which it is discharged from the process.

3,634,015
DISPERSION OF AZOBENZENE COMPOUNDS AND
AMMONIUM HYDROXY-NAPHTHOIC ACID SALTS IN AN
AQUEOUS DYE COMPOSITION
Jarvis K. Lauderback, and George F. Converse, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 11, 1970, Ser. No. 45,539
Int. Cl. D06p 3/68

U.S. Cl. 8-46

4 Claims

An aqueous dye composition useful for dyeing cellulose acetate textile materials black contains a 4-amino-4'-[di-(β-hydroxyethyl)amino]azobenzene compound and a salt of 2-hydroxy-3-naphthoic acid and mono- or di-ethanolamine.

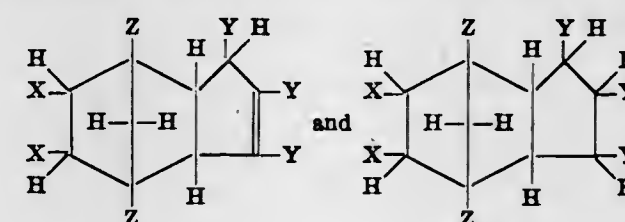
3,634,016
PROCESS FOR DYEING NATURAL AND SYNTHETIC
POLYAMIDE FIBERS WITH ACID DYESTUFF AND
COMPOSITION THEREFOR
John L. Rose, Jr., and Richard L. Smith, both of Chattanooga, Tenn., assignors to Velsicol Chemical Corporation

Filed Aug. 10, 1970, Ser. No. 62,687
Int. Cl. D06p 3/14

U.S. Cl. 8-54

13 Claims

Composition and method for dyeing natural proteinaceous and synthetic polyamide fibers, particularly silk, wool and nylon, utilizing as dye assistants compounds of the formula



wherein one X is hydroxy and the second X is hydrogen or methyl, wherein each Y and Z are independently selected from the group consisting of hydrogen and methyl provided that a maximum of one X and Z is methyl and a maximum of one Y is methyl.

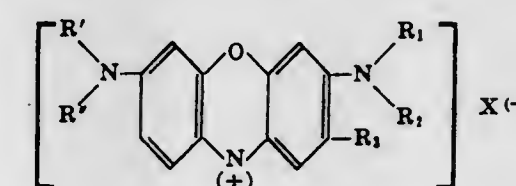
3,634,017
OXAZINE DYE CONCENTRATE WITH POLYETHYLENE
OXIDE
Norbert Ottawa, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Dec. 10, 1968, Ser. No. 782,725
Claims priority, application Germany, Sept. 27, 1968, P 17
94 248.2
Int. Cl. C09b 67/00

U.S. Cl. 8-93

2 Claims

Stable, concentrated, aqueous solutions of basic oxazine dyestuffs of the formula



in which R' and R'' represent lower alkyl groups, R₁ and R₂ represent hydrogen atoms or lower alkyl groups or phenyl unsubstituted or substituted in the benzene nucleus by methyl, methoxy or ethoxy groups, R₃ represents hydrogen or methyl, and X⁻ represents a halogen ion, consisting essentially of (a) the hydrochlorides of the said oxazine dyestuffs and (b) high molecular polyglycols in an amount of about 2 to about 20 percent by weight calculated on the weight of the dyestuff.

3,634,018
DURABLE-PRESS ALL-COTTON FABRICS THROUGH
TREATED FIBER BLENDING WITH UNTREATED FIBER
Jett C. Arthur, Jr., Metairie, and James A. Harris, Pearl River, both of La., assignors to The United States of America as represented by the Secretary of Agriculture
Filed July 9, 1970, Ser. No. 53,704
Int. Cl. D06g 3/04; D06m 13/54, 13/52

U.S. Cl. 8-116

1 Claim

Raw stock and lint cotton in various stages of machine processing, through roving, were submitted to demotizing, irradiation with gamma rays, graft-polymer deposition, blending with untreated similar cotton, constructed into a fabric, and finally cross-linked with chemical reagents. These "all-cotton" fabrics have good durable press properties which can compare favorably against cotton-synthetic blends, generally blended on a yarn to yarn basis.

3,634,019
METAL ACETATE-ACIDIC CATALYST SYSTEM FOR
CELLULOSIC FABRIC TREATMENT
Warren L. Beaumont, Salisbury, and Michael Richard Cusano, Charlotte, both of N.C., assignors to Proctor Chemical Company, Inc., Salisbury, N.C.

Filed Sept. 14, 1967, Ser. No. 667,671
Int. Cl. D06m 13/12, 13/34

U.S. Cl. 8-116.3

5 Claims

High strength losses in cellulosic fabrics when treated by a pad, dry and cure technique with nitrogen-containing creaseproofing agents to produce durable press properties are avoided by eliminating a major part of the usual acidic catalyst and adding at least an equal amount of zinc acetate or aluminum acetate.

3,634,020

PERACID TREATMENT OF KERATINOUS FIBERS
William E. Helmick, Norton, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 19, 1969, Ser. No. 886,736

Int. Cl. D06l 3/02

U.S. Cl. 8-111

9 Claims

Keratinous fibers, e.g., wool, are treated with organic solutions of organic peracids such as peracetic acid to effect shrinkproofing and also bleaching.

3,634,021

MODIFICATION OF CELLULOSIC FIBERS WITH ETHYLENICALLY UNSATURATED COMPOUNDS
Edgar Dare Bollinger, and Greville Machell, both of Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Continuation of application Ser. No. 242,604, Dec. 6, 1962, now abandoned. This application July 17, 1968, Ser. No. 747,015

Int. Cl. D06m 1/24; D06f

U.S. Cl. 8-116

4 Claims

Cellulosic textile materials are reacted with ethylenically unsaturated compounds which, in polymer or copolymer form, have a glass transition temperature in excess of 50° C. to produce a material which may be set under heating conditions in a desired configuration which is durable to the effects of wetting with water.

3,634,022

FORM-SETTING KERATIN SUBSTRATES BY A CHEMICAL TREATMENT INVOLVING A VINYL MONOMER

Clarence R. Robbins; Seymour Grey, both of Piscataway, and George V. Scott, Scotch Plains, all of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed May 29, 1969, Ser. No. 829,116

Int. Cl. A61k 7/10

U.S. Cl. 8-127.51

20 Claims

A process for form setting into a desired physical configuration as keratinous substrate such as hair, wool and the like which has been modified by a chemical treatment involving the use of olefinically unsaturated compounds comprising wetting the substrate, placing it into the desired physical configuration, and then drying it while in said configuration. This form-setting procedure may be repeated many times on the treated substrate.

3,634,023

SURFACE FINISH FOR NYLON MONOFILAMENT
Danny R. Foote, Spirit Lake, Iowa, assignor to Berkley & Company, Inc., Spirit Lake, Iowa

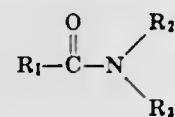
Filed Mar. 28, 1969, Ser. No. 811,570

Int. Cl. D06m 13/40

U.S. Cl. 8-130.1

8 Claims

A technique for improving the physical properties of nylon filamentary products, in particular nylon monofilament, which includes the treating of such filamentary products with a composition having the structural formula:



wherein R₁ represents an aromatic or an aliphatic radical selected from the group consisting of benzyl, tolyl, xylyl and naphthyl radicals, and cyclohexyl and alkyl substituted cyclohexyl radicals; R₂ represents a radical selected from the group consisting of hydrogen and alkyl groups having from one to 10 carbon atoms; and R₃ represents an alkyl group having from one to 10 carbon atoms. Compositions falling

within the scope of the structural definition function as a surface plasticizer and is preferably applied as a film to the surface of the nylon filamentary material. As an alternative, particularly when the composition is in the solid state at ordinary ambient conditions, this material may be added to molding pellets or powder prior to the drawing of a filament therefrom. One particularly useful composition for this treatment is N,N-diethylmeta-toluamide.

3,634,024

DESIZE-SCOURING OF TEXTILES WITH ALKALINE PEROXYDIPHOSPHATE SOLUTIONS

Robert E. Yellin, Willingboro, and Ralph F. Villiers, Trenton, both of N.J., assignors to FMC Corporation, New York, N.Y.

Filed Aug. 21, 1970, Ser. No. 66,055

Int. Cl. D06l 1/14

U.S. Cl. 8-138

2 Claims

Sized textiles are desize-scoured with aqueous alkaline solutions of peroxydiphosphates.

3,634,025

WATER STERILIZER

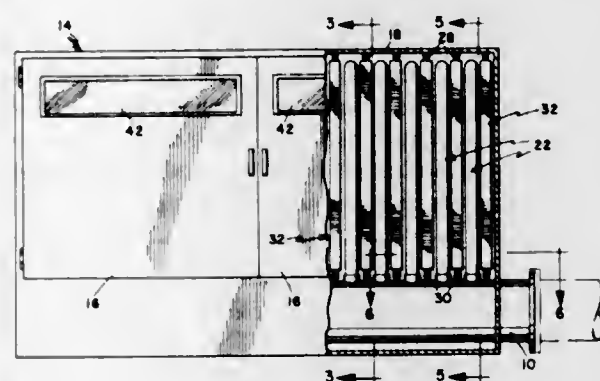
Alfred Landry, 7589 Calvocado, Lemon Grove, Calif.

Filed Nov. 20, 1969, Ser. No. 878,427

Int. Cl. A61l 3/00

U.S. Cl. 21-102

9 Claims



The water sterilizer is proposed for large-volume, continuous flow operation with spaced banks of transparent irradiation media flow tubes of nonstick material fixed within a cabinet. The tubes are nested in interdigitated loops in each bank. Between the banks of fixed tubes are multiple germicidal lamps and reflectors mounted on frames slidable between the banks of tubes and slidable out of the cabinet for inspection and replacement of the lamps.

3,634,026

APPARATUS AND METHOD THERMAL REGENERATIVE GAS PROCESSING

William L. Kuechler, Jenkintown, and Lyle E. McCoy, Norristown, both of Pa., assignors to Proctor & Schwartz, Inc., Philadelphia, Pa.

Filed July 25, 1969, Ser. No. 844,995

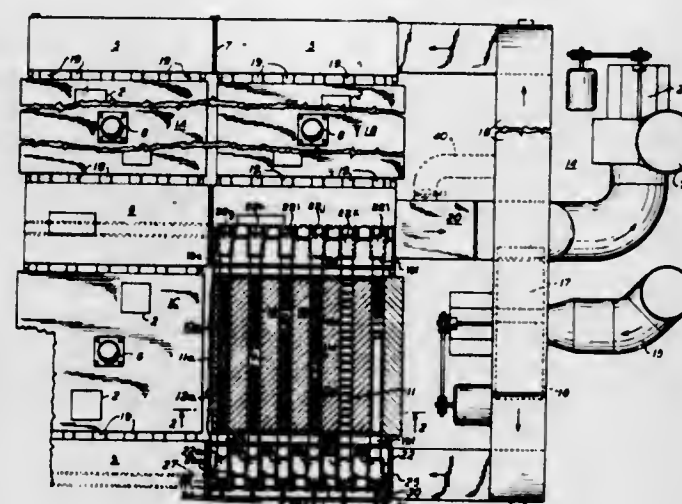
Int. Cl. B01d 53/34; F23g 7/06

U.S. Cl. 23-2 C

12 Claims

An integrated incinerator and heat exchanger unit of modular construction capable in conjunction with other units or alone of efficiently removing pollutants carried by the exhaust gas flow of an industrial system. The unit comprises a boxlike enclosure having a series of internal flues each containing a static, heat exchange, packed bed of particulate material and being in flow communication with the other flues of a unit through a common chamber, the chamber including one or more burners for heating the beds, each unit having a common inlet duct and a common outlet duct with

flow control means therein to permit predetermined entry and exit of flow into and out of respective flues, the unit being capable of burning out trapped solids in the heated beds by means of temporary isolation of their respective



flues, and the unit including a self-limiting ambient air entry for each flue to purge its bed and improve incineration efficiency.

3,634,027

METHOD OF PREPARING HIGH-PURITY ZIRCONIUM OXIDE

Robert J. Champetier, Gardena, and Hung-Kuen A. Kan, Palos Verdes, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Dec. 29, 1970, Ser. No. 102,538

Int. Cl. C22b 59/00

U.S. Cl. 23-20

9 Claims

A high-purity zirconium oxide white pigment is prepared by (1) precipitating zirconium oxychloride from a solution thereof in hydrochloric acid, (2) separating and washing the precipitated zirconium oxychloride, (3) heating the washed zirconium oxychloride in an atmosphere of carbon tetrachloride to a temperature sufficient to remove occluded liquids, (4) continuing to heat the zirconium oxychloride to a temperature at which it vaporizes, (5) contacting the vapors with a cool surface, thereby causing the vapors to condense, (6) recovering the sublimate from the cool surface, and (7) slowly heating the sublimate to an elevated temperature in an oxygen-containing atmosphere, thereby providing a fine powder of monoclinic zirconium oxide. The zirconium oxide product is useful as a pigment, particularly in solar reflector coating formulations.

3,634,028

PROCESS FOR REMOVING SULFUR FROM GASES

Reinhard Hohne, Neu Isenburg, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Oct. 23, 1967, Ser. No. 677,157

Claims priority, application Germany, Oct. 27, 1966, M 71460

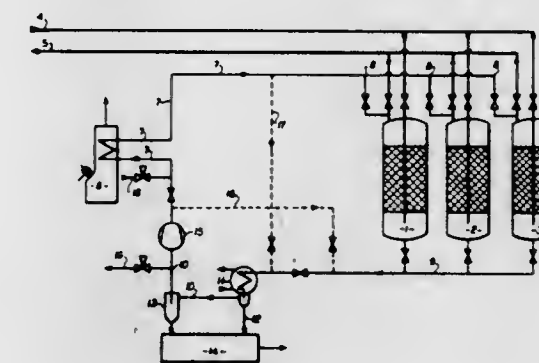
Int. Cl. B01d 53/34, 53/16

U.S. Cl. 23-2 S

6 Claims

Use of activated carbon; having a steep absorption isotherm, that is carbon having a surface area of about 1,200 to 1,500 square meters per gram, a most frequent (median) pore radius of about 4 to 12 angstroms, a micropore (less than 100-angstrom diameter) volume of about 0.8 cubic cen-

timeters per gram, and a bulk density of up to about 350 grams per liter, as adsorbent for sulfur in sulfur-containing



gases; and to regeneration of the adsorbent by treatment thereof with hot, at least about 280° C., inert gases.

3,634,029

PRODUCTION OF FEED GRADE DICALCIUM PHOSPHATE FROM MIXTURES OF PHOSPHORIC AND NITRIC ACIDS

Robert Amanrich, Toulouse, France, assignor to Office Nationale Industriel De L'Azote, Toulouse, France

Filed Nov. 7, 1968, Ser. No. 774,136

Claims priority, application France, Nov. 7, 1967, 127142; Nov. 25, 1967, 129131

Int. Cl. C01b 25/32

U.S. Cl. 23-109

11 Claims

Feed grade dicalcium phosphate is produced from mixtures of phosphoric and nitric acids wherein the H₃PO₄/HNO₃ molar proportion ranges from 0.5 to 9.0, the phosphate being precipitated by means of a calcium compound, with addition of ammonia to keep the pH at 6 to 7, in the presence of 5 to 35 percent, desirably 10 to 25 percent, by weight of C₁ to C₈ aliphatic alcohol(s). The invention can be applied to solutions produced by extraction by means of C₁ to C₈ aliphatic alcohol(s) resulting from the decomposition of natural phosphates with nitric acid, and the extraction and the dicalcium phosphate production stages can be carried out concomitantly.

3,634,030

PROCESS FOR THE PREPARATION OF FERROMAGNETIC CHROMIUM OXIDE BY REMOVING WATER BEFORE COOLING SYNTHESIS MIXTURE

Joseph H. Balthus, Jr., Mendenhall, Pa., and Walter W. Gilbert, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 18, 1969, Ser. No. 859,170

Int. Cl. C01g 37/02; C04b 35/00

U.S. Cl. 23-145

10 Claims

In the preparation of ferromagnetic chromium oxide in aqueous media the removal of water after reaction is complete, but before the reaction mixture is cooled below 225° C.

3,634,031

PROCESS FOR THE PREPARATION OF NITRIC ACID OF DIFFERENT CONCENTRATIONS

Lars Hellmer, and Wolfgang Nolle, both of Berlin, Germany, assignors to Pintsch Bamag Aktiengesellschaft, Berlin, Germany

Filed Aug. 11, 1969, Ser. No. 849,023

Claims priority, application Germany, Mar. 28, 1969, P 19 16 814.0

Int. Cl. C01b 21/40

U.S. Cl. 23-160

9 Claims

A process for the preparation of nitric acid of different concentrations, and preferably of a concentration below 75 percent (weak acid) and of about 98 percent (highly concentrated acid) comprising oxidizing catalytically ammonia and air under pressure to form nitrous gas, oxidizing the NO con-

tained in the gas in a first oxidation step with subsequent chemical absorption of the oxidized NO into a nitric acid obtained in a preceding covering step, whereby a weak nitric acid is formed, and oxidizing the NO remaining in the nitrous gas in a second oxidation step completely to NO₂, removing the NO₂ from the gas by physical absorption into highly concentrated nitric acid, separating the NO₂ from the nitric acid, liquefying the NO₂ and oxidizing the liquefied NO₂ with aqueous nitric acid to obtain highly concentrated nitric acid.

3,634,032

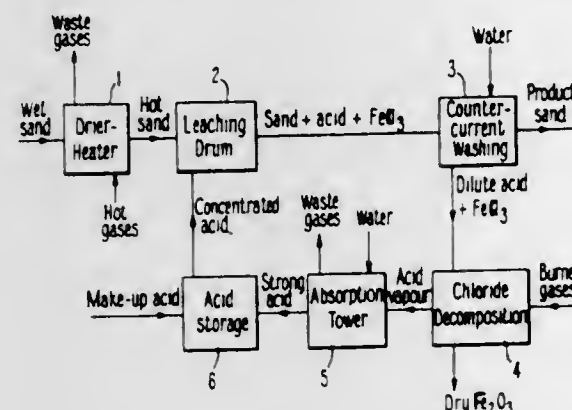
PURIFICATION OF SAND

Herbert Daymond Segrove, Purley, England, assignor to British Industrial Sand Limited, Surrey, England
Filed Sept. 9, 1969, Ser. No. 856,437

Claims priority, application Great Britain, Sept. 17, 1968, 44,197/68

Int. Cl. C01b 33/12

U.S. Cl. 23—182 P



This invention relates to the purification of sand containing iron or iron compound impurities. The sand to be purified is contacted with concentrated hydrochloric acid which dissolves the impurities and the purified sand is freed from the unreacted acid and reaction products. This unreacted acid and the reaction products are then heated, giving hydrogen chloride gas and a decomposition product which is sent to waste. The hydrogen chloride gas is converted to concentrated hydrochloric acid which is then used to purify fresh sand.

3,634,033

METHOD FOR THE PRODUCTION OF SINGLE CRYSTALS

Charles T. Butler, and Bernard J. Sturm, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed June 10, 1970, Ser. No. 45,087

Int. Cl. C01f 5/02, 11/02

U.S. Cl. 23—201

9 Claims

An improved arc-fusion method for the production of high-quality single crystals at comparatively low cost. An arc is established in a first refractory sinterable powder pack to form a first internal cavity. A port is formed in the wall of the pack, and a second powder pack is formed within the cavity, this second pack consisting of a selected refractory sinterable powder from which single crystals are to be obtained. An arc is established in the second pack to melt only an internal portion thereof, forming a second internal cavity. Molten material derived from the second pack collects in the second cavity, cooling and crystallizing therein. A port is formed for withdrawal of the crystallized material, from which single crystals subsequently are harvested. The second cavity may be so used in additional crystal-growing runs.

3,634,034

PROCESS FOR PREPARING PHOSPHORUS PENTAFLUORIDE AND FLUOROPHOSPHORIC ACIDS

John D. Nickerson, and Robert A. Wiesboeck, both of Atlanta, Ga., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Feb. 2, 1968, Ser. No. 702,548

Int. Cl. C01b 25/10

U.S. Cl. 23—205

11 Claims

Phosphorus pentafluoride and fluorophosphoric acids are prepared from a fluoride salt, phosphoric acid or monofluorophosphoric acid, and sulfur trioxide by heating the mixture to evolve phosphorus pentafluoride and/or fluorophosphoric acid gases, and recovering the gases.

3,634,035

CONTINUOUS PRODUCTION OF UNIFORM GRAPHITE FIBERS

Dagobert E. Stuetz, Westfield; Leo R. Belohlav, Berkeley Heights, both of N.J., and Arthur M. Reader, Greenville, S.C., assignors to Celanese Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 614,811, Feb. 9, 1967, now abandoned. This application Apr. 28, 1969, Ser. No. 820,008

Int. Cl. C01b 31/04, 31/07

U.S. Cl. 23—209.1

18 Claims

A rapid continuous process is provided for the conversion of a predominantly amorphous carbonaceous fibrous material containing at least 75 percent carbon by weight (preferably at least 90 percent carbon by weight) to a uniform fibrous material of predominantly graphitic carbon. The carbonaceous fibrous material is passed through a reducing flame which imparts a minimum fiber temperature of at least 1,900° C. while the fibrous material is under tension at least sufficient to prevent visible sagging. In a preferred embodiment of the invention, the reducing flame is generated by a fuel-oxidant mixture, e.g. an acetylene and oxygen mixture. Long lengths of graphite yarns having substantially uniform properties, e.g. graphitic composition, Young's modulus, and tenacity, may be produced through the use of the present process.

3,634,036

NITRO-SUBSTITUTED EPOXY POLYMERS AND THE PYROLYZED PRODUCTS THEREOF

Gerald J. Fleming, Bowie, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 10, 1969, Ser. No. 805,836

Int. Cl. C08g 30/14, 35/12; C04b 35/52

U.S. Cl. 23—209.2

10 Claims

Nitrosubstituted epoxy polymers which are the reaction products of (1) a nonnitrosubstituted epoxy resin cured with a nitrosubstituted curing agent or (2) a nitrosubstituted epoxy resin cured with a conventional nonnitrosubstituted curing agent for that purpose or (3) a nitrosubstituted epoxy resin cured with a nitrosubstituted curing agent and the pyrolyzed products of these systems.

3,634,037

TREATMENT OF A WATER STREAM CONTAINING AMMONIUM SULFIDE SALTS

Robert J. J. Hamblin, Deerfield, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 23, 1968, Ser. No. 786,171

Int. Cl. C01b 17/00; C01c 1/20

U.S. Cl. 23—224

9 Claims

A water stream containing NH₄HS is treated to produce elemental sulfur, an ammoniacal aqueous stream and a treated water stream by the steps of: (a) catalytically treating the water stream with an airstream to produce an effluent stream containing ammonium polysulfide, N₂ and unreacted NH₄HS; (b) separating the effluent stream from step (a) into

a vent gas stream and a water stream; (c) decomposing the polysulfide contained in the water stream from step (b) to produce a vapor stream and a bottom stream containing elemental sulfur; (d) separating sulfur from the bottom stream from step (c) to form a treated water stream; (e) recovering a first portion of the treated water stream from step (d) as a product stream; (f) using a second portion of the treated water stream from step (d) to scrub the vent gas stream from step (b) in order to remove NH₃ and H₂S therefrom; (g) fractionating the overhead vapor stream from step (c) and the bottom stream from the scrubbing step to form an ammoniacal aqueous overhead stream and an aqueous bottom stream containing essentially all of the unreacted sulfide present in the effluent stream from the treating step; and, (h) recycling the bottom stream from step (g) to step (a). Key feature is the use of a scrubbing step on the vent gases from the treating step operated at a relatively low pressure and a relatively high-liquid gas loading, coupled with a combination scrubbing and fractionating step on the bottom stream from the scrubbing step and on the vapor stream from the polysulfide decomposition step. This combination scrubbing and fractionating step is operated at a relatively high pressure, thereby increasing the amount of H₂S that can be absorbed. The principle advantages of the resulting process are significant improvements in the amount of ammonia and sulfur recovered and a substantial simplification of the overall process.

3,634,038

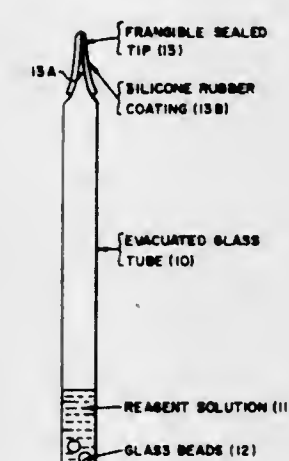
DEVICE FOR THE QUANTITATIVE COLORIMETRIC ANALYSIS OF FLUIDS

Gordon A. Rampy, 3 Brentwood Circle, Nitro, W. Va.
Filed Sept. 10, 1969, Ser. No. 856,787

Int. Cl. G01n 31/22

U.S. Cl. 23—253 R

8 Claims



A device for quantitative colorimetric analysis of fluids which consists of a transparent tube of predetermined size with a single frangible tip, containing a liquid colorimetric reagent and evacuated to a predetermined degree to insure that on immersion of the frangible tip in the fluid to be analyzed, followed by fracture of the tip, a predetermined quantity of sample will be forced into the tube so that on mixing of the contents color will be developed proportionately to the concentration of the material being analyzed for in the sample fluid. The amount of material being analyzed for can then be ascertained by comparison with a color chart or a set of color tubes.

3,634,039

BLOOD TESTING MACHINE

Thomas L. Brondy, 316 South Home Ave., Oak Park, Ill.

Filed Dec. 22, 1969, Ser. No. 886,875

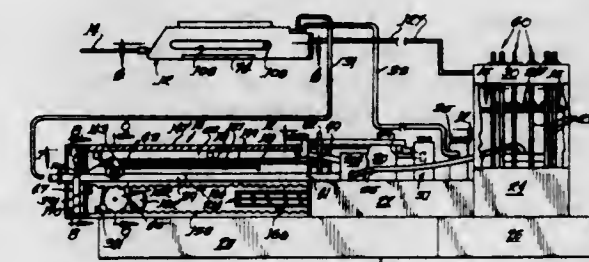
Int. Cl. G01n 31/00, 33/16, 11/18

U.S. Cl. 23—259

12 Claims

A portable blood testing machine causes a blood sample to be drawn from a patient and performs a preselected number

of different tests on the blood sample. The machine includes a suction device for drawing the blood sample from the patient into the machine, an input control device for determining the amount of the blood withdrawn, a pair of electrically energized electrodes for coagulating the blood, a dialyzer for



separating the blood serum from the blood solids and a device for automatically diverting the serum into a preselected number of testing components which test the serum by means of laser spectroscopy.

3,634,040

METAL EXPLOSION APPARATUS

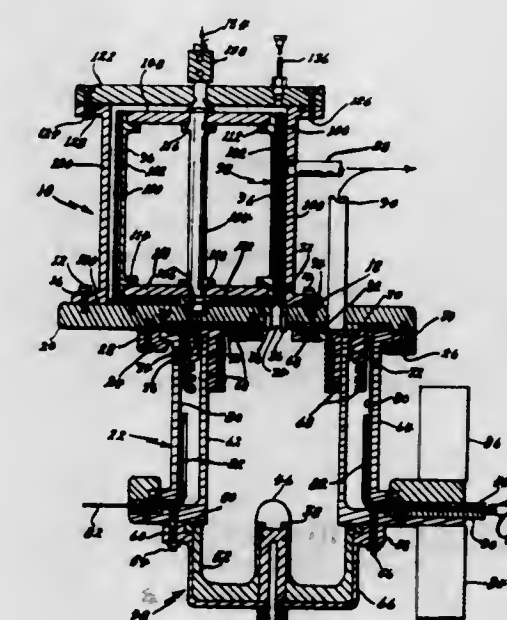
Richard L. Johnson, Manhattan Beach, and Bernard Siegel, Palos Verdes Estates, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force

Filed May 27, 1970, Ser. No. 40,973

Int. Cl. C23c 13/12; B01j 1/00

U.S. Cl. 23—277 R

1 Claim



A metal reactor consisting of two cylindrical sections fitted together one above the other in a vacuum-sealed relationship. A plurality of electrically conducting individual metal wire strips are positioned within the upper cylindrical section which in turn is rotated stepwise over an orifice located between the upper and lower cylinders. As the upper cylinder rotates, successive strips of the electrically conducting wire drop into the lower cylindrical chamber where the individual wire makes contact between two stationary electrodes. A high potential is imposed across the two electrodes causing electrical energy of sufficient magnitude to flow through the wire and effect the explosion thereof.

The apparatus overcomes a problem often encountered in the metal wire single-explosion technique relied upon heretofore, especially in those instances where the exploding wire phenomenon was used for synthesizing chemical compounds. The invention provides the necessary means for accomplishing a series of successive and continuous explosions of metal wires without the necessity of breaking the vacuum seal in

lic compounds. These incendiaries ignite spontaneously upon contact with air or water and, therefore, are useful in flamethrowers, firebombs, fire rockets, and other flame-producing weapons.

3,634,050

METHOD OF GELLING TANKER CARGOES

Edward R. Corino, Belleville; Edward F. Broderick, Bernardsville, and Gerard P. Canevari, Cranford, all of N.J., assignors to Esso Research and Engineering Company
Filed July 30, 1968, Ser. No. 748,599
Int. Cl. C10I 7/02

U.S. Cl. 44-7 D

4 Claims

The instant disclosure is directed to a method for solidifying marine tanker hydrocarbon cargoes to prevent the escape of the hydrocarbon from damaged compartments. The formation of suitable gels contain the hydrocarbon and thus avoid pollution of the sea and nearby shores. Gelling agents are disclosed which permit gellation to occur at a controlled rate, making them particularly suitable for use aboard tankers.

3,634,051

ADDITIVES FOR COMBUSTIBLE FUELS

Walt Phillips, Newark, N.J., assignor to Commodity Improvements Inc., New York, N.Y.

Filed Apr. 9, 1969, Ser. No. 814,817

Int. Cl. C10I 1/22, 1/12, 9/10

U.S. Cl. 44-51

7 Claims

Fuel additives that substantially improve the combustion characteristics and economy of combustible fuels when present in trace quantities are disclosed. The new additives include inorganic zirconium compounds and organic amines.

3,634,052

LIQUID PETROLEUM HYDROCARBON COMPOSITIONS CONTAINING ESTERS OF AN ALKYL ITACONATE-MALEIC ANHYDRIDE COPOLYMER AS FLUIDITY IMPROVERS

Paul Y. C. Gee, Woodbury, and Harry J. Andress, Jr., Pitman, both of N.J., assignors to Mobil Oil Corporation
Filed Apr. 3, 1968, Ser. No. 718,366
Int. Cl. C10I 1/18

U.S. Cl. 44-62

7 Claims

Liquid petroleum hydrocarbon compositions are provided which contain small amounts, sufficient to improve their fluidity characteristics, of an ester of an alkyl itaconate-maleic anhydride copolymer. A method for preparing these ester copolymers is also provided.

3,634,053

ODORIZATION METHOD AND APPARATUS

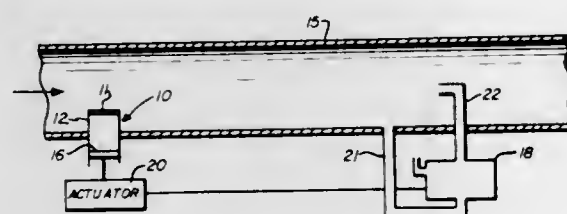
Donald L. Klass, Barrington, and Carl D. Landahl, Chicago, both of Ill., assignors to Institute of Gas Technology, Chicago, Ill.

Filed Apr. 6, 1970, Ser. No. 25,850

Int. Cl. C10j 1/28

U.S. Cl. 48-195

16 Claims



Odorant is metered into a flowing gas stream by sensing the rate of flow of the stream or the odorant concentration of

the stream and reporting said rate or concentration as an output signal to an actuating means joined to a membrane assembly having a gas-permeable membrane part immersed in the stream. Odorant within the assembly is permeated through the membrane, and into the stream in response to said output signal.

3,634,054

FILAMENTIZING PROCESS FOR GLASS FIBERS

Joseph P. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation
Continuation of application Ser. No. 698,713, Jan. 18, 1968, now abandoned. This application Aug. 10, 1970, Ser. No. 62,685

Int. Cl. C03c 25/02

U.S. Cl. 65-3

8 Claims

A process of making glass fiber mats using a composition which is substantially fugitive in nature for use in the treatment of glass fibers to provide easier filamentization of fiber strands, and which is especially adapted for use on glass fibers which are to be used in the production of glass fiber mats when maximum water-repellent properties are desired. In a preferred embodiment the composition consists of 3,5-dimethyl-1-hexyn-3-ol plus a minor amount of iso-octyl-phenoxypolyoxyethylene ethanol.

3,634,055

METHOD AND APPARATUS FOR PRODUCTION OF FIBERS FROM THERMOPLASTIC MATERIALS, PARTICULARLY GLASS FIBERS

Jean Paymal, Clermont, France, assignor to Compagnie De Saint-Gobain, Neuilly-sur-Seine, France

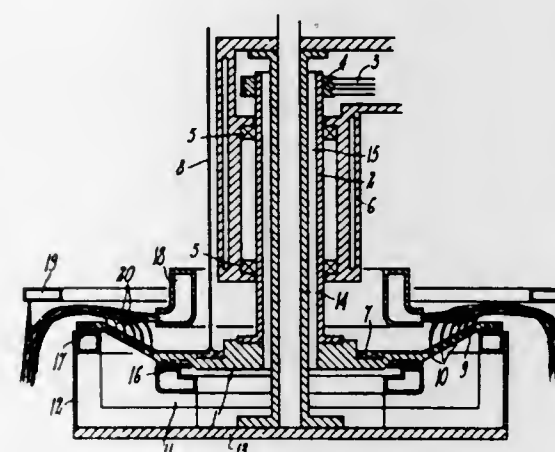
Filed July 10, 1969, Ser. No. 840,618

Claims priority, application France, July 10, 1968, 158653

Int. Cl. C03b 37/04, 37/06

U.S. Cl. 65-6

17 Claims



The production of fine fibers from a hardenable thermoplastic material in a viscous state particularly glass fibers from molten vitreous material, by dropping one or more streamlets or threads of the material onto a horizontally disposed disc-shaped body rotating rapidly around a vertical axis, at an inner radial portion thereof, whereat is provided an annular trough for the supply of material which flows outwardly from the top of the trough onto the upper surface of the body and is projected thereover in sheet form by centrifugal force over the peripheral portion of the body which is perforated with a plurality of substantially vertical orifices. An annular burner below the disc-shaped body serves as a source of hot gas under pressure which is blown upwardly through the orifices to product the material into filaments, which are thereafter drawn out into fine fibers by an annular gaseous blast directed radially and substantially horizontally above the peripheral portion of the body to turn down the

substantially vertical filaments while attenuating them, which is followed by the withdrawal thereof.

3,634,056

QUARTZ-TO-METAL SEAL MANUFACTURE

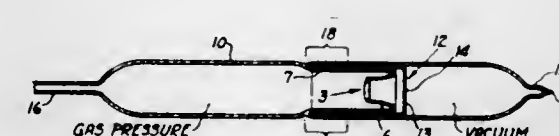
Gene I. Thomasson, Chesterland, and Edward V. Parillo, South Euclid, both of Ohio, assignors to General Electric Company

Filed Nov. 13, 1969, Ser. No. 876,376

Int. Cl. C03c 27/02

U.S. Cl. 65-42

4 Claims



An assembly is formed of an outer tubular silica member having therein an inner tubular silica member which has an open end fused to the inner wall of the outer member and a closed end in the form of a reentrant dimple having a thinned-out annular area of weakness in its sidewalls, a thinned-out molybdenum cup is inserted over the inner member into the annular space between said outer and inner members, the walls of said outer and inner members are fused to embed and hermetically seal the walls of the cup therebetween, and the closed end of the dimple is tapped with a small rod inserted through a hole in the closed end of the cup to break out the end of the dimple at its thin sidewalls.

3,634,057

MEANS TO SENSE AND CONTROL SPEED OF MOVEMENT OF GLASS SHEET ON GAS SUPPORT BED

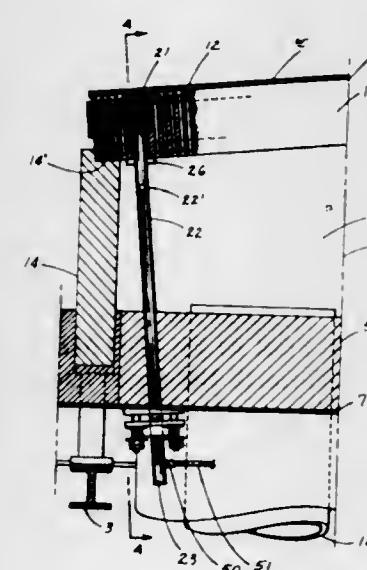
Gary L. Tate, John J. Summers, and Joseph O. Kramer, all of Vincennes, Ind., assignors to Hamilton of Indiana, Inc., Vincennes, Ind.

Filed Oct. 29, 1969, Ser. No. 872,104

Int. Cl. C03b 27/00

U.S. Cl. 65-163

7 Claims



A sensing element for disposition within the heating section of a system for tempering flat glass parts which are supported upon a film for hot gas comprising a tube having an end opened to the supporting gas film for subjection to a change in pressure by travel of the glass parts over such open end; there being means responsive to such pressure change for controlling the rate of travel of the glass parts through the heating section.

3,634,058

COOLER FOR VERTICAL GLASS SHEET DRAWING MACHINE

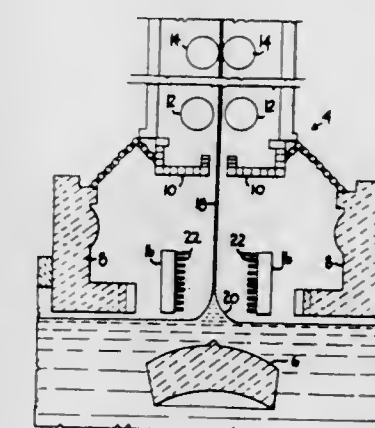
Roy W. Yunker, Bridgeport, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 16, 1970, Ser. No. 3,383

Int. Cl. C03b 15/04

U.S. Cl. 65-196

2 Claims



Disclosed is a cooler for use in a vertical drawing process for making glass sheet that comprises baffle or honeycomb means welded or otherwise positioned in thermally conducting relationship with the front sides (toward the glass sheet) of the main coolers, for not only suppressing vertical downdrafts from the front sides of the main coolers that tend to cause distortion of the sheet but also for improving the efficiency of the cooling.

3,634,059

GLASS SHEET PRESS BENDING MOLD

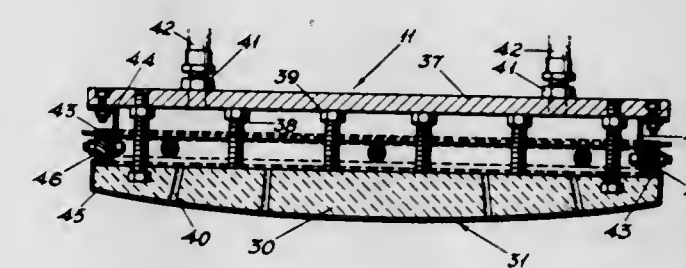
Richard C. Miller, Toledo, Ohio, assignor to Libbey Owens-Ford Company, Toledo, Ohio

Filed Aug. 20, 1969, Ser. No. 851,645

Int. Cl. C03b 23/02

U.S. Cl. 65-273

14 Claims



A bending mold particularly adapted for use in a press bending apparatus. The mold disclosed herein is formed of a substantially solid block of a castable ceramic material such as vitreous silica in an hydraulic binder which has a coefficient of thermal expansion no greater than 0.45×10^{-6} at 1,800° F. and a compressive strength of at least 3,000 lbs. per sq. in. at 2,000° F.

3,634,060

GLASS-FORMING FLUID FLOW CONTROL MEANS

Frederick A. Dahlgren, and Raymond J. Mraz, both of Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Sept. 8, 1970, Ser. No. 70,356

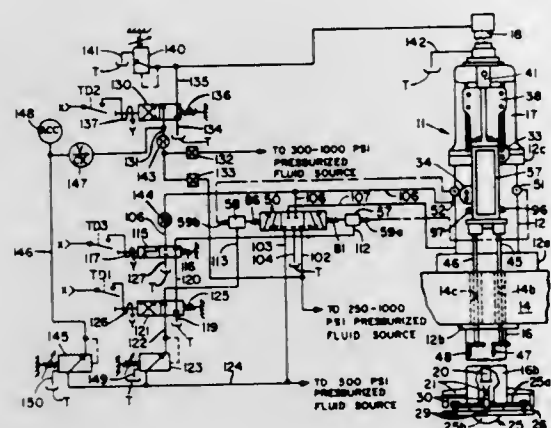
Int. Cl. C03b 5/30

U.S. Cl. 65-305

8 Claims

A valve mechanically and hydraulically actuated for selectively controlling flow of pressurized fluid therethrough, and a control system employing the valve in conjunction with

lightweight apparatus for press forming molten glass. In the control system the valve is hydraulically actuated to supply pressurized fluid to the glass pressing apparatus for rapid actuation of the pressing plunger of the apparatus towards and away from the glass pressing and nonpressing positions of the plunger, and adjustable cam means are employed to mechanically actuate the valve and selectively override the



hydraulic actuations of the valve towards the ends of the strokes of the plunger to press form the glass at a preselected rate and gradually bring the plunger to a stop at such ends and reduce pressing pressure during plunger dwell. Ring mold clamping means clamp the usual ring mold to the main mold during a pressing operation independently of the pressing pressure actuating the plunger or of the weight of the plunger and its associated actuating apparatus.

3,634,061

AQUATIC HERBICIDES

Robert W. Geiger; Alfred M. Teten, both of Minneapolis, and William G. Paterson, Roseville, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 1, 1969, Ser. No. 821,161

Int. Cl. A01n 1/100

U.S. Cl. 71-66

12 Claims

Application of a herbicidally effective amount of a substantially insoluble copper-containing compound to areas of water infested with undesirable aquatic plants so that the compound comes into contact with the plants and is held thereby, destroys said plants with minimal pollution of the water and toxicity to other forms of aquatic life.

3,634,062

PROCESS FOR CONTROLLING WEEDS IN WHEAT FIELDS

Dagmar Berrer, Riehen, and Ernst Fankhauser, Muttens, both of Switzerland, assignors to J. R. Geigy AG, Basel, Switzerland

Continuation-in-part of application Ser. No. 595,370, Nov. 18, 1966, now abandoned. This application May 2, 1968, Ser. No. 726,233

Claims priority, application Switzerland, Nov. 26, 1965, 16345/65

Int. Cl. A01n 9/22

U.S. Cl. 71-93

8 Claims

Pre-emergence control of grass-type and broad-leaved weeds in grain fields with the aid of novel 2-methylthio-4-ethylamino-6-t-butylamino- and -6-isobutylamino-s-triazines is described as well as compositions containing these two s-triazine derivatives for such control.

3,634,063

ACICULAR, STABLE MAGNETIC IRON PARTICLES

Paul Y. Hwang, Palo Alto, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Apr. 23, 1970, Ser. No. 31,375

Int. Cl. B22f 9/00

U.S. Cl. 75-0.5 AA

2 Claims

Stable acicular iron particles are made by reducing an acicular ferric oxide to iron at a relatively low temperature. The reduced iron particles are rendered nonpyrophoric by treatment with ammonium hydroxide.

3,634,064

PROCESS FOR THE RECOVERY OF NICKEL FROM NICKELIFEROUS LATERITIC ORES

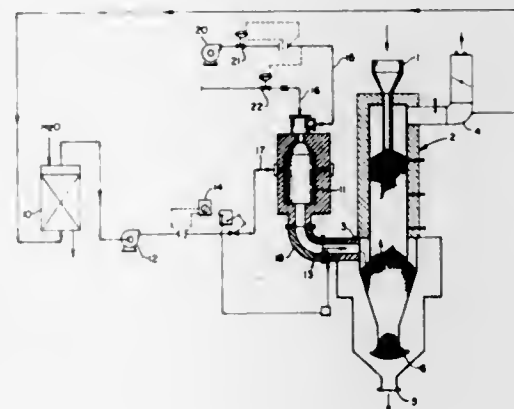
Dmitri N. Vedensky, Cleveland, Ohio, and Ernest E. Coleman, San Francisco, Calif., assignors to The Hanna Mining Company, Cleveland, Ohio

Filed Mar. 21, 1969, Ser. No. 809,124

Int. Cl. C21b 13/14

U.S. Cl. 75-31

21 Claims



A process for recovering metallic nickel in which a charge of nickeliferous lateritic ore and a solid reducing agent is heated to reduce the ferric oxide content of the ore to ferrous oxide and to reduce partially the nickel oxide to metallic nickel. The partially reduced product is further heated to melt it and to produce a ferronickel product. The reducing agent provides for controlled reduction of the nickel and iron values of the ore.

3,634,065

METHOD FOR REFINING METALS

Howard Knox Worner, North Balwyn, Victoria, Australia, assignor to Conzinc Rhotinto of Australia Limited, Melbourne, Victoria, Australia

Filed Feb. 10, 1969, Ser. No. 797,877

Claims priority, application Australia, Feb. 16, 1968, 33751/68

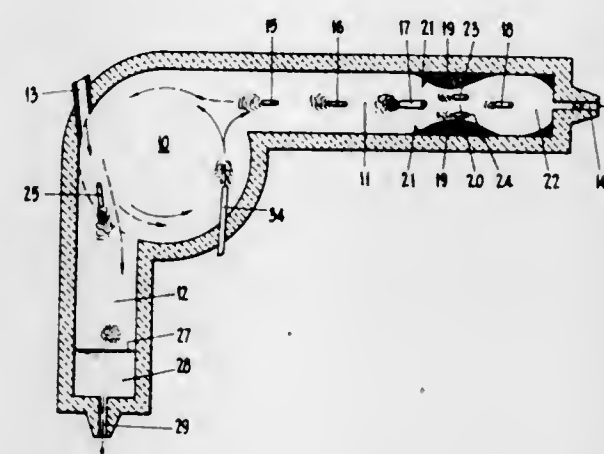
Int. Cl. C21b 13/14; C21c 5/00

U.S. Cl. 75-46

8 Claims

A procedure for the continuous refining of metals makes use of a furnace which is characterized by certain novel features, viz, it possesses an elongated refining zone in which the slag is caused to flow substantially countercurrent to metal, a substantially circular refining zone in which slag is caused to circulate substantially concurrently with metal, and a slag conditioning and settling zone, into which the slag flows from the two refining zones. The three furnace zones are substantially separate compartments in communication with each

other in substantially one horizontal plane. The slag separation zone is preferably connected with the circular refining



zone at some distance from the junction between the latter and the elongated refining zone.

3,634,066

METHOD FOR RECLAIMING SCRAP METAL PARTICLES

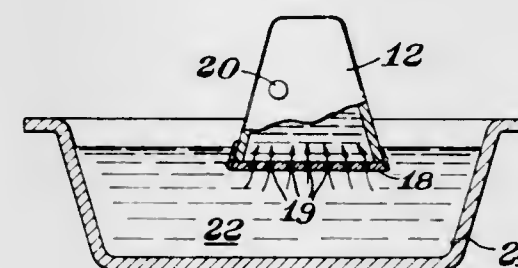
Russell E. Matthews, Midland, and Jack J. Ott, Hemlock, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed June 26, 1969, Ser. No. 836,779

Int. Cl. C22b 7/00, 45/00; C22c 23/00

U.S. Cl. 75-65

5 Claims



An aggregate of scrap metal particles is charged to an enclosed receptacle mounted above a molten-metal bath, the bath metal being oxidatively reactive with the atmosphere trapped in the receptacle. The receptacle is immersed in the molten bath metal such that either the base wall or a moveable cover of the receptacle is submerged below the surface of the bath, while maintaining the bath temperature preferably above the melting point of the scrap metal. Openings in the receptacle cover or base wall permit the bath metal to react with the receptacle atmosphere and thereby create a "self-generated" vacuum within the receptacle. Flow of molten metal into the receptacle, as induced by the vacuum environment, melts the scrap particles contained therein. The receptacle is then raised above the level of the metal bath to a point where the aggregate melt can drain through the openings in the receptacle base or cover and back into the molten metal bath.

3,634,067

METHOD OF CONDENSING METALLIC VAPOR

Eugen Klein, Bleitrustr 819 Gth-II Tr., 1 Berlin, 12, Germany

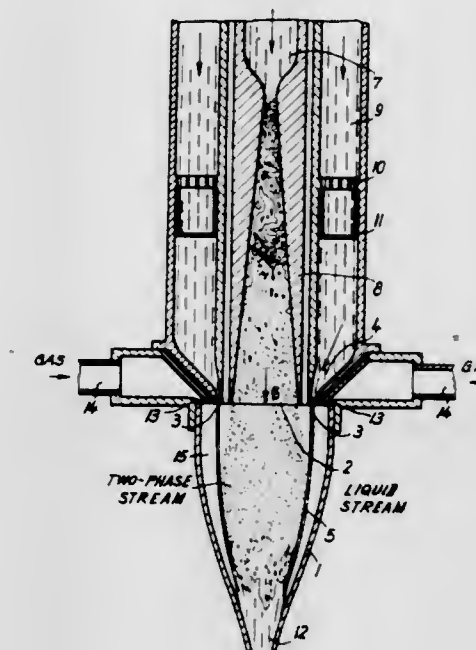
Filed July 29, 1968, Ser. No. 748,250

Claims priority, application Germany, July 29, 1967, P 16 01 110.2

Int. Cl. C22b 27/00

U.S. Cl. 75-66

1 Claim



A method of condensing the gaseous portion of a two-phase metallic stream consisting of liquid droplets and a gas. The method includes the steps of ejecting a metallic liquid through a nozzle at high speed to enclose, with a sheet of the liquid, a rotationally symmetric space which tapers in the direction of flow of the liquid, and directing the two-phase metallic stream into the space.

3,634,068

PROTECTION OF CONVERTERS

William H. Foard, Inspiration, Ariz., assignor to Inspiration Consolidated Copper Company, Inspiration, Ariz.

Filed Apr. 6, 1970, Ser. No. 26,071

Int. Cl. C22b 15/06; F27d 1/00

U.S. Cl. 75-72

6 Claims

A process for the protection of converter mouths and, more particularly, to an improved process for protecting the metal and refractory lining at the mouth of a converter by applying about the converter mouth prior to operating the converter a coating which comprises a mixture of a ceramic material and sodium silicate.

3,634,069

TIN SMELTING

Howard Knox Worner, North Balwyn, Victoria, Australia, assignor to Conzinc Rhotinto of Australia Limited, Melbourne, Victoria, Australia

Continuation-in-part of application Ser. No. 634,938, May 1, 1967, now abandoned. This application Mar. 10, 1969, Ser. No. 805,503

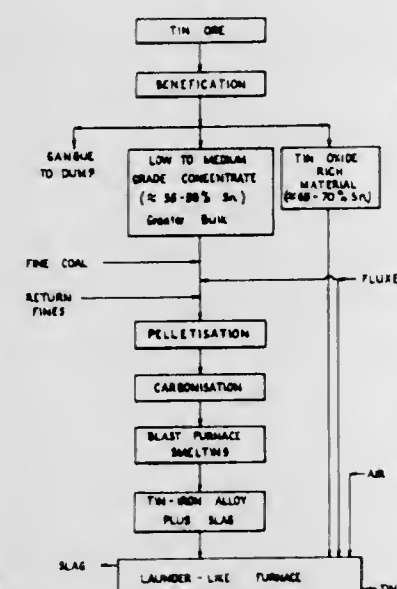
Int. Cl. C22b 25/02

U.S. Cl. 75-85

13 Claims

Method for continuously smelting in a low-shaft blast furnace pelletized iron-containing tin ores and concentrates in the form of composite carbonized pellets by tapping tin-iron alloy and slag into an elongated launderlike refining furnace operatively connected the blast furnace, continuously separating alloy and slag in the furnace, injecting an oxidant into the separated alloy forming molten tin and slag, tapping

tin and slag separately from the furnace. A low-shaft blast furnace for continuously smelting composite carbonized pellets of tin ores and concentrates with cooperating means for pelletizing, carbonizing and feeding the composite pellets into the furnace, a common taphole for continuously tapping tin-iron alloy and slag into an elongated launderlike refining



furnace operatively connected to the blast furnace and having an alloy and slag entry point, separate tin- and slag-tapping ends, means for separating alloy and slag, means for injecting oxidant into the alloy, means for continuously separating alloy and slag in the furnace and separate tin and slag tapholes.

3,634,070

PROCESS FOR RECOVERY OF COPPER AND OTHER METALS FROM SOURCE MATERIALS

Roald E. Lindstrom, and Donald J. Bauer, both of Reno, Nev., assignors to The United States of America as represented by the Secretary of the Interior

Filed July 29, 1969, Ser. No. 845,905

Int. Cl. C22b 15/08, 19/22, 23/04

U.S. Cl. 75—101

8 Claims

A metal is leached from an ore or concentrate with an aqueous solution of an organic chelating agent. In selecting a suitable agent the formula $\beta > 10^{-3}/K_{sp}$ is employed wherein β is the stability constant of the chelate composed of the agent and the metal to be leached, and K_{sp} is the solubility product constant, in water, of the compound in the ore or concentrate which supplies the metal in the chelate. As an example, an aqueous solution of EDTA leaches copper from a carbonate ore in a limestone matrix. Metal values are then recovered from solution by chemical reduction, electrolysis, cementation, sulfide precipitation or pH control.

3,634,071

PROCESS FOR PRECIPITATING COPPER FROM SOLUTION

Henry Rush Spedden, and Emil E. Malouf, both of Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed May 12, 1969, Ser. No. 823,695

Int. Cl. C22b 15/12

U.S. Cl. 75—109

10 Claims

An improved process for accelerating the precipitation of copper from solution. A pregnant leach solution, containing at least copper, ferric, ferrous, and sulfate ions, is treated with sulfur dioxide under conditions of agitation to complex the ferric ions and to efficiently maintain the treated leach solution at a pH below 3.0, without the addition of acid. The

complexing of the ferric ions prevents these ions from oxidizing the metallic iron utilized in the precipitation of copper, thereby significantly reducing metallic iron requirements, and, coupled with the maintenance of a lower pH, increasing the amount of copper precipitated.

3,634,072

MAGNETIC ALLOY

Friedrich W. Ackermann, Wyomissing, Pa.; Ronald T. Casani, Holbrook, N.Y.; William A. Klawitter, Reading, and Gerald B. Heydt, Glen Oley Farms, both of Pa., assignors to Carpenter Technology Corporation, Reading, Pa.

Filed May 21, 1970, Ser. No. 39,545

Int. Cl. C22c 19/00

U.S. Cl. 75—122

8 Claims

A magnetic alloy that is ductile and can be cold rolled containing by weight about 0.5-2.5 percent vanadium, 45-52 percent cobalt, at least one element selected from the group consisting of about 0.02-0.5 percent niobium and about 0.07-0.3 percent zirconium, and the balance iron except for incidental impurities.

3,634,073

FREE-MACHINING STEEL, ARTICLES THEREOF AND METHOD OF MAKING

John G. Cutton, Board Township, Mahoning County, and George A. Welsch, Jr., Youngstown, both of Ohio, assignors to United States Steel Corporation

Filed July 9, 1969, Ser. No. 840,456

Int. Cl. C22c 39/26, 39/44, 39/54

U.S. Cl. 75—123 D

6 Claims

Improved free-machining, resulfurized and rephosphorized carbon and low alloy steels, especially gun barrel steels, method of making the same, and articles thereof containing 0.015 to 0.15 weight percent zirconium for improved chemical and structural homogeneity, enhanced hot workability and hot-rolled surface quality, increased strength, and superior hardness uniformity.

3,634,074

FREE CUTTING STEELS

Tetsuro Ito, Nagoya; Goshi Kato, Tsushima, and Atsuyoshi Kimura, Chita-gun, all of Japan, assignors to Daido Seiko Kabushiki Kaisha, Minami-ku, Nagoya, Aichi, Japan

Filed Dec. 5, 1968, Ser. No. 781,520

Claims priority, application Japan, Apr. 3, 1968, 43/21947

Int. Cl. C22c 39/54

U.S. Cl. 75—125

1 Claim

This invention relates to free cutting steels containing in combination calcium and at least one free cutting element selected from the group consisting of lead, sulfur and tellurium. Such free cutting steels are characterized by their cutting property.

3,634,075

INTRODUCING A GRAIN REFINING OR ALLOYING AGENT INTO MOLTEN METALS AND ALLOYS

Jean C. Hoff, Stamford, Conn., assignor to Kawecky Berylo Industries, Inc., New York, N.Y.

Filed Jan. 15, 1969, Ser. No. 791,453

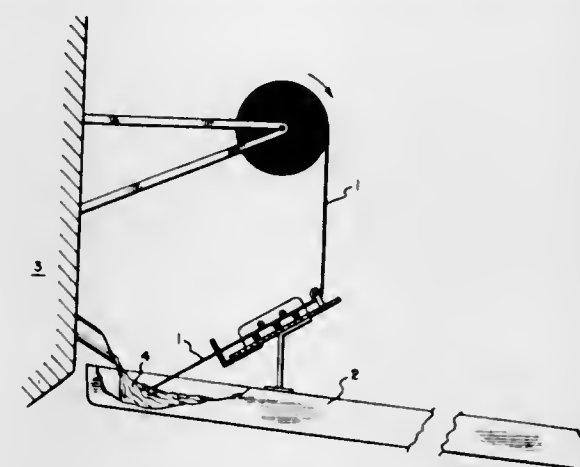
Int. Cl. C22c 1/06

U.S. Cl. 75—135

2 Claims

A molten metal or alloy is inoculated with metallic treating agent by pouring the molten metal into a troughlike passageway and by introducing a rodlike supply of the metal-

lic treating agent into the molten metal flowing in the passageway under conditions insuring a disturbed but nontur-



bulent flow of the molten metal and resulting uniform distribution of the treating agent therein.

3,634,076

DIE-CASTING ALLOY COMPOSITIONS

George S. Foerster, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of application Ser. No. 664,244, Aug. 30, 1967, now abandoned. This application May 18, 1970,

Ser. No. 38,518

Int. Cl. C22c 9/00

U.S. Cl. 75—153

6 Claims

A low liquidus temperature, ductile alloy containing 2-20 percent arsenic, and either manganese (15-45 percent), zinc (15-50 percent) or a combination (15-55 percent) thereof, the balance being 40-65 percent copper, highly suitable for die casting.

3,634,077

METHOD AND APPARATUS FOR REMOVING A RESIDUAL IMAGE IN AN ELECTROSTATIC COPYING SYSTEM

William A. Sullivan, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Aug. 26, 1968, Ser. No. 755,265

Int. Cl. G03g 13/16, 13/22

U.S. Cl. 96—1.4

2 Claims

A method and apparatus for recovering the residual image from an electrostatic recording surface in an electrostatic copying system which is accomplished by presenting a wiping element in pressure contact with the residual image on the recording surface whereby the residual image is substantially removed therefrom, moving a conductive member in close proximity to the toner particles being removed from the recording surface, applying a DC voltage opposite in polarity to that of the toner particles and of sufficient magnitude to the conductive member whereby the toner particles are attracted onto the surface of the conductive member, and continuously removing the toner particles from the conductive member into a collection zone for reuse in the copying system.

3,634,078

ALUMINUM SUPPORTS FOR PLANOGRAPHIC PRINTING PLATES

Fritz Uhlig, Wiesbaden-Biebrich, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

Filed Oct. 3, 1966, Ser. No. 583,993

Claims priority, application Germany, Oct. 6, 1965, K 57319

Int. Cl. G03g 5/04; G03c 1/94; G03f 7/02

U.S. Cl. 96—1.5

6 Claims

This invention relates to a method for improving the receptivity for adhesively applied coatings of an aluminum surface

which comprises treating the surface with a solution comprising at least one trihydroxybenzene carboxylic acid and drying. The invention also includes a reproduction material using the treated aluminum and a process for making a printing plate from the said reproduction material.

3,634,079

SUBSTRATE LAYER FOR DICHROIC PHOTOCONDUCTORS

Robert Bruce Champ, and Meredith David Shattuck, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,360

Int. Cl. G03g 5/04

U.S. Cl. 96—1.5

7 Claims

In an electrophotographic plate suitable for use in dichroic contact reflex reproduction a novel substrate layer of polyamide is inserted between the dichroic sensitizer and the conductive base.

3,634,080

PERSISTENT CONDUCTIVITY AND POSITIVE CHARGING CHARACTERISTICS OF A ZINC OXIDE PHOTOCONDUCTOR

Robert Joseph Noe, Mortsel; Jozef Frans Willems, Wilrijk; Albert Lucien Poot, Kontich, and Karel Eugene Verhille, Mortsel, all of Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

Filed June 6, 1969, Ser. No. 831,253

Claims priority, application Great Britain, June 6, 1968,

27,045/68

Int. Cl. G03g 7/00; H011 13/00

U.S. Cl. 96—1.7

25 Claims

Electrophotographic recording material containing photoconductive zinc oxide treated with urazole or one of its derivatives and processes of electrophotographic recording using such materials. These materials are characterized by low-memory effect, improved charging characteristics and are capable of accepting either positive or negative charges to obtain either positive or negative copies.

3,634,081

METHOD FOR REMOVING EXCESS ALDEHYDES COMPOSITION CONTAINING A POLYVINYL ETHER

Donald J. Forst, Webster, N.H., assignor to Itek Corporation, Lexington, Mass.

Filed Mar. 13, 1970, Ser. No. 19,491

Int. Cl. G03c 7/00, 5/50

U.S. Cl. 96—22

5 Claims

An improvement in rapid reversal color photoprocessing is disclosed for removing excess free aldehyde compounds from photoprocessing solutions by contacting the aldehyde compounds with bisulfite ion.

3,634,082

LIGHT-SENSITIVE NAPHTHOQUINONE DIAZIDE COMPOSITION CONTAINING A POLYVINYL ETHER

Carl W. Christensen, Beverly, Mass., assignor to Shipley Company, Inc., Newton, Mass.

Filed July 7, 1967, Ser. No. 651,700

Int. Cl. G03f 7/02

U.S. Cl. 96—33

14 Claims

A photosensitive coating composition useful for the production of printing plates and for forming photoresists for metal plating and etching of metal, ceramic or the like comprising a light-sensitive diazo compound as photosensitizer, a polyvinyl ether, and preferably, an alkali soluble resinous material such as a novolak resin. The addition of the polyvinyl ether provides a coating of improved flexibility, electrical and chemical resistance, and thickness characteristics.

3,634,083

PHOTOGRAPHIC PROCESS FOR PRODUCING RELIEF IMAGES BY EXTENDED PHYSICAL DEVELOPMENT

Elliot Berman, Quincy; Robert H. Maher, North Adams, both of Mass., and John R. Manhardt, Nashua, N.H., assignors to Itek Corporation, Lexington, Mass.

Filed Jan. 22, 1968, Ser. No. 699,375

Int. Cl. G03c 5/00; G03f 7/00

U.S. Cl. 96—36.3

19 Claims

A photographic process for producing relief images comprises (1) exposing a copy medium comprising a photosensitive photoconductor layer comprising photosensitive material incorporated in a binder capable of being physically developed in radiation-struck areas and wherein the photosensitive layer is deposited on a support, (2) forming a visible image in the copy medium by contacting the medium with a physical developer, and (3) selectively removing the exposed areas of the photosensitive layer down to the support by prolonging the physical development step until the image becomes frangible. Removal may be speeded up by contacting the medium with a bleach bath, or by washing or brushing. The process of this invention may be used for producing positive or negative prints of an original, for producing diazomasters, or for producing lithographic plates.

3,634,084

MULTIPLE LIGHT FLASH PHOTOGRAPHIC PROCESS

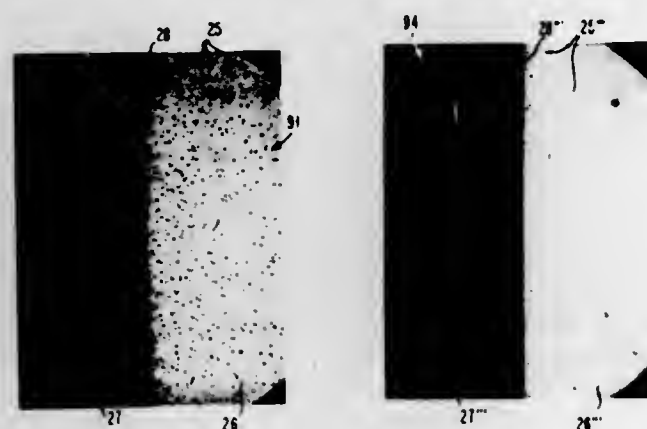
John F. Creedon, Waverly, and Richard W. Kern, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 3, 1967, Ser. No. 650,945

Int. Cl. G03c 11/00, 5/04

U.S. Cl. 96—46

8 Claims



A photographic process in which multiple low-intensity, discrete light flashes are used to expose a photographic emulsion in order to mitigate the formation of spurious exposed areas in the image which are produced by a single, high-intensity flash exposure. Improved resolution also results from the multiple flash process.

3,634,085

PHOTOSENSITIVE COMPOSITIONS COMPRISING 1,1-DISUBSTITUTED-1,2-DIHYDRO-2,4-DISUBSTITUTED PHTHALAZINES

Balwant Singh, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Feb. 25, 1970, Ser. No. 14,240

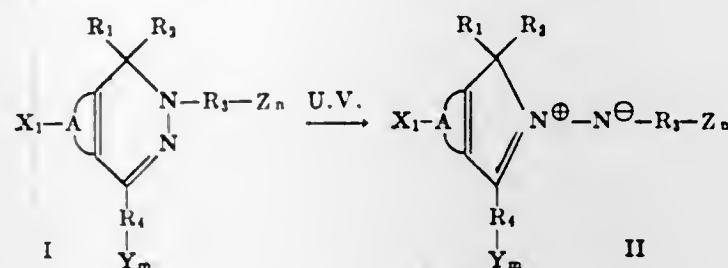
Int. Cl. G03c 5/24, 1/72

U.S. Cl. 96—48

6 Claims

The 1,1-disubstituted-1,2-dihydro-2,4-disubstituted-phthalazine compounds of Formula I are converted to the

azomethineimine dyes of Formula II by irradiation with ultraviolet light. The conversion is useful in photographic processes.



where A completes a fused, mono or polynuclear aromatic ring, having 6 to 10 carbon atoms; X is a member selected from the group consisting of chloro, lower alkyl, having from 1 to 4 carbon atoms, and phenyl; l is a positive integer from 1 to 3; R1 and R2 are the same or different members selected from the group consisting of alkyl, having from 1 to 8 carbon atoms, phenyl, naphthyl and benzyl; R3 is a phenyl or 1-naphthyl group; Y is a member selected from the group consisting of dimethylamino and methoxy; m is an integer from 0 to 1; R4 is a phenyl or naphthyl group; Z is a 4-nitro group; and n is an integer from 0 to 1.

3,634,086

SOLVENT DEVELOPMENT OF LIGHT-SENSITIVE DIAZO LAYERS

Leslie Edward Lawson; Frank Edward Smith, and Peter John Smith, all of London, England, assignors to Howson-Algraphy Limited, London, England

Filed May 17, 1967, Ser. No. 639,033

Claims priority, application Great Britain, May 31, 1966, 24,263/66

Int. Cl. G03f 7/02; G03c 1/58, 5/22, 5/34

U.S. Cl. 96—49

10 Claims

The development of positive-working light-sensitive diazo layers for use as lithographic printing plates and photoresists is effected using selectively acting organic solvents to dissolve light-struck areas.

3,634,087

COLOR PROOFING SYSTEM

James F. Houle, and Gilden R. Van Norman, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Original application Oct. 24, 1965, Ser. No. 505,041, now

Patent No. 3,486,450, dated Dec. 30, 1969. Divided and this

application June 6, 1969, Ser. No. 831,238

Int. Cl. G03c 1/56, 1/78

U.S. Cl. 96—49

5 Claims

Lithographic color proofing is accomplished with transparent supports having hydrophilic surfaces and oleophilic images on said surfaces. The images are colored by an image lacquer which contains a greasy printing ink as an integral part of the lacquer.

3,634,088

REGENERATION OF BLIX SOLUTIONS USED IN PHOTOGRAPHIC PROCESSING

Austin C. Cooley, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 2, 1970, Ser. No. 8,026

Int. Cl. G03c 5/32, 5/26

U.S. Cl. 96—60 BF

8 Claims

Photographic bleach-fix solutions employing a ferric salt of an aminopolycarboxylic acid as bleaching agent and a thiosulfate as fixing agent are regenerated by reducing the concentration of silver ion in the solution to a low level and mixing the solution with oxygen in an amount sufficient to convert substantially all ferrous ion in the solution to ferric

ion. Removal of silver from the solution can be effected by addition of a chemical precipitant, by metallic replacement, or by electrolytic recovery and the necessary contact with oxygen after silver removal can be accomplished by aerating the solution. Treatment of spent bleach-fix solutions in this manner will essentially restore their original bleaching and fixing capabilities and thereby permit their reuse in photographic processing.

3,634,089

FILM-FORMING POLYESTER COMPOSITIONS

Fredrick Lynn Hamb, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 4, 1969, Ser. No. 813,705

Int. Cl. G03c 1/78

U.S. Cl. 96—87

14 Claims

A photographic element comprising a film support consisting of a polyester of a 1,1,3-trialkyl-5-carboxy-3-(p-carboxyphenyl) bisphenols, with specific bisphenols, said polyester having an average molecular weight of at least 30,000.

3,634,090

LIGHT SENSITIVE ONE-COMPONENT DIAZOTYPE MATERIAL

Hans-Dieter Frommelt, and Herbert Rauhut, both of Wiesbaden-Biebrich, Germany, assignors to Keuffel & Esser Company, Morristown, N.J.

Filed Sept. 4, 1969, Ser. No. 855,423

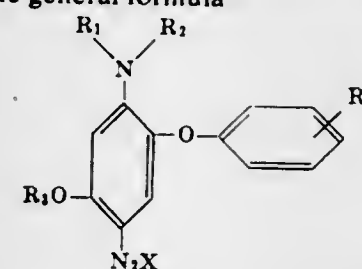
Claims priority, application Germany, Sept. 31, 1968, P 17 93 342.5

Int. Cl. G03c 1/54, 5/18

U.S. Cl. 96—91 R

8 Claims

Light sensitive diazotype material includes a diazonium compound of the general formula



wherein

R1 and R2 alkyl of up to five carbon atoms, aralkyl or cycloalkyl of up to 10 carbon atoms, or together form a five- or six-membered saturated heterocyclic group with the nitrogen atom;

R3 is a halogenalkyl group of up to four carbon atoms containing at least one fluorine atom;

R4 is hydrogen, halogen, or an alkyl, alkoxy, or dialkylamino groups; and

X is the anion of the diazonium compound.

3,634,091

PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Hansroff Loeffel, Bern; John Lenor, and Bernhard Piller, both of Marly-le-Petit, all of Switzerland, assignors to Ciba Limited, Basel, Switzerland

Filed Apr. 14, 1970, Ser. No. 28,544

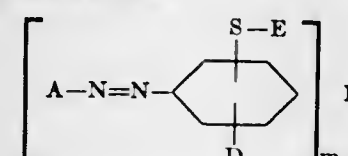
Claims priority, application Switzerland, Apr. 18, 1969, 5897/69

Int. Cl. G03c 1/10, 1/76

U.S. Cl. 96—99

16 Claims

Photographic light-sensitive material especially for the silver dyestuff bleaching process is provided. This material contains on a support at least one layer having at least one cyan dyestuff of the formula



in which A is a hydroxynaphthalene radical which may be substituted by an amino or hydroxyl group and which con-

tains at least one sulfonic acid or sulfonic acid amide group, the hydroxyl group being in the ortho position to the azo group, D is hydrogen, halogen, alkyl, alkoxy, hydroxyalkoxy or acylamino and R is an organic radical bound to the benzene radical through an —NH— or —N— bridge, m is at most 3 and the dyestuff contains at least two sulfonic acid groups per molecule. These dyestuffs are diffusion resistant and form stable aqueous solutions, are insensitive to calcium ions and can be bleached white.

3,634,092

SCREENS FOR PRODUCING A PRINTING PLATE FOR IMAGE REPRODUCTION

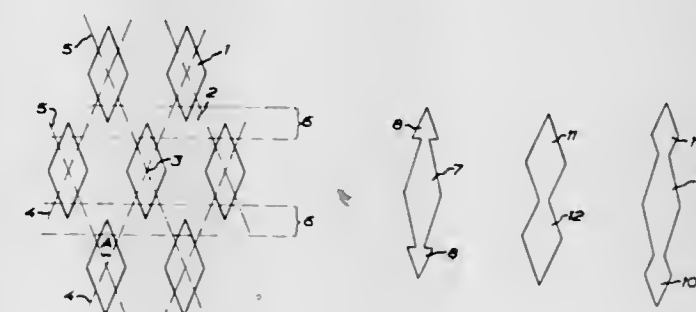
Anton Wilhelm Jemseby, Allfarvagen 29, 791 47, Taby, Sweden

Filed Aug. 1, 1969, Ser. No. 846,811

Int. Cl. G03f 5/00

U.S. Cl. 96—116

7 Claims



A screen for use in the production of a printing plate for image reproduction has individual mutually identical transparent surface elements surrounded by nontransparent surface portions, the centers of said transparent surface elements being situated on the crossings between lines in two coordinate line systems, the lines of which are spaced an equal distance apart and form an acute angle of 15°–60°, said surface elements having an at least substantial portion in the general form of a rhomb with its sides parallel to the lines of respectively one and the other coordinate line system, and the longest diagonal of the rhomb being at least equally long as said distance between the lines of the coordinate line systems.

3,634,093

DETOXICATION OF TUNG MEAL

Chian L. Huang, University, Miss., assignor to The University of Mississippi, University, Miss.

Filed Oct. 14, 1969, Ser. No. 866,368

Int. Cl. A23k 1/00

U.S. Cl. 99—2 R

19 Claims

Commercial tung meal may be detoxicated to prepare an animal feed or fertilizer rich in protein and carbohydrate by macerating the meal in water followed by the extraction of toxic substances therefrom with an alcohol.

3,634,094

ROASTING OF NONEQUALLY MOISTURIZED COFFEES

George Bernard Ponzone, Spring Valley, N.Y.; Michael Gabriel Protomastro, Woodridge, and Arthur Stefanucci, Clifton, both of N.J., assignors to General Foods Corporation, White Plains, N.Y.

Filed Apr. 28, 1970, Ser. No. 32,771

Int. Cl. A23f 1/02

U.S. Cl. 99—68

16 Claims

Botanically dissimilar coffees are separately and differently pretreated to contain unequal quantities of water, and thereafter blended and conventionally roasted to provide flavors comparable to those resulting from blending the same nonpretreated dissimilar coffees after separately roasting each type.

3,634,095

PREPARING A POTATO SNACK PRODUCT
Miles J. Willard, 3067 Gustafson Circle, Idaho Falls, Idaho
Filed Dec. 9, 1968, Ser. No. 782,482
Int. Cl. A231 1/00

U.S. Cl. 99—100 P

3 Claims

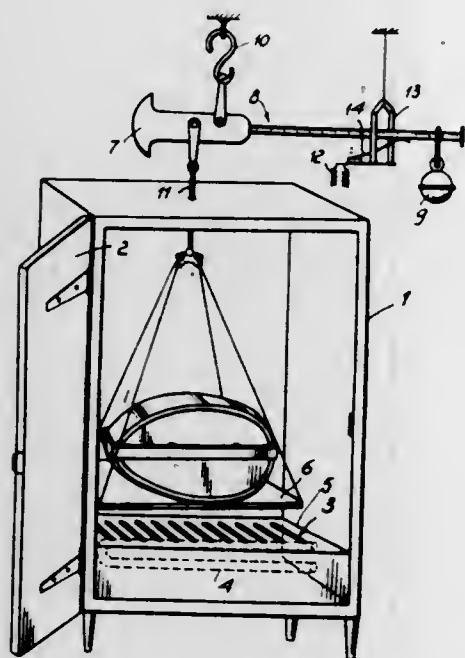
A crisp fried snack product is prepared from pieces of raw potatoes by the steps of dehydration to within a critical moisture range of about 20 percent to 40 percent by weight, equilibration for at least 2 hours, frying at a temperature between 350° F. and 425° F. for 6 to 60 seconds, and finish drying, if necessary to reduce moisture below 5 percent by weight. Alternately, the product is manufactured from potato pieces previously dehydrated to below 10 percent moisture by weight, and thereafter rehydrated to within the same moisture range, followed by the same processing steps.

3,634,096

PROCESS FOR COOKING SALTED MEATS
Lauro Ferrarini, Via Rivalta, 3, Reggio Emilia, Italy
Filed June 17, 1968, Ser. No. 737,625
Claims priority, application Italy, July 28, 1967, 33581 A/67
Int. Cl. A22c 18/00

U.S. Cl. 99—107

1 Claim



This disclosure relates to a process for heat processing salted meats, particularly hams, shoulders or other parts of pig or other animal, in which said salted meat is brought into contact with a heating medium, then separated from said heating medium and subsequently allowed to cool.

3,634,097

METHOD OF EXTRACTING AND CONCENTRATING FLAVOR PRECURSORS OF MEATS
Ahmed F. Mabrouk, and Jerry K. Jarboe, both of Framingham, Mass., assignors to The United States of America as represented by the Secretary of the Army
Filed Dec. 11, 1969, Ser. No. 884,334
Int. Cl. A22c 18/00; A231 1/44

U.S. Cl. 99—110

6 Claims

Method of producing a flavor concentrate of a meat, particularly beef, comprising the step of removing substantially all fat from comminuted meat prior to extraction of water-soluble constituents of the meat, dialysis of the aqueous solutions, and gel permeation chromatographic fractionation and concentration of the flavor producing constituents of the diffusates from the dialyses.

3,634,098

FRESH APRICOT FLAVOR ADDITIVE COMPOSITION AND METHOD OF ENHANCING THE FLAVOR OF FREEZE-DEHYDRATED APRICOTS

John W. Rhoades; James W. Register, Jr., and John D. Millar, all of San Antonio, Tex., assignors to The United States of America as represented by the Secretary of the Army
Filed May 27, 1969, Ser. No. 828,364
Int. Cl. A231 1/26

U.S. Cl. 99—140 R

4 Claims

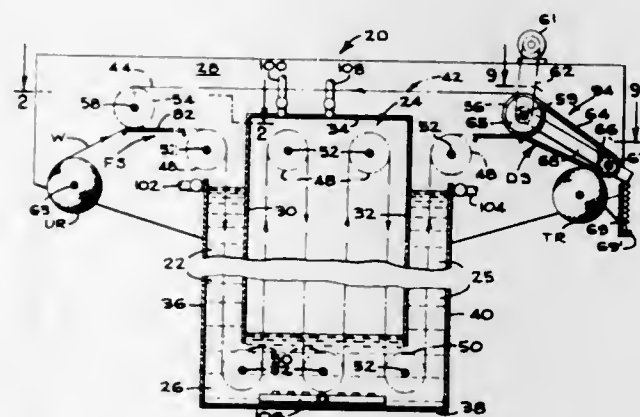
A composition of matter consisting essentially of nerol, geraniol, γ -decalactone, α -terpineol, and linalool for addition to freeze-dehydrated apricots during reconstitution thereof to enhance the flavor of the reconstituted apricots, method of enhancing the flavor of reconstituted freeze-dehydrated apricots by addition of said composition to freeze-dehydrated apricots during the reconstitution thereof, and reconstituted freeze-dehydrated apricots having substantially the flavor of fresh apricot prepared in accordance with said method.

3,634,099

CONTROL OF HYDROGEN FORMATION IN POUCHES DURING HEAT TREATMENT

Donald C. Wilson, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.
Filed Nov. 20, 1969, Ser. No. 878,499
Int. Cl. A231 3/02; B65b 55/00; C12h 1/20
U.S. Cl. 99—171 LP

14 Claims



Method of controlling hydrogen formation within laminated pouches each of which includes a layer of aluminum bonded between a layer of polyolefin and a layer of polyester. Water within each pouch diffuses through the plastic inner layer when subjected to a sterilizing temperature and reacts with the aluminum to form aluminum oxide on the contacted surface of the aluminum and hydrogen. The hydrogen diffuses back through the inner pouch film to form a hydrogen rich gas within the pouch. In order to produce a pouch which is sealed prior to heat treatment without a large headspace after sterilization of the product, the aluminum must be deactivated to prevent hydrogen from being formed during the sterilization step. The rate of diffusion of both water and hydrogen may be controlled by varying the thickness of the inner layer of plastic material. The formation of hydrogen during food sterilization is reduced by preheating the laminate to form aluminum oxide on the inner surfaces of the aluminum layer before sterilization of the product filled pouches.

3,634,100

MARGARINE FAT CONTAINING RANDOMIZED FAT COMPONENT

Michel Paulin Valere Fondu, Merksem, and Marcel Guillaume August Willems, Borgerhout-Antwerpen, both of Belgium, assignors to Lever Brothers Company, New York, N.Y.

Filed Feb. 27, 1969, Ser. No. 803,086

Claims priority, application Luxembourg, Mar. 1, 1968, 55.603

Int. Cl. A23d 3/00

U.S. Cl. 99—122 M

8 Claims

The invention provides margarine fat formulations having a high content of polyunsaturated fatty acids from which margarines can be prepared capable of wrapper- or tub-packaging. The hard fat component of the fat is randomized and is free from hydrogenated fats. It may be obtained by interesterifying coconut and palm fats with for example palm stearine, or by randomizing the glycerides of a corresponding mixture of the fatty acids.

3,634,101

FRESH PEACH FLAVOR ADDITIVE COMPOSITION AND METHOD OF ENHANCING THE FLAVOR OF FREEZE-DEHYDRATED PEACHES

John W. Rhoades; James W. Register, Jr., and John D. Millar, all of San Antonio, Tex., assignors to The United States of America as represented by the Secretary of the Army
Filed May 27, 1969, Ser. No. 828,341

Int. Cl. A231 1/26

U.S. Cl. 99—140 R

4 Claims

A composition of matter consisting essentially of γ -decalactone and cis-3-hexene-1-ol for addition to freeze-dehydrated peaches during reconstitution thereof to enhance the flavor of the reconstituted peaches, method of enhancing the flavor of reconstituted freeze-dehydrated peaches by addition of said composition to freeze-dehydrated peaches during the reconstitution thereof, and reconstituted freeze-dehydrated peaches having substantially the flavor of fresh peach prepared in accordance with said method.

3,634,102

PREPARATION OF PACKAGED SLICED DRY SAUSAGE
William D. Paynter, and Elwood W. Klemsmeier, both of Madison, Wis., assignors to Oscar Mayer & Company, Inc., Chicago, Ill.

Filed Oct. 8, 1968, Ser. No. 765,982

Int. Cl. B65b 25/06; A23b 1/04

U.S. Cl. 99—174

2 Claims

Dry sausage (e.g., hard salami) is stuffed, smoked and cooked in the usual manner. Then, instead of being placed in the drying room for the usual prolonged drying, the product is sliced to usual thickness, e.g. one-sixteenth to one-eighth of an inch. The slices are supported so as to be substantially fully exposed to air and then drying air is blown over the slices so as to reduce the residual moisture content to from about 25 to 50 percent in not more than about 3 hours. The dried slices are then hermetically sealed in oxygen free packages.

ERRATUM

For Class 99—194 see:
Patent No. 3,634,127

3,634,103

CONCENTRATING LIQUID FOODS

Edison Lowe, El Cerrito, and Everett L. Durkee, El Sobrante, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture
Original application Feb. 18, 1969, Ser. No. 800,193, now Patent No. 3,552,566. Divided and this application Jan. 21, 1970, Ser. No. 8,114
Int. Cl. A23b 7/02

U.S. Cl. 99—199

2 Claims

Process and apparatus by which concentrated products produced at high pressures within a reverse osmosis concentrator may be withdrawn at a predetermined degree of concentration and without damage to their intrinsic properties even though they exhibit non-Newtonian properties. The invention is of particular importance in preparing concentrated products from liquid foods such as juices, lacteal fluids, egg white, etc.

3,634,104

MICROBIAL STABILIZATION OF COMBINED FOODS AND LIQUIDS

Milton Kaplow, White Plains, and Joseph J. Hallik, Yonkers, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Sept. 10, 1968, Ser. No. 758,679

Int. Cl. A23b 1/01, 1/04, 7/02

U.S. Cl. 99—204

8 Claims

A food product comprised of solid pieces of meat and/or vegetables intimately mixed within a liquid phase gravy or sauce is made microbiologically stable at nonrefrigerated storage conditions by infusing both the solids phase and surrounding aqueous liquid phase with stabilizing solutes to the extent of reducing the water activity of the solids phase to a level ranging from about 0.6 to about 0.9 and formulating the liquid phase with stabilizing solutes such that the water activity of the liquid phase differs from the water activity of the solids phase by less than 0.1.

ERRATUM

For Class 99—205 see:
Patent No. 3,634,128

3,634,105

DEHYDRATED POTATO PROCESSES AND PRODUCTS
Roderick Gerald Beck, 1065 York Drive; Lyle Homer Parks, Route 2, and Mounir Ahmad Shatila, 241 Jefferson, all of Blackfoot, Idaho

Continuation of application Ser. No. 655,746, July 25, 1967, now abandoned. This application May 20, 1970, Ser. No. 39,141

Int. Cl. A23b 7/02; A231 1/00

U.S. Cl. 99—207

7 Claims

A dehydrated potato product yielding rapidly upon reconstitution pieces resembling pieces of fresh potato suitable for frying, as for instance hash brown potatoes, formed by preparing an aqueous dough of about 23 percent solids, not less than about 80 percent of which are undamaged potato cells and the balance of which includes conventional additives and not less than about 6 percent extracellular starch in a form to provide sufficient soluble edible adhesive, forming pieces of the desired size, and drying the pieces to a moisture content of about 7½ percent.

3,634,106

METHOD OF, AND MEANS FOR MANUFACTURING CHOCOLATE

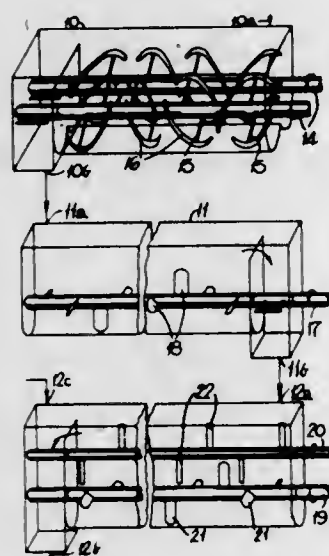
Terrence John Organ; Leslie Alderman, both of Bristol; Arthur Melley, Birmingham, and William Henry Pratt-Johnson, Bromsgrove, all of England, assignors to Cadbury Brothers Limited, Bournville, Birmingham, England

Filed July 28, 1969, Ser. No. 845,252

Claims priority, application Great Britain, July 24, 1968, 35,284/68

Int. Cl. A23g 1/10

U.S. Cl. 99—236 CC



A method of manufacturing chocolate comprising feeding the mixed and ground ingredients to a chamber wherein work is performed upon the mixture by rotating helically extending paddles which serve also to progress the mixture from one end of the chamber towards the other, continuously feeding the mixture from the said other end of the chamber, to at least one further chamber, containing rotating paddles, for further mixing and liquifying the mixture, continuously mixing lecithin and/or cocoa butter with the mixture leaving the further chamber and returning a proportion of the end product to the first mentioned chamber.

3,634,107

APPARATUS FOR DISPENSING COFFEE BEVERAGE

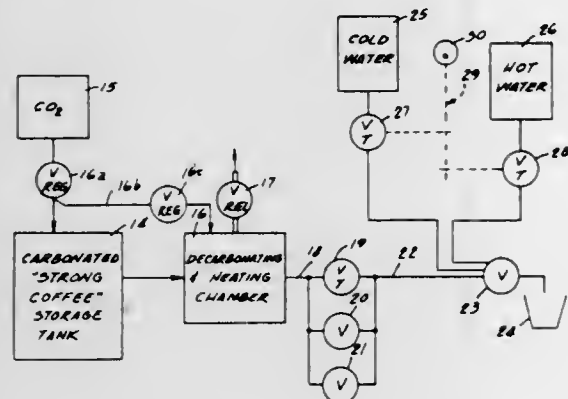
Richard T. Cornelius, Minneapolis, Minn., assignor to The Cornelius Company, Anoka, Minn.

Continuation-in-part of application Ser. No. 565,265, July 14, 1966, now Patent No. 3,532,505. This application June 10, 1970, Ser. No. 44,926

Int. Cl. A23l 1/00

U.S. Cl. 99—275

20 Claims



Means are provided wherein a supply of liquid coffee of a concentration which is too high for consumption is stored either in a carbonated condition at room temperature, or in a noncarbonated condition under refrigeration, a portion thereof being conducted at an adjustably selected rate to a

mixing valve. Heated water and unheated water are added to the mixing valve in a proportion which is simultaneously adjusted, so that when the mixing valve is opened, a serving of coffee beverage is obtained having selected strength and having selected temperature. Where carbonated liquid coffee is employed, it is transferred to a decarbonating and heating chamber en route to the mixing valve.

3,634,108

PROCESS FOR THE PRODUCTION OF A SMOKING FLUID FOR SMOKING FOODSTUFFS

Gerhard Fessmann, Mozartstr 16, Fellback, Stuttgart, Germany

Filed Feb. 6, 1969, Ser. No. 797,279

Claims priority, application Germany, Feb. 8, 1968, P 16 92 116.7

Int. Cl. A23b 1/04, 3/04

U.S. Cl. 99—229

8 Claims

A process for treating foodstuffs with a smoking fluid produced by contacting finely divided wood chips or sawdust with superheated steam. Oxygen, air enriched with oxygen or a mixture of oxygen and inert gas may be introduced in conjunction with the superheated stream or may subsequently be introduced into the smoking medium withdrawn from the thermally decomposed wood chips. The smoking fluid is then either brought directly into contact with the foodstuff to be treated to impart the desired smoke flavoring thereto or it may be converted into a liquid phase for subsequent use.

3,634,109

ZINC-RICH PROTECTIVE COATINGS FOR METALS

Blake F. Mago, New City, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Nov. 4, 1969, Ser. No. 874,070

Int. Cl. C09d 5/10

U.S. Cl. 106—1

15 Claims

A protective coating for metals containing an alkyl silicate, zinc dust, monoethanolamine, and an organic acid, preferably an organic branched chain acid such as 2-ethylbutyric acid or 2-ethylhexoic acid.

3,634,110

FLOOR POLISH EMULSION CONTAINING TRIS-AMINO-S-TRIAZINES, N,N-BIS-(BIS-AMINO-S-TRIAZINYL)-ALKYLAMINES, AND 1,4-BIS-AMINO-S-TRIAZINYL-PIPERAZINES

Denis Varsanyi, Ariesheim, Baselland, and Willy Roth, Strengelbach, Aargau, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of application Ser. No. 672,724, Oct. 4, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 560,855, June 27, 1966, now abandoned. This application Oct. 20, 1969, Ser. No. 867,976

Claims priority, application Switzerland, June 30, 1965, 9158/65

Int. Cl. C08h; C09d; C09a

U.S. Cl. 106—3

7 Claims

Certain tris-amino-s-triazines, N,N-bis-(bis-amino-s-triazinyl)-alkylamines, and 1,4-bis-(bis-amino-s-triazinyl)-piperazines are surface-treating agents and are useful in various surface-treating compositions, particularly floor waxes, shoe polishes and textile softeners.

3,634,111

GLASS-CERAMIC CEMENTS COMPRISING SILICON CARBIDE

Gordon F. Foster, Campbell, and Guy E. Stong, Elmira, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,502

Int. Cl. C04b 33/00; C03c 27/00

U.S. Cl. 106—40 R

1 Claim

This invention relates to the manufacture of thermally stable, structurally strong, foaming cements from TiO_2 -nucleated, lithium aluminosilicate glass-ceramic materials through the addition of SiC thereto. These cements are es-

ERRATA

For Classes 106—171 and 106—291 see: Patent Nos. 3,634,118 and 3,634,119

3,634,112

ALUMINUM POLYOXYCHLORIDE BONDED CASTABLE REFRACTORY

Paul J. Yavorsky, Wyckoff, and Louis S. Cook, Ridgewood, both of N.J., assignors to Basic Ceramics Incorporated, Hawthorne, N.J.

Filed Apr. 9, 1968, Ser. No. 719,843

Int. Cl. C04b 35/10, 35/48

U.S. Cl. 106—55

11 Claims

A refractory ceramic composition suitable for use as a castable refractory consisting essentially of a slurry of ceramic particles admixed with an aluminum polyoxychloride bonding agent. The bonding agent is the reaction product of aluminum polyoxychloride and a curing agent which is capable of supplying alkalizing ions to the aluminum polyoxychloride. Such composition may be cast into a mold and permitted to harden in the mold. The casting is subsequently removed from the mold.

3,634,113

STABILIZED ZIRCONIUM DIOXIDE AND HAFNIUM DIOXIDE COMPOSITIONS

Larry L. Fehrenbacher, 1613 Greenoak Court, Fairborn, Ohio

Filed Oct. 30, 1968, Ser. No. 772,000

Int. Cl. C04b 35/48, 35/50

U.S. Cl. 106—55

8 Claims

A type C mixed rare earth oxide solid solution is used to eliminate the monoclinic phase of zirconium dioxide and thus produce a stable refractory. The type C solid solution consists primarily of oxides of dysprosium, erbium, ytterbium, and holmium with small amounts of thulium, terbium, and lutetium. This solid solution is applicable to hafnium dioxide and to mixtures of hafnium dioxide with zirconium dioxide as well.

3,634,114

COMPOSITION AND METHOD FOR THE PRODUCTION OF CERAMICALLY BONDED BASIC REFRACTORIES

Glenn H. Lufcy, Tiffin, Ohio, assignor to Basic Incorporated, Cleveland, Ohio

Filed Jan. 24, 1969, Ser. No. 793,895

Int. Cl. C04b 35/04, 35/06

U.S. Cl. 106—58

18 Claims

In the production of ceramically bonded basic refractories, basic refractory particles are bonded together with a temporary binder. The temporary binder includes a substantially completely neutralized pitch, which may be a tall oil pitch or a fatty acid pitch, and may also include cylinder lube stock and/or an asphalt binder oil.

3,634,115

SULFOPOZZOLANICALLY ACTIVE FLY ASH AND COMPOSITION

Leonard John Minnick, Cheltenham, Pa., assignor to G. & W. H. Corson Inc., Plymouth Meeting, Pa.

Filed Dec. 3, 1968, Ser. No. 780,902

Int. Cl. C04b 7/12

U.S. Cl. 106—85

12 Claims

A new bituminous coal fly ash is sulfoPOZZOLANICALLY reactive and contains combined sulfate in stated proportions relative to alkaline earth metal oxide content. Load-supporting compositions of this fly ash combined with aggregate, and a method of applying the new fly ash to an existing surface.

3,634,116

SILICON-CARBIDE-ENCASED GRAPHITE ARTICLES AND THEIR PRODUCTION

Lloyd M. Woerner, Freeland; William C. Kivela, and George J. Quaal, both of Midland, all of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed June 2, 1969, Ser. No. 829,809

Int. Cl. C23c 1/10

U.S. Cl. 117—106 C

21 Claims

Articles of manufacture having a graphitic body are encased by a porous, fluid-permeable, continuous casing of individual silicon-carbide-encased graphite particles which are diffused into and integral with the entire outer surface of the graphitic body. This casing is produced by forming a silicon monoxide vapor, by the reaction of silicon and silicon dioxide powders, for example, which vapor in turn is diffused into the graphitic body and reacted with graphite particles near the surface of the graphitic body to form, in situ, the individual silicon carbide casings that constitute the continuous casing of the entire outer surface.

3,634,117

TEXTILE MATERIAL COATED WITH AN AMMONIUM DIALKYL PHOSPHATE ANTISTATIC AGENT

Arno Wegerhoff, Worth, am Main; Franz-Josef Schmitz, Erlenbach, and Carl Macura, Klingenberg, all of Germany, assignors to Glanzstoff AG, Wuppertal, Germany

Filed Feb. 17, 1969, Ser. No. 799,999

Claims priority, application Germany, Feb. 17, 1968, P 17 19 543.6

Int. Cl. D06m 13/26

U.S. Cl. 117—138.8 F

7 Claims

Acyl-amino-propyl-dialkyl-ammonium dialkyl phosphates as surface active agents and their application to textile materials, especially polyester and polyamide fibrous materials, as a finishing agent, for example, in combination with an aqueous emulsion of a textile lubricating agent.

3,634,118

NITROCELLULOSE COATINGS IMPROVED BY CERTAIN OXIME ADDUCTS OF POLYMERIC FAT ACID BASED ISOCYANATES

Kenneth B. Stokes, Minneapolis, Minn., assignor to General Mills, Inc.

Filed Mar. 18, 1970, Ser. No. 20,798

Int. Cl. C08b 21/12

U.S. Cl. 106—171

12 Claims

Nitrocellulose coatings are improved through the use of adducts of certain aliphatic oximes and polymeric fat acid based isocyanates.

3,634,119

NACREOUS PIGMENT COMPOSITIONS

Edward F. Klenke, Liberty Corner, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 10, 1969, Ser. No. 884,035

Int. Cl. C09c 1/28, 1/40

U.S. Cl. 106—291

8 Claims

Nacreous pigment exhibiting interference colors and a high degree of opacity, composed of a metal oxide, such as titanium dioxide, in particulate form on mica substrate, at least part of the mica substrate being calcined; and a process of preparing the pigment.

3,634,120

PROCESS OF PRODUCING TRANSFER ELEMENTS

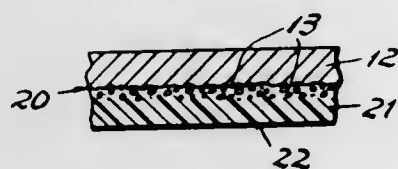
Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.

Filed Feb. 19, 1969, Ser. No. 800,413. The portion of the term of the patent subsequent to May 6, 1986, has been disclaimed.

Int. Cl. B41m 5/10

U.S. Cl. 117-36.1

7 Claims



Process of producing pressure sensitive transfer elements having a plastic film foundation comprising forming the foundation from a resinous composition containing a blowing agent at least at one surface, activating the blowing agent only at said surface to form a porous surface and applying an ink-releasing layer to said surface.

3,634,121

ACID-SENSITIZED RECORD SHEET

Bruce W. Brockett, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Mar. 17, 1969, Ser. No. 807,960

Int. Cl. B41m 5/22

U.S. Cl. 117-36.2

4 Claims

This invention relates to means for sensitizing sheet record material, such as paper, for developing color in applied colorless marking fluids which are essentially basic in chemical properties, the sensitization consisting of applying to the record material particles of paper-coating-type of fine mineral particles having adsorbed thereon acid-reacting oil-soluble polymeric material to develop strong colors in applied colorless marking liquids of oily nature. The polymeric materials of acid-reactant properties preferably are of the oil-soluble phenolic film-forming polymeric type, although other acid-reacting oil-soluble polymeric materials are eligible for use.

3,634,122

METHOD FOR TREATING RAZOR BLADES

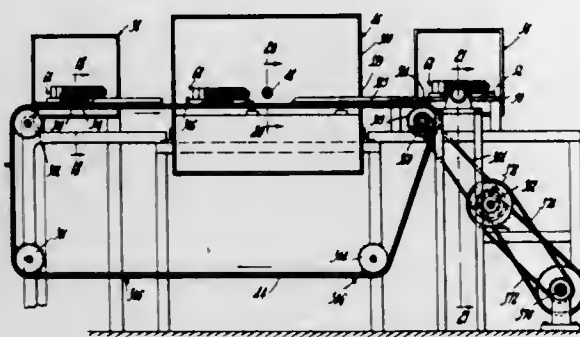
Philipp G. Grefe, Braintree; Edward M. Lewicki, Hingham, and Meyer J. Shnitzler, Brookline, all of Mass., assignors to The Gillette Company, Boston, Mass.

Original application Oct. 5, 1964, Ser. No. 403,693, now Patent No. 3,498,257, which is a continuation of application Ser. No. 331,080, Dec. 10, 1963, now abandoned, which is a continuation of application Ser. No. 30,265, May 19, 1960, now abandoned. Divided and this application Apr. 23, 1969, Ser. No. 833,235

Int. Cl. B44d 1/34; B08b 7/02

U.S. Cl. 117-43

6 Claims



Apparatus for treating razor blades wherein a stack of razor blades disposed in a holder is successively passed

through a blade cleaning unit, a preheater, a spraying unit for depositing a thin coating of shaving facilitating material on the blade edges, a heating unit for curing said material, and a cooling unit. The blades are contained loosely in the blade holder while passing through the cleaning unit to permit them to be thoroughly cleaned and are thereafter clamped together in a compact stack for subsequent treatment. The cleaning unit includes a plurality of nozzles, the operation of which is in timed relationship with the conveyor so that only those nozzles which are opposite specific holder locations on the conveyor emit cleaning fluid.

3,634,123

METHOD FOR MAKING NONTHROMBOGENIC SURFACES

Jan Christer Eriksson, Margretalundsvagen 20, Bromma; Hans Ragnar Lagergren, Ostermalmsgatan 89, Stockholm; Anders Lennart Johansson, Ostra Banvagen 22, Enebyberg, and Elsa Gunilla Gillberg, Stopvagen 72, Bromma, all of Sweden

Continuation-in-part of application Ser. No. 510,355, Nov. 29, 1965, now abandoned. This application June 21, 1968, Ser. No. 738,826

Claims priority, application Sweden, Dec. 17, 1964, 15,249/64

Int. Cl. A61k 17/18

U.S. Cl. 117-47 A

20 Claims

The specification discloses a method for reducing thrombosis of blood induced by contact with a foreign surface by treating the surface with a cationic surface-active agent, and a conventional anticoagulant, such as heparin.

3,634,124

PROCESS FOR THE PRODUCTION OF A SHEET MATERIAL HAVING A SHAMMYING EFFECT, AND THE MATERIAL THUS PRODUCED

Simon J. Steenvoorden, Rheden, Netherlands, assignor to Algemene Kunstzijde Unie, N. V., Arnhem, Netherlands

Filed Apr. 3, 1969, Ser. No. 813,299

Claims priority, application Netherlands, Apr. 17, 1968, 6805359

Int. Cl. B44d 1/44; B32b 27/08

U.S. Cl. 117-47 A

7 Claims

This invention relates to the production of a sheet material having a shammying effect by shrinking a web comprising retractable fibers in an aqueous medium and then providing it with a polymeric filler, wherein (a) a web which consists essentially of retractable polyvinyl alcohol fibers is caused to shrink and is treated with an aqueous solution of polyvinyl alcohol and a water-soluble resin composition; (b) the web is subsequently contacted with a liquid (e.g., an aqueous salt solution) which causes the polyvinyl alcohol to coagulate and in which the resin composition is practically insoluble; (c) the filled web is subsequently subjected to an acetalizing treatment (e.g., by means of an acidified aqueous solution of formaldehyde) in which the polyvinyl alcohol is rendered insoluble in hot water and the resin composition is at least partly removed from the web; and (d) the thus treated web is washed and dried. A suitable resin composition is a water-soluble composition of melamine and formaldehyde.

3,634,125

METHOD OF COATING IRON OR TITANIUM CONTAINING SUBSTRATE WITH POLY(ARYLENE SULFIDE)

Dale O. Tieszen, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Aug. 15, 1968, Ser. No. 752,767

Int. Cl. B44d 1/34

U.S. Cl. 117-49

11 Claims

A substrate of iron or titanium or an alloy containing iron and/or titanium is pretreated at a temperature of about 650° F. or higher, and thereafter coated with a composition comprising a poly(arylene sulfide).

3,634,126

PROCESS FOR CONTROLLING LOCATION OF COMPOSITION IN FABRICS

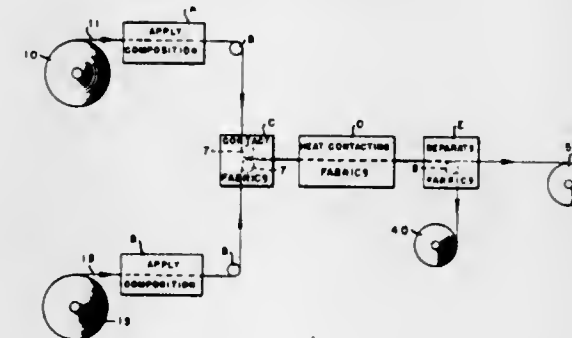
James P. Cain, and James M. Miller, both of Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Sept. 15, 1969, Ser. No. 857,768

Int. Cl. B44d 1/10

U.S. Cl. 117-68

7 Claims



A process for simultaneously and preferentially depositing compositions on a particular side of two textile fabrics is described. The process involves impregnating two pieces of textile fabric with a composition in a liquid carrier, contacting the surfaces of the treated fabrics in contiguous relationship and heating the contacting fabrics to remove the liquid carrier whereby the composition becomes concentrated at or near the exposed surfaces of the two fabrics. The process can be repeated with the same or a different composition, and by exposing the remaining surface of each fabric on drying, depositing the second composition on these exposed surfaces. Thus, the invention provides a method for depositing two different compositions on two fabrics wherein each surface of the fabrics contains predominantly different compositions.

3,634,127

METHOD OF PREPARING POULTRY PRODUCTS FOR PROLONGED STORAGE

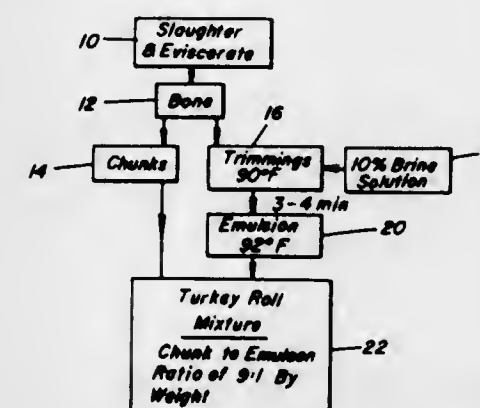
Virgil W. Vogel, and Paul W. Vogel, both of Pekin, Ill., assignors to Bird Provision Co.

Continuation-in-part of application Ser. No. 523,366, Jan. 27, 1966, now abandoned. This application June 17, 1969, Ser. No. 840,113

Int. Cl. A22c 21/00; B65b 25/06

U.S. Cl. 99-194

6 Claims



Meat removed from the carcasses of poultry packaged in an air-impermeable material promptly after slaughter and without prior cooling or addition of chemical preservatives. Between slaughter and packaging, the meat is exposed to ambient conditions while undergoing physical preparation such as emulsification and mixing during an exposure period of limited duration.

3,634,128

PROCESS FOR CONCENTRATING LIQUID FOODS

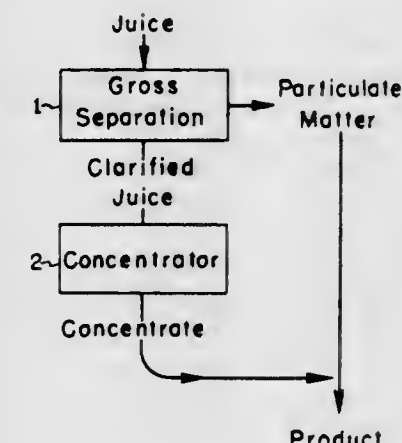
Harold R. Boll, Logan, Utah, assignor to The United States of America as represented by the Secretary of Agriculture

Filed Sept. 18, 1969, Ser. No. 859,053

Int. Cl. A23b 7/02; B01d 13/00

U.S. Cl. 99-205

3 Claims



I. A juice which contains undissolved material is subjected to a separation treatment, e.g., screening, filtration, or centrifugation. II. The resulting clarified juice is applied to one side of a membrane while heated air is applied to the other side thereof to evaporate water which diffuses through the membrane. Concomitantly cooling is applied to the juice to prevent damage thereof. III. The concentrated juice formed in the diffusion process is then blended with the undissolved material separated from the original juice in step I.

3,634,129

METHOD OF LUBRICATING METAL FASTENERS WITH AN AQUEOUS LUBRICANT COMPOSITION

John W. Benz, Prospectville, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa.

Original application Dec. 26, 1967, Ser. No. 693,183, now Patent No. 3,522,177. Divided and this application Jan. 26, 1970, Ser. No. 10,695

Int. Cl. B44d 1/46; C10m 3/34; F16b 35/00

U.S. Cl. 117-119.6

3 Claims

Aqueous compositions, useful per se as lubricants or for forming dry lubricating films, comprising a finely divided solid lubricant suspended in an aqueous solution of an alkali metal silicate and an alkali metal lignosulfonate. Methods for making such compositions and for coating metal fasteners therewith. Metal fasteners lubricated with such compositions.

3,634,130

IMPREGNATES REINFORCING MATERIALS

Frank Long, and Gordon R. Ensor, both of Llangollen, Wales, assignors to Monsanto Chemicals Limited, London, England

Division of Ser. No. 701,103, Jan. 29, 1968, Pat. No. 3,554,969

Filed June 10, 1970, Ser. No. 45,242

Claims priority, application Great Britain, Feb. 3, 1967, 5,362/67

Int. Cl. B32b 17/04, 19/02, 19/08

U.S. Cl. 117-121

14 Claims

Disclosed herein are fibrous reinforced resin composites especially adapted for high-temperature applications. The resin component is characterized by having a plurality of recurring imide linkages and direct linkages between aromatic nuclei. These materials are the polymeric reaction product of (1) a polycarboxylic anhydride having a molecular structure comprising at least two units (D) each derived by the loss of one or more hydrogen atoms from the nucleus of an aromatic carboxylic anhydride and at least one unit (E) derived by the loss of two or more hydrogen atoms from the

nucleus or the nuclei of an aromatic compound containing one or more nuclei, and wherein any D unit is linked directly to one or more E units and any E unit is linked directly to at least two units selected from D units and E units, with (2) a polyamine containing two or more primary amino groups per molecule.

3,634,131

FUGITIVELY COLORED SOLID MATERIALS

Larry R. Foster, and Jerry A. Cogan, Jr., both of Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Feb. 12, 1969, Ser. No. 798,814

Int. Cl. B32b 27/06, 27/30

U.S. Cl. 117—161 UC

11 Claims

A pigment composition comprising a pigment and hydrophilic film-forming synthetic acid polymer comprising at least about 10 weight percent acid calculated as acrylic acid is described. The composition may be applied as a coating on any solid material, and the coating is characterized by its ability to be removed by a detergent solution.

3,634,132

BORON NITRIDE COATED BORON FILAMENTS

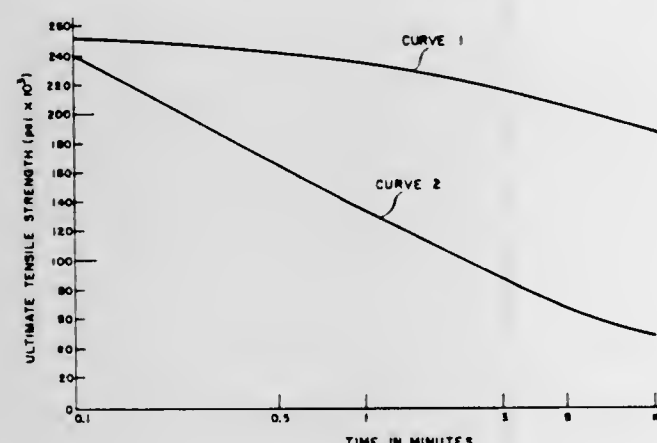
Jose L. Camahort, Millbrae, and Mario P. Gomez, Sunnyvale, both of Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Original application Aug. 19, 1968, Ser. No. 753,589, now Patent No. 3,573,969, dated Apr. 6, 1971. Divided and this application May 22, 1970, Ser. No. 38,648

Int. Cl. B44d 1/42

U.S. Cl. 117—169 R

3 Claims



A method for surface nitriding boron filaments to make the filaments useful as reinforcement agents in composite materials. The method involves initially forming a liquid boron oxide coating on the filament, for example, by heating the filament at temperatures of from about 560° C. to 800° C. in an oxidizing atmosphere and then converting the liquid oxide coating to a solid, continuous boron nitride coating by, for example, heating the filament at temperatures of from about 600° C. to 1,100° C. in a nitrogen-containing atmosphere.

3,634,133

METHOD OF PRODUCING A HIGH-FREQUENCY SILICON TRANSISTOR

Peter Albus, Sunnyvale, Calif., assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Mar. 11, 1969, Ser. No. 806,201

Claims priority, application Germany, Mar. 20, 1968, P 17 64 004.9

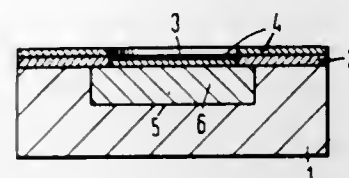
Int. Cl. H01l 7/44

U.S. Cl. 148—187

5 Claims

Described is a method of producing a diffusion transistor of silicon wherein both the base region and the emitter re-

gion are produced by employing an SiO₂ mask, by indiffusing an activator material obtained from the gaseous phase. Following the indiffusion of the base-coating activator obtained as an oxide from a gaseous phase, upon the already present SiO₂ masking, and of the oxide which newly coats the diffusion point, additional SiO₂ is precipitated from a reaction gas.



The emitter region is produced by using the reinforced oxide layer as a mask, by diffusion and/or alloying. The above steps are undertaken, including the final contacting process, at a temperature which does not result in a notable penetration of doping material from the base region into the above-located oxide.

3,634,134

METHOD OF MAKING A PHOTOCONDUCTIVE COMPOSITION AND DEVICE

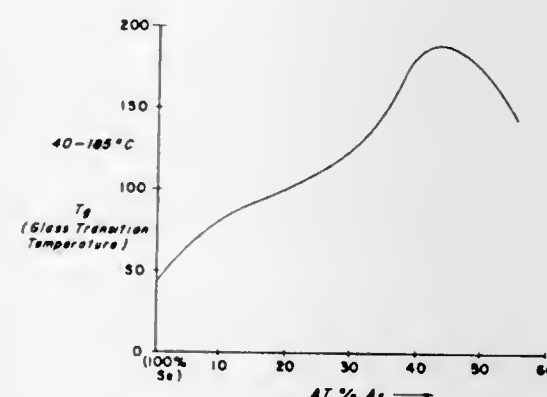
Michael P. Trubisky, Fairport; Leon A. Teuscher, Webster; Frank M. Palermittl, Pittsford, and Charles J. Levine, Rochester, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed June 25, 1969, Ser. No. 836,558

Int. Cl. G03c 1/08; G03g 5/08

U.S. Cl. 117—201

5 Claims



A method of making a photoconductive layer which includes forming a coating on the surface of a supporting substrate, said coating having at least a major portion of a vitreous selenium alloy in particulate form and a minor portion of an insulating resin, annealing said coating at a temperature at or above about the glass transition temperature of the alloy for a time sufficient to allow the alloy particles to flow and coalesce with said resin to form a final structure characterized by a somewhat continuous vitreous selenium alloy matrix containing resin in the form of discrete particles and partial networks.

3,634,135

ELECTROSTATIC RECORDING SHEET AND PROCESS FOR MAKING THE SAME

Toyomi Akiyama, Osaka, and Taiji Higaki, Nishinomiya, both of Japan, assignors to Kanzaki Paper Mfg. Co., Ltd., Tokyo, Japan

Filed July 1, 1969, Ser. No. 838,281

Claims priority, application Japan, July 9, 1968, 43/48018

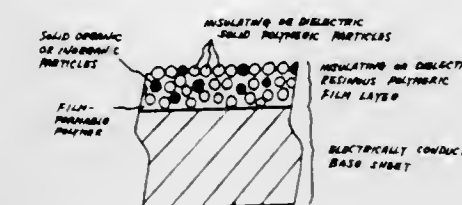
Int. Cl. G03g 5/10

U.S. Cl. 117—221

22 Claims

Improved electrostatic recording sheets (on paper, plastic films, metal plates, or the like), and a process for making the

same is disclosed, wherein the substrate having an electrically conductive base sheet thereon is coated with a suspension of a resinous polymer having insulating or dielectric properties, dispersed in an organic solvent, which is substantially a non-solvent for said polymer, whereby a dielectric or insulating electric-charge-retentive layer is formed on the surface of the electrically conductive base sheet, so that said dielectric



layer contains solid polymeric particles of particular characteristics. The result of this process, and the product thereby formed, is a mat-finish surface, having both excellent electrostatic recording characteristics, and also capable of being written thereupon by conventional ink pens, lead pencils, ballpoint pens, or also being capable of receiving impressions made by conventional rubber stamps or printing processes.

3,634,136

FLAME RESISTANT SILICONE COMPOSITION

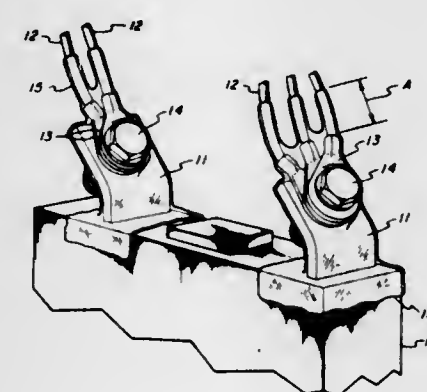
Franklin J. French, La Habra, and Dominic C. Mitchell, Arcadia, both of Calif., assignors to North American Rockwell Corporation

Filed June 9, 1969, Ser. No. 831,549

Int. Cl. B44d 1/42; C09k 3/28

U.S. Cl. 117—224

1 Claim



A silicone elastomer having from 50 to 180 parts by weight of sodium bicarbonate is cured at a temperature below the decomposition temperature of sodium bicarbonate so as to produce a dense, rubberlike material for moldings and coatings of metal which have substantial flame resistance, even in an atmosphere of pure oxygen.

3,634,137

MAGNETIC RECORDING MEDIUM

Goro Akashi, and Yasuyuki Yamada, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

Filed Sept. 24, 1969, Ser. No. 860,780

Claims priority, application Japan, Sept. 26, 1968, 43/69670

Int. Cl. H01f 10/02

U.S. Cl. 117—235

11 Claims

A magnetic recording medium comprising a polypropylene film as a support and a magnetic layer of magnetic powders dispersed in chlorinated polypropylene as a binder.

3,634,138

EXTENDED LIFE SECONDARY CELLS

John Davidson Voorhies, New Canaan, Conn., and Mary Ellen Nichols, Highland Park, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 27, 1970, Ser. No. 32,349

Int. Cl. H01m 35/00, 21/00

U.S. Cl. 136—6

3 Claims

The useful shelf and cycle life of secondary cells using a zinc anode, and a azobisformamide or substituted azobisformamide depolarizer is increased by coating the zinc with a small amount of a tetraalkylammonium salt, and/or increasing the content of ammonium chloride in the electrolyte above its solubility limit.

3,634,139

EXTERNAL RESERVOIR AND INTERNAL POOL FUEL CELL SYSTEM AND METHOD OF OPERATION

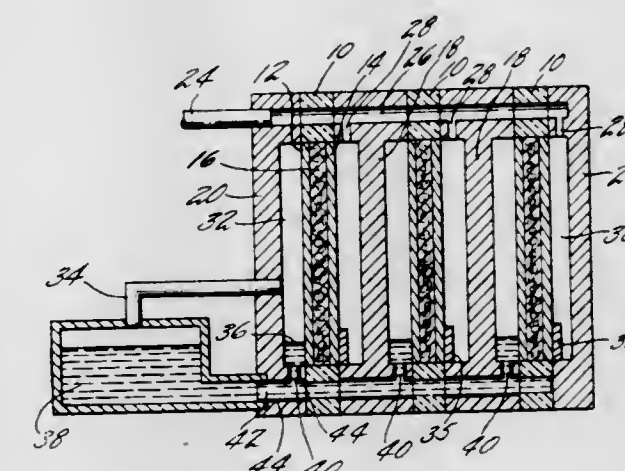
Carl A. Reiser, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 18, 1969, Ser. No. 817,439

Int. Cl. H01m 27/02

U.S. Cl. 136—86 R

5 Claims



A fuel cell module is disclosed for use with aqueous electrolyte fuel cells with provisions for accepting large electrolyte volume changes which occur as a result of changes in ambient conditions and/or power output. The module incorporates internal cell pools combined through an internal manifold system to an external electrolyte reservoir. The advantage of this particular arrangement lies in its ability to provide broad tolerance to electrolyte volume changes and is particularly suitable for use with compact fuel cells having lightweight electrodes.

3,634,140

FUEL CELL DEVICE UTILIZING AIR AS OXIDANT

Otto Von Krusenstierna, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Sept. 15, 1969, Ser. No. 857,758

Claims priority, application Sweden, Sept. 20, 1968, 12671/68

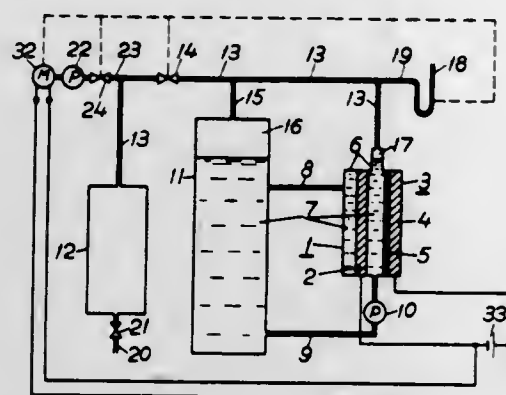
Int. Cl. H01m 27/12

U.S. Cl. 136—86 B

3 Claims

A fuel cell arrangement includes an electrolyte chamber with a fuel electrode arranged in contact with electrolyte and the fuel of the cell and having an air electrode arranged in contact with the electrolyte and with the atmosphere. The air electrode is formed of two porous layers having different porosity, the layer located nearest the electrolyte side having the finer pores. The electrolyte chamber is connected to a large storage vessel by electrolyte circulating means. The top of the storage vessel and the top of the electrolyte chamber

are connected by a valved conduit to an evacuated container, from limited but effective chemical action that takes place at which is also connected by a valved conduit to a suction this exposed surface and proceeds under presumably sealing



pump capable of being operated by a battery charged by the output of the fuel cell.

3,634,141

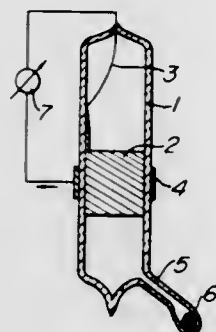
APPARATUS FOR DIRECT GENERATION OF ELECTRICITY

Masaki Hirashima, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Continuation of application Ser. No. 577,219, Sept. 6, 1966, now abandoned. This application May 22, 1970, Ser. No. 39,737
Claims priority, application Japan, Sept. 7, 1965, 40/54419

Int. Cl. H01m 23/00

U.S. Cl. 136—83

4 Claims



A cell-type apparatus for directly generating electric power which comprises an enclosed glass tube made of glass containing sodium oxide, an anode and a cathode disposed respectively on the inner and outer surfaces of said glass tube, and vapor of cesium filling said glass tube; and which is used at an elevated temperature above about 100° C.

3,634,142

MAGNESIUM DRY BATTERY WITH ANODE CONTACT PROTECTION

Lloyd W. Eaton, Cleveland, Ohio, assignor to Clevite Corporation, Cleveland, Ohio

Filed Feb. 24, 1970, Ser. No. 13,286

Int. Cl. H01m 21/00

U.S. Cl. 136—111

4 Claims

The external, nonreacting surface of the magnesium anode of a dry cell is covered by a protective coating to prevent impairment or loss of electrical contact with the adjacent cell of a battery which, it has been discovered, frequently results

barriers to undermine electrical contact with the adjoining cell.

3,634,143

PREPARATION OF III-V ALLOYS FOR INFRARED DETECTORS

Leo C. Brennan, Palo Alto, Calif., assignor to Avco Corporation, Cincinnati, Ohio

Filed May 8, 1969, Ser. No. 823,150

Int. Cl. B01j 17/30

U.S. Cl. 148—1.6

9 Claims

A single crystal InAs-InSb alloy is prepared on a III-V substrate by flash evaporation of a mixture of granulated InAs and InSb in a vacuum system, subsequent condensation and solidification of the vapor on the substrate and subsequent annealing. The flash evaporation and solidification is thus followed by suitable annealing of the deposited material for several weeks at a temperature close to but below the solidus temperature of the alloy. Prior to annealing, an oxide film may be formed on the deposited alloy to prevent loss of the more volatile constituents.

3,634,144

PROCESS FOR PREPARING LITHIUM-FILLED FORAMINOUS METAL BODIES

Barry Douglas Hanawalt, Aston Township, Delaware County, Pa., assignor to Foote Mineral Company, Exton, Pa.

Filed July 14, 1970, Ser. No. 54,868

Int. Cl. C23c 1/10

U.S. Cl. 148—6.3

11 Claims

A foraminous metal substrate is oxidized to form a surface film of metal oxide throughout the foraminous areas of the metal and immersed in a molten lithium bath to fill the foraminous substrate with lithium.

3,634,145

CASE-HARDENED METALS

Oris T. Homan, Las Vegas, Nev., assignor to Triangle Industries, Inc., Newark, N.J.

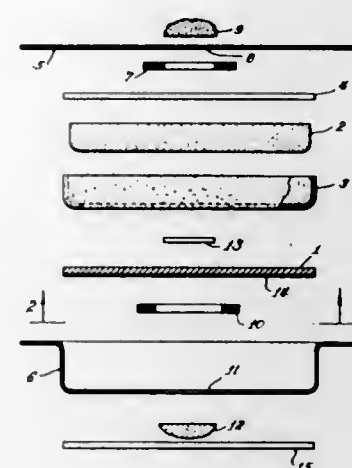
Filed Dec. 9, 1968, Ser. No. 782,436

Int. Cl. C23c 9/00

U.S. Cl. 148—6.11

16 Claims

A process of boronizing a metal article is described which comprises immersing the selected metal article in a fused bath composed of at least one alkali metal halide or alkaline earth metal halide and a boron salt of the empirical formula $M_xB_yF_z$, wherein M is an alkali metal, and the ratio of x:y:z is 1:0.4 to 2.0:0.5 to 2.5 with y being preferably above 1 and z is preferably below 1.5, the fused bath being maintained at a temperature between 1,200° to 1,750° F. for a sufficient du-



ration to impregnate the metal with boron. There is also described novel boron products, their process of manufacture and salt baths containing such boron products. The process produces extremely hard, uniform, adherent and corrosion resistant boride casing on metals such as carbon and alloy steels.

3,634,146

CHEMICAL TREATMENT OF METAL

Vernon Paul Wystrach, Wilton, and Francis Clyde Rauch, Stamford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Sept. 4, 1969, Ser. No. 855,397

Int. Cl. C23f 7/08

U.S. Cl. 148—6.15 R

8 Claims

A method for preparing metal surfaces for receipt of a coating such as a paint or adhesive (whereby increased coating adhesion and corrosion resistance is achieved) and the treated metal per se, are disclosed. The method comprises contacting the metal surface with various phosphinic and phosphonic acids.

3,634,147

CORROSION RESISTANT TIN-FREE STEEL AND METHOD FOR PRODUCING SAME

Lawrence E. Helwig, Hampton Township, Allegheny County, and Leon L. Lewis, Butler, both of Pa., assignors to United States Steel Corporation

Filed Nov. 20, 1969, Ser. No. 878,548

Int. Cl. C23f 7/04

U.S. Cl. 148—6.35

10 Claims

A superior corrosion-resistant tin-free steel is produced by vacuum depositing high-purity metallic chromium onto a thoroughly cleaned steel surface at a temperature within the range 500°–1,000° F., and thereafter, before the coated steel is cooled, exposing the freshly deposited coating to an oxidizing atmosphere while the steel is at a temperature of 600° to 1,000° F. The resulting vigorous high-temperature oxidation of exposed steel at cracks and pores to magnetite produces a continuous pore-free and crack-free coating which is lustrous and metallic in appearance and provides exceptional resistance to corrosion.

3,634,148

METHOD FOR PRODUCING NONORIENTED SILICON ELECTRICAL SHEET STEEL

Paik Woo Shin, Coopersburg, and Edward H. Mayer, Bethlehem, both of Pa., assignors to Bethlehem Steel Corporation

Filed Feb. 13, 1969, Ser. No. 799,069

Int. Cl. H01f 1/16; C23f 7/00

U.S. Cl. 148—111

2 Claims

A nonoriented electrical sheet steel containing not more than 0.03 percent carbon and from about 0.5 percent to about 4.5 percent silicon and a process for manufacturing said electrical sheet steel. The process includes preparing low carbon sheet steel by conventional methods of melting, pouring and rolling, coating the surfaces of the sheet steel with a layer of silicon-containing powder, compacting the powder onto the sheet and heat treating the composite thus formed in a protective environment to cause a solid-state diffusion of silicon into the sheet steel. The core losses of electrical sheet steel thus prepared are equivalent to or better than electrical sheet steel of the same silicon content and gage prepared by additions of silicon to the steel while it is in a molten state.

3,634,149 METHOD OF MANUFACTURING ALUMINUM NITRIDE CRYSTALS FOR SEMICONDUCTOR DEVICES

Wilhelmus Franciscus Knippenberg, and Gerrit Verspaal, both of Emmasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

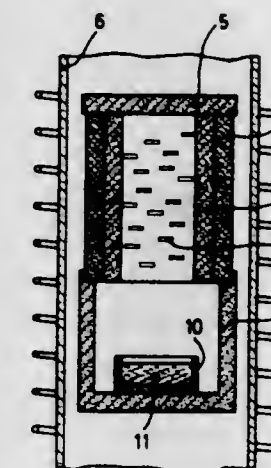
Filed Oct. 25, 1967, Ser. No. 678,056

Claims priority, application Netherlands, Oct. 25, 1966, 6615059

Int. Cl. H01l 7/00; C01b 21/06; B01j 17/28

U.S. Cl. 148—175

6 Claims



A method of forming aluminum nitride single crystals of large area and silicon carbide-aluminum nitride heterojunctions using a modified Lely method. Aluminum nitride is introduced, as a vapor phase, into a furnace containing a plate-shaped monocrystal of silicon carbide at a temperature between 1800° and 2300° C. At those temperatures, aluminum nitride recrystallizes and condenses to deposit epitaxially on the silicon carbide. If the silicon carbide is of one conductivity type, the aluminum nitride can be suitably doped to be of the opposite conductivity type whereby a heterojunction is formed.

3,634,150

METHOD FOR FORMING EPITAXIAL CRYSTALS OR WAFERS IN SELECTED REGIONS OF SUBSTRATES

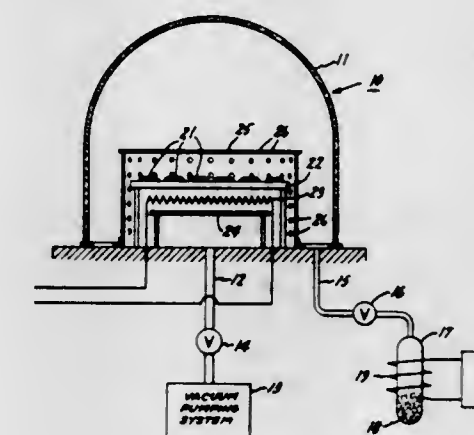
Fordyce H. Horn, deceased, late of Schenectady County, N.Y. (by Helen W. Horn, executrix), assignor to General Electric Company

Filed June 25, 1969, Ser. No. 836,671

Int. Cl. H01l 7/36

U.S. Cl. 148—175

1 Claim



A method for growing semiconductor material on insulating or conducting substrates or in small apertures in insulating or conducting substrates is disclosed. The method comprises masking the surface of a nucleating semiconductor

substrate with an appropriately apertured mask, epitaxially growing semiconductor material through the apertures and separating the mask with its grown semiconductor material from the nucleating substrate to produce either discrete crystals in a substrate or a crystal wafer on a substrate.

3,634,151

METHOD FOR MAKING SEMICONDUCTOR DEVICES

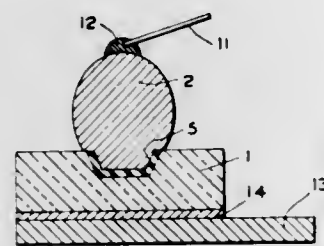
Tomi Sato, and Keiji Matsumoto, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed May 1, 1970, Ser. No. 33,584

Int. Cl. H011 7/46

U.S. Cl. 148—178

8 Claims



A method is provided for making a PN-junction semiconductor. A crystalline semiconductor wafer having a metal dot placed upwardly thereon is heated to cause the dot to adhere to the wafer. The wafer is then turned upside down at room temperature. The wafer is then heated at a temperature higher than the adhering temperature to cause the dot to interact with the wafer to form a hyperabrupt junction silicon diode.

ERRATUM

For Class 148—187 see:
Patent No. 3,634,133

3,634,152

MATCH HEAD COMPOSITION

Takeru Yanagisawa, Tokyo, and Yoshikyo Mega, Himeji-shi, both of Japan, assignors to Kawase Bussan Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 8, 1969, Ser. No. 856,178

Int. Cl. C06f 3/00

U.S. Cl. 149—18

4 Claims

A composition which is applied to the end of a match stick comprises shellac, sulphur, barium chlorate, diatomaceous earth, glue and polyvinyl chloride.

3,634,153

NONCORROSIVE PYROTECHNIC COMPOSITION

William E. Perkins, Runnemede, N.J., and Thomas Q. Ciccone, Langhorne, Pa., assignors to The United States of America as represented by the Secretary of the Army

Filed Feb. 3, 1970, Ser. No. 8,403

Int. Cl. C06d 1/10; C06c 1/04

U.S. Cl. 149—19

4 Claims

A noncorrosive pyrotechnic igniter composition in combination with corrosive pyrotechnic tracer compositions for use in very small tracer cavities. A noncorrosive igniter composed of lead dioxide as the noncorrosive oxidizer, zirconium as the fuel and stabilized red phosphorus as the sensitizer all in predetermined proportions, prevents the premature ignition of the corrosive tracer composition.

3,634,154

SOLID PROPELLANT COMPOSITION CONTAINING GELLED HYDRAZINE

George William Burdette, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 29, 1963, Ser. No. 305,555

Int. Cl. C06d 5/10; C101 5/00, 7/00

U.S. Cl. 149—20

8 Claims

1. A method for the preparation of a propellant composition which comprises the steps of
a. stirring antimonyl potassium tartrate crystals into a solution consisting of hydrazine and sodium carboxymethyl-cellulose at room temperature until a homogeneous mixture results, and
b. curing said mixture overnight; whereby a nonreversible gel forms.

3,634,155

PRIMING COMPOSITION

Josef Prior, Viktorlastr., Troisdorf, and Aloys Florin, Spich, both of Germany, assignors to Dynamit Nobel AG., Troisdorf, Germany

Filed June 24, 1969, Ser. No. 836,159

Claims priority, application Germany, June 29, 1968, P 17 71 720.3

Int. Cl. C06c 1/02

U.S. Cl. 149—26

4 Claims

Granulated initiator explosive composition having a weight ratio of 5:95 to 95:5 of lead azide to lead trinitroresorcinat and 0.1 to 0.5 weight percent binder calculated on total weight of the composition.

3,634,156

POLYMERICALLY THICKENED INCENDIARY COMPOSITIONS CONTAINING ALUMINUM COMPOUNDS

Davis M. Batson, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed June 26, 1961, Ser. No. 123,922

Int. Cl. C101 1/00

U.S. Cl. 149—87

11 Claims

1. A thickened incendiary composition having a gellike consistency comprising from about 80 to 98 percent of an aluminum compound of the formula:



where R is an alkyl group and x is an integer ranging from 1 to 3, and from 2 to 20 percent of a hydrocarbon polymer gelling agent.

8. The method of producing a conflagration which comprises dispersing an incendiary composition comprising from about 80 to 98 percent of an aluminum compound of the formula:



wherein R is an alkyl group and x is an integer ranging from 1 to 3, and from 2 to 20 percent of a hydrocarbon polymer gelling agent compatible and nonreactive with said aluminum compound and free of active hydrogen.

3,634,157

INCENDIARY COMPOSITIONS

Davis M. Batson, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed Feb. 24, 1967, Ser. No. 619,888

Int. Cl. C06b 15/00

U.S. Cl. 149—87

4 Claims

Self-igniting, gellike incendiary compositions are prepared by thickening aluminum alkyls and/or aluminum alkyl hydrides with an alkyl branched butadiene polymer. Additionally, the incendiary may contain diluents which are compatible with aluminum alkyls such as hydrocarbons, finely divided metals, and certain organometallic compounds. These incendiaries may be used in firebombs, fire rockets, flame throwers, aerial flares, and other military applications.

3,634,158

LIQUID NITRATE ESTER MONOPROPELLANT COMPOSITION

Albert T. Camp, Indian Head; Lionel A. Dickinson, Accokeek, and Paul R. Mosher, Indian Head, all of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed May 13, 1969, Ser. No. 826,080

Int. Cl. C06b 3/00

U.S. Cl. 149—88

7 Claims

A liquid nitrate ester monopropellant composition comprising triethylene glycol dinitrate, metrial trinitrate and a storage stabilizer. No inert diluents are incorporated therein.

3,634,159

ELECTRICAL CIRCUITS ASSEMBLIES

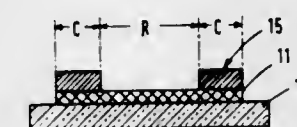
William Fletcher Croskery, Toronto, Ontario, Canada, assignor to Decca Limited, London, England

Filed June 24, 1970, Ser. No. 49,425

Int. Cl. C23f 1/02

U.S. Cl. 156—3

14 Claims



A method of forming a two-dimensional electrical circuit assembly. A substrate is coated with a thin gold layer. The gold layer is removed from marginal areas not associated with the regions of conductive elements and resistive elements of the assembly. The gold layer in the regions of the conductive layers is plated with more gold and the resistive layer in the marginal areas is removed using the gold as a resist. Finally the remaining gold is etched to remove the gold layer from the regions of the resistive elements and to leave gold plating forming the conductive elements.

3,634,160

METHOD OF MANUFACTURING AN ELECTRODE

Johannes van Esdonk, and Godefridus Henricus Broers, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

Filed Sept. 10, 1969, Ser. No. 856,627

Claims priority, application Netherlands, Sept. 14, 1968,

6813191

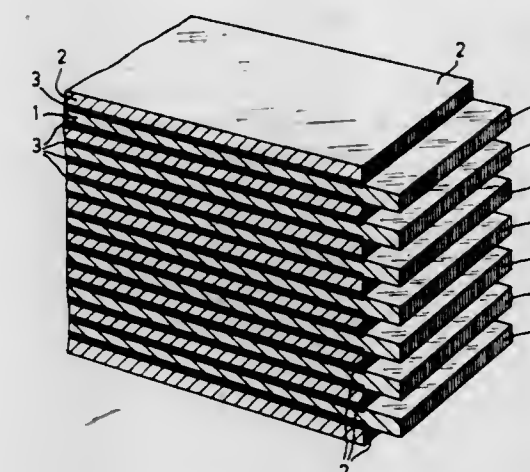
Int. Cl. B23p 1/08

U.S. Cl. 156—3

4 Claims

An electrode for making parallel slots in metal plates by spark erosion is formed by tantalum strips separated by spac-

ing layers of molybdenum. The layers are soldered by silver.



The molybdenum and silver are then etched away over a given distance so that only the tantalum electrodes protrude.

3,634,161

METHOD OF DIVIDING SEMICONDUCTOR WAFERS

Rigobert Schimmer, and Horst Gesing, both of Beleck, Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed July 26, 1968, Ser. No. 748,032

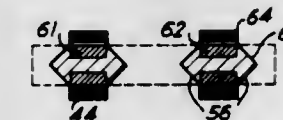
Claims priority, application Germany, July 26, 1967, L

57069

Int. Cl. H011 7/00, 7/50

U.S. Cl. 156—17

4 Claims



A method of dividing semiconductor wafers, wherein a masking layer is applied to a surface of the semiconductor wafer and the wafer is cut by means of an etching solution applied to the masked surface. The method includes the step of vaporizing a metal layer consisting of chromium onto the semiconductor wafer to form the masking layer.

3,634,162

METHOD OF CHIP INSERTION

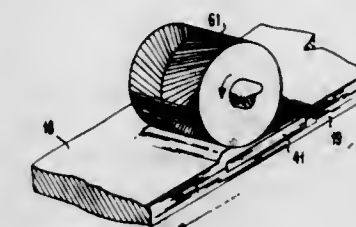
Mack R. Chaffee, Candor, and Thomas M. Paulson, East Brunswick, both of N.J., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 23, 1968, Ser. No. 754,868

Int. Cl. B32b 3/18

U.S. Cl. 156—154

2 Claims



A method for inserting chips into the edge of record cards or the like. A pouch is skived into the edge of a card into which a chip is inserted. The pouch is then sealed by applying pressure and heat. The assembly is then abraded to the original thickness of the card.

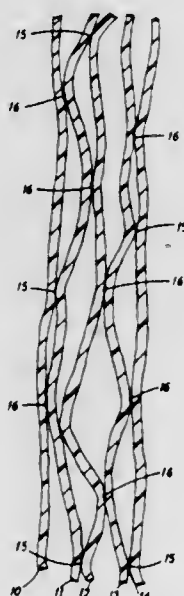
3,634,163

METHOD OF IMPARTING WRINKLE RESISTANCE TO FABRICS

George E. R. Lamb, Mendham; Dusan C. Prevorsek, and Hendrikus J. Oswald, both of Morristown, all of N.J., assignors to Allied Chemical Corporation, New York, N.Y.
Filed May 28, 1970, Ser. No. 41,407
Int. Cl. B32b 5/02

U.S. Cl. 156—166

9 Claims



A yarn structure is provided that imparts improved wrinkle resistance in fabrics produced therefrom. The yarn is composed of plurality of filaments or strands that are intermittently connected or fused by an essentially permanent bond, i.e., analogous to spot welding, along their lengths. The appropriate distribution of these points of bonding, preferably varying from a distance of about 20 filament diameters as an upper limit to a frequency of about one in 2,000 filament diameters measured along the length of the fiber as a lower density limit, is obtained by removing any size, lubricant or finish from the fiber, applying an electrical charge, and spraying or otherwise applying a thermoplastic polymer to the surface of the fiber. Droplets of the applied polymer adhere to the fiber and provide effective jointer points between adjacent fibers.

3,634,164

METHOD OF MAKING ADHESIVE-BONDED ELECTRICAL COIL

Martinus Johannes Van Hirtum, and Wilhelmus Leonard Louis Lenders, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 26, 1969, Ser. No. 853,058
Claims priority, application Netherlands, Aug. 31, 1968, 6812445

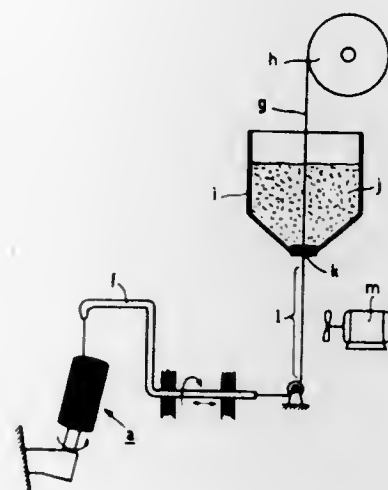
Int. Cl. B31c 13/00

U.S. Cl. 156—169

4 Claims

A coil which forms a dry and firmly coherent unit immediately after the winding process made by winding the coil

from wire which has previously been provided with a dry layer of a contact adhesive, with the result that the wire



becomes firmly fixed as soon as it contacts the previously wound part of the coil.

3,634,165

METHOD OF MAKING A LAMINATE COMPRISED OF POLYVINYL CHLORIDE

Vern L. Gliniecki, Bay City, and Kenneth E. Flammang, Midland, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Original application Jan. 10, 1967, Ser. No. 609,715, now abandoned. Divided and this application Apr. 1, 1970, Ser. No. 31,452

Int. Cl. B29c 19/00

U.S. Cl. 156—244

10 Claims

Laminates of vinyl chloride polymers and blends of styrene acrylonitrile polymers are formed by extrusion lamination without the need of adhesives.

3,634,166

PRODUCTION OF FLAT STRUCTURAL SANDWICH CONSTRUCTIONS

Hans Frielingsdorf, Bad Duerkheim; Heinz Mueller-Tamm, Ludwigshafen, and Dieter Mahling, Nucleoningen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Land Rheinland-Pfalz, Germany

Filed Aug. 26, 1969, Ser. No. 853,121
Claims priority, application Germany, Aug. 27, 1968, P 17 79 556.1

Int. Cl. B29c 19/00

U.S. Cl. 156—244

7 Claims

A process for the production of sandwich constructions consisting of (a) an inner ply of polyethylene; (b) adhesion-promoting interlayers applied to both sides of the inner ply and (c) outer plies of metal applied to the two interlayers. It is a characteristic feature of the invention that sheeting is prepared continuously from a special polyethylene by means of a screw extruder at a specific temperature of the material, this sheeting is covered on both sides with a film of a special polymer by means of a pair of rollers, the resultant laminate is then covered continuously by means of a pair of rollers at a specific temperature of the material with metal sheeting having a specific temperature and the whole is combined to form a sandwich panel under a specific roller pressure. The process gives sandwich constructions having particularly good chemical and physical properties in a simple way.

3,634,167

METHOD OF FABRICATING WELDED BRANCHED PIPE CONNECTIONS FROM WELDABLE THERMOPLASTIC MATERIALS

Erich Plontke, Riehen, Switzerland, assignor to Rohren-Keller A.G., Basel, Switzerland

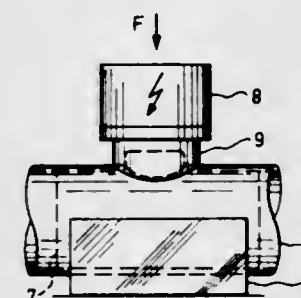
Continuation-in-part of application Ser. No. 628,639, Apr. 5, 1967, now abandoned. This application Oct. 23, 1969, Ser. No. 868,833

Claims priority, application Switzerland, Apr. 15, 1966, 5520/66

Int. Cl. B32b 31/00

U.S. Cl. 156—257

11 Claims



There is disclosed a method of fabricating welded branched pipe connections from weldable thermoplastic materials, such as polyethylene, which includes shaping the end of a branch pipe section to the curvature of a main pipe section, simultaneously heating the shaped end of such branch pipe section and an annular zone of the main pipe section to a welding temperature, pressing the heated shaped end into the heated annular zone of the main pipe section to weld the sections and applying pressure to the material of the sections on both the inner and outer sides of the intersection between the branch pipe section and the main pipe section, while precluding spreading of the sections in a direction perpendicular to the direction in which the sections are pressed together so as to deform the material of the heated annular zone of the main pipe section upwardly into the material of the branch pipe section to increase the area of welding contact. There is also disclosed a press tool for use in such method, which includes outer and inner sleeve means spaced to accommodate a branch pipe section and such sleeves having shaped pressure applying end portions, operative to deform the cross-sectional welding line of contact into a raised lip or hump to increase the area of welding contact.

3,634,168

METHOD OF PROVIDING A PRINTED CIRCUIT ON A COHERENT MEMORY PLATE HAVING STORE AND SWITCHING ELEMENTS

Casper Johannes Gerardus Ferdinand Janssen; Hendrik Jonker, and Theodorus Petrus Gerardus Wilhelm Thijssens, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,369

Claims priority, application Netherlands, Apr. 10, 1969, 6905500

Int. Cl. H05k 13/00

U.S. Cl. 156—272

3 Claims

A method of applying a printed circuit to a coherent memory plate by coating the plate with photoresist, hardening the photoresist, applying adhesive, which may be hardened at less than 130° C., to the photoresist and providing a printed metallic circuit on the hardened adhesive.

3,634,169

FILM ADHESIVES OF POLYVINYL CHLORIDE AND EPOXIDE RESINS

Edward William Garnish, Saffron Walden, England, assignor to Ciba Limited, Basel, Switzerland

Filed Jan. 22, 1970, Ser. No. 5,160

Claims priority, application Great Britain, Jan. 24, 1969, 4,310/69

Int. Cl. C09j 7/00; C08g 45/04

U.S. Cl. 156—309

14 Claims

A method of preparing a heat-curable film, suitable for use as an adhesive, which comprises:

- forming a layer of a liquid mixture of
 - an epoxide resin,
 - a heat-curing agent therefor,
 - a plastisol containing, finely dispersed in a plasticizer, a vinyl chloride polymer, and
- heating the said layer such that the plastisol gels and the mixture forms a coherent film but the epoxide resin remains curable.

3,634,170

TAPE SPLICER

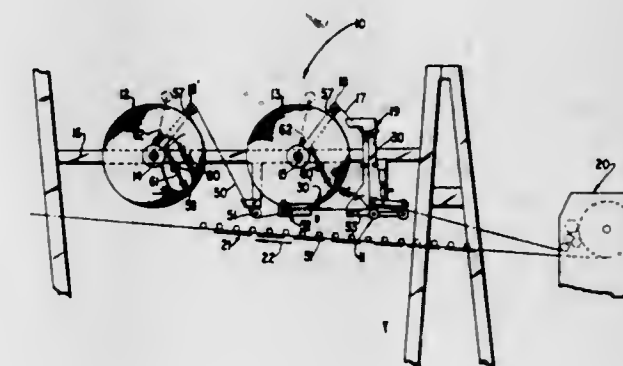
William J. Hottendorf, Los Altos Hills, Calif., assignor to Ametek, Inc., New York, N.Y.

Filed July 24, 1969, Ser. No. 844,448

Int. Cl. B65h 19/18, 69/06

U.S. Cl. 156—504

8 Claims



A tape-splicing apparatus is provided with a pair of tape supply rolls with the tape being advanced from one roll through spaced clamping rolls to a point of use. The tape end from the other supply roll before a splicing operation is positioned against the other of the clamping rolls with the rolls being moved into clamping relationship in response to a tape end coming off an empty supply roll. A photoelectric cell senses the tape end and actuates a fluid motor to move the clamping rolls together and thus splice the tapes.

3,634,171

WEB SPLICING AND IDENTIFYING APPARATUS

Robert S. Rosborough, Jr., Rochester, and Luther M. Wright, Brockport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 3, 1969, Ser. No. 854,886

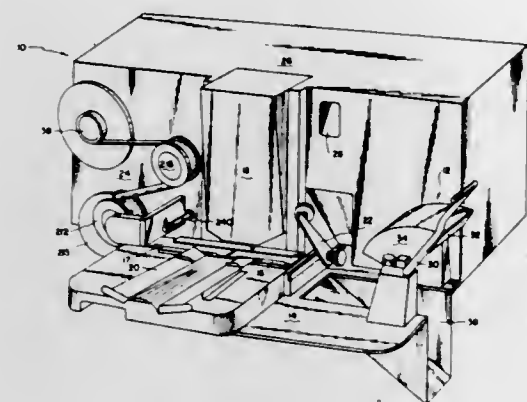
Int. Cl. B65h 19/18, 69/06

U.S. Cl. 156—506

14 Claims

A method and apparatus for splicing and identifying web or film strips comprising means for splicing individual lengths of a web into a substantially continuous strip with apparatus which assures the proper repetition of steps to assure that the web is not misidentified. The splicing and identification apparatus provides means for accurately aligning and spacing the web to obtain the necessary splice characteristics and includes sequential interlocks which assure the completion of all splicing and identification procedures in the proper order.

The apparatus comprises means for aligning and holding two web ends in splicing relationship at an applicator station and means for presenting a web identifier to the applicator station. Means is arranged for applying an indicia-bearing member first to the web identifier at the applicator station



and then applying a corresponding indicia-bearing member to the web ends at the applicator station to splice the ends together. And means is provided, operable only after both indicia-bearing members have been applied, to move the web ends from the applicator station.

3,634,172

APPARATUS FOR HOLDING TWO ABUTTING TAPE ENDS IN PLACE AND APPLYING A SEGMENT OF SPLICING MATERIAL ACROSS THEIR JUNCTION

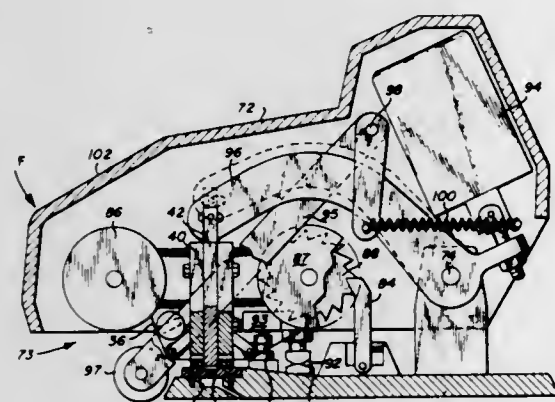
Wesley M. Fujii, Menlo Park, and George D. Rehlau, Los Altos, both of Calif., assignors to Electro Sound, Inc., Sunnyvale, Calif.

Filed Oct. 31, 1969, Ser. No. 872,805

Int. Cl. B311 5/06; B65h 69/06; G03d 15/04

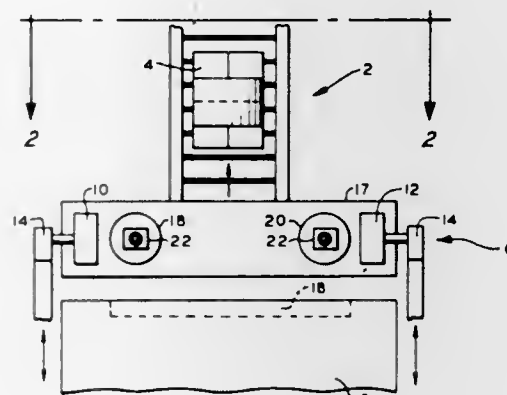
U.S. Cl. 156-506

8 Claims



A tape-splicing apparatus comprising, a base including a splicer block for receiving and holding in end-abutting relationship two tape ends to be spliced together, a splicing material dispenser pivotally mounted to the base and rotatable between a rest position and a dispensing position and including a punch and die for severing a splicing segment from a length of adhesive-coated splicing material and depositing it across the tape ends, and a roller operatively associated with the dispenser and operative to press the splicing segment into bonding engagement with the tape ends as the dispenser is rotated from the dispensing position back into the rest position.

3,634,173
STRIP APPLICATOR
Werner F. Hoppner, Webster, N.Y., assignor to Phillips Petroleum Company
Filed Sept. 22, 1969, Ser. No. 859,839
Int. Cl. B32b 31/20
U.S. Cl. 156-521 6 Claims



An improved strip applicator having gripping jaws and associated vacuum cups for maintaining a strip of material at desired positions and attaching the strip of material to an article.

3,634,174

MACHINE FOR SURFACE DECORATING OF ARTICLES

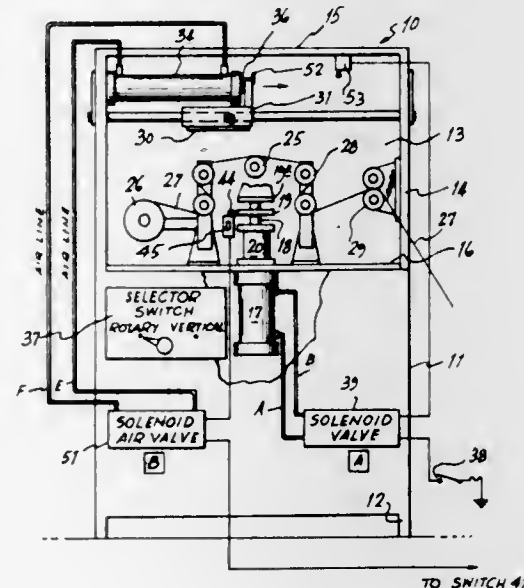
Rubin Warsager, 483 Forest St., Kearny, N.J.

Filed Mar. 27, 1970, Ser. No. 23,394

Int. Cl. B32b 31/10; B65c 31/10

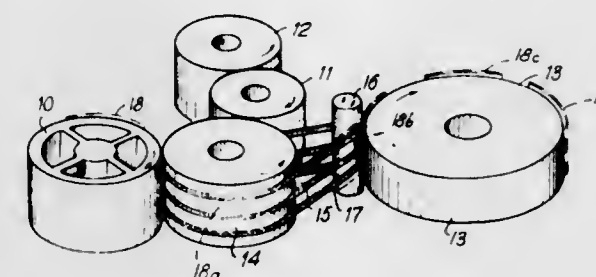
U.S. Cl. 156-540

16 Claims



A machine for transferring a decorative foil from a carrier tape to an object using pressure and heat in which the object can be round or flat. The machine can be used for moving the object vertically into the die or the die can be moved horizontally across the object.

3,634,175
LABEL-FEEDING DEVICE FOR BOTTLE-LABELLING INSTALLATION
Romuald Rene Delle Vite, Nogent sur Marne, France, assignor to Societe Francaise D'Etiquetage Virey & Garnier, Nogent sur Marne, France
Filed Mar. 23, 1970, Ser. No. 21,709
Claims priority, application France, Oct. 24, 1969, 6936503
Int. Cl. B65c 9/20; B65n 5/02
U.S. Cl. 156-568 5 Claims



Device for feeding labels fully coated with glue on one face to a dispensing turret, said device being interposed between a glue-free label-transfer cylinder, a gumming roller and said turret, and being characterized in that it consists of a rotary cylinder associated with a cylinder rod; with parallel axes, said rod being adapted to revolve freely about its axis, said rotary cylinder and rod being operatively interconnected through a plurality of small endless parallel belts, said rotary cylinder being provided with a plurality of circular peripheral grooves each engaged by one of said belts, the cross-sectional contour of said grooves and that of said belts being such that the rotating surface formed by the external surfaces of said rotary cylinder and said belts be substantially continuous and plain.

3,634,176

APPARATUS FOR MAKING MICROFICHE

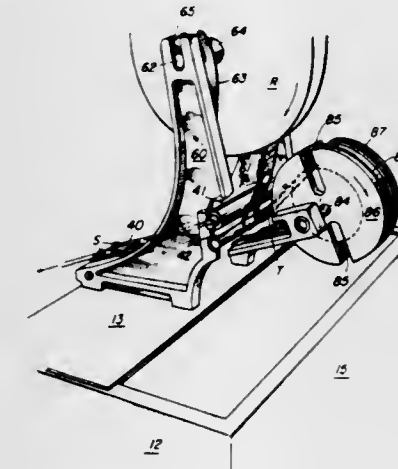
Peter H. Covert, Pomona, and Jack J. Gilbert, Suffern, both of N.Y., assignors to Arcata Microfilm Corporation, Menlo Park, Calif.

Filed May 16, 1967, Ser. No. 638,995 The portion of the term of the patent subsequent to Oct. 17, 1984, has been disclaimed.

Int. Cl. B32b 31/16; B65h 17/18

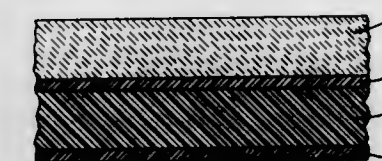
U.S. Cl. 156-580

8 Claims



A machine for paying out indefinite length of microfilm having adhesive applied to its edge and for stripping protective tape from the adhesive.

3,634,177
LIGHTWEIGHT TRANSPARENT PENETRATION-RESISTANT STRUCTURE
John H. Glaser, Abington, Pa., assignor to General Electric Company
Filed Nov. 1, 1966, Ser. No. 591,308
Int. Cl. B44f 1/00
U.S. Cl. 161-2 6 Claims



The following has been found to be an effective, bullet-proof transparent armor:

A laminated structure comprising a front plate of a very hard material such as sapphire, a relatively thin second lamina comprised of an adhesive resin such as polyvinylbutyl alcohol or its derivatives, a third lamina or shock plate comprised of a relatively thick layer of impact resistant material such as polymethyl methacrylate or polycarbonate and a fourth lamina or tension plate comprised of a thin layer of material similar to that used in the third lamina.

3,634,178

DECORATIVE APPLIQUES MOUNTED ON ARTICLES

Abraham Goodman, 101 Central Park W., New York, N.Y.

Filed July 5, 1968, Ser. No. 742,696

Int. Cl. A44c 13/00

U.S. Cl. 161-7

19 Claims



An article such as a ring, a clasp, a barrette or a hair brush is decorated with one or more appliques by forming passages in the article such as converging or diverging pairs of passages or curved passages. Projections extend from the back of a decorative applique. Manual pressure is applied to the applique to drive the projections into the passages, deforming them and retaining the decorative applique on the article.

3,634,179

CERAMIC SANITARY WARE RESEMBLING NATURAL STONE OR MARBLE

Warren Gregory Anderson, New Orleans, La., assignor to American Standard Inc., New York, N.Y.

Filed July 30, 1969, Ser. No. 846,142

Int. Cl. B44f 9/04

U.S. Cl. 161-19

3 Claims

This invention comprises china or ceramic sanitary ware such as toilets, lavatories, bidets, and urinals, and similar articles which are made from materials having at least two contrasting colors and may be provided with an appearance resembling natural stone or marble. The invention also includes the process and apparatus for making such articles. Two or more ceramic ware-forming slips of different colors are combined into a unitary stream but not completely blended when poured into the cavity of a moisture-absorbing mold. Special pouring and filling techniques are employed to facilitate the approximate repetition of a design in the formed article for those who desire to be able to repeat a

3,634,188

PAPER MACHINE HEADBOX

Toivo Johannes Niskanen, Hamina, Finland, assignor to A. Ahlstrom Asakeyhtio, Noornarkku, Finland

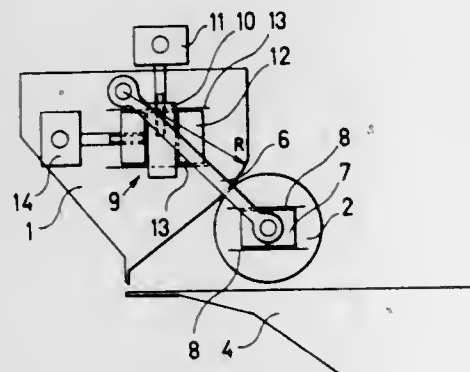
Filed June 12, 1970, Ser. No. 45,672

Claims priority, application Finland, June 23, 1969, 1845/69

Int. Cl. D21f 1/18

U.S. Cl. 162—342

1 Claim



A paper machine headbox provided with an inlet for the pulp, rear and sidewalls, a bottom, a vertically and horizontally adjustable front wall, which together with the bottom constitutes an outlet slice portion having an invariable acute angle α , means attached to the sidewalls of the headbox and the front wall for vertical and horizontal adjustment of the front wall, a mixing roller in close proximity to the slice portion and rotatably supported by slides horizontally movable along guides attached to the sidewalls of the headbox. In order to maintain the front wall and the mixing roller stationary in relation to each other when the front wall and the mixing roller are transferred in a direction parallel to the bottom and to maintain the distance of the mixing roller from the bottom and the front wall unchanged when the front wall is transferred in a direction perpendicular to the bottom a rigid connecting rod is mounted on both sides of the headbox. The lower end of the rod is pivotally attached to the slide on the same side of the headbox and the upper end of which is pivotally attached to the front wall, and the part of the front wall closest to the mixing roller being curved, the center point of the curving radius coinciding with the pivot of the upper end of the rods.

3,634,189

STEAM-COOLED REACTOR

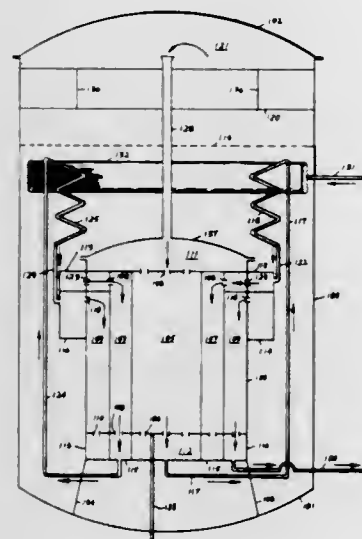
John H. Germer, San Jose, Calif., assignor to General Electric Company

Filed Feb. 26, 1968, Ser. No. 708,417

Int. Cl. G21c 15/00

U.S. Cl. 176—54

1 Claim



A steam-cooled nuclear reactor system is disclosed. This system uses a steam-cooled reactor as the sole heat source

and does not require the pumping of steam. Typically, saturated supply steam is directed through a reactor core where it is superheated, then through a heat exchanger to boil water to produce additional supply steam, then through the core again for resuperheating. This cycle may be repeated, with the superheated steam eventually being passed to a load, such as a turbine.

3,634,190

ANNULAR COMPOSITE MEMBERS AND PROCESSES FOR PRODUCING THE SAME

Gerald R. Kilp, Bethel Park; Paul M. Bergstrom, Irwin, and Harry M. Ferrari, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

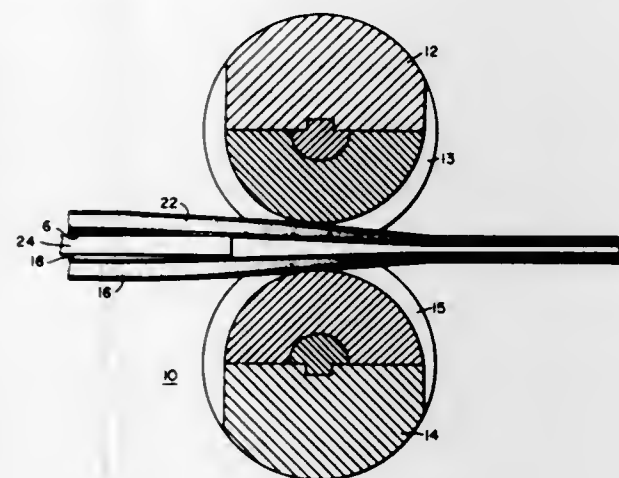
Original application Jan. 19, 1965, Ser. No. 438,450, now Patent No. 3,409,973, which is a continuation-in-part of application Ser. No. 120,066, June 27, 1961, now abandoned.

Divided and this application July 25, 1968, Ser. No. 747,667

Int. Cl. G21c 3/02

U.S. Cl. 176—67

9 Claims



A composite, elongated annular cylindrical unit is comprised of a hollow metallic outer sheath, a hollow inner metallic sheath and a dense highly compacted solid disposed and enclosed therein. The composite member is formed by a rocking roll tube reducing process.

3,634,191

PROCESS FOR ENZYMATIC DEGREASING OF BONES

Pierre Laboureur, Neuilly-sur, and Michel Villalon, Courbevoie-Becon, both of France, assignors to Societe d'Etudes et d'Applications Biochimiques, Jouy-en-Josas and Compagnie des Gelatines Francaises, Ruteaux, France

Filed Oct. 21, 1968, Ser. No. 776,304

Claims priority, application France, Oct. 20, 1967, 125196

Int. Cl. C12b 1/00

U.S. Cl. 195—2

7 Claims

A method is disclosed for the degreasing of animal bones from which gelatin is later to be extracted wherein the bones are subjected to the action of an aqueous alkaline solution of lipolytic enzymes (lipases) in the presence of a soluble calcium salt.

3,634,192

FERMENTATION OF ANTHRACENE

Andre R. Brillaud, West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

Filed Mar. 3, 1966, Ser. No. 531,332

Int. Cl. C12d 1/02

U.S. Cl. 195—28

10 Claims

Anthracene is converted to 3-hydroxy-2-naphthoic acid by the action of the micro-organism *Pseudomonas sp.* ATCC 19,286. This fermentation is preferably carried out in the presence of an anion exchange resin.

3,634,193

METHOD FOR THE PRODUCTION OF INOSINE AND 5'-INOSINIC ACID

Yoshio Nakao, Ibaraki; Mitsuzo Kuno, Suita, and Einosuke Ohmura, Nishinomiyu, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed June 9, 1966, Ser. No. 556,271

Claims priority, application Japan, June 10, 1965, 40/345550

Int. Cl. C12d 13/06

U.S. Cl. 195—28 N

12 Claims

Inosine, 5'-inosinic acid, or a mixture thereof is produced by inoculating a mutant induced from *Corynebacterium simplex* Jensen, said mutant being an adenine-requiring mutant, onto a culture medium comprising a carbon source that is mainly hydrocarbons and adenine.

3,634,194

FERMENTATION PROCESS FOR THE PRODUCTION OF HIGH-QUALITY PROTEIN CELLS AND NUCLEIC ACIDS

John W. Frankenfeld, Atlantic Highlands, N.J., and Bruce L. Dasinger, Niantic, Conn., assignors to Esso Research and Engineering Company

Filed Dec. 3, 1969, Ser. No. 881,642

Int. Cl. C12d 13/06

U.S. Cl. 195—28 N

10 Claims

Fermentation process for the production of high-quality protein cells from petroleum hydrocarbons and oxygenated hydrocarbons using a particular technique for the coagulation of the produced cells. Very desirable acids for use in the present process are selected from the group consisting of perchloric acid and trichloroacetic acid. These acids are unique in that they serve the dual purpose of coagulating the cells and removing the nucleic acids contained therein.

3,634,195

PRODUCTION OF LIPASE

Nicholas Melachouris, and Robert Lemoyne Charles, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Sept. 8, 1969, Ser. No. 856,149

Int. Cl. C12d 13/06

U.S. Cl. 195—62

6 Claims

A lipase enzyme which hydrolyzes glycerides of long-chain carboxylic acids in preference to those of short-chain carboxylic acids can be produced by growing under aerobic conditions a culture of a strain of *Absidia* in a medium containing appropriate nutrients and then recovering the enzyme therefrom. An especially useful strain is *Absidia butleri*.

3,634,196

PROCESS FOR THE SEPARATION OF PYROGENS

FROM CRUDE PREPARATIONS OF L-ASPARAGINASE

Otto Wagner; Klaus Bauer, both of Wuppertal-Elberfeld; Wilfried Kaufmann, Wuppertal-Vohwinkel; Erich Rauenbusch; Alfred Arens, and Eckard Irion, all of Wuppertal-Elberfeld, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 26, 1968, Ser. No. 787,197

Claims priority, application Germany, May 6, 1968, P 17 67 389.1

Int. Cl. C07g 7/02

U.S. Cl. 195—66 A

3 Claims

Crude L-asparaginase is freed of pyrogens by contacting solutions of the same containing weak buffers with diethylaminoethyl dextran gels. The process can be carried out according to batch techniques or in a continuous manner by using a chromatographic column.

3,634,197

PRODUCTION OF 3-AMINO-3-DEOXY-D-GLUCOSE

Sumio Umezawa, Tokyo, Japan, assignor to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Oct. 31, 1967, Ser. No. 679,528

Claims priority, application Japan, Nov. 7, 1966, 41/72849

Int. Cl. C12d 9/20

U.S. Cl. 195—96

4 Claims

Fermentation of the micro-organism *Bacillus amino-glucosidicus* nov. sp. produces 3-amino-3-deoxy-D-glucose which inhibits the growth of *Micrococcus pyrogenes* var. aureus and can be used in wash solutions for sanitation purposes.

3,634,198

DETECTION OF URINARY TRACT INFECTIONS

Andrew Truhan, R. D. #3 Box 392 T, Somerset, N.J.

Filed Feb. 27, 1968, Ser. No. 708,513

Int. Cl. C12k 1/04

U.S. Cl. 195—100

5 Claims

Compositions and devices for the detection of urinary tract infections are provided by dry solid mixtures of approximately equimolecular amounts of arylaminosulfonic acids or their water soluble salts and arylamines or their water soluble acid additions salts together with a strong normally solid organic carboxylic acid in an amount sufficient to produce and maintain an acid reaction in the presence of sufficient urine to wet the test sample. The compositions may be carried on or in a bibulous swab or a strip of bibulous material or they may be compressed into tablets or contained in urine soluble capsules. The compositions produce strong colorations when wetted with nitrite-containing urine.

3,634,199

VARIABLE ORIFICE FOR MULTISTAGE FLASH EVAPORATION OR DISTILLATION UNITS

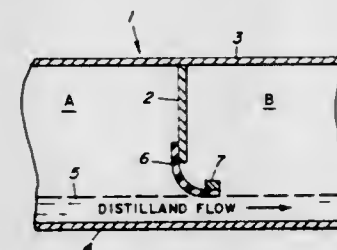
Roscoe Van Winkle, Knoxville, Tenn., assignor to The United States of America as represented by the Secretary of the Interior

Filed Apr. 20, 1970, Ser. No. 29,946

Int. Cl. B01d 3/02

U.S. Cl. 202—173

3 Claims



In a multistage flash unit, the interstage partitions terminate above the flowing distilland, and a flexible or hinged flap is connected to the bottom of each partition. The free end of each flap extends downward and is held in contact with flowing distilland by means of a weight or spring. If the force of the spring or weight just counterbalances the interstage pressure differential, the flap maintains wiping, surface contact with the distilland, and offers negligible resistance to flow. If the force of the spring or weight is greater than the interstage pressure differential, the flap dips into the distilland and acts as a flow control valve.

3,634,200

ETHYLENE DICHLORIDE PURIFICATION BY PLURAL STAGE DISTILLATION

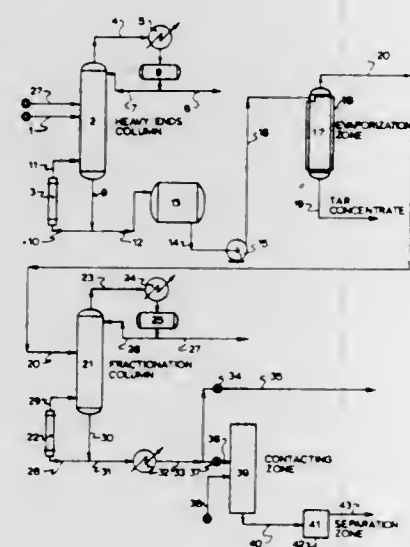
Robert P. Obrecht, New Canaan; Thomas Dao, Stamford, and Gilbert E. Klingman, Westport, all of Conn., assignors to Stauffer Chemical Company, New York, N.Y.

Filed Feb. 20, 1969, Ser. No. 800,965

Int. Cl. B01d 3/28; C07c 19/00

U.S. Cl. 203—35

8 Claims



A purification separation of the residual ethylene dichloride from the higher boiling chlorinated materials found in the bottoms fraction of a heavy ends column in a vinyl chloride monomer plant is carried out by passing the bottoms fraction to a vaporization zone maintained at about 112° C. The ethylene dichloride rich overhead from the vaporization zone is then passed to a fractionation column maintained between about 87° and about 117° C. The overhead from the fractionation column contains ethylene dichloride essentially free of higher boiling chlorinated materials and tars. This ethylene dichloride purified of "tars and carbon" and containing principally only 1,1,2-trichloroethane impurity, can be returned to the conventional VCM process distillation purification system which then separates this stream to yield high-quality ethylene dichloride for use as feed to an ethylene dichloride pyrolysis unit or for production of saleable ethylene dichloride product of high commercial quality.

3,634,201

METHOD FOR REMOVING VOLATILE IMPURITIES FROM RAW OIL BY SCRUBBING AND DISTILLATION WITH A STRIPPING GAS

Wolfgang Kehse, Berlin, Germany, assignor to Fried, Krupp GmbH, Essen, Germany

Continuation of application Ser. No. 524,405, Feb. 2, 1966, now abandoned. This application Dec. 24, 1969, Ser. No. 884,776

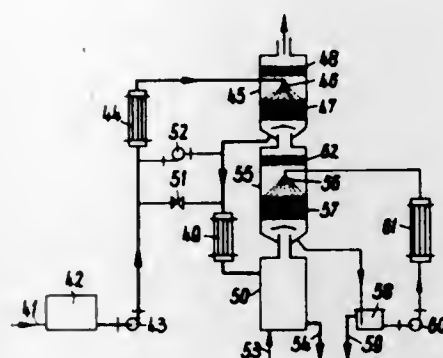
Int. Cl. B01d 3/38, 3/10

U.S. Cl. 203—42

16 Claims

A method of purification of liquid raw oil containing volatilizable impurities in which the raw oil is first fed into a scrubbing zone and from there into two subsequent purification zones, in one of which the impurities are volatilized and the volatilized impurities are passed into the scrubbing zone to be scrubbed with the fresh raw oil fed thereto so that the latter will absorb the impurities and the raw oil thus contain-

ing an increased percentage of impurities is subjected in the other purification zone to purification in which at least a part



of the impurities are removed by neutralization or distillation.

3,634,202

PROCESS FOR THE PRODUCTION OF THICK FILM CONDUCTORS AND CIRCUITS INCORPORATING SUCH CONDUCTORS

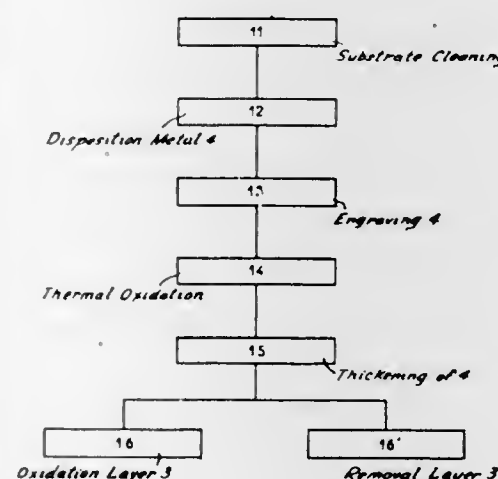
Pierre Michelet, and Jean Joly, both of Paris, France, assignors to Societe Lignes Telegraphiques et Telephoniques, Paris, France

Filed May 19, 1970, Ser. No. 38,699

Int. Cl. C23b 5/48, 5/46

U.S. Cl. 204—15

5 Claims



The thick film conductive circuit is obtained by first depositing on a substrate a thin underlayer of a film-forming metal and secondly a thin film of the metal to constitute the pattern of the circuit which is then photoetched in said layer. The bare portion of the underlayer is then oxidized and the conductive pattern is electrolytically thickened. This process requires only one mask.

3,634,203

THIN FILM METALLIZATION PROCESSES FOR MICROCIRCUITS

William R. McMahon, Richardson, and Thomas H. Ramsey, Jr., Garland, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed July 22, 1969, Ser. No. 843,642

Int. Cl. C23b 5/48; H01I 11/00

U.S. Cl. 204—15

8 Claims

Selective anodic oxidation is employed to pattern thin metallic films in the fabrication of printed circuit boards and integrated microcircuits to provide "inlaid" metallization geometry and thereby eliminate the need for selective

3,634,206

ALUMINUM FOIL OR BAND WITH AN ELECTRICALLY INSULATING OR DECORATIVE COATING THEREON AND A METHOD FOR PRODUCING THE SAME

Helmut Friedrich Herrmann, Cologne-Braunsfeld, and Rolando M. Dizon, Cologne, both of Germany, assignors to Metalloxyd Gesellschaft mit Beschränkter Haftung, Cologne-Braunsfeld, Germany

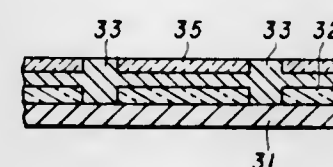
Filed Jan. 29, 1969, Ser. No. 794,911

Claims priority, application Germany, Feb. 3, 1968, P 16 46 038.1

Int. Cl. C23b 9/02, 13/00; B01k 5/00

U.S. Cl. 204—28

2 Claims



tion of a single metal film, and also for each successive metallization layer in the fabrication of integrated microcircuits having multilevel, insulated, interconnecting metallization patterns.

3,634,204

TECHNIQUE FOR FABRICATION OF SEMICONDUCTOR DEVICE

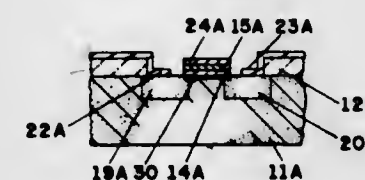
Vir A. Dhaka, Hopewell Junction; James L. Reuter, East Fishkill, and Jagtar S. Sandhu, Fishkill, all of N.Y., assignors to Cogar Corporation, Utica, N.Y.

Filed Aug. 29, 1969, Ser. No. 854,196

Int. Cl. C23b 5/48, 5/46, 5/32

U.S. Cl. 204—15

18 Claims



A technique for the fabrication of a semiconductor device of the field-effect transistor-type involves a processing sequence wherein a self-aligning gate region comprising a noble metal-silicon-oxygen alloy serves as a mask for the source and drain diffusions and serves as gate electrode.

3,634,205

METHOD OF PLATING A UNIFORM COPPER LAYER ON AN APERTURED PRINTED CIRCUIT BOARD

Manlio B. Melillo, Inglewood, and Daniel P. Vlachos, Carmarillo, both of Calif., assignors to The Bunker-Ramo Corporation, Canoga Park, Calif.

Filed Sept. 27, 1968, Ser. No. 763,373

Int. Cl. C23b 5/48, 5/20

U.S. Cl. 204—24

3 Claims

A high-speed electrolytic copper plating bath containing an aqueous solution of copper fluoborate and fluoboric acid, and optionally, an alkali metal fluoride and a surface active agent is disclosed. With this bath, a smooth and ductile copper layer can be substantially evenly deposited onto the surfaces of an apertured object such as a printed circuit board.

3,634,207

NICKEL ETCHING AND PLATING BATH

Emil Toledo, Natick, Mass., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 4, 1969, Ser. No. 855,420

Int. Cl. C23b 3/02

U.S. Cl. 204—32 R

2 Claims

A process for plating nickel onto a nickel surface comprising first etching said nickel surface by anodic treatment in a bath, and then electroplating in the same bath. The bath is comprised of nickel chloride, nickel sulfate and boric acid to which are added small amounts of a brightener and a wetting agent.

3,634,208

COLORING METHOD OF ALUMINUM ANODIC OXIDE COATING FILM

Koichi Kuroda, Hiratsuka-shi, Japan, assignor to Kabushiki Kaisha Aiden, Tokyo, Japan, a part interest

Filed Sept. 25, 1969, Ser. No. 861,149

Claims priority, application Japan, Sept. 26, 1968, 43/69090

Int. Cl. C23f 5/02

U.S. Cl. 204—35 N

11 Claims

Alumite is colored by first subjecting same to an alternating current electrolyzing treatment in an electrolyte followed by a direct current electrolyzing treatment in a coloring solution in which the alumite is the cathode.

3,634,209

ELECTRO DEPOSITED MAGNETIC FILMS

Irving William Wolf, and Roberta A. Woody, both of Palo Alto, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed July 15, 1969, Ser. No. 841,988
Int. Cl. C23b 5/50

U.S. Cl. 204—40

1 Claim

A process for improving the quality of a main magnetic film formed on a thick conductive substrate wherein a thin, fine grain, magnetic smoothing film of nickel-phosphorus is first deposited on the substrate and then the main magnetic film is formed on the smoothing film. The product formed comprises at least one main magnetic film formed on a thin fine grain, magnetic nickel-phosphorus smoothing layer. The main magnetic film is at least three times as thick as the smoothing layer. The smoothing layer contains from 0.5 to 8 percent phosphorus with the balance nickel.

3,634,210

ALKALINE NICKEL PLATING SOLUTIONS

Arthur H. Du Rose, Richmond Heights, and Robert L. Stern, Cleveland Heights, both of Ohio, assignors to Kewanee Oil Company, Bryn Mawr, Pa.

Filed Aug. 13, 1968, Ser. No. 752,170
Int. Cl. C23b 5/08, 5/46

U.S. Cl. 204—49

2 Claims

Addition agents for use in alkaline nickel plating baths which produce a brighter more ductile nickel electroplate. The addition agents are selected from the group consisting of substituted alkyl sulfonates wherein the alkyl radical contains from one-five carbon atoms and the substituents are selected from the group consisting of halogen, cyano and nitro.

3,634,211

PROCESS FOR ELECTROPLATING CHROMIUM AND ELECTROLYTES THEREFOR

Edgar J. Seyb, Jr., Oak Park, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

Filed Oct. 6, 1969, Ser. No. 864,170
Int. Cl. C23b 5/06

U.S. Cl. 204—51

13 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to a process for electroplating chromium plate onto a basis metal which comprises passing current from an anode to a cathode at least a portion of which contains a conductive metal layer through an aqueous acidic chromium-plating solution substantially free of nitric acid and other oxidative catalysts containing

1. at least one chromium compound providing hexavalent chromium ions for electroplating chromium; and
2. cerous ions in combination with fluoride ions and sulfate ions as catalysts;

for a time sufficient to deposit a chromium electroplate having a thickness of at least 1×10^{-4} mm.

3,634,212

ELECTRODEPOSITION OF BRIGHT ACID TIN AND ELECTROLYTES THEREFOR

Sylvester Paul Valayil, and Frank Passal, both of Detroit, Mich., assignors to M & T Chemicals Inc., New York, N.Y.

Filed May 6, 1970, Ser. No. 35,261
Int. Cl. C23b 5/14, 5/46

U.S. Cl. 204—54 R

28 Claims

Improved baths or solutions are provided for the electroplating of tin, and containing as the primary brightener therefor the reaction product of furfural with crotonaldehyde in the presence of a catalytic amount of an alkali. In addition, this invention is concerned with brightening additive compositions for tin-electroplating baths, and with methods for preparing such additive compositions and for electroplating bright tin deposits.

3,634,213

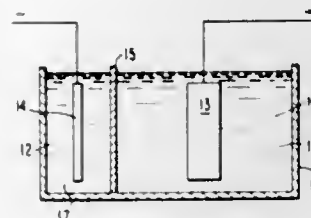
USE OF CATIONIC PERMSELECTIVE MEMBRANES IN ANODIZING

Harold Jefferson Coates, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va.
Original application July 20, 1967, Ser. No. 654,867.
Divided and this application Feb. 16, 1970, Ser. No. 14,849

Int. Cl. C23b 9/00; B01k 3/10

U.S. Cl. 204—56 R

9 Claims



In anodizing or electroplating of anodizable metals such as aluminum and aluminum base alloys, employing electrolytes which contain metal salts, depletion of the metal ion content of the electrolyte by migration of metal ions to the opposite electrode is prevented by the use of a nonpolarizing auxiliary electrolyte, such as a mineral acid, to surround the opposite electrode, in a cell having two compartments holding the respective electrolytes, the electrolytes being separated in the cell by means of a cationic perm-selective membrane. The method and apparatus are adapted for the formation of hard integrally colored anodic coatings on aluminum, and also for chromium plating.

3,634,214

ELECTROLYTIC BATH TO BE USED FOR ELECTROLYTICALLY ANODIZING ALUMINUM OR ALUMINUM ALLOY TO FORM A COLORED OXIDE COATING AND METHOD FOR ANODIZING SAID METAL

Hiroshi Nakazato, Shimizu, and Masayoshi Yokoyama, Toshihiro Nagano, and Kazuyoshi Kaneda, Shizuoka, Japan, assignors to Riken Denka Kogyo Co., Ltd., Magarikane, Shizuoka, Japan

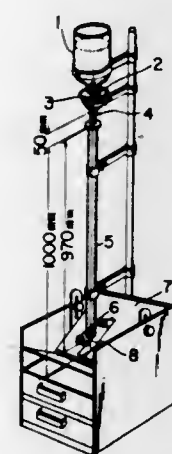
Filed July 18, 1969, Ser. No. 842,959

Claims priority, application Japan, July 18, 1968, 43/50,442, 43/50,443; Oct. 19, 1968, 43/75,839;
Apr. 2, 1969, 44/25,068

Int. Cl. C23b 9/02

U.S. Cl. 204—58

8 Claims



Anodizing electrolytic bath for producing colored aluminum or aluminum alloy the bath being an aqueous solution containing 2.4 to 40% by weight of cresolsulfonic acid and 0.05 to 3% by weight of sulfuric acid or a metal sulfate in an amount equivalent to the concentration of said sulfuric acid. The amount of the cresolsulfonic acid

added can be decreased to 0.5 to 40% by weight by adding 0.5 to 5.0% by weight of sulfosalicylic acid. Methods for producing colored oxide coating on the said metal by means of the above described bath are also disclosed.

3,634,215

PROCESS FOR THE ELECTROLYTIC PRODUCTION OF MANGANESE DIOXIDE

Eberhard Preisler, Karl-Friedrich Frorath, and Georg Strauss, Knapsack, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

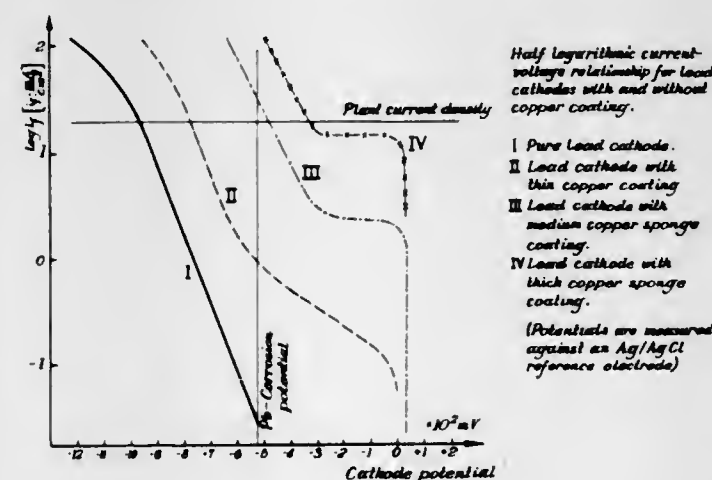
Filed Feb. 16, 1970, Ser. No. 11,514

Claims priority, application Germany, Feb. 20, 1969, P 19 08 493.6

Int. Cl. C01b 15/00, 13/14

U.S. Cl. 204—83

9 Claims



Electrolytic production of manganese dioxide from an electrolyte with the use of lead cathodes. The electrolyte substantially consists of a copper-contaminated manganese sulfate solution in sulfuric acid and is treated to contain copper in a concentration of less than 0.0005 weight percent.

3,634,216

ELECTRODEPOSITION OF LEAD DIOXIDE

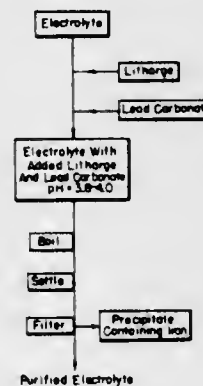
Fred D. Gibson, Jr., Las Vegas, and Bruce B. Halker and Robert L. Thayer, Henderson, Nev., assignors to Pacific Engineering and Production Co. of Nevada
Division of application Ser. No. 520,341, Jan. 13, 1966, now Patent No. 3,463,707, which is a continuation-in-part of application Ser. No. 474,179, July 22, 1965, which in turn is a continuation of application Ser. No. 464,292, June 16, 1965. Divided and this application June 17, 1969, Ser. No. 834,010

The portion of the term of the patent subsequent to Aug. 26, 1986, has been disclaimed

Int. Cl. B01k 3/00

U.S. Cl. 204—83

5 Claims



Processes for manufacture of lead dioxide involving first plating onto a substrate a thin layer and, discontinuously,

a thick layer and removing the thick layer while retaining the thin layer onto which a thick layer may again repeatedly be plated. The electrolyte contains lead nitrate and nitric acid having a concentration of about 5 to about 20 grams of free acid per liter and treating the electrolyte to reduce its iron content to below .02 gram per liter calculated as free iron.

3,634,217

ELECTROCHEMICAL STRIPPING PROCESS

Ram Dev Bedi, Southfield, and Fred Aoun, Madison Heights, Mich., assignors to M & T Chemicals Inc., New York, N.Y.

No Drawing. Filed Aug. 20, 1968, Ser. No. 753,891

Int. Cl. B01k 1/00

U.S. Cl. 204—146

5 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to a process for removing predetermined amounts of metal from a metal surface which comprises contacting said metal surface with an aqueous alkaline bath containing an amount of chelating agent sufficient to decrease the time required to remove a fixed amount of surface metal per unit of time using an identical aqueous alkaline bath essentially free of said chelating agent.

3,634,218

PROCESS FOR THE RADIATION GRAFTING OF BUTADIENE AND OTHER CO-GRAFT MONOMERS ONTO POLYOLEFIN SUBSTRATES

Masao Gotohda, Kunio Araki, Shigeo Imamura, and Sadami Shibabe, Takasaki-shi, Japan, assignors to Japan Atomic Energy Research Institute

No Drawing. Filed Oct. 31, 1967, Ser. No. 679,523

Int. Cl. C08f 15/00; C08d 1/00

U.S. Cl. 204—159.17

2 Claims

A process in which a polyolefin is brought into contact with butadiene and styrene and/or acrylonitrile in the gaseous or liquid phase, either during or subsequent to irradiation of the polyolefin with an ionizing radiation whereby graft polymerization of the butadiene and co-graft monomer is effected onto the polyolefin.

3,634,219

METHOD OF CORRECTION OF AN OPTICAL SYSTEM BY IRRADIATION

Philippe Sinal, 112 quai Louis Bleriot, 75 Paris 16 eme, France

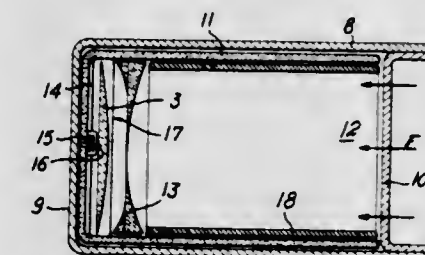
Filed May 28, 1968, Ser. No. 732,759

Claims priority, application France, May 31, 1967, 108,505; June 12, 1967, 109,917

Int. Cl. B01j 1/10; G02b 3/00

U.S. Cl. 204—157.1 R

20 Claims



Modifications to the refractive index are made under the effect of certain radiations with a view to obtaining a correction for the aberrations of optical systems by producing action, not only on the curvatures of the refracting surfaces as was done up to the present time, but also on the refractive index of the optical glasses or materials which constitute the different lenses or dioptric

assemblies of the optical system, this object being achieved by progressive irradiation so that a continuous local variation of the refractive index can be caused to take place from the axis to the periphery of at least one lens or dioptric assembly which constitutes said optical system.

3,634,220

METHOD FOR IMPROVING GRAPHITE FIBERS FOR PLASTIC REINFORCEMENT AND PRODUCTS THEREOF

John C. Goan, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Sept. 19, 1968, Ser. No. 760,969
Int. Cl. B01r 1/00

U.S. Cl. 204—164

8 Claims

A method of improving the bonding between graphite fibers and a plastic matrix material which involves contacting the surface of the graphite fiber with oxygen gas subjected to a radio frequency or microwave energy electrical field discharge and the products thereof.

3,634,221

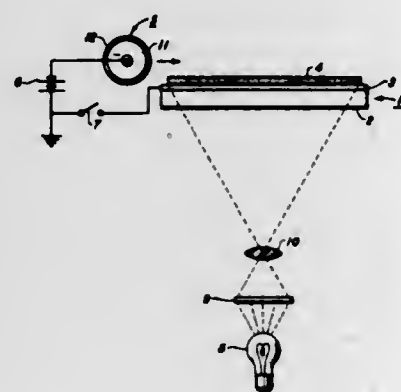
PIGMENT RECLAIMING

Ira S. Stein, Penfield, Vsevolod Tulagin, Rochester, and Vsevolod S. Mihajlov, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Continuation-in-part of application Ser. No. 589,930, Oct. 27, 1966. This application Jan. 28, 1969, Ser. No. 797,722

The portion of the term of the patent subsequent to July 27, 1986, has been disclaimed
Int. Cl. B01k 5/00, 5/02; C23b 13/00

U.S. Cl. 204—180 R

7 Claims



A method and apparatus for photoelectrophoretically separating pigment particles dispersed in a suspension. The invention may be used for separating electrically photosensitive particles having differing spectral responses or separating electrically photosensitive and relatively non-electrically photosensitive particles.

3,634,222

SAMPLING AND CONTROL SYSTEM FOR CATHODIC PROTECTION

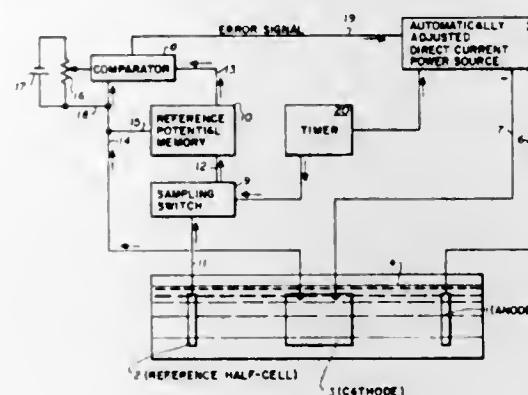
Frank H. Stephens, Jr., Morristown, N.J., assignor to Engelhard Minerals and Chemicals Corporation
Filed May 13, 1970, Ser. No. 36,872
Int. Cl. C23f 13/00

U.S. Cl. 204—196

3 Claims

A sampling and control system for cathodic protection of metal immersed in an electrolyte as a cathode, comprising means for automatically making cathodic polarization measurements which are free from anode current induced error voltage and which are used to adjust the system anode current output, the control system having

means for periodically interrupting anode current and means for cyclically and periodically sampling cathode



reference potential during a time period when the anode current has been interrupted.

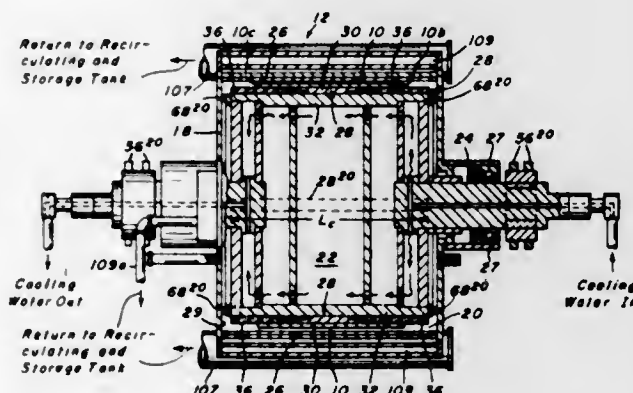
3,634,223

CONTACT ASSEMBLY

Daniel T. Carter, Penn Township, Westmoreland County, Pa., assignor to United States Steel Corporation
Filed Feb. 25, 1970, Ser. No. 14,150
Int. Cl. C23b 5/68

U.S. Cl. 204—206

14 Claims



A contact assembly for limiting the transfer-current density in a rotary-type plating apparatus for electroplating a metal onto one side of a moving sheet is disclosed. The contact assembly has a contact member on the periphery of the rotatable member of the plating apparatus, which contact member is engageable with the unplated side of the sheet during the path of movement of the sheet through the electrolyte and makes electrical contact with the sheet. The contact member has a contact edge. Sealing means are adjacent the contact member on the rotatable member for receiving an outer edge of the sheet and for sealing the unplated side of the sheet from the electrolyte and for maintaining the cumulative plating current in the sheet and for guiding the cumulative plating current toward the contact member. The sealing member has a sealing edge in sealing engagement with the contact edge of the contact member, thereby forming a contact assembly seal. The contact member has a reduced portion adjacent the end of the contact assembly seal adjacent the contact edge. The reduced portion has a high resistance and a low conductance so that a portion of the cumulative plating current is carried by the reduced portion and the remainder of the cumulating plating current is carried by the sheet so that the transfer current density in the reduced portion is below the hot-spot-producing level in the sheet and below the pickled-band-producing level in the reduced portion. The contact member also has a substantially full portion adjacent the

other end of the contact assembly seal. The full portion has a lower resistance than the resistance of the reduced portion and a higher conductance than the conductance of the reduced portion so that the transfer current adjacent the full portion is substantially the residual cumulative plating current in the sheet. The contact member also has an intermediate portion intermediate the reduced portion and the full portion for increasing the transfer current density into the contact member between the reduced portion and the full portion.

3,634,224

APPARATUS FOR SUPPORTING ELECTRODES, PARTICULARLY SUITED FOR SUSPENDED ELECTRODES USED IN MULTICELL FURNACES FOR THE PRODUCTION OF ALUMINUM

Giorgio Olah de Garab, Milan, and Domenico Corfiati, Gallarate, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed June 2, 1969, Ser. No. 829,342

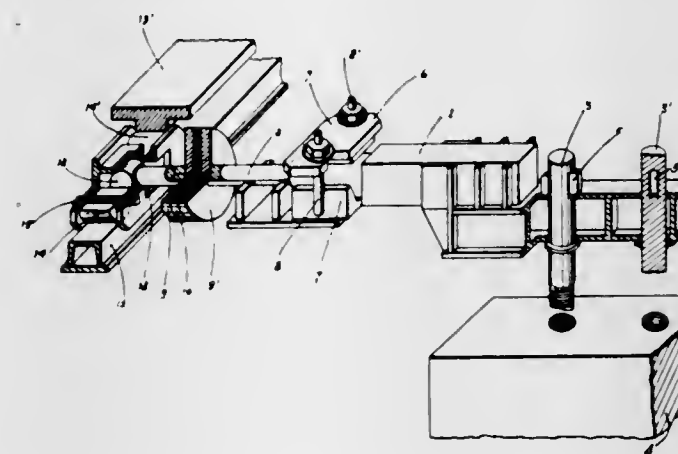
Claims priority, application Italy, June 7, 1968,

17,446/68

Int. Cl. C23b 3/02, 5/70

U.S. Cl. 204—297 R

10 Claims



An apparatus is disclosed for supporting electrodes for electrolytic cells, and in particular suspended electrodes used in multicell furnaces for the production of aluminum, the apparatus consisting of two arms aligned in a substantially horizontal position, with their adjacent ends connected with the electrode in order to form a single rigid beam; each arm ending, at its free end opposite to the end connected to the electrode, with an articulated joint substantially shaped like a T lodged in a recess of a trolley constrained to move along a suitable guide running parallel to the longer side of the bath holding vat; each arm being provided with insulating means adapted to interrupt the electrical and thermal flow between said T-shaped joint and the remaining part of the arm; each one of said arms being subdivided into two half-arms removably connected to each other by means of a clamp suited for allowing predetermined rotations of the electrode-carrying half-arm with respect to the half-arm ending with the T-shaped joint; and adjusting means at the ends of each one of said horizontal trolley-carrying guides.

3,634,225

PROCESS FOR RETORTING OIL-BEARING SHALE

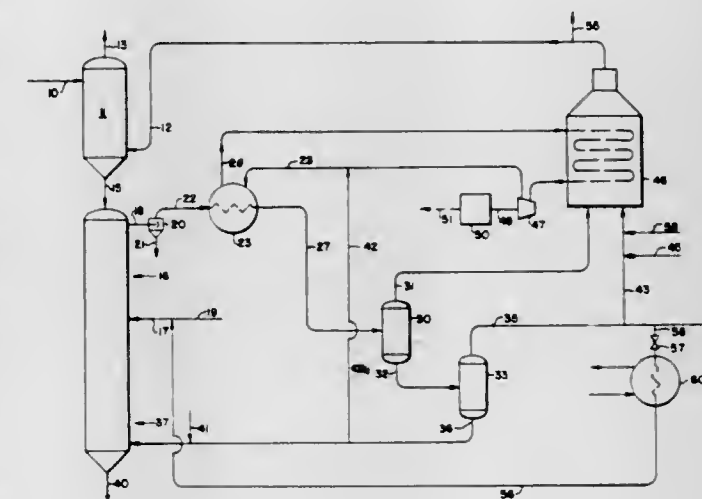
Charles Richard Garbett, Los Altos, Calif., assignor to Shell Oil Company, New York, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,653
Int. Cl. C10b 53/06

U.S. Cl. 208—11

6 Claims

A process for retorting oil-bearing shale including passing shale through a pre-heating zone and a retorting zone. Pre-heated shale is introduced into the retorting zone

where it is contacted countercurrently with a hot gas stream which releases an oil vapor product at high temperature from the shale. The oil vapor product is rapidly quenched by heat exchange with water and the resultant heated water is passed to a steam generating plant where-



in a fuel fired furnace is employed to produce high temperature steam. The steam is employed to generate electric power and in expanding steam through power recovery means, it is cooled enough to be useful to quench the oil vapor product. The exhaust gas from the fuel fired furnace is passed to the pre-heating zone to pre-heat the shale.

3,634,226

BIOCHEMICAL PROCESS

Boston E. Wilt, Santa Fe, and Homer A. Bennett, Clovis, N. Mex., assignors to Bacti Products, Inc.
No Drawing. Filed Jan. 5, 1968, Ser. No. 695,833
Int. Cl. C02c 1/02

U.S. Cl. 210—11

6 Claims

A process of purifying human and industrial sewage by utilization of a gram negative mutant bacillus of the Providence group of Enterobacteriaceae ATCC 21160. The responsible bacterium has previously unrecognized specific metabolic characteristics which render it highly suitable, particularly in view of its lipolytic activity, for the deodorization, digestion and decontamination of sewage.

3,634,227

OIL SLICK ELIMINATION

William B. Patterson, Jr., Houston, Tex., assignor to Dresser Industries, Inc., Houston, Tex.
No Drawing. Filed Sept. 9, 1969, Ser. No. 856,492
Int. Cl. E02b 15/04

U.S. Cl. 210—11

4 Claims

A method for rendering innocuous and/or eliminating an oil slick on a body of water by using an oil absorbent clay. An emulsifier can be used to allow the clay to sink in the body of water after absorbing the oil of the oil slick.

3,634,228

STERILE WASHING METHOD AND APPARATUS

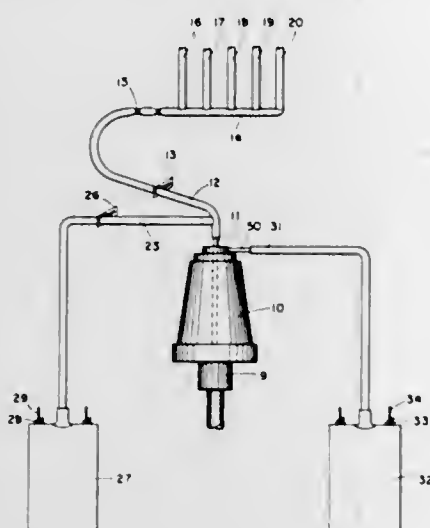
Allen Latham, Jr., Jamaica Plain, Mass., assignor to Cryogenic Technology, Inc., Waltham, Mass.
Filed Oct. 22, 1969, Ser. No. 868,533
Int. Cl. B04b 15/00

U.S. Cl. 210—21

12 Claims

Method and apparatus for washing materials suspended in a liquid while maintaining the liquid, materials and interior of the apparatus in a sterile condition. Sterile air entrapped in a centrifuge is displaced into a first sterile,

collapsed flexible pouch for storage and then subsequently used to force processed blood cells in liquid suspension from the centrifuge into a second sterile, collapsed flexible pouch. The need for purifying nitrogen and controlling its



pressure to effect the necessary liquid displacements in the apparatus is eliminated and the transfer of liquid within the system may be accomplished while the system is being moved from one area to another.

3,634,229 DEIONIZING WATER WITH ION EXCHANGE RESIN AND REGENERATING THE RESIN

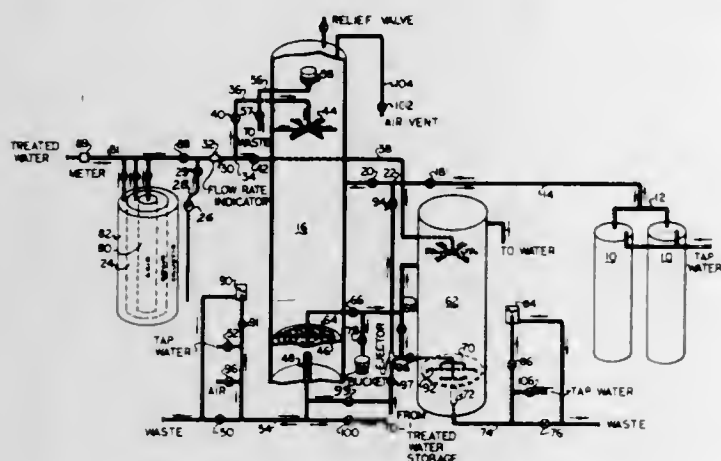
Joseph A. Stanley, Jr., 405 Ave. U,
Lubbock, Tex. 79401

Filed July 3, 1968, Ser. No. 742,218

Int. Cl. B01d 15/04, 15/06, 15/02

U.S. Cl. 210—33

2 Claims



Ion exchange resin beads used in mixed-bed water purification are separated by backwashing them in a tower. After separation, one of the varieties of beads is removed to a separate tower. The acid, caustic, and brine solutions for regeneration are mixed in separate calibrated tanks and the mixed solution is pumped at a controlled rate over the resin beads for regeneration. The flow of the regenerant over the beads is further regulated by flowing the effluent through a liquid level control. The regenerated resin beads are then returned to the large tank where they are mixed. With this equipment, water may be deionized in the large tower or the regenerated resin can be transferred to separate small exchange tanks for "on location" use. Both the large and small regeneration towers are made from uncoated fiberglass, which is translucent, and each contains windows for the entire working height of the tower.

3,634,230 PROCESS FOR REMOVAL OF INORGANIC AND ORGANIC MATTER FROM WASTE WATER SYSTEMS

James J. Odom, Jr., Thomas P. Shumaker, and Donald B. Griffin, Tuscaloosa, Ala., assignors to Reichhold Chemicals, Inc., White Plains, N.Y.

No Drawing. Filed Aug. 6, 1969, Ser. No. 848,071

Int. Cl. C02b 1/20

U.S. Cl. 210—52

12 Claims

A process and agents are provided for removal of both inorganic and organic contaminants from waste water systems. These systems are treated with a phenolic aldehyde resin solubilized by alkali to effect removal of uranium salts and other inorganic salts such as phosphates, chromates, inorganic pigments and the like; partially or wholly non-biodegradable detergents such as alkyl benzene sulfonates and linear alkyl sulfonates; and organic materials such as decayed plant life, other nitrogen-bearing substances, phenol and phenol derivatives, color-bearing matter, and the like.

3,634,231 TREATMENT OF SEWAGE DIGESTER SUPERNATANT LIQUOR

Maria G. Dunseth, Wilmette, and Joel J. Brinkman, Wauconda, Ill., assignors to the United States of America as represented by the Administrator of the Environmental Protection Agency

No Drawing. Filed May 13, 1970, Ser. No. 37,045

Int. Cl. C02c 1/40

U.S. Cl. 210—56

7 Claims

Process for removal of 80 weight percent or more of the total phosphorus of digester supernatant liquor from the conventional sewage sludge digestion process comprising heating the digester supernatant liquor for at least about 5 minutes at a temperature in the range of from about 40° centigrade to about 80° centigrade at ambient pressure or below ambient pressure when the temperature is about 55° centigrade or higher and in the range of from about 28 inches of mercury (absolute) or below when the temperature is below about 55° centigrade; and then separating precipitated solids. The process also results in substantial reduction of total nitrogen, chemical oxygen demand and biological oxygen demand of the digester supernatant liquor.

3,634,232 PROCESS FOR REMOVING DISSOLVED OXYGEN FROM AQUEOUS FLUIDS

Arthur K. Dunlop, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 23, 1970, Ser. No. 22,063

Int. Cl. C02b 9/00

U.S. Cl. 210—63

10 Claims

Dissolved oxygen is removed from aqueous fluids by incorporating therein very minor amounts each of sulfite ion and a peroxide compound.

3,634,233 SELF-INDICATING FOAM CONCENTRATE COM- PRISING SULFATE OR SULFONATE FOAMING AGENT AND pH INDICATOR

Ralph H. Hiltz, Pittsburgh, Pa., assignor to Mline Safety Appliances Company, Pittsburgh, Pa.

No Drawing. Filed Apr. 30, 1970, Ser. No. 33,518

Int. Cl. A62d 1/00; G01n 31/22

U.S. Cl. 252—3

7 Claims

A foam concentrate containing an anionic sulfate or sulfonate foaming agent used for generating fire-fighting foams contains a colorimetric indicator that changes color between about pH 5 and pH 6. A change in color of the concentrate indicates that it is not operable for generating fire-fighting foams.

3,634,234 STABILIZED AMMONIUM PHOSPHATE SOLU- TIONS COMPRISING A GALACTOMANNAN GUM AND A METAL SALT

William W. Morgenthaler, Maryland Heights, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 15, 1969, Ser. No. 885,354

Int. Cl. A62d 1/00

U.S. Cl. 252—7

4 Claims

Ammonium phosphate solutions thickened with galactomannan gum are stabilized with respect to viscosity by the addition of a minor amount of a heavy metal ion such as Co⁺⁺, Cu⁺⁺, or Mn⁺⁺.

3,634,235 DRILLING FLUID AND METHOD OF USE

Doyne L. Wilson and Robert B. Bennett, Houston, Tex., assignors to Oil Base, Inc., Houston, Tex.

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,298

Int. Cl. C10m 1/08

U.S. Cl. 252—8.5 M

4 Claims

Pre-treatment or post-treatment of oil base drilling fluids for oil well applications for purposes of stabilizing the fluid against deterioration upon contamination with water base drilling fluids, with or without clay solids, is effected by adding to the oil base fluid an amphoteric surface-active agent containing both anionic and cationic surface-active groups. Exemplary compounds which are extremely effective surface-active agents in this function are amines and betaines which contain one or more carboxyl or carboxylate groups. Enhanced effects are also available employing such amphoteric compounds with sulfonate type anionic surface-active agents.

3,634,236 SPANDEX LUBRICANT COMPOSITION

James R. Buster, St. Albans, and Charles H. Apperson, Charleston, W. Va., assignors to Union Carbide Corporation

No Drawing. Filed Mar. 20, 1968, Ser. No. 714,429

Int. Cl. D06m 13/18, 15/68

U.S. Cl. 252—8.9

26 Claims

A lubricating finish for spandex fibers and the like comprising a solution of liquid siloxane and a surfactant in mineral oil.

3,634,237 VISCIOUS FLUID COMPOSITIONS

Paul L. Crenshaw and Floyd F. Flippin, Midland, and James P. Glasgow, Houston, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 15, 1966, Ser. No. 602,079

Int. Cl. E21b 43/26; C09k 3/00

U.S. Cl. 252—8.55 R

7 Claims

This invention discloses the use of inorganic alkali metal and alkaline earth metal salts, and alternatively, acids, to effect hydration and subsequent thickening of aqueous alcoholic solutions containing natural gums to provide, e.g., viscous fracturing fluids for use in a method of stimulating production in oil and gas wells.

3,634,238 ORGANIC COMPOSITIONS CONTAINING AMINES AND METALS OR SALTS THEREOF

Robert F. Bridger, Hopewell, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,723

Int. Cl. C10m 1/00, 1/54

U.S. Cl. 252—26

21 Claims

Organic compositions are provided which are stabilized against oxidation by adding thereto a combination of an

amine and a metal from Series 3 of the Periodic Table having an atomic number of at least 27, or an acid salt of such metal. The amines are the secondary and tertiary aromatic amines, the bis(diaromatic amines) and the arylene diamines.

3,634,239 LUBRICANT COMPOSITIONS

Alexander C. B. MacPhail, Cheshire, England, and John E. Lauck, Godfrey, and Kenneth T. Wendler, Alton, Ill., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Sept. 8, 1969, Ser. No. 856,159

Int. Cl. C10m 1/46

U.S. Cl. 252—32.5

9 Claims

Synthetic ester lubricating oil compositions containing minor amounts of (1) a trihydrocarbyl phosphate, (2) an alkyl amine salt of a monohaloalkylphosphonic acid and (3) a dicarboxylic acid have improved anticorrosion, anti-oxidation and load-carrying properties.

3,634,240 RUST INHIBITORS COMPRISING LITHIUM SALTS

Rosemary O'Halloran, Union, N.J., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 798,123, Feb. 10, 1969. This application Aug. 19, 1970, Ser. No. 65,316

Int. Cl. C10m 1/24, 1/48

U.S. Cl. 252—32.7 R

20 Claims

The lithium salts of hydrocarbon-substituted succinic anhydride, wherein the hydrocarbon substituent is an aliphatic hydrocarbon group having about 9 to about 30 carbon atoms, are effective as rust and corrosion inhibitors in lubricating oil compositions. These salts are rendered more oil-soluble by combining them with alkyl phenols.

3,634,241 SULFONATE SALTS OF ALKENYL SUCCINIMIDES

Warren Lowe, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of application Ser. No. 420,775, Dec. 23, 1964. This application Oct. 10, 1969, Ser. No. 865,529

Int. Cl. C10m 1/40

U.S. Cl. 252—33

13 Claims

A composition, useful as a lubricating oil additive, is obtained by first reacting a C₂₀—C₄₀₀ aliphatic hydrocarbon succinic acid or derivative thereof which is capable of forming carboximide bonds with a C₂—C₃₀, N₂—N₁₀ alkylene polyamine to form a carboximide, and then reacting the carboximide with a C₁₂—C₄₀ hydrocarbon sulfonic acid.

3,634,242 FLUORINATED ORGANIC COMPOUNDS AS OIL AND DISTILLATE FUEL ADDITIVES

David S. Bosniack, Edison, and Stephen J. Metro, Scotch Plains, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,922

Int. Cl. C10m 1/30, 1/32; C10I 1/22

U.S. Cl. 252—33.6

14 Claims

An oil soluble nitrogen-containing reaction product of an aromatic amine having about 6 to 40 carbon atoms and a fluorinated organic compound selected from the group consisting of a fluorinated monobasic saturated carboxylic acid having 2 to 21 carbon atoms and having no secondary or tertiary hydrogens or a fluorinated monobasic saturated carboxylic acid chloride having 2 to 21

3,634,257

METHOD OF REMOVING BEER STONE, MILK STONE AND RAILWAY CARRIAGE ENCRUSTATIONS USING A DIPHOSPHONIC ACID

Alan S. Porter, Halesowen, Birmingham, and David Thomas Kerr Whyte, Dudley, England, assignors to Electric Reduction Company of Canada Ltd., Islington, Ontario, Canada

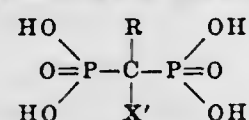
No Drawing. Filed Apr. 24, 1968, Ser. No. 723,946
Claims priority, application England, Apr. 26, 1967, 19,193/67

Int. Cl. C02b 5/06; C23g 1/06

U.S. Cl. 252—87

14 Claims

A method for the removal of gross tenacious encrustations selected from the group of encrustations consisting of beer stone, milk stone, and encrustations on the exterior surface of railway carriages, comprising applying thereto an effective amount of an aqueous solution containing at least one diphosphonic acid of the formula



wherein R is an alkyl group having from 1 to 11 carbon atoms, X' is OH or NH₂, and the alkali metal, ammonium and acid salts of said diphosphonic acid, to remove said encrustations.

3,634,258

DETERGENT COMPOSITIONS CONTAINING SOLUBLE POLYMER-ENZYME PRODUCT

Bernard S. Wildi, Kirkwood, and Thomas L. Westman, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,356

Int. Cl. C11d 7/42

U.S. Cl. 252—89

29 Claims

Detergent compositions, usually containing surfactant and/or other conventional cleansing ingredients, comprising a soluble polymer-enzyme product wherein the enzyme is covalently bound, preferably one wherein the enzyme moiety comprises a protease, and especially such compositions embodying a plurality of polymer-enzyme products or a polymerplurality enzyme product, or combinations thereof, thereby imparting an even greater operative range of enzymatic substrate and pH activity to the detergent composition; production and use of such compositions.

3,634,259

CLEANSING LOTION FOR PERSONAL HYGIENE

Ernest C. Evans, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 24, 1969, Ser. No. 801,272

Int. Cl. C11d 1/00

U.S. Cl. 252—89

6 Claims

A cleansing preparation in lotion-like form designed especially for personal hygiene and proctological use, characterized by a particular viscosity and horizontal wicking rate.

3,634,260

BLEACHING PACKETS

John Harlan Pickin, Madison, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation of application Ser. No. 647,623, June 21, 1967, which is a continuation of application Ser. No. 502,508, Oct. 22, 1965, which in turn is a continuation-in-part of application Ser. No. 172,104, Feb. 9, 1962. This application Feb. 9, 1970, Ser. No. 9,109

Int. Cl. C11d 7/54

U.S. Cl. 252—95

6 Claims

A packet for chlorine-containing bleach compositions wherein the composition is enveloped by a film of polyvinyl alcohol prepared by the hydrolysis of polyvinyl acetate and which film contains from about 12-40% by weight of unhydrolyzed vinyl acetate.

3,634,261

SANITIZING PRESOAK COMPOSITIONS

Robert E. Keay, Hightstown, N.J., and Russell R. Keast, Yardley, Pa., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Mar. 25, 1969, Ser. No. 810,338

Int. Cl. C11d 7/56

U.S. Cl. 252—99

6 Claims

Presoak compositions for cleansing, sanitizing and deodorizing fabrics soiled with a combination of organic and bacterial soils, and particularly diapers, prior to washing are provided. The compositions comprise an organic N-chloro compound which hydrolyzes to yield positive chlorine, a sulfamic acid compound, a polyphosphate, an inorganic buffer salt, sodium tetraborate and an anionic or a nonionic surfactant. The particular advantages of these compositions are in their combination of excellent stability under the adverse presoak conditions which normally cause rapid loss of active chlorine, and their high degree of effectiveness as a presoak agent.

3,634,262

PROCESS AND COMPOSITIONS FOR TREATING ALUMINUM AND ALUMINUM ALLOYS

John J. Grunwald, New Haven, and Edmund E. Horner, Watertown, Conn., assignors to MacDermid, Incorporated, Waterbury, Conn.

No Drawing. Filed May 13, 1970, Ser. No. 37,013

Int. Cl. C11d 7/54

U.S. Cl. 252—100

15 Claims

Aluminum and aluminum alloy surfaces are prepared for metal finishing operations such as anodizing, painting, bright dipping etc., by immersing them for about 1 to about 10 minutes at a temperature of about 60° to about 170° F. in an acidic solution of a peroxydiphosphate compound, such as potassium peroxydiphosphate. Optionally, the solution may also contain a fluoride salt.

3,634,263

PHOTOGRAPHIC PROCESS COMPRISING IMPROVED DYE BLEACHING STEP

Paul Andrew Jargiello, Lexington, Mass., assignor to Itek Corporation, Lexington, Mass.

No Drawing. Original application May 25, 1967, Ser. No. 641,127, now Patent No. 3,520,688, dated July 14, 1970. Divided and this application Sept. 22, 1969, Ser. No. 870,870

Int. Cl. C11d 7/54

U.S. Cl. 252—102

16 Claims

An improved photographic process comprising an improved and rapid dye bleaching step comprises: (1) exposing to an image pattern of activating radiation a dyersensitized photosensitive copy medium which becomes activated at portions thereof which are exposed to such activating radiation and, (2) applying to the exposed medium a dye bleaching solution of a solvent soluble thionate selected from at least one of the group of sulfites and bisulfites and especially those of Groups I-A and II-A metals, said thionate having a concentration of at least about 0.1 mole of thionate per liter of solution; an amide, said amide having a concentration of from about 0.5 to 15.0 moles of amide per liter of solution; and optionally an ether, said ether having a concentration of from about 0 to 2.0 moles of ether per liter of solution. This dye bleaching solution can be applied to the photosensitive copy medium along with the image-forming material, stabilizing bath, fixing bath, stop bath, or washing-aid bath. In a preferred embodiment, the dye bleaching solution is combined with the stabilizing or fixing bath. In such an embodiment wherein the thionate is potassium sulfite and the stabilizing or fixing bath is an aqueous solution of sodium thiosulfate, the potassium sulfite serves the dual function of a bleaching agent for a colored dye-sensitive copy medium and also a preservative for the sodium thiosulfate.

3,634,264

METHOD AND COMPOSITION FOR CLEANSING HAIR OF ANIMALS

Roy J. Pence, Los Angeles, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

No Drawing. Continuation-in-part of application Ser. No. 181,169, Mar. 20, 1962. This application Nov. 2, 1967, Ser. No. 680,055

Int. Cl. C11d 3/48; A61k 27/00

U.S. Cl. 252—106

6 Claims

An aqueous shampoo composition for cleansing the hair of animals and ridding same of blood-sucking ectoparasites for a substantial period of time said composition containing, in solution, imidazole, and preferably a water-immiscible liquid or fat such as pine oil. A method utilizing the above composition which comprises applying said composition to the hair of an animal in the presence of added water in order to produce a good lather. A synergistic composition containing a mixture of imidazole and pine oil.

3,634,265

SKIN CLEANER REQUIRING NO ADDITION OF WATER FOR CLEANING THEREWITH

George J. Merritt, Sudbury, Mass., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,654

Int. Cl. C11d 9/30, 9/50

U.S. Cl. 252—107

1 Claim

A skin cleaner emulsion having fast liquefying qualities when massaged upon the skin and adapted to be used without the addition of water, comprising a liquid isoparaffinic hydrocarbon solvent, a light mineral oil, the reaction product of a long-chain alkanolic acid with an alkanolamine, an anionic surfactant, a protective colloid, and deionized water. The emulsion may also comprise a humectant, an antimicrobiological agent, and perfume.

3,634,266

LIQUID DETERGENT COMPOSITIONS CONTAINING AMYLOLYTIC ENZYMES

Kenneth W. Thelle, David A. Lennert, and Frederick G. Rose, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed July 23, 1969, Ser. No. 844,181

Int. Cl. C07g 7/02; C11d 7/12, 7/42

U.S. Cl. 252—132

12 Claims

Liquid detergent compositions having enzymatic activity and containing a water-soluble organic synthetic detergent, a water-soluble calcium salt, sodium thiosulfate, and amylolytic enzymes and water are disclosed. The compositions, useful in the cleansing of textiles and hard surfaces, are stabilized substantially against loss of amylolytic enzyme activity during storage.

ERRATUM

For Class 252—137 see:
Patent No. 3,634,338

3,634,267

ENZYME ADDITIVES

Richard T. Haynes, Kirkwood, Robert P. Langguth, St. Louis, and Raymond L. Liss, Warson Woods, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,270

Int. Cl. C11d 3/066

U.S. Cl. 252—527

3 Claims

Method for preparing stable particulate additives, useful in detergents, which comprises a core of enzymatically inactive material comprising an ethylene-maleic anhydride copolymer or the alkali metal, ammonium and

amine salts thereof and a surface coating of enzyme material.

3,634,268

LIQUID DETERGENT COMPOSITIONS

Gerhart Karg, Pompton Lakes, N.J., assignor to Witco Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,482

Int. Cl. C11d 3/066

U.S. Cl. 252—529

1 Claim

Clear, homogeneous, all-purpose liquid detergent compositions consisting essentially of, by weight, (a) 3-6% alkylbenzene sulfonate, (b) 2-5% hydrotropic sulfonate of benzene or lower alkyl benzene, (c) 1.5-4% urea, (d) 1.5-4% fatty alkanolamide, (e) 3-8% alkali metal inorganic phosphate builder and (f) the balance water exhibit improved viscosity and low temperature clear point properties.

3,634,269

HYDROCARBYL BUTANEDIOL DISULFATE PHOSPHATE-FREE DETERGENT COMPOSITIONS

Robert G. Anderson, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 10, 1969, Ser. No. 790,483

Int. Cl. C11d 3/066

U.S. Cl. 252—531

6 Claims

Novel phosphate-free detergent compositions comprise a mixture of 2-alkyl or alkenyl-1,4-butanediol disulfates and non-phosphate builders and additives.

3,634,270

INHIBITOR

James P. Engle, Tulsa, Okla., Billy D. Oakes, Midland, Mich., and Cecil F. Reich, Tulsa, Okla., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of application Ser. No. 261,509, Feb. 27, 1963. This application June 20, 1969, Ser. No. 859,528

Int. Cl. C11d 7/00

U.S. Cl. 252—149

8 Claims

A corrosion inhibitor composition for aqueous inorganic and organic acid solutions containing an amine reaction product in ethylene glycol, a nonionic detergent and a sulfur containing compound.

3,634,271

LIQUID DETERGENT COMPOSITIONS

Cecil A. Friedman, Buffalo, and Francis J. Scarcello, West Falls, N.Y., and Andrew Shultz, Morris Plains, and Julius E. Walter, Rockaway, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Nov. 2, 1967, Ser. No. 679,990

Int. Cl. C11d 1/12, 1/18

U.S. Cl. 252—545

4 Claims

Detergent compositions of linear alkylbenzene sulfonates containing a mixture of sodium and ethanolamine salts of said sulfonates and polyethylene glycol. The compositions are characterized by having improved low temperature storage stability.

3,634,272

SYSTEMS FOR SOLUBILIZING WATER AND HALOGENATED ALIPHATIC HYDROCARBONS

Joseph C. Valenta and Alfred F. Steinhauer, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 227,986, Oct. 3, 1962. This application Oct. 25, 1968, Ser. No. 770,849

Int. Cl. C11d 1/18, 1/12

U.S. Cl. 252—153

8 Claims

Water or aqueous alkali metal hydroxides, salts or acids can be solubilized as clear solutions in hydrophobic

liquids such as chlorinated hydrocarbon solvents by the use of urea as a solubilizing aid in combination with a surfactant system consisting of an aliphatic diphenyl oxide sulfonic or its ar-chlorinated or brominated derivatives and one of several well known surfactants, neither class of which will in itself solubilize the two principal ingredients.

3,634,273

THICKENED CHLORINATED SOLVENT COMPOSITIONS AND METHOD

Byron E. Marsh, Western Springs, Layton E. Kinney, Villa Park, and Roy J. Betty, Jr., Chicago, Ill., assignors to Armour Industrial Chemical Company
No Drawing. Filed Jan. 10, 1968, Ser. No. 696,714
Int. Cl. C09d 9/00; C11d 7/50

U.S. Cl. 252—170 10 Claims
Thickened solvent compositions comprising a chlorinated solvent and urea produced by the in situ reaction of an aliphatic amine and an isocyanate, and method of forming such compositions. The compositions of this invention provide thixotropic stripping and cleaning compositions for uses such as degreasing and paint removing. Thickened fire extinguisher fluids may be formed according to this invention. Chlorinated solvents may be thickened to form solid compositions useful as cleaning sticks.

3,634,274

TETRACHLORODIFLUOROETHANE-NITROMETHANE SOLVENT COMPOSITION

Oliver A. Barton, Florham Park, N.J., and Kevin P. Murphy, Orchard Park, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed June 5, 1970, Ser. No. 43,960
Int. Cl. C09d 9/00; C11d 7/50; C23g 5/02

U.S. Cl. 252—171 4 Claims
Tetrachlorodifluoroethanes (sym-, unsym-, and mixtures thereof) and nitromethane, in certain proportions, form azeotropic mixtures which are constant boiling and which possess solvent characteristics for certain organic polymers substantially greater than either the tetrachlorodifluoroethanes or nitromethane alone. These mixtures are useful as solvent media for coating and adhesive compositions and as stripping agents to remove films bonded on organic polymers.

3,634,275

PARTIALLY N-ALKYLATED DIPHENYLMETHANE BASES AS NEW CURING AGENTS FOR EPOXY RESINS

Norman K. Sundholm, Middlebury, Conn., assignor to Uniroyal, Inc., New York, N.Y.
No Drawing. Filed July 25, 1968, Ser. No. 747,454
Int. Cl. C07c 87/54; C08f 45/72

U.S. Cl. 252—182 2 Claims
Partially N-alkylated diphenylmethane bases are improved curing agents for epoxy resins because they are liquids at room temperature, or low-melting solids.

3,634,276

LIQUID HARDENER FOR PHENOL ALDEHYDE RESINS

Roland E. Kreibich, Harlan G. Freeman, and Gene F. Baxter, Seattle, Wash., and Karl F. Kumli, Chlco, Calif., assignors to Weyerhaeuser Company, Tacoma, Wash.

No Drawing. Application Oct. 11, 1968, Ser. No. 812,491, now Patent No. 3,492,263, dated Jan. 27, 1970, which is a division of application Ser. No. 528,772, Feb. 25, 1966, now Patent No. 3,422,068, dated Jan. 14, 1969. Divided and this application Jan. 7, 1970, Ser. No. 6,002

Int. Cl. C08g 51/74; C09j 3/16

U.S. Cl. 252—182 4 Claims
Disclosed are a liquid hardener for converting a phenol aldehyde resin into an adhesive, and a method for its

manufacture. Use of this hardener avoids problems associated with the use of known powdered hardeners, such as caking or lumping under humid conditions, and the long and complicated mixing procedure required to blend powdered hardener with liquid resin. The liquid hardener is prepared by combining water, alcohol, formaldehyde solution, filler, protective colloid, pyrogenic silica and wetting agent in appropriate proportions.

3,634,277

STABILIZED TETRAHYDROFURAN SOLUTIONS OF DIBORANE

Herbert C. Brown, 1840 Garden St., West Lafayette, Ind. 47906

No Drawing. Filed Mar. 20, 1969, Ser. No. 809,015
Int. Cl. C01b 35/00

U.S. Cl. 252—188 14 Claims
Solutions of diborane in tetrahydrofuran can be prepared without handling the gas by treating suspensions of sodium borohydride in tetrahydrofuran with boron trifluoride, followed by decanting, filtering, or centrifuging the tetrahydrofuran solution of diborane from the precipitated sodium fluoborate. Such solutions are normally unstable at ordinary temperatures, undergoing reductive cleavage of the solvent. Consequently, they cannot be stored for any appreciable time or shipped any appreciable distance. However, these solutions are stabilized toward such reductive cleavage by utilizing in the synthesis a slight excess of sodium borohydride or other ionic borohydrides. These discoveries now make practical the manufacture, shipping, storing and application of such solutions of diborane in tetrahydrofuran, highly useful for hydroborations and hydrogenations.

3,634,278

MONOETHANOLAMINE-LITHIUM DECONTAMINATING AGENT

Billy C. Wolverton, Valparaiso, Fla., assignor to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,210
Int. Cl. A62d 3/00; B08b 3/08

U.S. Cl. 252—192 4 Claims
A chemical composition for efficiently countering the effects of chemical and biological warfare agents consisting of a mixture of monoethanolamine, hexylene glycol or other related solvents and a minor amount of either lithium hydroxide or metallic lithium.

3,634,279

TRANSPARENT PLASTIC SHEET FOR MAKING WELDERS' PROTECTIVE SCREENS OR GOGGLES

Christian Leuschke, Dormagen-Horrem, and Wilhelm Rohm, Stommeln, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 19, 1968, Ser. No. 722,563
Claims priority, application Germany, Apr. 29, 1967, F 52,290

Int. Cl. F21v 9/04, 9/06; G02c 7/10

U.S. Cl. 252—300 3 Claims
Transparent plastic sheets for welders' protective screens made from cellulose esters, having a Vicat heat distortion of at least 104° C.

3,634,280

GLOWING BOUNCING PUTTY

Hubert W. Dean, Guilford, and Almon G. Hovey, Northford, Conn., assignors to Peter Hodgson, Madison, Conn.

No Drawing. Filed Dec. 31, 1968, Ser. No. 788,347
Int. Cl. C09k 1/00; A63b 43/06

U.S. Cl. 252—301.3 R 6 Claims
A non-toxic novelty composition comprising various components, including a "bouncing putty," possessing

unusual properties, particularly the ability to glow in the dark after exposure to a light source.

3,634,281

OXYAPATITE LASER MATERIALS

George W. Roland and Richard H. Hopkins, Monroeville, and Nathan T. Melamed, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 22, 1969, Ser. No. 859,753

Int. Cl. C09k 1/54

U.S. Cl. 252—301.4 F 12 Claims
A composition of matter which can be used as a laser crystal and which can be doped with sensitizer ions has the empirical chemical formula $RM_{4-x}(ZO_4)_3O:A_x$ where A represents a lasing ion selected from Nd, Er, and Ho, x has a value from .001 to 1, M is an ion selected from La, Gd, Y and mixtures thereof, Z is an ion selected from Si and Ge and R is an ion selected from Sr, Ba, and Mg.

3,634,282

LUMINESCENT COMPOUNDS OF CERIUM PHOSPHATES ACTIVATED BY TERBIUM

Jean-Pierre Denis, Velizy-Villacoublay, and Jean Loriers, Meudon, France, assignors to Etablissement Public: Agence Nationale de Valorisation de la Recherche (Anvar), Puteaux, France

Filed Sept. 25, 1969, Ser. No. 861,027

Claims priority, application France, Sept. 26, 1968, 167,764

Int. Cl. C09k 1/36

U.S. Cl. 252—301.4 P 1 Claim
This invention relates to luminescent materials comprising compounds of rare-earth elements and belonging to the class of orthophosphates and containing terbium as an activating element. The invention also includes a method of preparing these materials, and further includes their applications, more particularly in the manufacture of television screens, cathode ray devices, radiation detectors and other devices making use of their properties of fluorescence and cathodoluminescence.

3,634,283

SMOKE GENERATING COMPOSITIONS AND METHODS OF USE

Alexander G. Rozner, Bethesda, and Horace H. Helms, Jr., Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,658

Int. Cl. C09k 3/30

U.S. Cl. 252—305 6 Claims
Heat initiated smoke-generating compositions comprising zinc powder and Teflon (polytetrafluoroethylene) powder and methods employing these compositions.

3,634,284

EMULSIFICATION OF HYDROCARBONS IN AQUEOUS ELECTROLYTE SOLUTIONS

Albert Benson, Fairlawn, and Gerhart Karg, Pompton Lakes, N.J., assignors to Witco Chemical Corporation, New York, N.Y.

No Drawing. Filed Jan. 24, 1968, Ser. No. 700,002

Int. Cl. B01j 13/00

U.S. Cl. 252—312 10 Claims
Emulsions of certain normally liquid hydrocarbons in aqueous solutions of electrolytes such as sea water having improved long term stability and containing from 10–25% by weight, based on the amount of said hydrocarbon, of oleic diethanolamide.

3,634,285

SILICONE RELEASE EMULSION

Howard Larry Brooks, Toledo, Ohio, assignor to Stauffer-Wacker Silicone Corporation, Adrian, Mich.

No Drawing. Filed Mar. 24, 1969, Ser. No. 809,994

Int. Cl. B01j 13/00

U.S. Cl. 252—312 9 Claims
An emulsion composition comprising (a) from 20 to 50 percent by weight of an organopolysiloxane having from 1 to 3 monovalent hydrocarbon radicals or halogenated monovalent hydrocarbon radicals per silicon atom, (b) from 0.5 to 5.0 percent by weight of a trimethyl nonyl ether of polyethylene glycol, (c) from 0.2 to 3.0 percent by weight of a polyoxyethylene sorbitol oleate, (d) from 0.10 to 5.0 percent by weight of a partial salt of a phosphate ester of nonyl phenol, and the balance of the emulsion being water.

3,634,286

STABLE, HOMOGENEOUS SUSPENSION OF SILICA-PHOSPHATE COMPOSITION AND METHOD OF PREPARATION

Paul Clifford Yates, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 9, 1969, Ser. No. 840,528

Int. Cl. B01j 13/00

U.S. Cl. 252—313 S 7 Claims
Water suspensions containing (i) a silicate or mixture of a silicate and colloidal silica and (ii) a phosphate of cerium, hafnium, tin, titanium, or zirconium have been found to be stable. Water-insoluble films or ion-exchange members can be made by removing the water from the suspensions.

3,634,287

TWO-STAGE HYPOCHLORITE BLEACHING OF OLEFIN SULFONATE DETERGENTS

Gar Lok Woo, Tiburon, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,386

Int. Cl. B01f 17/02

U.S. Cl. 252—353 11 Claims
An improved process for the reduction of color in detergent range olefin sulfonates by the use of two temperature stages and hypochlorite bleach.

3,634,288

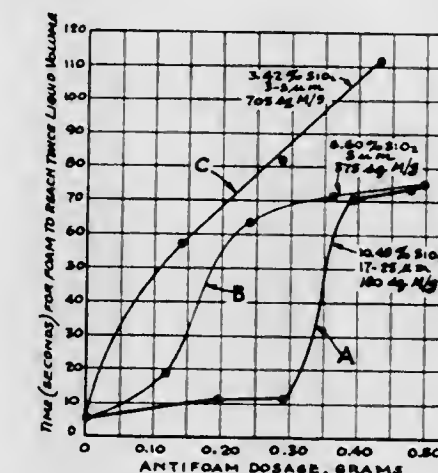
PREPARATION OF HYDROPHOBIC SILICA SOL FOR USE AS ANTIFOAMING AGENT

Roger W. Youngs, Hinsdale, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

Filed Apr. 16, 1969, Ser. No. 816,646

Int. Cl. B01d 19/04; B01j 13/00; C01b 33/14

U.S. Cl. 252—358 3 Claims



A superior hydrophobic silica emulsion in oil, useful principally as an antifoaming agent, is prepared by starting with a silica hydrosol emulsified oil. Water is stripped

from the emulsion and the emulsion system is then reacted with a polysiloxane which renders the oil-dispersed silica particles (sol dimension) hydrophobic.

3,634,289

PROCESS FOR RECLAIMING WOOD TREATING COMPOSITION

Harold G. Liddell, Angleton, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 25, 1969, Ser. No. 861,183

Int. Cl. C09k 3/00

U.S. Cl. 252—404

4 Claims

A process for recovering a wood preservative, e.g., pentachlorophenol, and its carrier from a treating composition which composition, through usage, has accumulated contaminants, wood rosin, dirt, etc. along with a process for reduction of corrosion of containers used for storing the carrier-preservative composition which includes: reacting the contaminated treating composition with an aqueous solution of an alkali metal base, e.g., Na_2CO_3 or NaOH , in an amount sufficient to convert the preservative, e.g., pentachlorophenol, to its water-soluble alkali metal salt form; allowing the water and the salt to separate from the carrier and the contaminants, and decanting the aqueous-layer containing the preservative in its salt form from the carrier and contaminants; subjecting the carrier and contaminants remaining after decantation to distillation to recover the volatile carrier (the contaminants, the dirt, and the rosin will remain behind in the residue); mixing clean distilled carrier with the decanted aqueous layer and sufficient acid to convert the salt to the solvent-soluble acid form, thereby to recover the preservative in solution in the carrier; finally, decanting the water after settling of the newly constituted treating composition. Alternatively, the preservative may be regenerated by acid from the water, separated from the water and then mixed with the clean solvent. Generally not all of the salt form of the preservative will be converted and certainly not all of the water will be removed from the carrier, thus when the clean treating composition, containing the carrier and the preservative, is stored, some of the salt form of the preservative as well as water will be present and form an aqueous layer over the carrier upon standing as during storage. It has been found that this aqueous layer containing some of the preservative in its salt form will prevent the corrosion of the metal container or vessel at the most corrosive point, the interface of the solvent and water.

3,634,290

METHOD OF PREPARING HEMOLYSATES FOR HEMOGLOBIN AND OTHER TYPES OF ELECTROPHORESIS USING CHELATING AGENTS

Tipton L. Gollas, 9786 Lincoln Court,

Taylor, Mich. 48180

No Drawing. Filed Aug. 6, 1969, Ser. No. 848,110

Int. Cl. G01n 33/16

U.S. Cl. 252—408

9 Claims

The method of preparing a hemolysate involves the liberation or separation of the hemoglobin from the red blood corpuscles or cells by subjecting the solution in which the red blood corpuscles are suspended to a chelating agent dissolved in water which lyses the cells. As a result thereof the hemoglobin appears in the solution combined with the chelating compound to form chelating molecules. The lysing solution I commonly use for the red blood cells is a dilute solution of (ethylenedinitrilo)-tetraacetic acid tetrasodium salt (in the range of .05–2.0%) in water. This solution is added directly to the red blood cells which were previously washed in a .85% saline solution. The resulting hemolysate is ready for hemoglobin or other types of electrophoresis (isoenzymes, etc.) after being thoroughly mixed.

METHOD OF RECOVERING COBALT OR COBALT PLUS GROUP II METAL CATALYST IN OXO SYNTHESIS PROCESS

Seiji Usami, Kotaro Nishimura, and Takeo Koyama, Saltama, and Saburo Fukushi, Tokyo, Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,375

Claims priority, application Japan, Oct. 21, 1967,

42/67,709; Dec. 27, 1967, 43/83,273

Int. Cl. B01j 11/02; C07c 45/02

U.S. Cl. 252—414

2 Claims

A method for recovering a reaction catalyst from an oxo or an Aldox process in which the waste catalyst-containing solution obtained by the decatalyzing step is treated with an organic extracting medium and an alkali metal hydroxide in order to obtain the catalyst metal or metals in the form of hydroxides suspended in the organic extracting medium.

3,634,292

REGENERATION OF A COKE-DEACTIVATED CATALYST COMPRISING A COMBINATION OF PLATINUM, RHENIUM, AND HALOGEN WITH AN ALUMINA CARRIER MATERIAL

John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Feb. 6, 1969, Ser. No. 797,272

Int. Cl. B01j 11/02, 11/80; C10g 35/06

U.S. Cl. 252—415

13 Claims

A deactivated hydrocarbon conversion catalyst, which is a combination of a platinum group component, a rhodium component, and a halogen component with an alumina carrier material and which has been deactivated by a deposition of carbonaceous materials thereon during a previous contacting with a hydrocarbon charge stock at an elevated temperature, is regenerated by the sequential steps of: (1) burning carbon therefrom at a relatively low temperature with a gas stream containing H_2O and a small amount of O_2 , (2) contacting at a relatively high temperature with a gas stream containing H_2O and a small amount of O_2 , (3) treating at a relatively high temperature with a gas stream containing H_2O and a large amount of O_2 , (4) treating with a gas stream containing halogen or a halogen-containing compound and water, and (5) reducing with a dry hydrogen stream. Key features of the resulting method are: (1) presence of water in the gas stream used in all steps except the reduction step, (2) careful control of the temperature during each step, (3) adjustment of halogen content of the catalyst prior to the reduction step, and (4) careful control over the composition of the gas streams used in the various steps thereof.

ERRATA

For Classes 252—431 thru 252—521 see:
Patent Nos. 3,634,328 thru 3,634,337

3,634,293

COMPOSITIONS CONTAINING BITUMEN AND AN OLEFIN POLYMER

Eckhard Bonitz, Frankenthal, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 25, 1969, Ser. No. 852,344

Claims priority, application Germany, Aug. 31, 1968,

P 17 95 269.1

Int. Cl. C08h 13/08, 17/04, 17/56

U.S. Cl. 260—28.5 AS

6 Claims

Compositions containing bitumen, an olefin polymer, a basic substance and sulfur.

3,634,294

SYNTHETIC LATICES AND METHOD OF PREPARING SAME

Donald N. De Mott, Midland, Mich., and Francis W. Stanton, Jr., Cheviot, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Mar. 20, 1969, Ser. No. 809,047

Int. Cl. C08f 1/09, 3/00

U.S. Cl. 260—29.6 MQ

14 Claims

Compounds useful as emulsion polymerization surfactants, 2-acetoxy-alkanesulfonates, are disclosed. The compounds are particularly suited as emulsion polymerization surfactants in the preparation of low-foaming or non-foaming latices by aqueous emulsion polymerization of vinyl monomers. The synthetic latices and process for preparing them are described. The low-foaming and non-foaming latices find application in the preparation of adhesives, foams, polishes, coatings and the like.

3,634,295

TEXTILE SIZING COMPOSITION

Donald Thomas Dunlap and James Reid Misenheimer, both % Celanese Corporation, P.O. Box 1414, Charlotte, N.C. 28201

No Drawing. Filed July 24, 1968, Ser. No. 747,079

Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 WB

2 Claims

A method of sizing man-made yarns, a novel sizing composition and a novel mixing procedure for said sizing composition wherein the sizing composition comprises a polyvinyl alcohol and a polyacrylic acid.

3,634,296

METAL ORGANIC COATINGS FOR ANIONIC SUBSTRATES

Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass.

No Drawing. Continuation-in-part of abandoned applications Ser. No. 630,845, Apr. 14, 1967, and Ser. No. 816,065, Apr. 14, 1969. This application July 14, 1969, Ser. No. 841,540

Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 BM

6 Claims

The invention provides glass articles coated with the complex reaction product of anhydrous trimethyl borate with the anhydrous chloride of a metal selected from Ti (IV), Zr (IV) and Hf (IV). This reaction product is water-soluble but when applied to the surface of glass and dried is substantially water-insoluble. The coated glass surface is delustered and water repellent. This reaction product has a high affinity not only for glass but also for compounds having free hydroxyl groups. Consequently, the glass article may be coated with the complex reaction product, and when dried, may be again coated with a solution or emulsion of a hydroxylic compound and when dried is capable of being dyed with vat dyes or other dyes commonly used for dyeing cellulose fibers.

The invention also provides aqueous solutions of polyvinyl alcohol and the reaction product of anhydrous trimethyl borate and the anhydrous tetrachloride of Ti (IV), Zr (IV) and Hf (IV) which may be used to coat various substrates, such as cotton, glass, leather, paper and starch, which when dried forms an adherent coating on the substrate which may be dyed.

3,634,297

EMULSION AND PROCESS FOR BINDING PIGMENTS TO GLASS FABRICS

James K. Campbell, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 6, 1968, Ser. No. 750,472

Int. Cl. C09d 3/82

U.S. Cl. 260—29.2 M

2 Claims

Emulsions of certain silicone copolymers prepared by emulsion polymerization have been found to be useful as pigment binders for glass fabrics. Conventional silicone

or organic post-finishes can be applied over the compositions of this invention.

3,634,298

HIGH GLOSS PAPER COATING COMPOSITION OF A LATEX INTERPOLYMER OF ALKYL ACRYLATE-MONOVINYL AROMATIC-UNSATURATED CARBOXYLIC ACID-ACRYLONITRILE

Robert Alan Wamsley, Anchorage, John Edward Barnett, Pleasure Ridge Park, and Kenneth Ralph Rose and Gerald Stephan Jones, Louisville, Ky., assignors to Celanese Coatings Company, New York, N.Y.

No Drawing. Filed Apr. 11, 1969, Ser. No. 816,186

Int. Cl. C08f 29/54; D21h 1/28

U.S. Cl. 260—29.6 TA

6 Claims

High gloss papers are produced by coating the paper with a composition made from a major amount of pigment and a minor amount of a binder wherein the binder is a latex interpolpolymer of an alkyl acrylate or methacrylate, a vinyl aromatic compound, a polymerizable acid and acrylonitrile.

3,634,299

DAMPING COATINGS AND METHODS FOR PREPARATION

Benjamin K. C. Shim, Donald R. Blenner, Thomas J. Dudek, and William F. Hafner, all % Lord Corporation, Erie, Pa.

Continuation-in-part of application Ser. No. 569,190,

Aug. 1, 1966. This application Apr. 9, 1969, Ser.

No. 839,744

Int. Cl. C08f 45/04, 45/40

U.S. Cl. 260—31.8

11 Claims

A damping material is provided which comprises in combination with a material imparting stiffness thereto a polymeric material having polar functionality and in the solid state clearly defined spaced apart glass and secondary transition points admixed with a plasticizer which moves the transition points together to provide a combined transition effect.

3,634,300

REMOVING UNREACTED MONOMERS FROM ACRYLONITRILE POLYMER SOLUTIONS AND CONCENTRATION OF THE SOLUTIONS

Hermann Fischer and Eduard Heil, Limburgerhof, Johann Swoboda, Heidelberg, and Richard Thoma, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

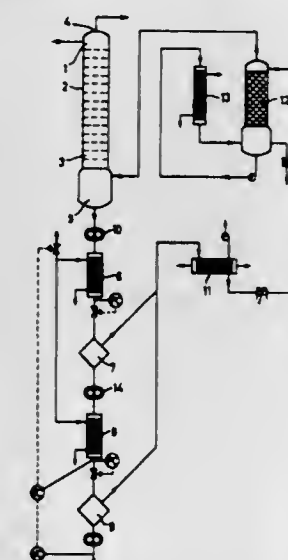
Filed Nov. 4, 1970, Ser. No. 86,762

Claims priority, application Germany, Nov. 8, 1969, P 19 56 286.8

Int. Cl. C08f 47/22, 53/20

U.S. Cl. 260—32.6 N

4 Claims



A continuous process for the removal of residual monomers from solutions of acrylonitrile polymers in dimeth-

ylformamide and for concentrating the solutions in a sequence of separating zones, pressure release zones, heating zones and pressure release zones. The process is distinguished by short residence times and only slight damage to the polymer solutions. The solutions obtained may serve for the production of filaments, threads or fibers.

3,634,301

SELF-BONDING MAGNET WIRE ENAMELS

Andrew F. Fitzhugh, Longmeadow, and James A. Snellgrove, Monson, Mass., assignors to Monsanto Company, St. Louis, Mo.

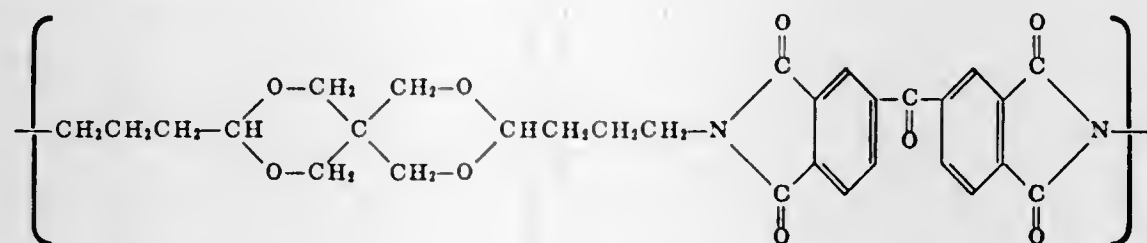
No Drawing. Original application Aug. 14, 1967, Ser. No. 660,190, now Patent No. 3,516,858. Divided and this application Oct. 13, 1969, Ser. No. 865,992

Int. Cl. C08k 1/40

U.S. Cl. 260—32.6 R

13 Claims

Disclosed herein are self-bonding magnet wire enamels comprising a polyvinyl acetal resin based composition



which contains at least 0.5 parts by weight, per hundred parts of polyvinyl acetal resin, of an amine component selected from the group consisting of primary and secondary amines.

3,634,302

SAND CONSOLIDATION COMPOSITION

Bobby G. Harnsberger, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

No Drawing. Original application Dec. 23, 1968, Ser. No. 786,430, now Patent No. 3,537,521, dated Nov. 3, 1970. Divided and this application Dec. 31, 1969, Ser. No. 21,229

Int. Cl. C08f 45/34

U.S. Cl. 260—32.8 R

8 Claims

Method of and composition for the treatment of unconsolidated sandy formations to stabilize the formation comprising injecting a treating composition of 25–100% by volume of acrolein dimer and 75–0% by volume of an oxygenated hydrocarbon solvent into said formation, effecting polymerization of said dimer and formation of a fluid permeable consolidated sand in said formation.

3,634,303

DISPERSIONS OF FINELY-DIVIDED POLY-(EPOXIDES) IN NONPOLAR ORGANIC DILUENTS

Edwin J. Vandenberg, Foulk Woods, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed June 2, 1969, Ser. No. 829,731

Int. Cl. C08g 51/26, 53/18; C08j 1/46

U.S. Cl. 260—33.2 EP

20 Claims

Dispersions of poly(epoxides) in nonpolar liquid organic diluents, wherein the poly(epoxide) has a particle size of 0.05 to 20 microns, are described. These dispersions are prepared by polymerizing an oxirane or oxetane or mixtures of such epoxides in a diluent, in which the polymer being produced is insoluble, in the presence of a poly(epoxide) microgel which is swollen at least 100%

by the diluent. Suitable microgels are prepared by copolymerizing a monoepoxy monomer with a small amount of a polyepoxy monomer whereby a network structure is formed.

3,634,304

NOVEL POLYIMIDES AND COMPOSITIONS THEREOF THAT ARE SOLUBLE IN PHENOLIC SOLVENTS

Munehiko Suzuki, Yokosuka-shi, Etsuo Hosokawa, Yokohama-shi, and Misao Waki, Kawasaki-shi, Japan, assignors to Showa Densen Denran Kabushiki Kaisha, Ltd., Kanagawa-ken, Japan

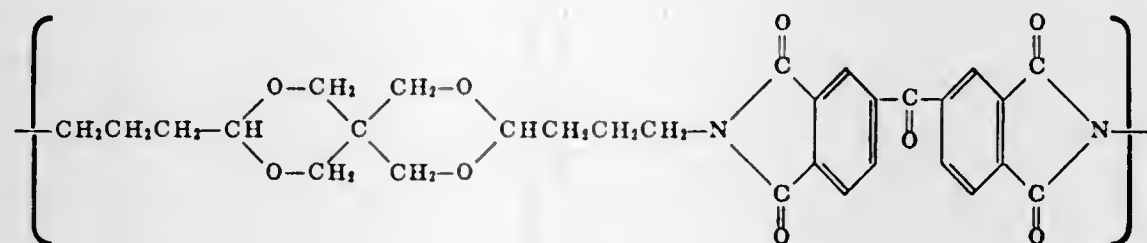
Filed May 21, 1969, Ser. No. 826,491

Int. Cl. C08g 20/32, 41/04, 51/34

U.S. Cl. 260—33.4 P

4 Claims

A polyimide having a recurring structural unit of the formula



can be produced by causing a 3,3',4,4'-benzophenone-tetracarboxylic acid compound and 3,9-bis(3-aminopropyl)-2,4,8,10-tetraoxaspiro[5,5]undecane to contact each other under conditions conducive to condensation. Such a polyimide is blended with a convertible polyester and a phenolic solvent to produce a composition which is suitable for use as an electrically insulating varnish forming a coating film of highly desirable properties.

3,634,305

WATER-SOLUBLE COMPOSITIONS RESISTANT TO SHEAR DEGRADATION OF THE POLYMER THEREOF

Alvin C. Johnson, Mount Carmel, Ill., and Clyde G. Inks, Taylor, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich.

No Drawing. Filed Aug. 8, 1969, Ser. No. 848,742

Int. Cl. C08g 51/24, 57/34; E21b 43/22

U.S. Cl. 260—33.4 R

5 Claims

Aqueous polymeric solutions are prepared by admixing an aqueous solvent with water-soluble composition of a solid, high molecular weight polyethylene oxide or polyacrylamide dispersed in a water-soluble liquid surfactant. The aqueous solutions, which have utility in waterflood processes and the like, can be forcibly displaced by a pump or the like without shear degradation of the polymer component thereof.

3,634,306

MOISTURE-CURING POLYURETHANES SOLUBLE IN MINERAL SPIRITS

Herbert M. Schroeder, Williamsburg, and David W. Teloh, Depew, N.Y., assignors to Textron Inc.

No Drawing. Filed Sept. 1, 1967, Ser. No. 664,960

Int. Cl. C08g 51/28

U.S. Cl. 260—33.6 UR

27 Claims

Solvent solutions of moisture-curing polyurethanes made from a polyol component containing branched chain polyoxybutylene polyol in order that a paraffinic or alicyclic hydrocarbon-containing solvent can be employed

and still obtain essentially clear solutions. Such solvents are especially advantageous in view of pollution problems encountered with aromatic, olefinic and oxygenated solvents. A highly preferred diisocyanate is 1-isocyanato-3-isocyanatomethyl-3,5,5-trimethylcyclohexane whose use permits the production of solutions having at least about 70 or 80% of the paraffinic or alicyclic hydrocarbon solvent components.

3,634,307

ORGANIC BINDER FOR FRICTION LINING

Henry C. Morton, East Greenbush, N.Y., assignor to The Bendix Corporation

Continuation-in-part of application Ser. No. 610,397, Jan. 19, 1967. This application Dec. 11, 1969, Ser. No. 884,329

Int. Cl. C08g 51/10

U.S. Cl. 260—38

3 Claims

An organic binder for friction linings comprised of a nylon polyamide modified phenolic resin is herein disclosed. The polyamide is added as a reactant to the reaction mass during the phenolic resin forming process to provide the phenolic resin with a temperature resistant toughness and fade resistance.

3,634,308

POLYALKYLENE OXIDE ADDUCT OF PHOSPHORIC ACID AS MOLD RELEASE AGENT FOR UNSATURATED POLYESTER RESINS

Glenn R. Svoboda, Grafton, and Richard C. Ross, Port Washington, Wis., assignors to Freeman Chemical Corporation, Port Washington, Wis.

No Drawing. Filed May 19, 1969, Ser. No. 825,922

Int. Cl. C08f 21/02

U.S. Cl. 260—40 R

4 Claims

An improved molding resin composition, particularly adapted for use with heated surface molding installations, includes as a mold release agent, a small quantity of a polyol which is a polyalkylene oxide adduct of phosphoric acid. The composition is otherwise typical of the molding art, i.e., includes unsaturated polyester resin syrup and inert materials which may be particulate or fibrous fillers or fibrous reinforcement materials.

3,634,309

FLUOROELASTOMER BONDED-SHEET PACKING AND METHOD OF MANUFACTURE

Henry Joseph Palumbo, Middlesex, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 506,283, Nov. 3, 1965. This application June 11, 1969, Ser. No. 832,442

Int. Cl. C08f 45/10

U.S. Cl. 260—41

3 Claims

Compressed packing material having exceptionally good stress relaxation properties and good chemical resistance at 300° to 600° F. is prepared from a mixture comprising asbestos fibers and a vinylidene fluoride and hexafluoropropylene copolymer. The packing material is particularly suited for maintaining a strong seal between metal surfaces that are subjected to relatively high operating temperatures.

3,634,310

PELLETING AGENT FOR CARBON BLACK

Arthur E. Frazier, Borger, Tex., assignor to Phillips Petroleum Company

No Drawing. Filed July 9, 1969, Ser. No. 840,520

Int. Cl. B01j 2/00; C08c 11/18

U.S. Cl. 260—41.5

8 Claims

The use of an in situ-prepared ammonium nitrate solution as a pelleting agent to facilitate the pelleting of car-

bon black is shown to be superior in regard to scorch and tensile of the rubber into which the carbon black is subsequently blended.

3,634,311

AMMONIUM HEXAFLUOROFERRATE AS A FIRE RETARDANT ADDITIVE

John A. Peterson, Niagara Falls, and Harry W. Marciniak, Tonawanda, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Mar. 21, 1969, Ser. No. 809,430

Int. Cl. C08f 45/56; C08k 1/02; C09k 3/28

U.S. Cl. 260—41.5

8 Claims

Normally combustible polymers are rendered fire retardant by incorporating therein a fire retardant amount of ammonium hexafluorotitanate, ammonium hexafluoroferrate and mixtures thereof. The degree of fire retardancy is improved by additionally employing an arsenic, antimony or bismuth compound.

3,634,312

STABLE CARBONATE POLYMER COMPOSITIONS

Robert C. Babillis and Frank N. Liberti, Mount Vernon, Ind., assignors to General Electric Company

No Drawing. Filed Aug. 19, 1969, Ser. No. 851,426

Int. Cl. C08g 51/58

U.S. Cl. 260—45.8 A

6 Claims

A thermal-oxidatively stable polycarbonate composition which consists of in admixture a copolycarbonate phosphite and an epoxy composition which epoxy composition is present in an amount of 0.01–1.0 weight percent based on the total weight of the polycarbonate composition wherein the copolycarbonate phosphite has an elemental phosphorus content of 0.0005 to about 1.0 weight percent.

3,634,313

ANTIOZONANTS FOR RUBBER

Frank Aloysius Vincent Sullivan, Westfield, and Tamara Dejneka, Skillman, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application May 18, 1967, Ser. No. 639,259, now Patent No. 3,509,181, dated Apr. 28, 1970. Divided and this application Aug. 20, 1969, Ser. No. 851,729

Int. Cl. C08c 11/32; C08d 11/04

U.S. Cl. 260—45.8

5 Claims

A compound of the formula:



wherein R is either furfuryl or tetrahydrofurfuryl and R' is phenyl or naphthyl, or lower-alkyl or lower-alkoxy substituted phenyl or naphthyl, or the same as R; and the use of such compound as an antiozonant in rubber compositions.

3,634,314

FLAME RETARDANT SOLID POLYMERIC COMPOSITIONS

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 770,123, Oct. 23, 1968, now Patent No. 3,542,805, which is a continuation-in-part of application Ser. No. 720,339, Apr. 10, 1968, which in turn is a continuation-in-part of abandoned application Ser. No. 329,979, Dec. 12, 1963. This application Aug. 27, 1969, Ser. No. 853,520

Int. Cl. C08f 45/60; C08g 51/60; C09k 3/28

U.S. Cl. 260—45.8 N

7 Claims

Flame retardant solid polymeric composition containing hydroxyalkyl substituted polyhalopolyhydropolycyclic dicarboxylic imides.

3,634,315

POLYETHYLENE OXIDE STABILIZED WITH MERCAPTO-IMIDAZOLES

Kenichi Hattori, Yuichi Ueda, and Yukio Tanino, Wakayama-shi, Japan, assignors to Kao Soap Co., Ltd., Chuo-ku, Tokyo, Japan

No Drawing. Filed Sept. 30, 1969, Ser. No. 862,510
Claims priority, application Japan, Oct. 3, 1968, 43/72,119

Int. Cl. C08g 51/60

U.S. Cl. 260—45.8 N

6 Claims

An ethylene oxide polymer composition having an intrinsic viscosity of more than 0.03 and containing 0.5 to 15% by weight of a 2-mercaptoimidazole as a stabilizer.

3,634,316

SULFUR-VULCANIZABLE NATURAL AND SYNTHETIC RUBBERY POLYMERS CONTAINING XYLENE DIAMINES AS ANTIOZONANTS

Masatomo Ito, Yokohama-shi, Yasuo Miyazawa, Kawasaki-shi, and Tsuneo Gotoh, Yokohama-shi, Japan, assignors to Showa Denko Kabushiki Kaisha, Minato-ku, Tokyo, Japan

No Drawing. Filed Aug. 18, 1969, Ser. No. 851,093
Claims priority, application Japan, Aug. 23, 1968, 43/59,925; Jan. 16, 1969, 44/2,622; Jan. 28, 1969, 44/5,728; July 9, 1969, 44/53,763

Int. Cl. C08d 11/04; C08f 51/58

U.S. Cl. 260—45.9

7 Claims

A composition comprising a rubber polymer and as an antiozonant a xylenediamine derivative. This antiozonant has an excellent effect to prevent degradation of natural and synthetic rubbers by ozone, and is non-coloring and non-staining.

3,634,317

PREPARATION OF WHITE, STABILIZED PHENOL FORMALDEHYDE CONDENSATION RESINS

Rudolf Klemke, Sparta, N.J., assignor to Mohawk Industries Inc., Sparta, N.J.

No Drawing. Filed Sept. 19, 1969, Ser. No. 859,575
Int. Cl. C08g 5/06, 5/18, 51/58

U.S. Cl. 260—45.7 P

1 Claim

A phenol-formaldehyde aryl phosphite condensation product which is snow white in the resol stages and below a pH of 6.5 and to a method of making the same.

3,634,318

RUBBER FORMULATIONS COMPRISING PHENYLENEDIAMINES AND N-ARYL SULFENAMIDES

James P. Shoffner, Elk Grove Village, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Aug. 22, 1969, Ser. No. 852,473
Int. Cl. C08c 11/46, 11/62; C08d 9/00

U.S. Cl. 260—45.9 R

12 Claims

Countervailing the decrease in scorch encountered upon addition of a phenylenediamine antiozonant to a rubber formulation by also incorporating an N-aryl-2-benzothiazolesulfenamide in the formulation.

3,634,319

HIGH MOLECULAR WEIGHT POLYAMIDES

Michael Edward Harrison and David Charles Jones, Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,439
Int. Cl. C08g 51/56

U.S. Cl. 260—45.75 R

4 Claims

Improved high molecular weight fibre-forming polyamides prepared using defined hydrogen phosphates as polymerisation accelerators.

3,634,320

PROTECTION OF ORGANIC SUBSTANCES AGAINST UV RADIATION

Wolfgang Metzner, Krefeld, and Gunter Peilstocker, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

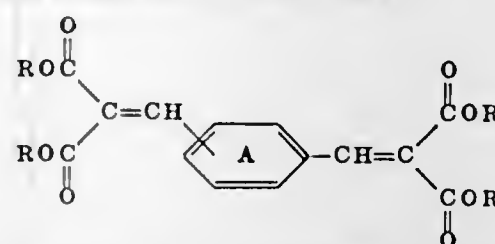
No Drawing. Filed Sept. 24, 1969, Ser. No. 860,823
Claims priority, application Germany, Oct. 4, 1968, P 18 01 221.0

Int. Cl. C08f 45/58; C08g 51/58

U.S. Cl. 260—45.85 R

2 Claims

The use of compounds of the formula



in which R stands for an optionally substituted alkyl, cycloalkyl, aralkyl or aryl radical, and the ring A may contain further substituents,

for the protection of organic materials against the effect of UV rays.

3,634,321

METHODS OF MAKING SOLID ORGANOPOLYSILOXANES

Duane C. Nugent, Perrysburg, and Philip P. Rathke, Toledo, Ohio, assignors to Owens-Illinois, Inc.

Continuation of application Ser. No. 622,361, Mar. 10, 1967. This application July 28, 1969, Ser. No. 845,314

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 R

25 Claims

Methods of reproducibly making solid solvent soluble organopolysiloxane prepolymers from a trifunctional monomer such as methyltriethoxysilane, water and an acid catalyst. After obtaining a viscous hydrolysis and condensation prepolymer product, the prepolymer is tailor-made for ultimate preparation into a solid powder or flake form by giving the prepolymer a certain additional heat history, forming a liquid film thereof having a certain viscosity in the range of about 30 to 310 centipoises at 60% solids at 25° C. in ethanol, and thereafter heating the film for a time sufficient to obtain a precured polymer that is solid and tack-free at room temperature and free from gel. The forming of the film and heating is preferably accomplished in a wiped film evaporator employing certain conditions of time and temperature. The tailor-made polymer from the evaporator is then spray dried or otherwise made into a solid flake or powdered form of solvent soluble, further curable organopolysiloxane precured polymer. For precured polymers for flexible coatings, a thin film is formed from a prepolymer without additional heat history having a viscosity of about 20 to 50 centipoises at 60% solids at 25° C. in ethanol, and thereafter the film is heated for a time sufficient to obtain a precured polymer that is a viscous liquid at room temperature and free from gel. This precured polymer can be easily dissolved in a solvent for coating applications.

3,634,322

COMPOSITION OF MATTER COMPRISING AN EPOXY RESIN, DICYANDIAMIDE AND HEXAMETHYLENETETRAMINE

Peter Ruf and Ewald Forster, Binningen, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 631,132, Apr. 17, 1967. This application Apr. 22, 1970, Ser. No. 30,979

Int. Cl. C08g 30/14

U.S. Cl. 260—47 EN

4 Claims

A heat-curable composition of matter which comprises (a) an epoxide compound having an epoxide equivalency

greater than 1, (b) dicyandiamide as the curing agent and (c) hexamethylene tetramine as a cure accelerator. Such compositions are useful inter alia as molding compositions.

3,634,323

COMPOSITIONS COMPRISING A 1,2-EPOXY RESIN AND A NITROGEN CONTAINING HETEROCYCLIC COMPOUND

Raymond Michael Moran, Jr., Brick Town, N.J., assignor to Ciba Corporation, Summit, N.J.

No Drawing. Filed Sept. 26, 1969, Ser. No. 861,483
Int. Cl. C08g 30/04

U.S. Cl. 260—47 EP

12 Claims

This invention relates to 1,2-epoxy resin compositions wherein the epoxy resin contains more than one 1,2-epoxy groups per molecule, which compositions contain novel advancement catalysts selected from the group consisting of imidazoles, benzimidazoles, dihydropyrimidines, imidazolines, tetrahydropyrimidines, dihydroquinazolines, their salts and mixtures thereof; and to a process for preparing higher 1,2-epoxy resins from lower epoxy resins employing said advancement catalysts. The composition can be suitably used as intermediates in the preparation of cured epoxy resins of high molecular weight which are used as coatings, adhesions, electrical insulators and the like.

3,634,324

POLYMERS PREPARED FROM PHENOLS, AROMATIC DIAMINES AND AROMATIC DIANHYDRIDES

Maurice Ducloux, Lyon, and Max Gruffaz, La Mulatiere, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed July 2, 1969, Ser. No. 838,694
Claims priority, application France, July 3, 1968, 157,757

Int. Cl. C08g 20/32

U.S. Cl. 260—47 CP

9 Claims

New heat-stable resins are prepared by curing prepolymers of a phenol an aromatic di-primary diamine and a dianhydride of azobenzene-tetracarboxylic or azoxy-tetracarboxylic acid, said polymers being useful in the production of homogeneous or composite moulded objects.

3,634,325

POLYIMIDE FROM 3,4-DICARBOXY-1,2,3,4-TETRAHYDRO-1-NAPHTHALENE SUCCINIC DIANHYDRIDE

Roland Ralph Di Leone, Rowayton, and Howard Robert Lucas, Greenwich, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 27, 1964, Ser. No. 392,635
Int. Cl. C08g 20/32

U.S. Cl. 260—47 CP

20 Claims

A polyimide of a diamine, 3,4-dicarboxy-1,2,3,4-tetrahydro-1-naphthalenesuccinic dianhydride and a different dianhydride of an organic tetracarboxylic acid.

3,634,326

METHOD OF MANUFACTURE OF RESINOUS PRODUCTS FROM EPOXY COMPOUNDS

Jean Aubry and Francois Lencud, Forbach, France, assignors to Societe Chimique des Charbonnages, Seine, France

No Drawing. Filed June 30, 1969, Ser. No. 837,875
Claims priority, application France, July 2, 1968, 157,599

Int. Cl. C08g 30/12

U.S. Cl. 260—47

4 Claims

A method of preparation of hardenable resinous compositions based on polyepoxy resin and slightly soluble

anhydrides of carboxylic acids. The method comprises reacting an epoxy resin and an anhydride or dianhydride of cyclopentane-tetracarboxylic acid, or dianhydride of benzophenone-tetracarboxylic acid in the presence of a strongly polar solvent like acetonitrile, heating the reaction mass, removing the solvent and further diluting with a ketone solvent. The compositions are applicable as hardenable binding agent namely fibrous materials.

3,634,327

PROCESS FOR PREPARING IMPROVED EPOXY RESIN ADHESIVES CONTAINING MINOR AMOUNT OF A URETHANE MODIFIER AND A BISPHENOL TYPE COUPLING AGENT

Jerry Marvin Hawkins, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 31, 1969, Ser. No. 873,084
Int. Cl. C08g 30/04

U.S. Cl. 260—47 EP

3 Claims

This invention is directed to an improved process for preparing urethane modified solid epoxy resins comprising, reacting a liquid epoxy resin, which has been modified with a urethane product, with a bisphenol compound. These compositions are particularly useful in adhesive formulations.

3,634,328

CATALYST FOR OXIDATION OF SECONDARY AND TERTIARY ALKYL AROMATIC HYDROCARBONS

Arthur M. Brownstein, Cherry Hill, N.J., and David L. Kerr, Wilmington, Del., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 692,685, Dec. 22, 1967, which is a continuation-in-part of application Ser. No. 663,234, Aug. 25, 1967. This application Apr. 21, 1970, Ser. No. 30,585

Int. Cl. C07c 73/08

U.S. Cl. 252—431 N

6 Claims

Copper polyphthalocyanine which has been activated by contact with an aromatic heterocyclic amine to form a novel complex is found to be an effective catalyst for the oxidation of secondary and tertiary alkyl aromatics such as ethylbenzene or cumene to form the corresponding hydroperoxide. The rate of conversion and the percentage yield is greater than that with copper phthalocyanine or copper polyphthalocyanine per se.

3,634,329

POLYMERIZATION CATALYST COMPOSITION CONTAINING CHELATE COMPLEX COMPOUND OF ACETYLACTONE AND TRIVALENT MANGANESE

Kiyoshi Chujo and Zenjiro Honda, Saitama, Japan, assignors to Daicel Ltd., Osaka, Japan

No Drawing. Filed Dec. 5, 1968, Ser. No. 781,575
Int. Cl. C08f 15/00

U.S. Cl. 252—431

5 Claims

The polymerization of monomers and mixtures thereof, selected from the group consisting of vinyl esters, acrylic esters, methacrylic esters, acrylonitrile, methacrylonitrile, styrene, vinyl chloride, vinylidene chloride and 1,3-butadiene can be effected at relatively low temperatures using a catalyst composition comprising a metal chelate complex compound of acetylactone and trivalent manganese and an additive compound selected from the group consisting of carboxylic acids, aldehydes, alcohols, primary aliphatic amines, zinc chloride, hydrochloric acid and phosphoric acid.

3,634,330

CATALYST FOR OXIDATION OF HYDROCHLORIC ACID FOR USE IN THE PREPARATION OF CHLORINATED HYDROCARBONS

Max Michel, Yerres, Gerard Benaroya, Bois-Colombes, and Roland Jacques, Ales, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,405
Claims priority, application France, Apr. 24, 1968, 149,248

Int. Cl. B01j 11/78

U.S. Cl. 252—441

3 Claims

An oxidation catalyst for hydrogen chloride formed of a catalytic component of cupric chloride and at least one chloride of a metal selected from the group consisting of an alkaline metal, an alkaline earth metal and a rare earth metal in combination with a support for the catalytic component in the form of spheroidal particles composed essentially of silica and containing at least one compound of a metal selected from the group consisting of a metal of the group II-a, III-b and IV-b of the periodic table of elements, having an atomic weight below 178 and alumina, said support having a specific surface area within the range of 40–400 m.²/g.

3,634,331

ZEOLITE AGGLOMERATE

Richard J. Neddierip, Williamsville, N.Y., assignor to Union Carbide Corporation

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,804

Int. Cl. B01j 11/40

U.S. Cl. 252—455 Z

5 Claims

Crystals of zeolite A molecular sieve are bonded into high-strength and shatter-resistant pellets, beads and the like by a composition of specific clays and silica materials of critical proportions. The clays must be of the bentonite and/or attapulgite and are preferably employed in combination. The silicas must be of the solid reactive type. The "green" agglomerates must be fired at temperatures of at least about 600° C. to achieve the desired properties.

3,634,332

PROCESS FOR CATALYST MATERIALS OF IMPROVED PORE VOLUME

William Edward Bambrick, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,780

Int. Cl. B01j 11/06, 11/40

U.S. Cl. 252—455 R

11 Claims

A process for preparing formed catalyst supports of increased pore volume which comprises forming a hydrogel of a suitable metal oxide, partially drying the formed hydrogel to form a xerogel, reslurrying the xerogel in sufficient water to produce a continuous water phase therein, subjecting the slurry thus formed to sufficient shearing action to eliminate the fluidizing effect of the continuous water phase, extruding the stiffened xerogel slurry, and thereafter drying and calcining the extrudate. Catalysts materials are produced by the preparative process described.

3,634,333

PROCESS FOR COATING ZINC OXIDE POWDER WITH CADMIUM SULFIDE

Yasuo Tamai, Asaka-shi, Japan, assignor to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

No Drawing. Filed Apr. 8, 1969, Ser. No. 814,435

Claims priority, application Japan, Apr. 9, 1968, 43/23,594

Int. Cl. C23c 3/04

U.S. Cl. 252—501

11 Claims

Process for producing photoconductive powder comprising heating at a temperature over 40° C. a slurry pre-

pared by adding photoconductive zinc oxide to a solution comprising primarily water, a sulfur containing water soluble compound which forms sulfur ions, and a water soluble cadmium compound. The cadmium sulfide is deposited on the surface of the zinc oxide during heating.

3,634,334

ELECTRICAL RESISTANCE MATERIAL AND METHOD OF MAKING THE SAME

Lester Earl Burgess, Roslyn, Pa., assignor to Gulf + Western Industrial Products Company, Grand Rapids, Mich.

No Drawing. Filed Oct. 18, 1968, Ser. No. 768,877

Int. Cl. H01b 1/02

U.S. Cl. 252—514

3 Claims

An electrical resistance material and method of making the same wherein the material comprises a dispersion of large metal particles and small metal particles dispersed in a fused, glassy matrix, the sum of metal particles constituting about 25–80% of the material and the ratio of large to small metal particles being within the range of about 2:1 to 10:1.

3,634,335

CHROMIUM AND MOLYBDENUM TETRAPHOSPHIDES HAVING ISOTYPIC, MONOCLINIC CRYSTAL STRUCTURES

Paul Christopher Donohue, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 16, 1970, Ser. No. 55,597

Int. Cl. H01b 1/06; C01b 25/08

U.S. Cl. 252—518

10 Claims

Disclosed herein are isotypic, monoclinic tetraphosphides of chromium and molybdenum represented by the formula, Cr_{1-x}Mo_xP₄, wherein x is from 0 to 1; a process for making the tetraphosphides by reacting the metals or their known phosphides with phosphorus at elevated temperatures and pressures; and use thereof as electrical conductors.

3,634,336

ORGANIC SEMICONDUCTORS COMPRISING AN ELECTRON DONATING CATION WHICH IS A GROUP VIA ELEMENT DERIVATIVE OF A POLYCYCLIC AROMATIC HYDROCARBON AND AN ELECTRON-ACCEPTING ANION

Evelio A. Perez-Albuerne, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 18, 1969, Ser. No. 851,088

Int. Cl. H01b 1/06

U.S. Cl. 252—519

14 Claims

Organic semiconductors are described having an electron donating cation which is a Group VIA element derivative of a polycyclic aromatic hydrocarbon and an inorganic or organic electron-accepting anion. These materials are generally soluble in ordinary solvents and have resistivities between 10⁻³ and 10⁹ ohm-cm. They are useful in conducting coatings, fibers, etc.

3,634,337

BARIUM-MODIFIED ZINC OXIDE VOLTAGE VARIABLE RESISTOR

Michio Matsuoka, Takeshi Masuyama, and Yoshio Iida, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed Oct. 27, 1969, Ser. No. 869,470

Claims priority, application Japan, Nov. 8, 1968, 43/82,128

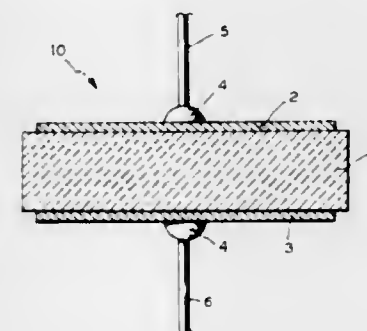
Int. Cl. H01b 1/06

U.S. Cl. 252—521

8 Claims

A voltage variable resistor ceramic composition consisting essentially of zinc oxide and, as an additive,

barium oxide. The barium-modified zinc oxide voltage variable resistor has improved voltage nonlinear proper-



ties due to the further addition of strontium oxide, lead oxide, calcium oxide, cobalt oxide and bismuth oxide.

3,634,338

METHOD AND COMPOSITION FOR CLEANING ALUMINUM, MAGNESIUM, AND ALLOYS THEREOF

Millard J. Laugle and William J. Corbett, Cincinnati, Ohio, assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 663,539, Aug. 28, 1967. This application

July 10, 1970, Ser. No. 53,978

U.S. Cl. 252—525

1 Claim

The invention disclosed is for a method and composition for cleaning aluminum, magnesium, and alloys thereof by using a stable emulsion formed of particular amounts of water, liquid aromatic hydrocarbon, fatty acyl sarcosine or salt thereof, alkali metal pyrophosphate, linear alkyl benzene sulfonate, terpene, and optionally a coupling agent.

3,634,339

POLYMERIC AROMATIC COMPOSITIONS

Sargeant E. Aylles, 138 Roanoke, Cuyahoga Falls, Ohio 44221; and Mial T. Hillhouse, 1282 Carnegie Ave. 44414; and Alexander Kyriakis, 716 Castle Blvd. 44313, both of Akron, Ohio; and Brian W. Pengilly, 4106 Klein Ave., Stow, Ohio 44224

No Drawing. Continuation-in-part of application Ser. No. 361,551, Apr. 21, 1964. This application June 26, 1967, Ser. No. 648,933

Int. Cl. C08g 33/00

U.S. Cl. 260—2 H

3 Claims

The invention relates to polymeric aromatic compounds and to the preparation of these materials by polymerizing the monomeric aromatic compound using a catalyst comprising an active metal halide, chloranil and water. These polymers are linear chains of aromatic rings attached together.

3,634,340

PROCESS FOR THE PRODUCTION OF POLYMERIC OLEFINE OXIDES HAVING HIGH MOLECULAR WEIGHTS

Peter Günther, Opladen, and Wolfgang Oberkirch, Mariaweller, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 29, 1969, Ser. No. 854,276

Claims priority, application Germany, Oct. 23, 1968, P 18 04 528.8

Int. Cl. C08g 23/14

U.S. Cl. 260—2

2 Claims

Process for polymerizing olefine oxides with a catalyst prepared by reducing a mixture of a transition metal salt or enolate and a phosphorus acid amide with a metal alkyl compound.

3,634,341

ION EXCHANGE CATALYSTS FOR THE PREPARATION OF BISPHENOLS

Benny B. Gammill, Lake Jackson, Glen R. Ladewig, Freeport, and George E. Ham, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 6, 1970, Ser. No. 17,291

Int. Cl. C08g 27/08; C07c 37/00

U.S. Cl. 260—2.2 R

5 Claims

Modification of an insoluble strong-acid cation-exchange resin in acid form by partial neutralization with a thiazolidine yields an improved catalyst for the preparation of bisphenols by condensation of a phenol and a ketone.

3,634,342

DEPOTTABLE POLYURETHANE FOAM

Russell D. Boblitt, Denver, Colo., assignor to Martin

Marietta Corporation, New York, N.Y.

No Drawing. Filed Aug. 28, 1967, Ser. No. 663,513

Int. Cl. C08g 22/44, 51/04

U.S. Cl. 260—2.5

9 Claims

Rigid polyurethane foams are used to pot electronic components, that is, to protectively encapsulate the components within the foam. A problem exists in subsequent removal of the foam should it be desirable to test or repair these components. The invention concerns the discovery that a small amount of sodium silicate blended with the foam constituents will render the same soluble in an alcohol-water solution.

3,634,343

PROCESS OF MAKING AN EPOXIDE RESIN CELLULAR PLASTIC

Alfred Kuhlkamp, Hofheim, Taunus, and Edgar Fischer and Ernst Nolken, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,073

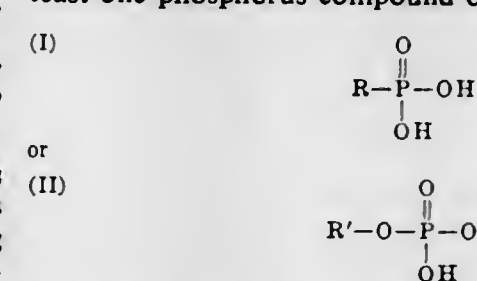
Claims priority, application Germany, Aug. 23, 1967, F 53,307

Int. Cl. C08f 47/10; C08j 1/26

U.S. Cl. 260—2.5 EP

5 Claims

Process for the manufacture of cellular plastics by curing epoxide resins with a mixture of Lewis acids with at least one phosphorus compound of the formula



in which R and R' each represents an alkyl, aryl, cycloalkyl, alkylaryl, aralkyl, alkoxyalkyl, alkoxyaryl, oxalkyl, oxaryl, or alkenyl group, in the presence of inert liquid blowing agents and cell regulators. The cellular plastics obtained have uniform cells and no cracks in the interior.

3,634,344

PROCESS OF PRODUCING POLYESTER FOAMS

Gotz Koerner and Gerd Roosmy, Essen, Germany, assignors to Th. Goldschmidt A.-G., Essen, Germany

No Drawing. Filed June 26, 1969, Ser. No. 836,987

Claims priority, application France, July 4, 1968, 157,859

Int. Cl. C08g 22/44, 51/00

U.S. Cl. 260—2.5 AH

4 Claims

In a process of producing polyester foams based on polyesterurethanes or hardenable unsaturated polyesters, foam stabilizers are used which are polyoxyalkylene-poly-siloxane mixed block polymers whose polyoxyalkylene

the solid phase. High-frequency is used for heating up the polyester to the after-condensation temperature. During heating crystallization and substantial drying should take place.

3,634,360 POLYURETHANE ELASTIC FILAMENTS AND FIBERS

Horst Wieden and Wolfgang Rellensmann, Dormagen, and Dieter Dieterich and Gunther Nischk, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation of application Ser. No. 556,862, June 13, 1966. This application June 19, 1970, Ser. No. 48,930
Claims priority, application Germany, June 15, 1965, F 46,338

Int. Cl. C08g 22/04, 53/00

U.S. Cl. 260—77.5 SP 1 Claim
Polyurethane fibers and filaments are prepared by preparing a solution of a polyurethane polymer containing tertiary nitrogen atoms; mixing into the solution a bis- or polyfunctional alkylating agent in a quantity up to that equivalent to the tertiary nitrogens present in the polymer; spinning the solution into a filament and exposing the spun filament to a temperature from 50–150° C. to cause cross-linking by quaternization of tertiary nitrogen atoms.

3,634,361 POLYISOCYANATE COMPOSITIONS

Andrew Shultz, Williamsville, and Melvin Kaplan, Tonawanda, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Original application Oct. 10, 1966, Ser. No. 585,268, now Patent No. 3,455,836, dated July 15, 1969. Divided and this application Feb. 27, 1969, Ser. No. 816,862

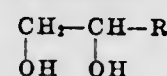
Int. Cl. C08g 22/00, 22/18

U.S. Cl. 260—77.5 AT 4 Claims
A urethane polymer obtained by reacting an organic polyisocyanate composition having a viscosity in the range of 35 to 1,000 cps. at room temperature and comprising about 25 to about 80 percent by weight of 4,4'-methylene bis-(phenylisocyanate) and about 75 to about 20 percent by weight of a distillation residue obtained by distilling tolylene diisocyanate from a mixture thereof with by-products obtained in the phosgenation of the corresponding diamine to produce said tolylene diisocyanate with a polyol having terminal hydroxyl groups.

3,634,362
PROCESS FOR THE MANUFACTURE OF POLY-
OXAMIDES IN THE PRESENCE OF A GLYCOL
Joseph Oldham, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Feb. 2, 1970, Ser. No. 8,082
Claims priority, application Great Britain, Feb. 19, 1969, 8,937/69; Mar. 18, 1969, 14,109/69; Sept. 15, 1969, 45,292/69

Int. Cl. C08g 20/00

U.S. Cl. 260—78 R 2 Claims
Improved process for the manufacture of high molecular polyoxamides and copolyoxamides by condensing together at least one diamine and an oxalic acid di-alkyl ester in the presence of a glycol of the formula:

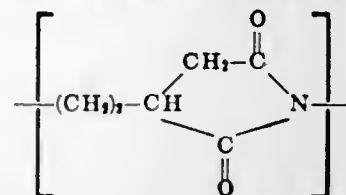


wherein R is hydrogen, lower alkyl or hydroxymethyl, and the use of the said polymers for the production of filaments, fibres, molded or shaped articles or as coatings for metal articles.

3,634,363
POLYMER OF 4-CARBOXY-2-PIPERIDONE
George J. Schmitt, Madison, and Karl P. Klein and Herbert K. Reimschuessel, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Feb. 26, 1969, Ser. No. 802,673

Int. Cl. C08g 20/10

U.S. Cl. 260—78 P 5 Claims
4-carboxy-2-piperidone polymerizes readily on heating above its melting point to afford a polymer consisting essentially of recurring units of the structure:



This polymer forms transparent films, filaments, and coatings of high strength and glass transition temperature.

3,634,364
POLYIMINODIACETIC ACID AND POLY-
SARCOSINE HOMOPOLYMERS
Lenore Los, Greenbelt, Louis L. Wood, Potomac, and Nelson S. Marans, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Sept. 26, 1969, Ser. No. 861,482

Int. Cl. C08g 20/00

U.S. Cl. 260—78 A 6 Claims
Iminodiacetic acid is homopolymerized to a polyamide having a 2-nylon type structure. The polymer is formed by heating iminodiacetic acid in an anhydrous aprotic high dielectric solvent with the continuous removal of any water side product.

3,634,365
POLYMERS OF L-AMINO ACID DERIVATIVES OF
S-(SUBSTITUTED BENZYL) COMPOUNDS
Carleton W. Roberts and Daniel H. Haigh, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of application Ser. No. 558,611, June 20, 1966, which is a continuation-in-part of application Ser. No. 114,608, June 5, 1961. This application Aug. 27, 1969, Ser. No. 853,518

Int. Cl. C08g 20/04

U.S. Cl. 260—78 A 3 Claims
L-amino acid derivatives of S-(substituted benzyl) compounds, such as S-(vinylbenzyl)-L-cysteine or methionine and various aromatic substituted derivatives thereof; and homopolymers of the said substances, or their copolymers with other, copolymeric ethylenic substances; the compounds are useful in the resolution of racemic mixtures of amino acids and as insecticides and herbicides.

3,634,366
POLYMERIZING METHOD
Kiyoshi Chujo, Kazunobu Tanaka, and Keiichi Ohata, Saitama, Japan, assignors to Daicel Ltd., Higashi-ku, Osaka, Japan
No Drawing. Filed May 23, 1969, Ser. No. 827,169
Claims priority, application Japan, May 23, 1968, 43/34,989

Int. Cl. C08f 1/00, 15/02, 19/00

U.S. Cl. 260—78.5 9 Claims
A polymerizing method in which (1) a monomer comprising a polymerizable α,β -unsaturated aliphatic monobasic or dibasic acid and (2) a monomer having an amine group which can form a quaternary ammonium salt, are contacted and mixed with each other under polymerizing conditions in order to form a polymer which is useful as a flocculating agent, a soil conditioner, a dispersing agent, an ion exchange agent, a paper sizing agent, a textile sizing agent and a binder or adhesive.

3,634,367
THERMALLY STABILIZED ACRYLIC POLYMERS
Edgar Reed Lang, Glenside, and Robert Leslie Kelso, Yardley, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation of application Ser. No. 729,416, May 15, 1968, which is a continuation-in-part of applications Ser. No. 589,500 and Ser. No. 589,514, both Oct. 26, 1966. This application July 30, 1970, Ser. No. 59,695

Int. Cl. C08f 15/18

U.S. Cl. 260—79.7 11 Claims
Methyl methacrylate with or without other monomers, such as styrene, is copolymerized with about 0.1 to 5% of ethylthioethyl methacrylate to provide polymers having improved thermal stability.

3,634,368
FILM-FORMING COMPOSITION
Lucille Elma Palmer, Darien, Conn., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Sept. 29, 1969, Ser. No. 862,044

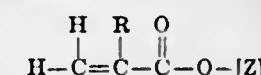
Int. Cl. C08f 15/08

U.S. Cl. 260—80.72 5 Claims
Compositions adapted for use as an aerosol spray and containing a tetrapolymer of (A) N-t-butyl acrylamide or N-isopropyl acrylamide, (B) acrylamide or methacrylamide, (C) N-vinyl pyrrolidone and (D) acrylic or methacrylic acid, and hair spray compositions per se, are disclosed.

3,634,369
VINYLIDENE CHLORIDE POLYMERS OF
BROADENED MOLECULAR WEIGHT
DISTRIBUTION
Richard F. Baumann, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Apr. 9, 1970, Ser. No. 27,133

Int. Cl. C08f 15/08

U.S. Cl. 260—80.77 7 Claims
This invention is directed to vinylidene chloride polymers of broadened molecular weight distribution and to a process for preparing the same comprising polymerizing the monomeric materials in the presence of from about 0.01 to about 1 weight percent, based on monomer weight, of a coupling agent of the general formula:



wherein R is hydrogen or methyl and Z is allyl or alkylene acrylate or methacrylate wherein the alkylene group contains from 2 to 12 carbon atoms.

3,634,370
ACRYLONITRILE POLYMERIZATION IN THE
PRESENCE OF SULFURIC ACID FOLLOWED
BY A NEUTRALIZATION STEP
Gaetano F. D'Alelio, 2011 E. Cedar St.,
South Bend, Ind. 46617
No Drawing. Filed July 14, 1969, Ser. No. 841,624

Int. Cl. C08f 3/76, 15/22

U.S. Cl. 260—85.5 13 Claims
This invention comprises an improved process for the production of substantially colorless polymers of acrylonitrile by polymerization in organic solvents capable of dissolving polymers containing at least 60% of acrylonitrile and even 80% or more acrylonitrile, this polymerization being effected by a free radical mechanism in the presence of 0.01 to 1.75% sulfuric acid of the weight of acrylonitrile monomer portion in solution, thereafter neutralizing the sulfuric acid to form a sulfate derivative which is insoluble in the polymer solution, and removing said insoluble sulfate.

3,634,371
SOLUTION POLYMERIZATION IN THE PRESENCE
OF A SALT OF PEROXYDISULFURIC ACID WITH
AN ORGANIC NITROGENOUS BASE
Heinz Pöblemann, Limburgerhof, Frithjof Roemer, Hambach, and Johann Swoboda, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed July 18, 1969, Ser. No. 843,241
Claims priority, application Germany, July 20, 1968, P 17 70 935.2

Int. Cl. C08f 3/76, 15/22

U.S. Cl. 260—85.5 17 Claims
Polymerization of olefinically unsaturated organic compounds, particularly mixtures of monomers containing at least 80% by weight of acrylonitrile, in an organic solvent with a salt of peroxydisulfuric acid which is soluble in the said solvent. Pale to colorless and clear polymers are obtained.

3,634,372
VINYL INTERPOLYMER COMPOSITIONS CON-
TAINING PENDANT POLYAMINE GROUPS
Russell T. McFadden, Freeport, Tex., assignor to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of application Ser. No. 651,560, July 6, 1967. This application July 10, 1969, Ser. No. 840,795

Int. Cl. C08f 27/08

U.S. Cl. 260—86.1 N 14 Claims
Vinyl interpolymers with improved stability in solution and of particular use in adhesives and coatings are prepared by reacting an alkylenimine or an N-(aminoalkyl) alkylenimine with a copolymer containing pendant carboxylic acid groups. The improved stability of the vinyl interpolymer solutions is related to conducting the above reaction at a temperature between about 50° and 100° C.

3,634,373
SEALANT COMPOSITIONS COMPRISING ESTERS
OF CYCLIC ETHER ALCOHOLS AND PEROXY
CATALYSTS
John R. Stapleton, 1017 Elmwood,
Wilmette, Ill. 60091
Continuation-in-part of application Ser. No. 659,020, Aug. 8, 1967, now Patent No. 3,479,246, which is a continuation-in-part of applications Ser. No. 521,439, Jan. 18, 1966, and Ser. No. 524,211, Feb. 1, 1966. This application also being a continuation-in-part of applications Ser. No. 524,211, and Ser. No. 517,321, Dec. 29, 1965. This application Jan. 19, 1969, Ser. No. 813,779

Int. Cl. C08f 3/62, 15/16

U.S. Cl. 260—86.1 13 Claims
A cyclic ether alcohol ester of an acrylic acid is used as a room temperature curing monomer in a shelf stable fast curing sealant composition which contains a peroxide catalyst and cures when placed between facing ferrous metal surfaces.

3,634,374
POLYMERIZATION OF CHLORINE CONTAINING
UNSATURATED POLYMERS AND PRODUCTS
THEREOF
Anthony J. Bell, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
No Drawing. Continuation-in-part of application Ser. No. 855,750, Sept. 5, 1969. This application Oct. 1, 1969, Ser. No. 862,954

Int. Cl. C08f 15/06, 5/00

U.S. Cl. 260—87.5 2 Claims
There is disclosed a process for the homopolymerization of an unsaturated multicyclic compound containing a 3,5-disubstituted hexachlorocyclopentene moiety. The

copolymerization of such compounds with cyclic olefins is also disclosed. The polymerizations proceed via the cleavage of the double bond contained in the cyclic rings. Polymers resulting from these polymerizations are also disclosed as compositions.

3,634,375

ETHYLENE POLYMERIZATION WITH REDUCTION OR INTERRUPTION OF POLYMERIZATION
Wim Van der Linde and Jacob M. Smit, Geleen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Feb. 26, 1968, Ser. No. 707,959
Claims priority, application Netherlands, Mar. 1, 1967, 6703398

Int. Cl. C08f 1/06

U.S. Cl. 260—88.1 R

10 Claims

A process for preparing ethylene polymers by passing ethylene through a reactor under polymerization conditions is disclosed, wherein periodically the polymerization is reduced or interrupted, while passage of ethylene gas through the reactor is maintained, whereby polyethylene deposited on the reactor walls is dissolved. Higher ethylene conversion is obtained and the risk of an explosive decomposition of ethylene is reduced.

3,634,376

PROCESS FOR THE PRODUCTION OF POLYMERS OF CYCLOPENTENE

Karl Nutz, Opladen, and Friedrich Haas, Cologne-Buchheim, Germany, assignors to Farbenfabriken Bayer AG, Leverkusen, Germany

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,474
Claims priority, application Germany, May 9, 1968, P 17 70 366.1

Int. Cl. C08f 7/02, 15/04

U.S. Cl. 260—88.2 R

5 Claims

Process for producing polymers of cyclopentene wherein a reaction product of tungsten hexachloride and a metal peroxide is added to a solution of cyclopentene and if desired, other monomers in an inert solvent, the solution is left until a colour change from blue-black to red occurs, an organometallic compound of a metal of Groups I to III of the Periodic System is added and the polymer formed is isolated.

3,634,377

PROCESS FOR PRODUCING POLYMERS OF ETHYLENE

Toshio Hori, Junichi Hotta, Mabuchi Kiyoshi, and Yoshio Nakajima, Yokkaichi-shi, Mie-ken, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

No Drawing. Filed June 26, 1969, Ser. No. 836,963
Int. Cl. C08f 1/56, 3/06

U.S. Cl. 260—88.2

3 Claims

Process for producing polymers of ethylene which comprises bringing a member selected from the group consisting of ethylene and a mixture of ethylene and α -olefin into contact with a catalyst composition essentially consisting of (A) alkylalkoxyaluminum chloride represented by the general formula, $AlR(OR')Cl$, wherein R represents an alkyl group having from 1 to 8 carbon atoms and OR' represents an alkoxy group having from 1 to 10 carbon atoms; (B) tetravalent titanium compound represented by the general formula, $Ti(OR'')_4$, wherein OR'' represents an alkoxy group having from 1 to 10 carbon atoms and n is an integer of from 0 to 4; and (C) solid titanium compound containing alkoxy group having from 1 to 10 carbon atoms in the proportion of not less than 0.2 to a titanium atom.

3,634,378

PROCESS FOR PRODUCING ACRYLONITRILE POLYMER USING A CATALYST SYSTEM OF A CHLORATE, SULFUR DIOXIDE OR SULFUR DIOXIDE LIBERATING COMPOUND AND A HYPHOSPHITE

Gilbert Schorsch, Colmar, France, assignor to CTA-Compagnie Industrielle de Textiles, Paris, France
Filed July 28, 1969, Ser. No. 845,424

Int. Cl. C08f 3/76, 15/22

U.S. Cl. 260—88.7

10 Claims

A process for producing acrylonitrile polymers to produce a white polymer having excellent heat stability, excellent molecular weight stability, etc. comprising polymerizing acrylonitrile at a temperature of from 30–70° C. at a pH between 1.8 and 2.7 in the simultaneous presence of an alkali or alkaline earth chloride, sulfur dioxide or a compound capable of liberating sulfur dioxide in the polymerization medium, and an alkali or alkaline earth hypophosphite.

3,634,379

ACRYLIC ANAEROBIC COMPOSITIONS CONTAINING A HYDROPEROXIDE AND A DIALKYLPEROXIDE

Martin Hauser, West Hartford, Conn., assignor to Loctite Corporation, Newington, Conn.

No Drawing. Filed Oct. 2, 1969, Ser. No. 863,318
Int. Cl. C08f 3/64, 15/26

U.S. Cl. 260—89.5

11 Claims

Sensitivity in anaerobic sealants and adhesives to the surfaces to which they are applied is materially reduced by using as an initiator for polymerization a combination of a hydroperoxide and an organic peroxide.

3,634,380

ANTISTATIC COMPOSITIONS OF POLYOLEFINS AND N-OXYPROPYLATED AMINES

Konrad Rombusch and Friedrich Seifert, Marl, and Ursula Eichers, Recklinghausen, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany

No Drawing. Filed Oct. 10, 1969, Ser. No. 865,501
Claims priority, application Germany, Oct. 12, 1968, P 18 02 807.4

Int. Cl. C08f 29/04, 29/12, 29/02

U.S. Cl. 260—93.7

11 Claims

Normally solid polyolefins are rendered antistatic by the uniform distribution therein of from 0.05 to 3.0% by weight of an acid addition salt of an hydroxyalkyl carboxylic acid and an oxypropylamine.

3,634,381

DEGRADATION OF HIGH MOLECULAR WEIGHT POLYISOBUTYLENE IN EXTRUDERS

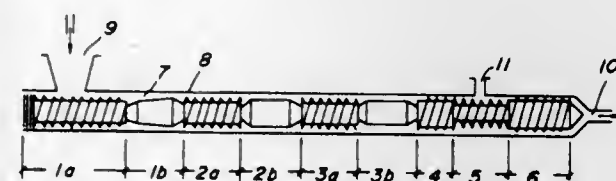
Wolfgang Lehnerer, Frankenthal, Hermann Gueterbock, Friedelshelm, and Klaus Kinkel, Rodenkirchen, Germany, assignors to Badische Anilin- & Soda-Fabrik AG, Ludwigshafen (Rhine), Germany

Filed Apr. 23, 1969, Ser. No. 818,752
Claims priority, application Germany, Apr. 27, 1968, P 17 70 295.3

Int. Cl. C08f 3/14

U.S. Cl. 260—94.8

7 Claims



A process and apparatus for the degradation of high molecular weight polyisobutylene in a screw extruder

provided with a screw spindle by the action of shearing forces in three degradation zones connected by conveying zones, the polyisobutylene being exposed, as it is conveyed from degradation zone to degradation zone, to temperatures alternating between 150° and 350° C. and to alternating shearing forces which result from velocity gradients of from about 100 to about 700 sec.⁻¹ maintained between the shearing surfaces of the wall of the barrel and the screw which are moving in relation to one another.

3,634,382

GRANULAR PROPYLENE POLYMERS

Hans-Georg Trieschmann, Hambach, Wolfgang Rau, Heidelberg, Heinz Mueller-Tamm, Ludwigshafen, and Helmut Pfannmueller, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik AG, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,954

Claims priority, application Austria, Aug. 12, 1968, A 7,875/68

Int. Cl. C08f 3/10, 27/26, 29/02

U.S. Cl. 260—93.7

5 Claims

Production of granular propylene polymers in which (1) propylene is polymerized by means of a Ziegler-Natta catalyst in the absence of solvents or diluents so that a powdered polymer is directly obtained which has a special specification, (2) this polymer is given a thermal and mechanical aftertreatment in a special way without the catalyst having been previously deactivated, and (3) the polymer thus aftertreated is homogenized, extruded and granulated by conventional methods. The polymer obtained is particularly easy to process.

3,634,383

METHOD OF FORMING DIFUNCTIONAL POLYISOBUTYLENE

Joseph A. Miller, Jr., Newark, Del., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

No Drawing. Filed July 28, 1969, Ser. No. 845,584

Int. Cl. C08f 3/14

U.S. Cl. 260—94.8

5 Claims

Isobutylene is polymerized to a difunctional polymer having an unsaturated group at each end thereof by contacting the isobutylene with a molecular sieve for a period of time sufficient to achieve the polymerization.

3,634,384

POLYMERIZATION CATALYSTS

Ermanno Susa and Adolfo Mayr, Ferrara, Italy, assignors to the B. F. Goodrich Company, Akron, Ohio

No Drawing. Filed May 5, 1969, Ser. No. 821,963

Claims priority, application Italy, May 6, 1968, 16,141/68

Int. Cl. C08f 1/56, 3/06

U.S. Cl. 260—94.9

15 Claims

There are disclosed novel polymerization catalysts prepared by reacting magnesium hydroxychloride with a hydrocarbon-soluble complex of a titanium or vanadium tetrahalide with an alkyl aluminum compound such as aluminum trialkyl or dialkyl aluminum halide, and then mixing the reaction product with an organometallic compound or hydride of a Group I to III metal. The catalysts

3,634,385

METHOD OF DEAGGLOMERATING POLYMER PARTICLES

Wilhelm E. Walles, Midland, Mich., and James J. Davies, Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 16, 1969, Ser. No. 825,391

Int. Cl. C08f 29/04, 29/06, 29/18

U.S. Cl. 260—94.9 GD

8 Claims

Agglomerates of polymer particles in a polymer powder are broken up to increase the density, the surface area, and the fluidity of the polymer powder by charging the polymer powder to a deagglomeration zone, charging silicon-containing compound to the deagglomeration zone, charging a liquid such as cyclohexane to the deagglomeration zone, and imparting motion to the deagglomeration zone such as by rotation about a horizontal axis to break up the agglomerates of polymer particles. This treatment increases the bulk density of the polymer powder by a factor of about 3, the surface area by a factor of about 14, and the fluidity by a factor of about 14. This treatment of the polymer powder broadens the utility of the polymer such as by rendering it more amenable to powder molding and the like.

3,634,386

PROCESS FOR CROSSLINKING GELATIN WITH HALOGENATED ORGANIC COMPOUNDS IN THE PRESENCE OF A BASIC TERTIARY AMINE

Walter Anderau, Cordast, Alfred Oetiker, Fribourg, and Werner Deuschel, Villars-sur-Glane, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Mar. 24, 1969, Ser. No. 809,968

Claims priority, application Switzerland, Mar. 26, 1968, 4,437/68

Int. Cl. C08h 7/06; C09h 7/00; G03c 1/30

U.S. Cl. 260—117

4 Claims

Hydrophilic colloids, especially gelatine containing water are crosslinked by means of organic crosslinking agents which contain at least one halogen atom capable of reacting with colloids. This process is carried out in the presence of a basic tertiary nitrogen compound, which accelerates the crosslinking, that means the same state of hardening is reached more rapidly or a higher state of hardening is reached in the same period of time through the action of the basic nitrogen compound than without it.

3,634,387

SULFOMETHYLATED LIGNIN-FERROCHROME COMPLEX AND PROCESS FOR PRODUCING SAME

Walter K. Dougherty, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

No Drawing. Filed June 2, 1969, Ser. No. 829,803

Int. Cl. C07g 1/00

U.S. Cl. 260—124 R

5 Claims

A sulfomethylated lignin-ferrochrome complex made by reacting a water-soluble ferrous salt and a water-solu-

ble chromate salt in stoichiometric amounts to form a ferrochrome salt solution, admixing with a sulfomethylated lignin material and then spray drying to form a dry, powdered product for use as a drilling mud thinner.

3,634,388

BIS-(N-ACYLAMINO-PHTHALIMIDE)-DISAZO DYE STUFFS

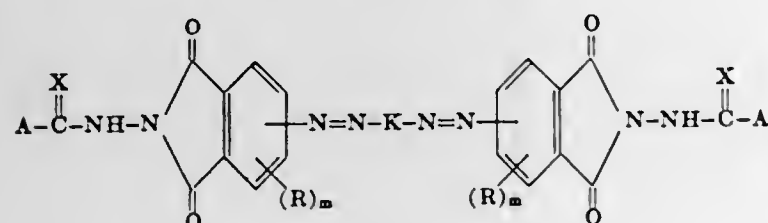
Walter Horstmann, Cologne, Dietmar Kalz, Leverkusen, Gerhard Wolfrum, Opladen, and Edgar Siegel, Leverkusen, Germany, assignors to Farbenfabriken Bayer AG, Leverkusen, Germany
No Drawing. Filed Nov. 26, 1968, Ser. No. 779,239
Claims priority, application Germany, Dec. 6, 1967, P 16 44 238.9

Int. Cl. C09b 33/02

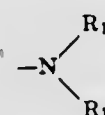
U.S. Cl. 260—152

2 Claims

Sulfonic acid group-free disazo dyestuffs are prepared which are valuable pigment dyestuffs characterized by good fastness to light, solvents and migration, and by a good thermal resistance when used for coloring papers, lacquers, varnishes and synthetic materials and for the production of pigment paste and printing inks. The dyestuffs correspond to the general formula



wherein A stands for an optionally substituted alkyl, aralkyl, carbocyclic or heterocyclic radical or for the radical



where R_1 and R_2 , independently of one another, represent hydrogen, an optionally substituted alkyl, aralkyl or aryl radical; X stands for an oxygen or sulfur atom or for NH; K stands for the radical of a bifunctional coupling component; R stands for a substituent; and m is an integer from 0 to 3.

3,634,389

BASIC MONOAZO DYES

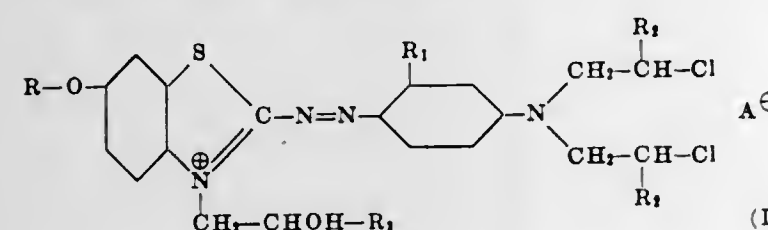
Roland Entschel, Basel, Curt Mueller, Binningen, Basel-Land, and Hans Siegrist, Therwil, Basel-Land, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
No Drawing. Filed Jan. 24, 1969, Ser. No. 793,576
Claims priority, application Switzerland, Feb. 13, 1968, 2,136/68; Aug. 2, 1968, 11,580/68

Int. Cl. C09b 29/08; D06p 1/02

U.S. Cl. 260—158

10 Claims

Basic azo dyes of the formula



where R stands for an alkyl radical, R_1 for hydrogen or an alkyl radical, R_2 for hydrogen or an alkyl radical, R_3 for

hydrogen, an alkenyl radical, an unsubstituted alkyl radical or an alkyl radical substituted by aryl or alkoxy and A^\ominus for an anion.

3,634,390

WATER-SOLUBLE TETRAAZO DYE STUFFS CONTAINING A PYRAZOLONE AND DISULFONAPHTHAL GROUP

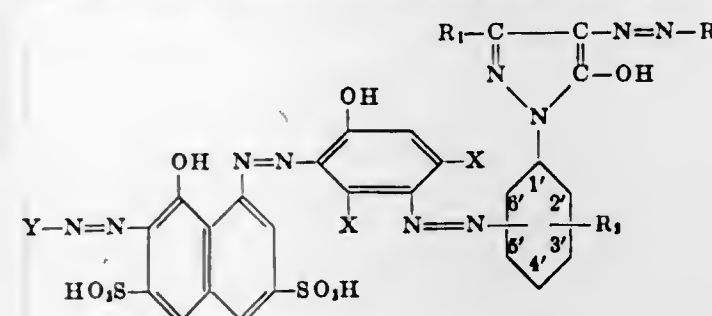
Karl Sommer, Königstein, Taunus, and Hennig Bode, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Apr. 8, 1969, Ser. No. 814,440
Claims priority, application Germany, Apr. 17, 1968, P 17 69 175.7

Int. Cl. C09b 31/30, 35/30; D06p 1/06

U.S. Cl. 260—159

4 Claims

Water-soluble polyazo-dyestuffs of the formula



said dyestuffs being easily soluble in water and being suitable for the dyeing of leather and fur suedes, the dyeings obtained on said materials mostly showing a yellowish-brown shade and having a good resistance to acids, a good levelling and penetrating power, and possessing good properties of fastness to water, washing, perspiration, solvents and to light.

3,634,391

PYRAZOLYL-AZO-INDOLE DYE STUFFS

John G. Fisher and Clarence A. Coates, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 610,798, Jan. 23, 1967. This application July 25, 1969, Ser. No. 845,085

Int. Cl. C09b 29/36

U.S. Cl. 260—162

7 Claims

Pyrazolyl-azo-indole compounds produce bright yellow shades on hydrophobic fibers and exhibit excellent fastness to light. The pyrazolyl diazo component is substituted with a cyano, carbamoyl, nitro or alkoxy carbonyl group on the ring carbon adjacent to the carbon atom bonded to the azo group.

3,634,392

CARBOXYMETHYLATED DERIVATIVES OF DI- AND TRI-SACCHARIDE COMPOUNDS AND DETERGENT COMPOSITIONS CONTAINING THEM
Warren I. Lyness, Mount Healthy, and James E. Thompson, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Mar. 28, 1969, Ser. No. 811,605

Int. Cl. C07c 47/18

U.S. Cl. 260—209 R

4 Claims

Carboxymethylated derivatives of disaccharide compounds such as sucrose and lactose and trisaccharide compounds such as raffinose are provided. These compounds are useful as sequestering agents, e.g., water softeners, and also as detergency builders in detergent compositions. Built detergent compositions are also provided.

3,634,393

SALTS OF MEGALOMICIN COMPLEXES

Solomon Motola, West Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J.
No Drawing. Filed July 7, 1969, Ser. No. 839,634

Int. Cl. C07c 129/18

U.S. Cl. 260—210 AB

7 Claims

Disclosed herein are alkali metal dihydrogen phosphate salts of megalomicin complex and its components, said salts providing stable aqueous antibiotic solutions.

3,634,394

METHOD FOR THE PREPARATION OF NOVEL ION EXCHANGERS ON THE BASIS OF CELLULOSE

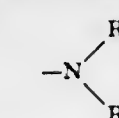
Bjorn Arild Andreassen, Dept. of Chemistry, University of Calgary, Calgary 44, Alberta, Canada
No Drawing. Filed Feb. 6, 1970, Ser. No. 9,429
Claims priority, application Sweden, Feb. 7, 1969, 1,647/69

Int. Cl. C08b 11/10, 11/14, 11/22

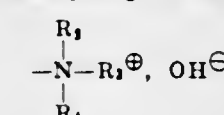
U.S. Cl. 260—232

2 Claims

A method for the preparation of ion exchangers consisting of round grains of cellulose substituted by groups of the formula $-R_1Z$, wherein R_1 is a lower alkylene group containing 1-3 carbon atoms, said alkylene being optionally substituted by a hydroxyl group, and Z is a carboxylic, sulfo or phosphono group or salts thereof or an amino group of the formula



or a quaternized amino group of the formula



or salts thereof, where R_2 , R_3 and R_4 each represent hydrogen or an optionally hydroxy-substituted lower alkyl group containing 1-4 carbon atoms, the degree of substitution corresponding to an ion exchange capacity in the range of from 0.2 to 1.8 milliequivalent per gram, preferably from 0.5 to 1.2 milliequivalents per gram of dry substance, the grains containing 2-25% of cellulose calculated as unsubstituted product in weight per volume, and having pores essentially lying in the range of from 2 to 2000 mμ is disclosed in which method the substituted cellulose is dissolved in an alkaline medium to a concentration of 1-15%, preferably 3-10%, calculated in weight per volume, and the resulting solution is emulsified to droplet form in a water-immiscible solvent, and the obtained emulsion is contacted with an acid reacting substance or a substance capable of forming an acid reacting substance in contact with the emulsion, in a quantity sufficient to neutralize the alkaline medium, so that the substituted cellulose is precipitated in the form of round pore grains of essentially the same size as the droplets.

3,634,395

PREPARATION OF STARCH DERIVATIVES CONTAINING BOTH CARBOXYL AND CARBONYL GROUPS

Raoul Guillaume Philippe Walon, Brussels, Belgium, assignor to CPC International, Inc.
No Drawing. Filed Oct. 10, 1969, Ser. No. 865,507

Int. Cl. C08b 19/06

U.S. Cl. 260—233.3 R

6 Claims

Starch derivatives containing both carbonyl and carboxyl groups are prepared by subjecting starch to the oxidizing action of a peroxide, e.g. hydrogen peroxide, in the presence of a catalyst comprising stabilized ferrous

ions. Preferably, the stable ferrous catalyst is prepared by fixing the ferrous ions onto a strongly acid cation exchange resin.

3,634,396

PROCESS FOR MAKING AZIRIDINES

Enrique G. Ramirez and Gordon R. Miller, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Mar. 25, 1969, Ser. No. 810,355

Int. Cl. C07d 23/02, 23/04

U.S. Cl. 260—239 E

6 Claims

In the process for making an aziridine, e.g. aziridine, by reacting ammonia with a vicinal dihaloalkane, e.g. 1,2-dichloroethane, in the presence of an alkali metal hydroxide acid acceptor, e.g. sodium hydroxide, the improvement comprising adding either intermittently or continuously, the alkali metal hydroxide throughout the reaction period or a portion thereof in an amount sufficient to substantially neutralize any hydrogen halide formed during the reaction but insufficient to cause substantial dehydrohalogenation of the vicinal dihaloalkane results in increased yields of aziridines.

3,634,397

COMPLETE SHORT-CHAIN ESTERS OF POLYOL MONO-(ACIDIC LIPID) ESTERS

James E. Thompson, Springfield Township, Hamilton County, and James B. Martin, Hamilton, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed May 16, 1969, Ser. No. 825,406

Int. Cl. C07c 69/32

U.S. Cl. 260—234 R

9 Claims

Novel complete short-chain esters of polyol mono-(acidic lipid) esters are useful as synthetic fats, especially for frying. Examples of the novel compounds include, 1,3-distearin glutaratyl-1-glycerol diacetate and 1,3-dipalmitin succinatyl-1-sorbitol pentabutryrate.

3,634,398

β-AZIRIDINYLLACTAMIDES AND THEIR PRODUCTION

Friedrich Becke, Heidelberg, and Bruno Sander, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik AG, Ludwigshafen (Rhine), Germany
No Drawing. Filed May 9, 1969, Ser. No. 823,473
Claims priority, application Germany, May 11, 1968, P 17 70 390.1

Int. Cl. C07d 23/02, 23/06

U.S. Cl. 260—239 E

11 Claims

Production of β-aziridinyl lactamides by reaction of aziridines with α,β-epoxypropionamides, and the new β-aziridinyl lactamides themselves. The products are valuable starting materials for the production of textile and paper auxiliaries.

3,634,399

WATER-SOLUBLE LATENT CROSS-LINKING AGENTS

Anthony Thomas Coscia, South Norwalk, Conn., and Joseph Hansbro Ross, South Bend, Ind., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Application June 10, 1966, Ser. No. 556,574, now Patent No. 3,494,775, dated Feb. 10, 1970, which is a continuation-in-part of application Ser. No. 270,533, Apr. 4, 1963. Divided and this application Aug. 5, 1969, Ser. No. 847,738

Int. Cl. C07d 25/00

U.S. Cl. 260—239 A

3 Claims

The 1-lower alkyl (and 1-lower hydroxyalkyl)-1-(3-chloro-2-hydroxypropyl)-3-hydroxyazetidinium chlorides are monofunctional and compatible with water-soluble proteins at normal storage temperatures, but act as bifunctional cross-linking agents at elevated temperatures.

3,634,400 CROSS-LINKABLE BIS-ETHYLENE IMINE COMPOUND

Werner Schmitt and Robert Purmann, Starnberg, Peter Jochum, Pilsensee, and Wolf-Dietrich Zahler, Haar, near Munich, Germany, assignors to Espe Fabrik Pharmazeutischer Präparate GmbH, Seefeld, Bavaria, Germany

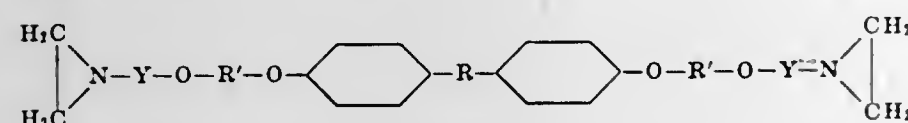
No Drawing. Continuation-in-part of application Ser. No. 288,538, June 17, 1963. This application July 3, 1967, Ser. No. 650,588

Claims priority, application Germany, June 20, 1962, E 23,068

Int. Cl. C07d 23/06

U.S. Cl. 260—239 E 4 Claims

The present invention relates to material for making casts for dental purposes, which material substantially comprises bis-ethylene-imine compounds capable of being cross-linked and having the formula



wherein R is an alkylidene radical with 1-6 carbon atoms, a cycloalkylidene radical or an SO₂ radical; R' an alkylene radical having 2-6 carbon atoms or a cycloalkylene radical, and Y an acyl radical of a carboxylic acid with 2-6 carbon atoms, which may also be substituted by an aromatic substituent.

3,634,401

2-AMINO-AZACYCLOTRIDECENES

Karl Gatzl, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 22, 1968, Ser. No. 778,328

Int. Cl. A01n 9/22; C07d 41/00

U.S. Cl. 260—239 BE 7 Claims

2-amino-azacyclotridecenes in which the nitrogen atom of the amino group is unsubstituted or bears certain substituents as well as their addition salts with acids are described as antifungal agents the effectiveness of which is considerably superior to that of the known 2-amino-azacycloheptenes. A typical compound is 2-n-butylamino-azacyclotridec-1-ene.

3,634,402

PROCESS FOR PRODUCING 1,4-BENZODIAZEPINE DERIVATIVES AND THEIR SALTS

Hisao Yamamoto, Nishinomiyashi, Shigeo Inaba, Takarazuka-shi, Toshiyuki Hirohashi, Kobe, Mitsuhiro Akatsu, Ikeda-shi, Isamu Maruyama, Minoo-shi, and Takahiro Izumi, Takarazuka-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

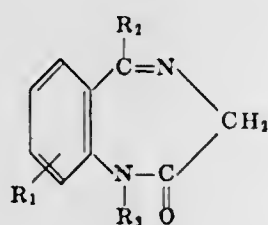
No Drawing. Filed Apr. 16, 1969, Ser. No. 816,824

Claims priority, application Japan, Apr. 26, 1968, 43/28,193; Aug. 19, 1968, 43/59,361, 43/59,362, 43/59,363; Oct. 9, 1968, 43/73,796, 43/73,797, 43/73,798; Oct. 18, 1968, 43/76,379; Nov. 2, 1968, 43/80,154; Nov. 15, 1968, 43/84,027

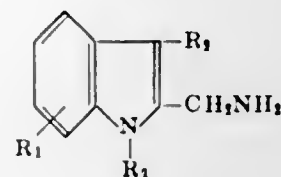
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 30 Claims

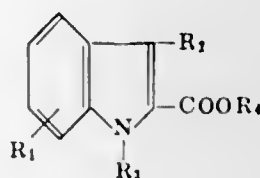
1,4-benzodiazepine derivatives, which are useful as tranquilizers, muscle-relaxants, anti-spasmodics and hypnotics and represented by the formula,



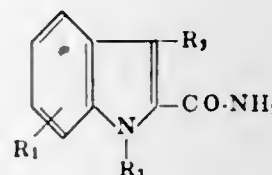
wherein R₁ signifies a hydrogen atom, a halogen atom, a lower alkyl group, a lower alkoxy group or a trifluoromethyl group; R₂ signifies a lower alkyl group or an aralkyl group; and R₃ signifies a hydrogen atom, a lower alkyl group, an aralkyl group, a cycloalkylalkyl group or an unsubstituted or halogen-substituted phenyl group, are produced by contacting a 2-aminomethyl indole derivative of the formula,



wherein R₁, R₂ and R₃ are as defined above, with an oxidizing agent such as ozone, hydrogen peroxide, a peracid or chromic acid. The 2-aminomethyl indole derivative is produced, for example, by amidation of an indole-2-carboxylic acid derivative of the formula,



wherein R₁, R₂ and R₃ are as defined above, and R₄ signifies a hydrogen atom or a lower alkyl group, and reducing the resulting indole-2-carboxylic acid derivative of the formula,



wherein R₁, R₂ and R₃ are as defined above.

3,634,403

ANTIBIOTIC SUBSTANCE DEFINED AS RIFAMYCIN L

Giancarlo Lancini, Pavia, Italy, assignor to Gruppo Lepetit, S.p.A., Milan, Italy

No Drawing. Filed June 9, 1969, Ser. No. 831,706

Claims priority, application Italy, June 12, 1968, 17,702/68

Int. Cl. C07d 99/04, 99/02

U.S. Cl. 260—239.3 2 Claims

A new rifamycin, namely rifamycin L, is described, which is obtained by subjecting rifamycin S or SV to the enzymatic activity of the mycelium of *Streptomyces mediterranei* ATTC 13685 in a water-lower alkanol medium. The product has good antibiotic activity and is practically devoid of toxicity.

3,634,404

7α,8α-METHYLENEESTROGENS AND PREPARATION THEREOF

David J. Marshall, Hampstead, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y.

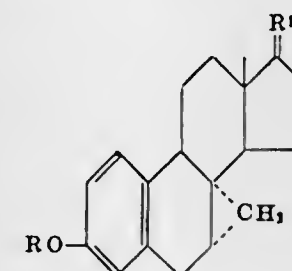
No Drawing. Filed May 8, 1969, Ser. No. 823,141

Int. Cl. C07c 173/00

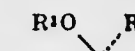
U.S. Cl. 260—239.55

14 Claims

There are disclosed herein 7α,8α-methyleneestrogens of the general Formula I



in which R represents hydrogen, a lower alkyl group containing from 1-8 carbon atoms, a cycloalkyl group containing from 5-7 carbon atoms, the 2-tetrahydropyranyl group, a lower aliphatic acyl group containing from 2-4 carbon atoms, the benzoyl, hexahydrobenzoyl, hemisuccinyl, or cyclopentylpropionyl group, or the group X+SO₃— in which X⁺ represents the sodium, potassium or ammonium ion or a protonated organic base; R¹ represents O (ketonic oxygen) or the group



in which R² represents hydrogen, a lower alkyl group containing from 1-4 carbon atoms, a lower alkenyl group containing from 2-4 carbon atoms, a lower alkynyl group containing from 2-4 carbon atoms, a lower dialkynyl group containing from 4-8 carbon atoms, the 2-furyl, 3-furyl, 2-thienyl or 3-thienyl group and R³ represents hydrogen or a lower aliphatic acyl group containing from 2-4 carbon atoms.

There are also disclosed processes for preparing the compounds of this invention from equilin or 17β-dihydro-equilin by treatment with triethylaluminum and methylene iodide in a hydrocarbon-type solvent to obtain 7α,8α-methyleneestra-1,3,5(10)-triene-3,17β-diol, and for conversion of the latter compound to the other compounds of Formula I.

The compound of Formula I are powerful estrogens, and methods for their use are also disclosed.

3,634,405

SYNTHETIC PENICILLINS

Charles Truman Holdrege, Camillus, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,969

The portion of the term of the patent subsequent to May 18, 1988, has been disclaimed

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1

45 Claims

6-[α-(3-imidoylureido)arylacetyl]penicillanic acids and their salts are valuable as antibacterial agents, nutritional supplements in animal feeds, therapeutic agents

in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by Gram-positive and Gram-negative bacteria, most particularly those caused by the *Pseudomonas* genus. 6-[D-α-(3-benzimidoylureido)phenylacetyl]penicillanic acid, a preferred embodiment of the invention, is prepared by Raney nickel hydrogenation (50 p.s.i., R.T.) of an aqueous solution of sodium 6-[D-α-(3-phenyl-1,2,4-oxadiazole-5-yl-amino)-phenylacetyl]penicillanate which is prepared in turn by reaction of sodium ampicillin with 5-chloro-3-phenyl-1,2,4-oxadiazole.

3,634,406

OXIDATION OF LACTAMS TO CYCLIC IMIDES

Arthur R. Doumaux, Jr., Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Sept. 17, 1969, Ser. No. 858,843

Int. Cl. C07d 41/06, 29/42, 27/08

U.S. Cl. 260—239.3

10 Claims

Cyclic imides are produced by contacting lactams with a peracid in the presence of a metal ion catalyst from the first row of transition metals, e.g., manganese and cobalt.

3,634,407

HEAVY METAL COMPLEXES OF TRIHYDROXAMIC ACIDS

Ernst Gaeumann, deceased, late of Zurich, Switzerland, by Tino Gaeumann, legal representative, and Vladimir Prelog, Zurich, Hans Bickel, Binningen, and Ernst Vischer, Basel, Switzerland, assignors to Ciba Corporation, New York, N.Y.

Division of application Ser. No. 368,424, May 18, 1964, now Patent No. 3,471,476, which is a continuation-in-part of application Ser. No. 292,443, July 2, 1963, now Patent No. 3,247,197, which is a continuation-in-part of application Ser. No. 144,325, Oct. 11, 1961, which in turn is a continuation-in-part of applications Ser. No. 57,834, Sept. 22, 1960, now Patent No. 3,153,621, and Ser. No. 184,870, Apr. 3, 1962. Divided and this application June 19, 1969, Ser. No. 844,712

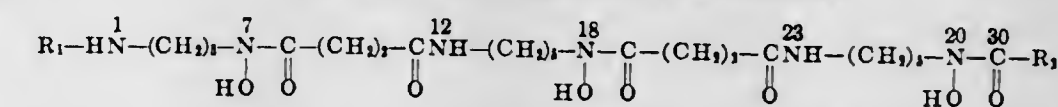
Claims priority, application Switzerland, Sept. 25, 1959, 78,652/59, 78,653/59; Mar. 18, 1960, 3,063/60, 3,064/60; Oct. 11, 1960, 11,395/60; Nov. 23, 1960, 13,147/60; Apr. 7, 1961, 4,075/61; Apr. 26, 1961, 4,885/61; May 18, 1961, 5,831/61; June 29, 1961, 7,598/61; Aug. 10, 1961, 9,409/61; Aug. 11, 1961, 9,451/61; Sept. 14, 1961, 10,685/61; July 6, 1962, 8,185/62

Int. Cl. C07d 41/00

U.S. Cl. 260—239.3

8 Claims

The invention is concerned with heavy metal complexes of the compounds of the formula



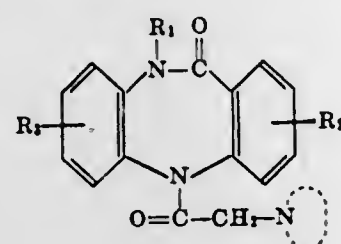
in which CO—R₂ represents carboxylic acid acyl and R₁ stands for a member selected from the group consisting of hydrogen, carboxylic acid acyl, m-dinitrophenyl and, together with CO—R₂ for succinyl in which the second carboxyl is combined with the N₁-atom to form a lactam, each of said carboxylic acid acyl groups being a member selected from the group consisting of alkanoyl, alkenoyl, succinyl, esterified succinyl, glutaryl, ethoxycarbonyl, amino-carbonyl, ethylamino-carbonyl, natural α-amino-carboxylic acid acyl, benzoyl, salicyl, p-hydroxy-benzoyl, dihydroxy-benzoyl, p-ethoxy-benzoyl, p-ethoxy-ethoxy-benzoyl, p-ethoxy-ethyleneoxy-benzoyl, naphthoyl, phthaloyl, carbobenzoxy and phenylacetyl. The compounds of the invention are useful as growth promoting substances.

3,634,408

5-SUBSTITUTED 5,10-DIHYDRO-11H-DIBENZO[b,e][1,4]DIAZEPIN-11-ONES

Gunther Schmidt, Robert Engelhorn, Matyas Leitold, and Hans Machleidt, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Filed Aug. 7, 1969, Ser. No. 848,356
Claims priority, application Germany, Aug. 20, 1968, P 17 95 176.7; June 20, 1969, P 19 31 487.5
Int. Cl. C07d 53/02

U.S. Cl. 260—239.3 T 16 Claims
5-substituted 5,10-dihydro-11H-dibenzo[b,e][1,4]diazepin-11-ones of the formula



wherein

R₁ is hydrogen or alkyl of 1 to 4 carbon atoms, R₂ and R₃, which may be identical to or different from each other, are each hydrogen or halogen, and



is a 5- to 7-membered monocyclic heterocyclic ring which may optionally comprise an additional nitrogen or oxygen ring atom and/or may optionally have one or two alkyl of 1 to 4 carbon atoms, a hydroxyalkyl of 1 to 4 carbon atoms, an alkoxy of 1 to 4 carbon atoms, a benzyl or methyl-benzyl substituents attached to a ring atom,

and non-toxic, pharmacologically acceptable acid addition salts thereof, useful as inhibitors of stomach ulcers and stomach juice secretion in warm-blooded animals.

3,634,409

3β-TETRAHYDROFURAN-2'-YLOXY-Δ⁴-STEROIDS OF THE ANDROSTANE AND ESTRANE SERIES

Alexander D. Cross, Mexico City, Mexico, assignor to Syntex Corporation, Panama, Republic of Panama
No Drawing. Filed Apr. 26, 1966, Ser. No. 545,260
Int. Cl. C07c 173/00

U.S. Cl. 260—239.55 R 15 Claims
3β-tetrahydrofuran-2'-yloxy-Δ⁴steroids of the androstane and estrane series, optionally substituted at C-17 and/or C-18, and of the pregnane and 19-norpregnane series, optionally substituted at C-6, C-16, C-17 and/or C-18, optionally unsaturated at C-6, 7, are prepared from the corresponding 3β-hydroxy steroids upon treatment with dihydrofuran and an aryl sulfonyl halide; these 3β-tetrahydrofuran-2'-yloxy-Δ⁴steroids exhibit anabolic and progestational activities.

3,634,410

AMIDES OF BENZOIC ACIDS WITH AMINE SUBSTITUTED PIPERIDINES

Ole Bent Tvaeremose Nielsen, Vanlose, Denmark, Hans-Hasso-Frey, Berlin, Germany, and Peter Werner Felt, Gentofte, Denmark, assignors to Løvens kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark
No Drawing. Filed Mar. 13, 1970, Ser. No. 19,474
Claims priority, application Great Britain, Mar. 19, 1969, 14,529/69

Int. Cl. C07d 29/28

U.S. Cl. 260—293.64 7 Claims
Novel compounds are described and claimed, which are amides of benzoic acid with heterocyclic amines carrying a tertiary amino group, together with methods

of producing the said compounds. The novel compounds are therapeutically active in the treatment of parkinsonism.

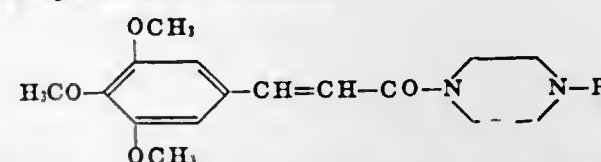
3,634,411

DERIVATIVES OF 1-(3,4,5-TRIMETHOXYCINNAMOYL)-PIPERAZINE AND PROCESS FOR THEIR PREPARATION

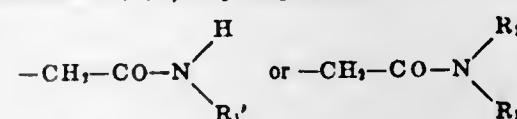
Claude P. Fauran and Guy M. Raynaud, Paris, Bernard M. Pourrias, Meudon la Foret, and Michel J. Turin, Paris, France, assignors to Delalande S.A., Courbevoile (Hauts-de-Seine), France
No Drawing. Filed Apr. 1, 1969, Ser. No. 812,369
Claims priority, application Great Britain, Apr. 3, 1968, 16,113/68

Int. Cl. C07d 51/70

U.S. Cl. 260—240 J 7 Claims
A compound of the formula



in which R is (1) aliphatic (1-4C) which may be hydroxyl substituted, (2) arylaliphatic, (3)



wherein R₁, R₂ and R₃ are alkyl (1-4C), phenyl or substituted phenyl or aralkyl, or (4) —CH₂—CO—N< in which —N< forms a heterocyclic radical. The compound is formed by reacting a 3,4,5-trimethoxy halogenide with piperazine substituted with R. The compounds possess coronary-dilatory, hypotensive, vasodilatory and diuretic properties.

3,634,412

3-[β-(5-NITRO-2-FURYL)VINYL]-5-HALOALKYL-1,2,4-OXADIAZOLES

Hermann Breuer, Regensburg, Germany, assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed July 30, 1969, Ser. No. 846,216
Claims priority, application Germany, Sept. 27, 1968, P 17 95 411.9

Int. Cl. C07d 85/52

U.S. Cl. 260—240 A 7 Claims
3-[β-(5-nitro-2-furyl)vinyl]-5-haloalkyl-1,2,4-oxadiazoles are useful as antimicrobial agents. For example, a compound like 3-[β-(5-nitro-furyl)vinyl]-5-chloromethyl-1,2,4-oxadiazole is particularly effective for dermatophytes. These compounds are produced by the nitration of 3-[β-(2-furyl)vinyl]-5-haloalkyl-1,2,4-oxadiazoles or by the dehydration and cyclization of O-acyl-5-nitro-furanacrylamidoximes.

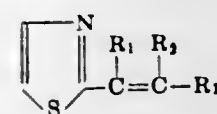
3,634,413

2-ALKENYL-THIAZOLES

Melvin Harris Rosen, Madison, George de Stevens, Summit, and Herbert Morton Blatter, Springfield, N.J., assignors to Ciba Corporation, Ardsley, N.Y.
No Drawing. Filed May 20, 1968, Ser. No. 730,641

Int. Cl. C09b 23/00

U.S. Cl. 260—240 E 5 Claims
2-(2-pyridyl-lower alkenyl)-thiazoles of the formula



R₁, 2=H or alkyl
R₂=a pyridyl radical

hydrogenated derivatives and salts thereof are tranquilizers.

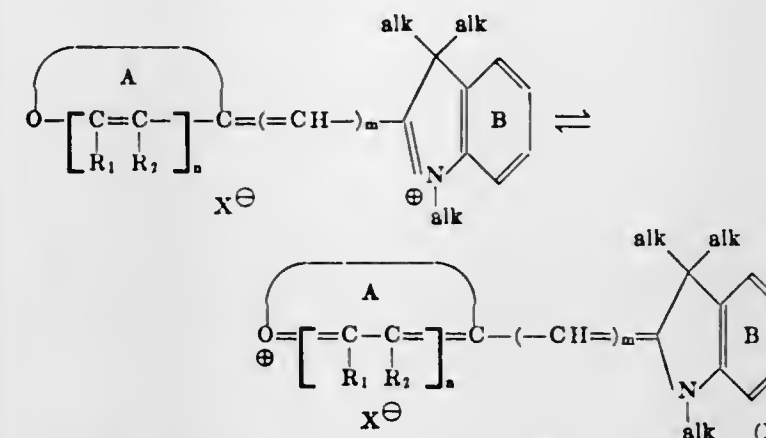
3,634,414

METHINIC DYESTUFFS AND THEIR METHODS OF PREPARATION

Robert F. M. Sureau, Enghien-les-Bains, Gilbert V. H. Kremer, Ermont, and Victor M. Dupre, Louvres, France, assignors to Uguine Kuhlmann, Paris, France
No Drawing. Filed Aug. 9, 1968, Ser. No. 751,347
Claims priority, application France, Aug. 11, 1967, 117,724

Int. Cl. C07d 7/28

U.S. Cl. 260—240 R 9 Claims
Dyestuffs are provided which may be represented by the following general formula:



in which the nucleus B is unsubstituted or substituted by at least one halogen atom or alkyl or alkoxy group, alk represents a lower alkyl group which may be the same or different, m is a low odd number, A represents a six-membered ring containing 5 carbon atoms and belonging to a mono- or poly-cyclic system, which is unsubstituted or substituted by at least one non-ionisable substituent, n is 0 or 1, R₁ represents a hydrogen atom or an alkyl or phenyl radical, R₂ represents a hydrogen atom or an alkyl radical, the arrangement



may also represent a benzene ring in the polycyclic grouping and Y represents a monovalent anion. These dyestuffs are of interest for the dyeing of fibres especially fibres based on acrylonitrile polymers or copolymers and for the photographic industry. Processes for the preparation of the dyestuff are also provided.

3,634,415

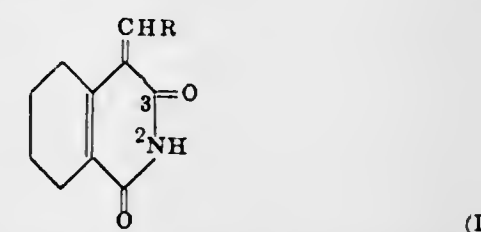
4-ALKYLIDENE AND 4-ARYLIDENE-5,6,7,8-TETRAHYDRO-1,3(2H,4H)-ISOQUINOLINEDIONES

Harold Zinnes, Rockaway, John Shavel, Jr., Mendham, Neil A. Lindo, Chatham, and Gene di Pasquale, Morris Plains, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,467

Int. Cl. C07d 35/06

U.S. Cl. 260—240 F 13 Claims
The present invention describes a new class of 4-alkylidene and 4-arylidenes-5,6,7,8-tetrahydro-1,3(2H,4H)-isoquinolinediones having the formula:



wherein R is alkyl or an unsubstituted or substituted aryl group.

These compounds are useful as anti-inflammatory agents.

3,634,416

PURIFICATION OF 7α-AMINOARYLACETAMIDO Δ³-4-CARBOXY-CEPHALOSPORINS

Harry Schofield, Montrose, Scotland, assignor to Glaxo Laboratories Limited, Greenford, Middlesex, England
No Drawing. Filed Apr. 3, 1969, Ser. No. 813,285
Claims priority, application Great Britain, Mar. 26, 1969, 15,081/69

Int. Cl. C07d 99/24

U.S. Cl. 260—243 5 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with collidine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

3,634,417

PURIFICATION OF 7α-AMINOARYLACETAMIDO Δ³-4-CARBOXY-CEPHALOSPORINS

John Attenburrow, Uxbridge, Middlesex, England, assignor to Glaxo Laboratories Limited, Middlesex, England
No Drawing. Filed Apr. 3, 1969, Ser. No. 813,286
Claims priority, application Great Britain, Apr. 5, 1968, 16,593/68

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
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Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

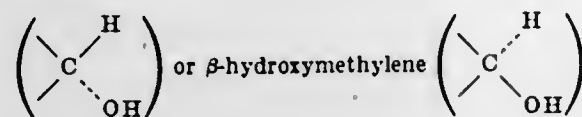
U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

U.S. Cl. 260—243 6 Claims
Purification of a cephalosporin derivative having a 7-α-aminoarylacetamido side chain by precipitating as a crystalline salt by reaction with benzylamine, a corresponding compound having the amino group protected, separating the salt, and converting the salt to the corresponding acid, the protective group being removed.

Int. Cl. C07d 99/24

wherein Z is hydrogen, alkyl, $-\text{SO}_2\text{R}$, in which R is alkyl or aryl, $-\text{COR}_1$, in which R_1 is alkyl, and $-\text{COOR}_1$, in which R_1 is alkyl, and X is carbonyl ($>\text{C}=\text{O}$), α -hydroxymethylene



and the pharmacologically acceptable acid addition salts of those compounds of Formula V, above, wherein Z is hydrogen or alkyl. The compounds of the above Formula V are anti-inflammatory agents; central nervous system stimulants, and antifungal and antimicrobial agents.

3,634,420

3(MORPHOLINOMETHYL)-2,3-DIHYDRO-CARBAZOL-4(1H)-ONES

Ruddy Littell, Rivervale, and George Rodger Allen, Jr., Old Tappan, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 9, 1969, Ser. No. 823,513

Int. Cl. C07d 87/40

U.S. Cl. 260—247.5 R

2 Claims

The preparation of substituted amino alkyltetrahydrocarbazoles by reacting a 2,3-dihydrocarbazolone with paraformaldehyde and an amine and subsequently subjecting the reaction product to reduction, is described. The products are useful for their central nervous system activity as tranquilizers.

3,634,421

2-(p-ALKOXYBENZYL) - 5-CHLORO-3,2-(TERTIARY AMINO)-ETHYL - 2,3 - DIHYDRO - 3 - BENZOFURANOLS

Knut A. Jaeggi, Basel, and Ulrich Renner, Riehen, near Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.J.

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,745

Claims priority, application Switzerland, July 16, 1969, 10,832/69

Int. Cl. C07d 87/32

U.S. Cl. 260—247.7 C

6 Claims

The compounds are of the class of N-substituted 2-(p-alkoxybenzyl) - 5 - chloro-3-(2-aminoethyl)-2,3-dihydro-3-benzofuranols and the pharmaceutically acceptable acid addition salts thereof and have analgesic, antitussive and musculotrop-spasmodic activities; they are, together with pharmaceutical carrier substances, active ingredients of pharmaceutical compositions; methods of alleviating pain in a mammal and of treating spastic conditions in a mammal are provided; an illustrative embodiment is 2 - (p-ethoxybenzyl) - 5 - chloro-3-[2-(diethylamino)-ethyl]-2,3-dihydro-3-benzofuranol.

3,634,422

PHOSPHORUS-CONTAINING REACTION PRODUCTS

Hermann Nachbur, Dornach, and Arthur Maeder, Therwil, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed July 1, 1969, Ser. No. 838,321

Claims priority, application Switzerland, July 9, 1968, 10,210/68

Int. Cl. C07d 55/20, 55/24

U.S. Cl. 260—249.6

9 Claims

Phosphorus-containing reaction products from a condensation product from a 1,3,5-triazine containing at least 2 primary amino group and a phosphonopropionic acidamide, at least one of these two components being methylolated at the H_2N -groups, and formaldehyde or a reagent releasing formaldehyde. These products are useful for flame-proofing fibre materials containing cellulose.

3,634,423

THIOCARBAMOYLALKYLAMINO-s-TRIAZINE

Werner Schwarze, Leerbachstrasse 117, Frankfurt am Main, Germany, and Wolfgang Weigert, Am Aussichtsturm 28, Offenbach am Main, Germany

No Drawing. Filed Mar. 24, 1969, Ser. No. 810,036

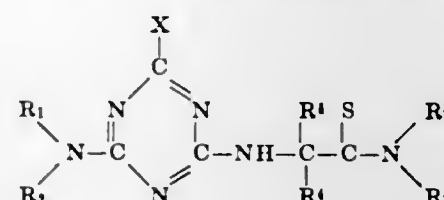
Claims priority, application Germany, Mar. 22, 1968, P 17 70 027.5

Int. Cl. C07d 55/20

U.S. Cl. 260—249.8

5 Claims

Substituted s-triazine compounds of the formula



wherein

X is halogen, N_3 , lower alkoxy or lower alkylmercapto; R^1 and R^2 are the same or different and are hydrogen, lower straight-chain or branched alkyl, lower straight-chain or branched alkenyl, lower straight-chain or branched substituted alkyl or lower straight-chain or branched substituted alkenyl;

R^3 and R^4 are the same or different and are straight-chain or branched alkyl or alkenyl having from 1 to 8 carbon atoms or are aralkyl and wherein

R^3 and R^4 may also be interconnected to form a 5 to 7 member ring and wherein either

R^3 or R^4 may also be hydrogen; and

R^5 and R^6 are the same or different and are lower alkyl or hydrogen.

The compounds of the reaction are strong herbicides of a highly selective nature.

The invention also comprises a process of making the compounds wherein a cyanuric chloride is reacted with α, α -disubstituted-aminoacetic acid-thioamide in the medium of an inert organic solvent followed by recovery of the formed precipitate.

3,634,424

PHOTOCONDUCTIVE MATERIAL AND METHOD FOR ITS PREPARATION

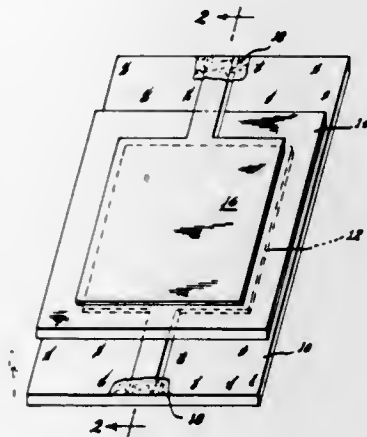
Aleksandar Golubovic, Arlington, Mass., assignor to the United States of America as represented by the Secretary of the United States Air Force

Original application Dec. 19, 1967, Ser. No. 691,890, now Patent No. 3,530,007, dated Sept. 22, 1970. Divided and this application July 1, 1969, Ser. No. 838,112

Int. Cl. C07d 51/78

U.S. Cl. 260—250

2 Claims



A photoelectric device comprising a photoconductive organic layer disposed between and interconnected to two metal electrodes. Upon exposure to illumination, the

photoconductive organic material generates a voltage between the electrodes, thus providing a system for use as a solar cell or a photosensitive circuit element. The cell is responsive to distinct wavelengths of incident radiation in the ultra violet, visible and infrared regions.

3,634,425

INSECTICIDAL AND ANTHELMINTIC 2-ALKOXY-QUINOXALINYL PHOSPHATES

Richard Joseph Magee, Princeton, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed July 30, 1969, Ser. No. 846,260

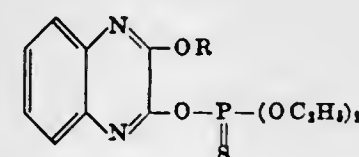
Int. Cl. C07d 51/78

U.S. Cl. 260—250

3 Claims

The 2-alkoxyquinoxaliny phosphorothioates of Figure 1 are useful in controlling insects and arachnids and are anthelmintic agents:

Figure 1



wherein R is a lower alkyl group of 1 to 4 carbon atoms.

3,634,426

PYRIMIDO[1,2-a]INDOLES AND DIAZEPINO[1,2-a]INDOLES

Marcel K. Eberle, Madison, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Oct. 13, 1969, Ser. No. 865,973

Int. Cl. C07d 51/46

U.S. Cl. 260—251

18 Claims

The invention discloses pharmacologically active compounds which are fused ring indole derivatives from the general classes of pyrimido[1,2-a]indoles, diazepino[1,2-a]indoles, spiro[pyrimido[1,2-a]indoles] and spiro[diazepino[1,2-a]indoles]-1, and the preparation thereof involving reaction of 1-phenylpyrazolidine or 1-phenylhexahydropyridazine with an acyclic or cyclic aldehyde. The compounds are active on the central nervous system and are useful as stimulants in the case of the spiro compounds and as sedatives and/or tranquilizers in the case of the non-spiro compounds. The compounds, which may be substituted or unsubstituted, are represented by 10,10-dimethyl - 1,2,3,4,10,10a-hexahydropyrimido[1,2-a]indole hydrochloride and spiro[cyclohexane-1,10'-1',2',3',4',10',10a'-hexahydropyrimido[1,3-a]indole hydrochloride.

3,634,427

[1]BENZOTHIENO[2,3-d]PYRIMIDINE DERIVATIVES

Ernst Schweizer, Basel, and Paul Schmidt and Kurt Eichenberger, Therwil, Switzerland, assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed July 8, 1969, Ser. No. 840,035

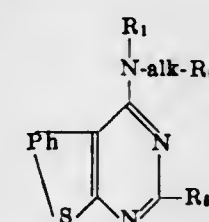
Claims priority, application Switzerland, July 15, 1968, 10,522/68; June 5, 1969, 8,651/69

Int. Cl. C07d 99/06

U.S. Cl. 260—256.5 R

14 Claims

Compounds of the formula



in which Ph stands for an optionally substituted phenylene radical, R_2 for an optionally substituted amino group, R_1 for hydrogen or alkyl and R_2 for hydrogen or an op-

tionally substituted hydrocarbon radical, and their 5,6,7,8-tetrahydro derivatives are useful as antiparasitary agents. The new starting materials also form an embodiment of the invention.

3,634,428

β -(PARA-HALO-PHENYL)-GLUTARIC ACID IMIDES

Heinrich Keberle, Basel, Johann Werner Faigle, Birsfelden, and Max Wilhelm, Allschwil, Switzerland, assignors to Ciba Corporation, Summit, N.J.

No Drawing. Continuation-in-part of application Ser. No. 379,365, June 30, 1964, now Patent No. 3,471,548. This application Apr. 1, 1969, Ser. No. 812,389

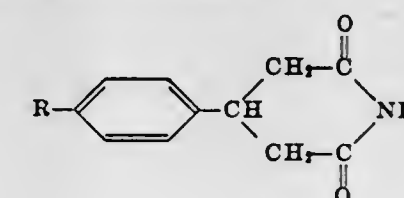
Claims priority, application Switzerland, July 9, 1963, 8,537/63; May 22, 1964, 6,729/64

Int. Cl. C07d 29/20

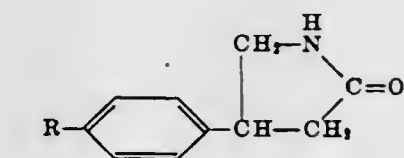
U.S. Cl. 260—281

1 Claim

Compounds of the formulae



and



in which R is halogen or trifluoromethyl are valuable intermediates for the preparation of new amino acids which are useful as central inhibiting agents, e.g. muscle relaxants.

3,634,429

MORPHINAN DERIVATIVES AND PREPARATION THEREOF

Willy Leimgruber, Montclair, and Ernest Mohacs, Nutley, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 663,210, Aug. 25, 1967. This application Sept. 30, 1969, Ser. No. 862,536

Int. Cl. C07d 43/28

U.S. Cl. 260—285

14 Claims

There is described a process for the acid catalyzed cyclization of 1-(p-methoxybenzyl) - 1,2,3,4,5,6,7,8 - octahydroisoquinolines substituted in the 2-position with electron withdrawing groups to the corresponding morphinan compounds, by utilizing as the catalyst sulfuric acid, phosphoric acid, polyphosphoric acid or mixtures thereof. The morphinan compounds so produced are useful as intermediates in the preparation of 3-methoxy-N-methyl morphinans, known compounds with analgesic and antitussive properties.

3,634,430

SUBSTITUTED 7-HETEROCYCLIC - 7,8-DIHYDRO-6-(HYDROXY OR METHOXY)-6,14-ENDO(ETHENO OR ETHANO)CODIDES AND MORPHIDES

John Johnston Brown, Pearl River, N.Y., and Robert Allis Hardy, Jr., Ridgewood, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 772,869, Nov. 1, 1968, which is a continuation-in-part of application Ser. No. 697,315, Jan. 12, 1968. This application June 13, 1969, Ser. No. 833,164

Int. Cl. C07d 43/28

U.S. Cl. 260—285

9 Claims

This disclosure describes compounds of the class of substituted 7-heterocyclic-7,8-dihydro-6-methoxy-6,14-endo-

(etheno or ethano)codides and morphides which possess analgesic activity.

3,634,431

ACYLATED AND ALKYLATED DERIVATIVES OF 2-AMINOHEXAHYDROBENZO[a]QUINOLIZINES
John William Van Dyke, Jr., Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Continuation-in-part of application Ser. No. 858,850, Sept. 17, 1969, which is a division of application Ser. No. 650,579, July 3, 1967. This application Dec. 22, 1969, Ser. No. 887,344

Int. Cl. C07d 35/38

U.S. Cl. 260—287 R

18 Claims

Acylated and alkylated derivatives of 2-aminohexahydrobenzo[a]quinolizine and pharmacologically acceptable salts thereof that are useful as antihypertensive agents. Prepared by reacting 2-oxo-1,3,4,6,7,11b-hexahydro-2H-benzo[a]quinolizine with an amine to form a Schiff base which is then reduced. The amine is acylated or alkylated with a halide or an anhydride.

3,634,432

C-ARALKYL-N-SUBSTITUTED ALKYLENEIMINES
Robert Paul Mull, Florham Park, and Renat Herbert Mizzoni, Long Valley, N.J., assignors to Ciba Corporation, Summit, N.J.

No Drawing. Continuation-in-part of application Ser. No. 480,165, Aug. 16, 1965. This application Aug. 6, 1969, Ser. No. 848,118

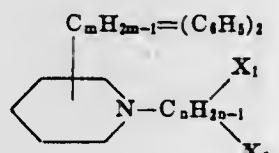
The portion of the term of the patent subsequent to Jan. 30, 1985, has been disclaimed

Int. Cl. C07d 29/18

U.S. Cl. 260—293.67

6 Claims

Free or functionally converted N - hydroxyalkyl-C-aralkyl-alkyleneimines, e.g. those of the formula



m=1-4, n=3-8

X₁=OH, alkoxy, acyloxy or halogenoX₂=H or X₁

quaternaries and salts thereof decrease gastric secretion.

3,634,433

PROCESS FOR PRODUCING 6,7-BENZOMORPHANE DERIVATIVES OF AMINE TYPE USEFUL AS ANALGESICS

Hiroaki Moriyama and Hisao Yamamoto, Nishinomiya, and Hideo Nagata and Toshio Tamaki, Ibaraki, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

No Drawing. Filed May 27, 1968, Ser. No. 732,056
Claims priority, application Japan, June 7, 1967, 42/36,652

Int. Cl. C07d 39/00

U.S. Cl. 260—293.54

4 Claims

2'-hydroxy-2-(3''-methyl-2''-butenyl)-5,9-dimethyl-6,7-benzomorphane is produced by reacting 2'-acetoxy-2,5,9-trimethyl-6,7-benzomorphane with β,β -dimethylacryl chloride to yield 2'-acetoxy-2-(3''-methyl-2''-butenyl)-5,9-dimethyl-6,7-benzomorphane and further reacting the resultant 2'-acetoxy-2-(3''-methyl-2''-butenyl)-5,9-dimethyl-6,7-benzomorphane with diisobutylaluminumhydride. Many other 6,7-benzomorphane derivatives of an amine type useful as analgesics are produced similarly by reacting a 2-methyl-6,7-benzomorphane deriva-

tive with acid halide to yield a 6,7-benzomorphane derivative of an amide type and further reacting the latter with trialkylaluminum or dialkylaluminum hydride.

3,634,434

3- OR 4-DICHLOROMETHYLENE-PIPERIDINES

Stephen I. Sallay, Wynnewood, and Scott J. Childress, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Original application May 24, 1967, Ser. No. 640,849, now Patent No. 3,470,187. Divided and this application May 9, 1969, Ser. No. 839,122

Int. Cl. C07d 29/14

U.S. Cl. 260—293.51

3 Claims

Piperidine and tropane derivatives having an olefinic component in the 3 or 4-position of the ring have been prepared, the compounds demonstrating a central nervous system stimulating action.

3,634,435

CERTAIN S-(N-METHYLENE-PYRIDONE - (2)-O,O-DILOWER-ALKYL MONO AND DITHIO PHOSPHATES AND DERIVATIVES

Werner Trueb and Fritz Reisser, Therwil, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed July 7, 1969, Ser. No. 839,618
Claims priority, application Switzerland, July 10, 1968, 10,297/68; Jan. 8, 1969, 145/69

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 K

18 Claims

New S-[N-methylene-pyridone-(2)]-O,O-dialkylthio and dithio-phosphates useful as acaricides and insecticides.

3,634,436

POLYHALOPYRIDYLTHIO-, SULFINYL- AND SULFONYLALKYLNITRILES

Penelope B. Domenico, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

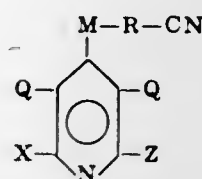
No Drawing. Filed Sept. 26, 1969, Ser. No. 861,457

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 F

9 Claims

The present disclosure is directed to polyhalopyridylthio-, sulfinyl- and sulfonylalkylnitriles corresponding to the formula



wherein M represents sulfide (—S—), sulfinyl



or sulfonyl



R is an alkyl or monohalo substituted alkyl radical having 1 or 2 carbon atoms and further characterized in that when R has 2 carbon atoms, one of the carbon atoms can have a methyl group attached thereto; X represents chlorine, bromine or fluorine; Z represents hydrogen, chlorine, bromine or fluorine, cyano, carboxy (COOH) or the salts or esters thereof or carbamoyl (CONH₂); Q represents chlorine or bromine with the proviso that when Q is bromine, X is bromine; the preparation and use of these compounds as pesticides is also taught.

3,634,437

3-ARYLOXYALKYLPYPERIDINE DERIVATIVES

Alexander Henry Todd, Macclesfield, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 19, 1969, Ser. No. 825,934

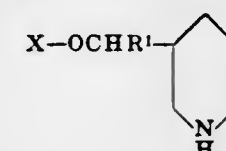
Claims priority, application Great Britain, June 10, 1968, 27,502/68

Int. Cl. C07d 29/18

U.S. Cl. 260—293.77

18 Claims

The disclosure relates to 3-aryloxyalkylperidine derivatives of the formula:



wherein R¹ stands for hydrogen or for an alkyl or aryl radical and wherein X stands for an aryl radical which may optionally be substituted, and acid-addition salts thereof, and to a process for the manufacture of said compounds and to pharmaceutical compositions containing them. Representative of the compounds disclosed are 3-phenoxy-methylpiperidine and the hydrochloride thereof. The compounds possess thymoleptic and central nervous depressant activity in warm-blooded animals, and may be used in the treatment of depressive illness, anxiety, neurotic states and epilepsy in man.

3,634,438

PHENYLHYDRAZINE SALT OF MERCAPTO-PYRIDINE-N-OXIDE

Rudiger D. Haugwitz, Highland Park, N.J., and John Uhoch, Jr., Seymour, Conn., assignors to Olin Corporation

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,914

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 G

1 Claim

The phenylhydrazine salt of 2-mercaptopyridine-N-oxide is a novel composition of matter and is useful as a broad spectrum anti-bacterial and anti-fungal agent, especially against Gram-negative organisms.

3,634,439

CERTAIN SUBSTITUTED NITRO OR DINITRO-AMINO PYRIDINES

Karl Ayad, Wrexham, Wales, assignor to Monsanto Chemicals Limited, London, England

No Drawing. Filed Apr. 2, 1969, Ser. No. 812,890

Claims priority, application Great Britain, Apr. 5, 1968, 16,436/68

Int. Cl. C07d 31/44

U.S. Cl. 260—295 AM

3 Claims

Nitroaminopyridines and their use as herbicides.

3,634,440

ALKYL ESTERS OF 6-(BENZOYL) TRIHALO-2-PICOLINIC ACID

R. Garth Pews and E. B. Nyquist, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 18, 1969, Ser. No. 859,183

Int. Cl. C07d 31/36

U.S. Cl. 260—295 R

5 Claims

Disclosed are alkyl esters of 6-(benzoyl)-trihalo-2-picolinic acid and their preparation. These compounds are useful as pesticides.

3,634,441

1-(OMEGA-SUBSTITUTED-ALKYL)-2-METHYLBENZIMIDAZOLES

William John Welstead, Jr., 1004 Diane Lane 23227, and Grover Cleveland Helsley, 6501 Glyndon Lane 23225, both of Richmond, Va.

No Drawing. Filed Apr. 11, 1969, Ser. No. 815,492

Int. Cl. C07d 31/42

U.S. Cl. 260—296 B

3 Claims

1-(omega-substituted-alkyl) - 2-methylbenzimidazoles useful as bronchodilators are disclosed. The compounds are prepared from 1-(omega-haloalkyl)-2-methylbenzimidazoles by reacting them with 5- and 6-membered oxygen-containing heterocyclic compounds.

3,634,442

METAL CONTAINING DISUBSTITUTED PERTHIOCYANATES

Raymond Seltzer, New York, N.Y., assignor to M & T Chemicals Inc., New York, N.Y.

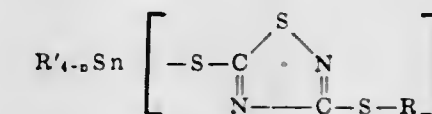
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,625

Int. Cl. C07d 91/60

U.S. Cl. 260—299

6 Claims

This invention relates to novel compounds and to a process for preparing compounds of the formula:



in which R and R' are each selected from the group consisting of alkyl, aryl, cycloalkyl, aralkyl, alkenyl in which the double bond is not in juxtaposition with the alpha carbon atoms, and n is an integer 1-3.

3,634,443

CERTAIN 3,5-DIALKYLTHIOISOTHIAZOLE-4-CARBONITRILES

Karl Gunther Schmidt, Alfred Joos, Günther Mohr, and Gerhart Schneider, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany

No Drawing. Filed June 3, 1968, Ser. No. 733,753

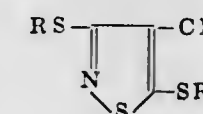
Claims priority, application Germany, June 19, 1967, M 74,432

Int. Cl. C07d 91/42

U.S. Cl. 260—302 S

9 Claims

Herbicides and defoliating agents, such agents being particularly useful for suppressing the growth of monocotyledonous grasses at concentrations sufficiently low so as not to deleteriously affect crops, for example, the control of watergrass in rice fields, such agents being compounds of the formula:



wherein R and R' each represents any of unsubstituted or substituted alkyl or alkenyl of up to 18 carbon atoms or alkenyl of up to 6 carbon atoms.

3,634,444

5-[BIS-(p-CHLOROPHENOXY)METHYL]-TETRAZOLE AND SALTS THEREOF

Ronald Leslie Buchanan, Fayetteville, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Sept. 17, 1969, Ser. No. 858,859

Int. Cl. C07d 55/56

U.S. Cl. 260—308 D

3 Claims

The compound 5-[bis-(p-chlorophenoxy)methyl]-tetrazole and the pharmaceutically acceptable nontoxic salts thereof exhibits hypocholesterolemic activity and is useful as a hypocholesterolemic agent for the treatment of hypercholesterolemia in mammals, including man.

3,634,445

SUBSTITUTED TRIAZOLIDINE DERIVATIVES

Albrecht Zschocke, Bad Dürkheim, and Adolf Fischer, Mutterstadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 24, 1969, Ser. No. 844,633

Claims priority, application Germany, Aug. 2, 1968, P 17 95 050.4

Int. Cl. A01n 9/02, 9/22; C07d 55/06

U.S. Cl. 260—308 C

3 Claims

New and valuable substituted triazolidine derivatives which are substituted by phenoxycarboxylic acid radicals and a process for controlling the growth of unwanted plants with these compounds.

3,634,446

1-METHYL-2-ISOPROPYL-5-NITROIMIDAZOLE AND WATER SOLUBLE SALTS THEREOF

Max Hoffer and Milan Mitrovic, Nutley, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application Apr. 17, 1969, Ser. No. 817,179, now Patent No. 3,502,776, dated Mar. 24, 1970, which is a continuation-in-part of application Ser. No. 541,968, Apr. 12, 1966. Divided and this application Oct. 6, 1969, Ser. No. 864,191

Int. Cl. C07d 49/36

U.S. Cl. 260—309

1 Claim

The preparation of 1-methyl-2-isopropyl-5-nitroimidazole by nitration of 2-isopropylimidazole to form the 2-isopropyl-4(or 5)-nitroimidazole intermediate which then is methylated is disclosed. The water soluble salts thereof are prepared by reacting with the appropriate acid. The products have anti-histomonas and antitrichomonas properties. Compositions containing the active ingredient are also disclosed.

3,634,447

SUBSTITUTED NITROIMIDAZOLES AND METHOD OF PREPARING THE SAME

William Henry Gastrock, Hightstown, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Oct. 8, 1969, Ser. No. 864,861

Int. Cl. C07d 49/36

U.S. Cl. 260—309

7 Claims

This invention relates to the novel 1-benzoyloximino-1-(1-substituted-5-nitro-2-imidazolyl)-2-phenyl-glyoxals, a method for the preparation thereof and the use of such compounds as intermediates in the preparation of the antibacterial and antiprotozoal compounds 2-amino-5-(5-nitro-1-substituted-2-imidazolyl)-1,3,4-thiadiazoles.

3,634,448

PROCESS FOR PREPARING NAPHTH [1,2-d] IMIDAZOLE AND INTERMEDIATE THEREFOR

Kenyon Joseph Hayes, Norwich, N.Y., assignor to The Norwich Pharmacal Company

No Drawing. Filed July 31, 1969, Ser. No. 846,579

Int. Cl. C07d 49/40

U.S. Cl. 260—309.2

2 Claims

The optical brightener naphth[1,2-d]imidazole has been prepared by a process involving expensive reagents, high temperature and difficult purification of the product. An improved process consisting in reduction of 1(3)-hydroxynaphth[1,2-d]imidazole-3(1) - oxide with Raney nickel is described.

3,634,449

4-PHENOXY ACETAMIDO-2,3-DIMETHYL-1-PHENYL-5-PYRAZOLONES

Jean Cahn, Paris, France, Edmond Marie Canonne, Geneva, Switzerland, and Guy Lejeune, Hauts de Seine, Gaston Arthur Francois Ligny, Seine-Saint-Denis, and Dario Claude Fulvio Modigliani, Paris, France, assignors to Laboratoires Valda, Paris, France

No Drawing. Filed July 9, 1969, Ser. No. 840,495

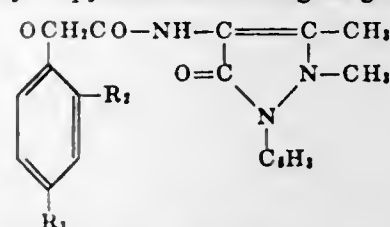
Claims priority, application France, July 15, 1968, 159,281

Int. Cl. C07d 49/02

U.S. Cl. 260—310 A

4 Claims

Medicament comprising 4-(aryloxyacetamido)-2,3 dimethyl-1-phenyl-5-pyrazolone having as general formula:



each of the signs R_1 , R_2 representing an alkyl or alkoxy group having from 1 to 4 carbon atoms or a halogen atom.

3,634,450

1-PHENYLPYRROLES

Jerrold Alan Last, Princeton, and Saul Lewis Neldleman, Lawrence Township, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed Apr. 16, 1969, Ser. No. 816,786

Int. Cl. C07d 27/26

U.S. Cl. 260—313.1

6 Claims

Disclosed herein are 1-phenylpyrroles which are halogenated in the 2- or 2,5-positions. These compounds possess antimicrobial activity and are prepared by reacting 1-phenylpyrrole with an active source of halogen. These compounds are useful as antimicrobial agents.

3,634,451

PHthalocyanine-SULPHONIC ACID ARYL ESTERS

Manfred Groll, Cologne, Hans-Samuel Blen, Burscheid, and Karl Neufang, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 14, 1968, Ser. No. 775,928

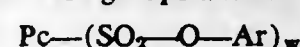
Claims priority, application Germany, Nov. 24, 1967, P 15 69 762.8

Int. Cl. C09b 47/04

U.S. Cl. 260—314.5

1 Claim

A phthalocyanine dyestuff which is free of carboxylic acid and sulphonic acid groups and has the formula



wherein Pc is an optionally substituted phthalocyanine, Ar is phenyl or naphthyl optionally substituted by alkyl, alkoxy, carboxylic ester, or halogen, and w is the numbers 2-4. These dyestuffs are useful in dyeing synthetic materials and in coloring lacquers, varnishes, fuels, and waxes.

3,634,452

CHLORAL COMPOUNDS

Adolf Fischer, Mutterstadt, Friedrich Becke, Heidelberg, and Reinhold Kohlaupt, Frankenthal, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed May 14, 1969, Ser. No. 824,661

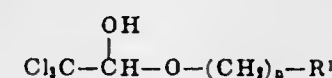
Claims priority, application Germany, May 14, 1968, P 17 70 409.5

Int. Cl. C07d 27/50

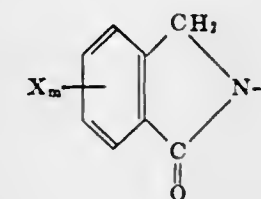
U.S. Cl. 260—325

3 Claims

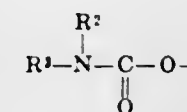
New and valuable chloral compounds having the formula:



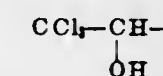
in which R^1 denotes the radical



or the radical



X denoting halogen or a cyano, nitro, alkyl, alkenyl, alkoxy, haloalkyl or haloalkenyl radical (the various meanings of X may be identical or different), m denotes one of the integers from 0 to 4, n denotes one of the integers from 0 to 6, R^2 denotes hydrogen or a lower alkyl radical or alkenyl radical and R^3 denotes hydrogen or the trichloroethylol radical



The chloral compounds have a good herbicidal action. In particular, they are suitable for controlling unwanted plants between crop plants without damaging the latter. The chloral compounds have an especially strong action on unwanted grassy plants.

3,634,453

OXINDOLE CARBOXAMIDES

James M. McManus, Old Lyme, and Saul B. Kadlin, New London, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed Oct. 15, 1969, Ser. No. 866,738

Int. Cl. C07d 27/40

U.S. Cl. 260—325

12 Claims

A series of novel 2-oxo-2,3-dihydroindole-3-carboxamides have been prepared, including their pharmaceutically acceptable salts. These compounds are useful in therapy as non-steroidal anti-inflammatory agents, with 2',4'-difluoro-1-ethyl-2-oxo-5-bromo-2,3-dihydroindole-3-carboxanilide and 1-ethyl-2-oxo-5,6-dichloro-2,3-

dihydroindole-3-carboxanilide being the key compounds of choice. Alternate methods of preparation are provided and some of these synthetic routes are described in detail.

3,634,454

DERIVATIVES OF PYRROLIDINE

John William Lewis, North Ferriby, and Edward James Ryley Harry, Withernwick, England, assignors to Reckitt & Colman Products Limited, Hull, England

No Drawing. Filed May 7, 1969, Ser. No. 822,690

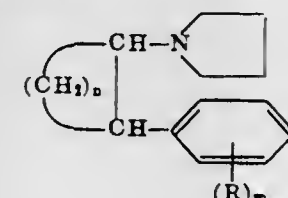
Claims priority, application Great Britain, May 14, 1968, 22,893/68

Int. Cl. C07d 27/02

U.S. Cl. 260—326.5 M

7 Claims

The invention relates to novel derivatives of pyrrolidine of the general formula:



wherein n is an integer selected from the group 3, 4 and 5; m is selected from the group 0 or an integer of 1 or 2; R is selected from the group consisting of methyl and methoxy, and pharmaceutically acceptable salts of the compounds of the said formula.

The novel compounds and their salts with pharmaceutically acceptable acids are useful because of their depressant activity on the central nervous system.

3,634,455

2,3-DISUBSTITUTED 3H-INDOL-3-OLS AND A PROCESS OF PRODUCTION THEREFOR

Daniel Lednicer, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

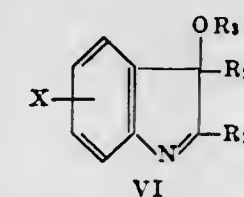
No Drawing. Filed May 28, 1969, Ser. No. 828,740

Int. Cl. C07d 27/56

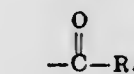
U.S. Cl. 260—326.13

24 Claims

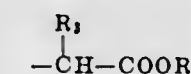
2,3-disubstituted 3H-indol-3-ols of the formula



wherein X is hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, halogen of $-CF_3$; wherein R_1 and R_2 are phenyl of the formula $-C_6H_4Z$ wherein Z is hydrogen, alkyl defined as above, alkoxy of 1 to 3 carbon atoms, inclusive, halogen or CF_3 , or one of the parameters R_1 and R_2 is alkyl defined as above; and wherein R_3 is hydrogen,



in which R_4 is alkyl defined as above, benzyl or



in which R_5 is hydrogen or methyl and R_6 is hydrogen or alkyl of 1 to 4 carbon atoms, inclusive, are produced from o-aminophenones. The 2,3-disubstituted 3H-indol-3-ols and the O-acids, esters and ethers thereof are sedatives and tranquilizers which can be used for mammals and birds.

3,634,456

BIS-QUINONEMETHIDE PRECURSORS

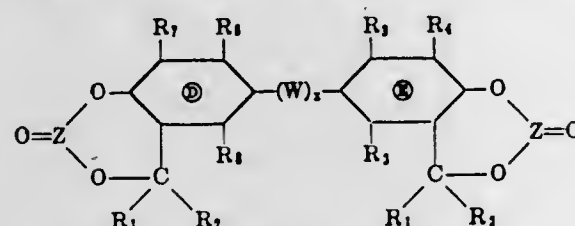
Mark C. Chen and William A. Sheppard, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 26, 1969, Ser. No. 810,842

Int. Cl. C07d 89/18, 15/08; C07c 49/62

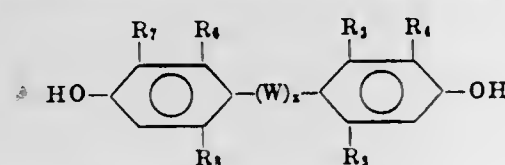
U.S. Cl. 260—327 3 Claims

(1) A new composition of matter of the formula

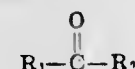


wherein $x=0$ or 1, and W is a bifunctional aliphatic or aromatic radical, oxygen, sulfur, oxydialkyl, or thiodialkyl radical; R_1 and R_2 are each independently a lower alkyl or haloalkyl radical; R_3 , R_4 , R_5 , R_6 , R_7 , and R_8 can each independently be hydrogen, a lower alkyl radical or halogen; and Z is either sulfur or carbon.

(2) A process for making the new composition of matter described in (1) above by contacting a bisphenol



with a lower alkyl ketone



and further contacting the intermediate bis-t-benzyl alcohol with either thionyl chloride or phosgene in the presence of a tertiary amine.

(3) A process for curing by heating with the new compounds of section (1) organic polymers containing "active hydrogen" atoms, "activated double bonds," or allylic chlorine.

3,634,457

2,3-EPIHIOPROPYL N,N-DIALKYL-THIOLCARBAMATES AND USE AS HERBICIDES

William Carter Doyle, Jr., Shawnee Mission, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Original application Mar. 24, 1967, Ser. No. 625,603, now Patent No. 3,510,290, dated May 5, 1970. Divided and this application July 30, 1969, Ser. No. 854,344

Int. Cl. C07d 59/00

U.S. Cl. 260—327 E 15 Claims

By a method of synthesis based on a secondary amine, carbon disulfide and epichlorohydrin there are produced 2,3-epithiopropyl N,N-dialkylthiolcarbamates which are used as selective herbicides, particularly in pre-emergent control of grasses such as brome and volunteer oats.

3,634,458

2H,5H-PYRANO(4,3-b)-4(3H), 5-DIONES

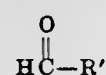
John S. McIntyre, Sarnia, Ontario, Canada, assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Mar. 3, 1967, Ser. No. 620,221. Divided and this application Nov. 3, 1969, Ser. No. 871,369

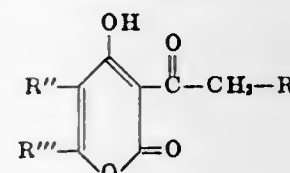
Int. Cl. C07d 7/46

U.S. Cl. 260—343.5 4 Claims

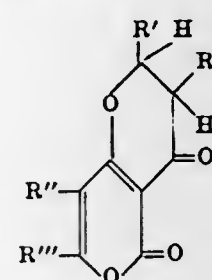
The present invention is concerned with the condensation of an aldehyde of the formula:



with a pyrone or coumarin compound of the formula:



to obtain novel products of the following formula:



In the above and succeeding formulae in the present specification and claims, R represents alkyl of from 1 to 10, both inclusive, carbon atoms or a phenyl radical of the formula



wherein Z represents methyl, bromo, chloro, or hydroxy and n represents an integer of from 0 to 1, both inclusive; R' represents phenyl, substituted phenyl, naphthyl, 9-anthryl, 9-phenanthryl, styryl, 2-furyl, 2-thienyl, or 1-methyl-2-pyrrolyl; and R'' represents hydrogen and R''' represents hydrogen, methyl, or phenyl, or R'' and R''' taken together, jointly represent a four-carbon-atom divalent radical which with the two carbon atoms upon which R'' and R''' are substituents constitutes a six-carbon-atom unsaturated ring.

The products of the present invention are useful as parasiticides, particularly as agents to control the growth of fungi and bacteria, especially plant pathogenic species such as apple scab and rice blast; the products are also useful as agents to control acarids and insects.

3,634,459

EPIPODOPHYLLOTOXIN DERIVATIVES

Albert von Wartburg, Max Kuhn, and Jany Renz, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

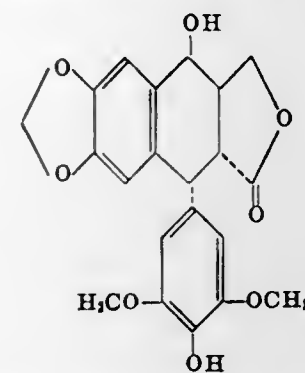
No Drawing. Continuation-in-part of application Ser. No. 477,601, Aug. 5, 1965. This application June 18, 1969, Ser. No. 834,551

Claims priority, application Switzerland, Aug. 12, 1964, 10,509/64; June 4, 1965, 7,888/65; Mar. 15, 1967, 3,986/67

Int. Cl. C07d 21/00

U.S. Cl. 260—340.5 2 Claims

The invention concerns the intermediate compound, 4'-demethyl-epipodophyllotoxin of the Formula I,



The intermediate is useful for the preparation of useful epipodophyllotoxin derivatives to which the invention

extends. The said epipodophyllotoxin derivatives are useful because they possess cytostatic activity.

A process for the production 4'-demethyl-epipodophyllotoxin is described together with processes for producing useful epipodophyllotoxin derivatives from 4'-demethyl-epipodophyllotoxin.

3,634,460

RING B-SECOSTEROID TRANSFORMATION PRODUCTS AND PROCESS

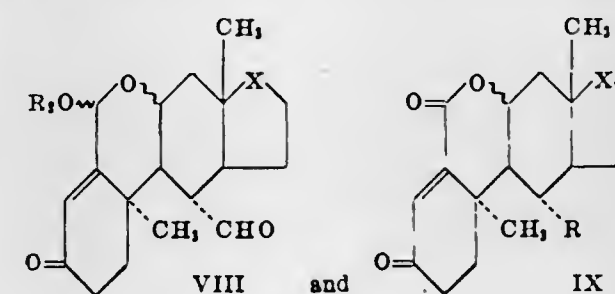
Norman A. Nelson, Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed July 28, 1969, Ser. No. 845,534

Int. Cl. C07d 7/18

U.S. Cl. 260—343.2 R 15 Claims

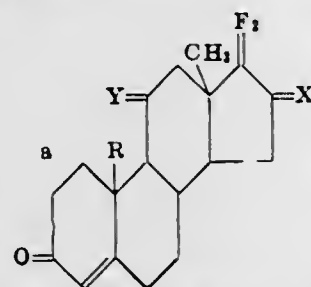
This invention relates to novel ring B-secosteroid transformation products, to processes for their preparation and more particularly to compounds embraced by the following formulae:



3,634,466
17,17-DIFLUORO-16-NITRIMINO STEROIDS, 17,17-DIFLUORO-16-KETO STEROIDS, AND 17,17-DIFLUORO-16-HYDROXY- AND ACETOXY STEROIDS

William C. Ripka, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Filed Aug. 28, 1969, Ser. No. 853,922
 Int. Cl. C07c 169/20, 169/22

U.S. Cl. 260—397.3 17 Claims
 New steroid compounds, which have antiandrogenic activity, of the formula



wherein R is hydrogen or methyl; X is the nitrimino group $=\text{NNO}_2$, oxygen, one hydrogen and one hydroxyl, or one hydrogen and one acetoxy group; Y is two hydrogen atoms, oxygen, or one hydrogen and one hydroxyl; and a is either a single or a double bond; but a cannot be a double bond unless R is methyl. A process for the preparation of 17,17-difluoro-16-ketosteroids is described.

3,634,467
1 α ,2 α -METHYLENE-6-TRIFLUOROMETHYL STEROIDS

Wagn Ole Godtfredsen, Vaerlose, and Claus Aage Svendsgaard Bretting, Copenhagen, Denmark, assignors to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

No Drawing. Filed June 4, 1969, Ser. No. 830,484
 Claims priority, application Great Britain, June 5, 1968, 26,841/68
 Int. Cl. C07c 169/32

U.S. Cl. 260—397.4 2 Claims
 This invention relates to the hitherto unknown 6-trifluoro-methyl-1 α ,2 α -methylene- $\Delta_{4,6}$ -pregnadien-17 α -ol-3,20-dione and 17-esters thereof, having antiandrogenic effect without progestational side effect.

3,634,468
3-CYCLOPENTYLOXY-13-POLYCARBONALKYL-17 α -ETHYNYLGONA-3,5-DIEN-17 β -OLS AND 17-ACYLATES

Reinhardt P. Stein, Conshohocken, and Herchel Smith, Bryn Mawr, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 818,126, Apr. 21, 1969, which is a continuation-in-part of application Ser. No. 767,809, Oct. 15, 1968. This application Aug. 22, 1969, Ser. No. 852,455
 Int. Cl. C07c 169/20

U.S. Cl. 260—397.5 13 Claims
 Novel 3-cyclopentyloxy-13-polycarbonalkyl-17 α -ethynylgona-3,5-dien-17 β -ols and 17-acylates, optionally substituted at C₆, C₇, C₁₀ and C₁₆ with methyl groups (I) are hormonally active as progestational agents with long duration of activity after oral administration. 17-acylated compounds (I) are provided by enolacylating and acylating, in one step, the corresponding 13-alkyl-17 α -ethynylgon-4-en-3-on-17 β -ol either with a reagent comprising acetic anhydride and aqueous perchloric acid in a non-polar, inert organic solvent, preferably ethyl acetate, or an anhydride in admixture with an acyl halide and an acid acceptor, and then carrying out an exchange reaction between the 3-enol acylate-17-acylate formed thereby and cyclopentyl alcohol; and the 17-ols are provided by ethynylating the corresponding 17-ones. In contrast to the prior art procedure which requires blocking the 3-

keto group and prolonged reaction times, enol acetylation with acetic anhydride and aqueous perchloric acid can be completed in five minutes at room temperature.

3,634,469
METHYLENATED STEROIDS AND PROCESS
 Leonard N. Nysted, Highland Park, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 675,788, Oct. 17, 1967. This application Oct. 13, 1969, Ser. No. 865,965
 Claims priority, application Great Britain, Oct. 16, 1968, 49,081/68
 Int. Cl. C07c 169/20

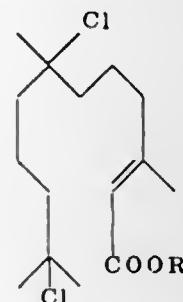
U.S. Cl. 260—397.5 12 Claims
 Methylenated steroids are manufactured by reaction of the corresponding keto-steroids with a methylenating agent prepared by the reaction of zinc with a methylene halide in a solvent such as tetrahydrofuran or an alkylene glycol ether or dialkoxyalkyl ether and are useful as intermediates in the manufacture of the corresponding methyl derivatives.

3,634,470
DIHYDROCHLORIDES OF FARNESYLIC ACID ESTERS

Miroslav Romanuk, Karel Slama, and Frantisek Sorm, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed June 15, 1967, Ser. No. 646,204
 Claims priority, application Czechoslovakia, Aug. 19, 1966, 5,464/66
 Int. Cl. C11c 3/00

U.S. Cl. 260—408 8 Claims
 Dihydrochlorides of farnesyllic acid esters of the general formula



wherein R is selected from the group consisting of alkyl having 1 to 15 carbon atoms, aralkyl having 7 to 12 carbon atoms and cycloalkyl having 1 to 10 carbon atoms. The compounds are synthetic juvenile hormones by which the development and reproduction, for instance, of insects can be controlled. A representative example is methyl farnesylate dihydrochloride.

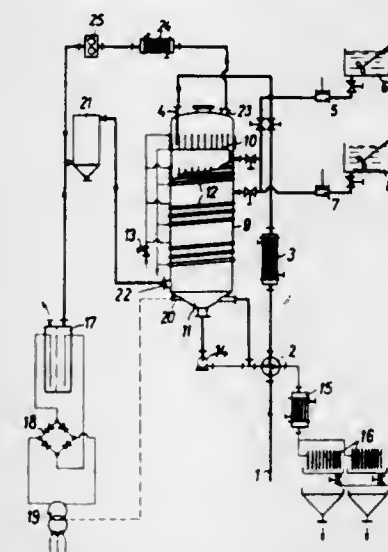
To make the compounds the ester (farnesylate) is just formed by esterifying farnesyllic acid. The dihydrochlorides are then formed by subjecting the ester to the action of hydrogen chloride preferably in an alcoholic solution where the alcohol is the same as that from which the ester is formed.

3,634,471
METHOD FOR THE CONTINUOUS HYDROGENATION OF OILS AND FATS

Wolfgang Kehse, Berlin, Germany, assignor to Fried. Krupp G.m.b.H., Essen, Germany
 Original application Feb. 1, 1966, Ser. No. 524,261, now Patent No. 3,497,327, dated Feb. 24, 1970. Divided and this application Aug. 13, 1968, Ser. No. 752,370
 Int. Cl. C11c 3/12

U.S. Cl. 260—409 5 Claims
 A flowable mass, for instance an oil or a fat in flowable condition, is reacted with a gas capable of reacting with such flowable mass, for instance with hydrogen gas capable of hydrogenating such flowable mass, by passing the flowable mass along tortuous paths along the upper

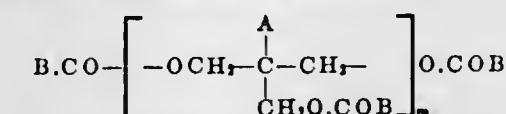
faces of a series of vertically spaced substantially horizontally extending perforated plates, and from the upper face of each of such plates onto the upper face of the next lower plate, while simultaneously passing a stream of the gas through the perforations of the respective plates in upward direction at a pressure and in a quan-



tity sufficient to prevent downward flow of the flowable mass through such perforations and also sufficient to cause reaction of the flowable mass with the upwardly streaming gas while the same contacts the flowable mass flowing along the tortuous paths on the upper faces of the perforated plates.

3,634,472
POLYMERIC ESTERS
 Peter Milles, Moston, Manchester, England, assignor to Cliba-Gelgy AG, Basel, Switzerland
 No Drawing. Filed Aug. 1, 1968, Ser. No. 749,304
 Claims priority, application Great Britain, Aug. 19, 1967, 38,309/67

Int. Cl. C07c 69/32, 69/62, 69/78
 U.S. Cl. 260—410.6 5 Claims
 New polymeric esters of the formula



wherein A is an alkyl group having from 1 to 6 carbon atoms, m is a number of at least approximately 3 and B.CO— represents the acyl radical of certain organic mono-carboxylic acids are described as useful lubricants and/or viscosity improvers. Lubricant compositions containing such polymeric esters as essential lubricant component are also disclosed.

3,634,473
PROCESS FOR MANUFACTURE OF SYMMETRICAL GLYCERIDES

James Harwood, Chicago, Ill., assignor to SCM Corporation, New York, N.Y.
 No Drawing. Filed Nov. 21, 1966, Ser. No. 595,586
 Int. Cl. C11c 3/02

U.S. Cl. 260—410.7 7 Claims
 Substantially pure symmetrical di- and triglycerides can be prepared by an improvement in a conventional glycerolysis process. The improvement resides in first liquifying a substantially anhydrous mixture of glycerol and triglyceride fat, then adding a low temperature rearrangement catalyst to the liquified mixture and agitating the catalyst-containing liquified mixture until a symmetrical diglyceride is formed by equilibration in the liquid mixture. Crystallization of the symmetrical diglyceride is induced and maintained from the liquid mixture, under agi-

tation conditions, while maintaining the temperatures of the mixture between its liquefaction temperature and a temperature above that at which other equilibration products in the mixture will solidify or crystallize. Crystallization is induced by cooling the mixture; simultaneously seeding and cooling the mixture; or by the addition of a minor amount of suitable solvent to the mixture which is then cooled. Optionally, the solvent may be removed from the mixture as an aid in inducing crystallization. As solid symmetrical diglycerides are removed from the mixtures, re-equilibration of the residual components in the mixture takes place resulting in the formation of additional symmetrical diglycerides. The symmetrical diglycerides so obtained are then converted to symmetrical triglycerides by acylating the diglyceride in the presence of a hydrogen chloride acceptor after the inactivation of the catalyst in the diglyceride.

3,634,474
ESTERIFICATION OF CARBOXYLIC ACIDS WITH ORGANIC HALIDES IN THE PRESENCE OF WATER

Russell G. Hay, Gibsonia, and John G. McNulty and William L. Walsh, Glenshaw, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
 No Drawing. Continuation-in-part of application Ser. No. 785,794, Dec. 20, 1968. This application July 25, 1969, Ser. No. 845,080

Int. Cl. C07c 67/00
 U.S. Cl. 260—410.9 R 21 Claims
 In a process wherein an organic halide is reacted with an organic acid to obtain the corresponding ester, the improvement to increase the amount of ester which involves carrying out the reaction in the presence of water.

3,634,475
METHOD FOR REMOVING METALS FROM VEGETABLE OILS
 Robert E. Beal, Elmwood, and Roger A. Eisenhauer, East Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
 No Drawing. Filed Sept. 18, 1969, Ser. No. 859,199
 Int. Cl. C09f 5/10

U.S. Cl. 260—428 4 Claims
 The present invention is an improved low-cost continuous method for reducing the quantity of certain metals in vegetable oils intended for edible use, to near or below the levels where these metals adversely affect the flavor of the oil or the ability of the oil to resist oxidation. The method for reducing metals which constitutes the present invention consists in washing the vegetable oil in a multistage countercurrent manner with water which has previously been treated by passing it through a layer of a cation-exchange resin in the hydrogen form. After it has passed through the continuous countercurrent washing process, the water is again entirely passed through the resin layer and reused for washing a further quantity of oil. The same quantity of water is thus recycled and reused indefinitely and no further water is added to the process, except to replace losses due to evaporation or by other means.

3,634,476
METAL OXIDE ACYLATES AND THEIR PREPARATION
 Jacobus Rinse, 77 Anderson Road, Bernardsville, N.J. 07924
 No Drawing. Continuation-in-part of applications Ser. No. 651,120, July 5, 1967, Ser. No. 741,899, July 2, 1968, and Ser. No. 766,976, Oct. 11, 1968. This application July 7, 1969, Ser. No. 840,604
 Int. Cl. C071 15/00, 11/00, 1/08

U.S. Cl. 260—429 12 Claims
 A process for preparing polyvalent metal acylates of non-volatile monocarboxylic acids containing at least

seven carbon atoms by reacting said non-volatile acid with a metal acylate of a volatile acid, or said metal, metal oxide, hydroxide or carbonate admixed with said volatile acid and adding, at elevated temperature, a liberating agent for said volatile carboxylic acid.

3,634,477

ZIRCONIUM TETRAKIS (HEXAFLUOROACETYLACETONATE) AND HAFNIUM TETRAKIS (HEXAFLUOROACETYLACETONATE)

Shih C. Chatteraj, 1350 Redbud Drive, and Charles T. Lynch, 387 Cherrywood Drive, both of Fairborn, Ohio 45324, and Khodabakhsh Mazdiyasi, 2218 Upper Bellbrook Road, Xenia, Ohio 45385

No Drawing. Filed May 8, 1969, Ser. No. 823,152

Int. Cl. C07f 7/00

U.S. Cl. 260—429.3

2 Claims

The preparation, characterization, and thermal decomposition of zirconium tetrakis (hexafluoroacetylacetonate) and hafnium tetrakis (hexafluoroacetylacetonate) are described. The compounds are prepared by the reaction of zirconium (or hafnium) tetrachloride with hexafluoroacetylacetone under very stringent conditions. The compounds are useful in that they may be easily thermally decomposed to yield the respective metal dioxides as ultrahigh purity, fine particle, fiber or thin film oxides.

3,634,478

N-(CYANOALKYL)-NITROPHENYLENE DIAMINES

Alexander Halasz, Norwalk, Conn., Milos S. Bil, Forest Hills, N.Y., and Walter H. Brunner, Easton, Pa., assignors to Clairol Incorporated, New York, N.Y.

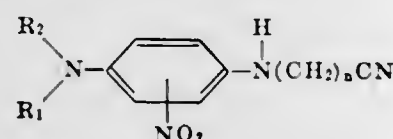
No Drawing. Original application May 24, 1965, Ser. No. 458,443. Divided and this application Sept. 18, 1969, Ser. No. 859,192

Int. Cl. C07c 121/78

U.S. Cl. 260—465 E

14 Claims

Compounds having the following formula, these being particularly useful as hair dyes:



wherein R₁ and R₂ are hydrogen, alkyl or hydroxyalkyl and n is a whole number from 1 to 4.

3,634,479

TIN-OXYGEN-PHOSPHOROUS BOND COMPOUNDS

Richard E. Ridenour and Edward E. Flagg, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 757,745, Sept. 5, 1968. This application Sept. 8, 1970, Ser. No. 70,518

Int. Cl. C08g 33/16, 33/20; C07f 7/22

U.S. Cl. 260—429.7

12 Claims

New inorganic polymers having tin-oxygen-phosphorus bonding and the method of preparing the same are taught. The new compounds are prepared by contacting a tin source material with a phosphorus compound characterized as having one phosphoryl moiety ($\equiv P-O$) wherein the phosphorus atom is partially double bonded to an oxygen atom and also has at least one labile group bonded thereto. The polymers have one coordinate bond between the tin-oxygen and phosphorous atoms. The inorganic polymers are useful for preparing protective films, lubricants, hydraulic fluids, as a stabilizer and flame retardant additive in plastics, and are biologically active and can be employed for insecticides, herbicides and the like.

3,634,480 COMPLEXES CONTAINING ALUMINUM CHLORHYDROXIDE

Henry F. Sheffield, Millington, N.J., assignor to Summit Research Laboratories, Inc., Somerset, N.J.

No Drawing. Continuation-in-part of application Ser. No. 541,120, Apr. 8, 1966. This application Oct. 10, 1969, Ser. No. 866,144

Int. Cl. C07f 3/06

U.S. Cl. 260—429.9

7 Claims

Novel complexes of aluminum chlorhydroxide, a known antiperspirant, with phenolsulfonic acid or certain phenolsulfonates known to have deodorant activity, due to their solubility in anhydrous alcohols, and the compatibility of their alcohol and aqueous alcohol solutions with non-polar solvents, are useful in the formulation of cosmetic compositions and, more particularly, aerosol antiperspirant and deodorant products.

3,634,481

METHOD OF MAKING TETRAETHYLLEAD

Kenneth C. Williams, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,740

Int. Cl. C07f 7/24

U.S. Cl. 260—437 R

4 Claims

A method of making tetraethyllead wherein triethylaluminum is reacted with lead acetate in the presence of hexamethylphosphoramide as a catalyst or solvent.

3,634,482

PROCESS FOR THE PREPARATION OF CYCLIC ORGANOALUMINUM COMPOUNDS

Lawrence H. Shepherd, Jr., Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed May 5, 1969, Ser. No. 822,046

Int. Cl. C07f 5/06

U.S. Cl. 260—448 A

14 Claims

Nonionic organoaluminum compounds possessing an aluminacycloalkene moiety are prepared by causing interaction among aluminum, a conjugated diene (e.g., butadiene), an alkali metal aluminum tetrahydrocarbyl (e.g., sodium aluminum tetraethyl), and hydrogen, the reaction being conducted in the presence of a Lewis base (e.g., 1,4-dioxane) which is not excessively cleaved under the reaction conditions selected.

3,634,483

PROCESS FOR PREPARING COMPOUNDS CONTAINING THE OOF GROUP

Irvine J. Solomon, Skokie, James N. Keith, Lombard, and Andrew J. Kacmarek, Chicago, Ill., assignors to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed May 27, 1969, Ser. No. 828,330

Int. Cl. C07c 71/00

U.S. Cl. 260—453 R

1 Claim

The preparation of a mixture of propyl isomers having the formulas $CF_3CF_2CF_2OOF$ and $CF_3CF(OOF)CF_3$ is disclosed. The compounds are prepared by the reaction of dioxygen difluoride (O_2F_2) with perfluoropropene (C_3F_6) at a temperature of $-183^\circ C$. The mixture of isomers is useful as a powerful oxidizing agent.

3,634,484

UNSYMMETRICAL DIPHENYL CARBONATES

Walter Traber, Riehen, and Anton G. Weiss, Basel, Switzerland, assignors to Gelgy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed July 26, 1968, Ser. No. 747,795
Claims priority, application Switzerland, Aug. 1, 1967, 10,855/67

Int. Cl. C07c 69/00; A611 13/00

U.S. Cl. 260—463

4 Claims

Unsymmetrical diphenyl carbonates are disclosed which contain as one alcohol moiety a phenoxyphenyl radical

which is unsubstituted or substituted by halogen and/or lower alkyl or trifluoromethyl, and as a second alcohol moiety a phenyl radical which is unsubstituted or bears certain substituents, are disclosed as antibacterial agents.

3,634,485

(1-BROMO-1(BROMOMETHYL)-3,3,3-TRICHLORO-PROPYL) BENZENE COMPOUNDS

Joseph H. Howe, Chattanooga, Tenn., and Leo R. Morris, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

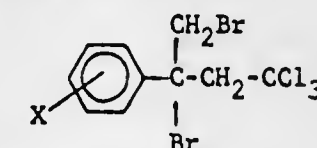
No Drawing. Original application June 5, 1967, Ser. No. 643,340, now Patent No. 3,509,222, dated Apr. 28, 1970. Divided and this application Nov. 3, 1969, Ser. No. 871,339

Int. Cl. C07c 121/52, 79/12

U.S. Cl. 260—465 G

4 Claims

(1-bromo-1-(bromomethyl)-3,3,3-trichloropropyl) benzene compounds of the formula:



wherein X represents nitro or cyano.

The products of the present invention are useful as agents to control the growth of plants.

3,634,486

DINITRILES DERIVED FROM α,β -UNSATURATED NITRILES AND HYDROXY SUBSTITUTED FATTY NITRILES

John R. Nazy, Shoreview, and Robert C. Kuder, Excelsior, Minn., assignors to General Mills, Inc.

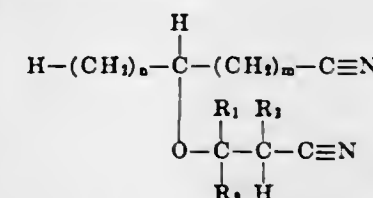
No Drawing. Filed Apr. 25, 1969, Ser. No. 819,476

Int. Cl. C07c 121/20

U.S. Cl. 260—465.6

9 Claims

Dinitriles of the formula:



where n is 5 to 20, m is 0 to 15, the sum of n and m is 14 to 20 and R₁, R₂ and R₃ are hydrogen or short chain alkyl groups of 1 to 4 carbon atoms. Diamines and diisocyanates derived therefrom with the latter being useful for preparing polymers.

3,634,487

METHOD OF PRODUCING ACRYLONITRILE

Khachik Egorovich Khcheljan, Prospekt Mira 148a, kv. 190; Olga Mikhailovna Revenko, Ulitsa Chakalova 48a, kv. 53; Margarita Petrovna Tikhonova, Ulitsa Kiblichich 8a, kv. 33; Antonina Grigorievna Polkovnikova, Jugo-Zapad, kvartal 42a, korpus 18, kv. 68; and Nikolai Emelianovich Mak, Nizhegorovskaya ulitsa 92, korpus 2, kv. 17, all of Moscow, U.S.S.R.

No Drawing. Filed Feb. 17, 1969, Ser. No. 799,901
Claims priority, application U.S.S.R., Dec. 12, 1968, 1,288,316; Feb. 26, 1968, 1,221,056/23

Int. Cl. C07c 121/32, 121/02

U.S. Cl. 260—465.9

8 Claims

Production of acrylonitrile by reacting acetonitrile and formaldehyde in the presence of a supported or unsupported catalyst comprising phosphates of metals of Groups I and II of the Periodic System. The reaction is preferably carried out in the vapour phase at a temperature of 300 to 450° C., a space velocity of 2000 to 6000 h.⁻¹ and a formaldehyde to acetonitrile molar ratio of 1-2:0.5-25.

3,634,488

PROCESS FOR PRODUCING CYANOACETYLENE

Katsura Morita, Ikeda, Osaka, Naoto Hashimoto, Suita, Osaka, Shiro Morimoto, Kobe, Yasuo Ando, Nishinomiya, and Yutaka Miyashiro, Nara, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Aug. 12, 1969, Ser. No. 849,504

Claims priority, application Japan, Aug. 20, 1968, 43/59,456

Int. Cl. C07c 121/30

U.S. Cl. 260—465.9

3 Claims

Cyanoacetylene is produced by the gas phase reaction of acrylonitrile and chlorine, at 500° to 1,200° C.

3,634,489

SYNTHESIS OF CYCLOHEXENE COMPOUNDS

Gerhard Satzinger and Wolfgang Herrmann, Gundelfingen, Freiburg, Germany, assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,882

Int. Cl. C07c 101/12

U.S. Cl. 260—471 R

6 Claims

A process is described for producing a mixture of 3-trans-dimethylamino-4-phenyl-4-trans-carbomethoxy- Δ^1 -cyclohexene and 3-cis-dimethylamino-4-phenyl-4-cis-carbomethoxy- Δ^1 -cyclohexene. The process comprises the step of reacting bis-(1,3-dimethylamino)-butene-(1) with the ethyl ester of atropic acid at a temperature within the range of from about 80° C. to about 150° C. in a liquid hydrocarbon.

The bis-(1,3-dimethylamino)-butene-(1) starting material can be produced by reacting dimethylamine and crotonaldehyde in a liquid hydrocarbon and in the presence of a water-absorbing agent, using a sufficient quantity of dimethylamine to provide a ratio of about 2.0 moles of the said amine for each mole of aldehyde employed.

3,634,490

N-(SUBSTITUTED-PHENACYL)CARBAMATES

Albert A. Carr, Jr., and Donald R. Meyer, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

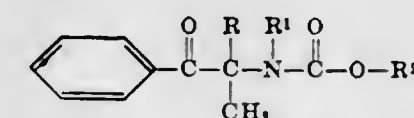
No Drawing. Filed June 27, 1969, Ser. No. 837,370

Int. Cl. C07c 125/06

U.S. Cl. 260—471 C

14 Claims

Novel compounds selected from the formula



wherein: R is hydrogen or methyl; R¹ is hydrogen methyl, ethyl, or isopropyl; and R² is (lower)alkyl or benzyl. These compounds are appetite depressants.

3,634,491

PROCESS FOR THE PREPARATION OF 3,5-DI-ALKYL RESORCYCLIC ACIDS AND ESTERS

James Douglas Grossman, Madison Township, Middlesex County, and Robert Santora De Simone, Old Bridge, N.J., and Lambertus Gerke Heeringa, Amsterdam, Netherlands, assignors to International Flavors & Fragrances, Inc., New York, N.Y.

No Drawing. Filed Aug. 30, 1968, Ser. No. 756,375

Int. Cl. C07c 69/78

U.S. Cl. 260—473 R

6 Claims

Process for the preparation of di-alkyl ring-substituted resorcylic acids and esters thereof which comprises reacting a di-alkyl ring-substituted dihydro resorcylic acid or ester with an oxidative chlorine source. Certain novel dialkyl ring substituted resorcylic acids and esters which are useful in perfumery are obtained.

3,634,492

STABILIZED DERIVATIVES OF ASPIRIN

Alexander Galat, Yonkers, N.Y.

(1980 S. Ocean Drive, Hallandale, Fla. 33009)

No Drawing. Filed Aug. 22, 1968, Ser. No. 754,724

Int. Cl. C07c 69/14

U.S. Cl. 260—480

4 Claims

Aspirin and aspirin derivatives, such as the alkali metal, alkaline earth metal, ammonium and magnesium salts thereof, decompose with more or less rapidity on storage, even at room temperature. By admixing aspirin or such aspirin derivatives with a small quantity (2–15%, preferably about 5%) of an anionic exchanger, compositions of matter result that exhibit outstanding storage stability at room temperatures.

3,634,493

OIL-SOLUBLE AZO COMPOUNDS

Richard J. Piccolini, Willingboro, N.J., assignor to Rohm and Haas Company, Philadelphia, Pa.

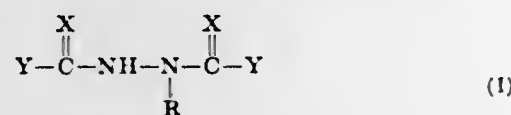
No Drawing. Filed Apr. 11, 1968, Ser. No. 720,458

Int. Cl. C07c 125/06

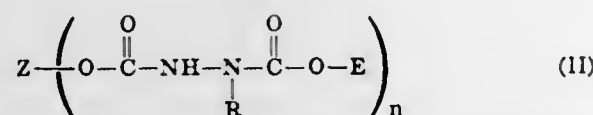
U.S. Cl. 260—482 B

9 Claims

The oil-soluble azo compounds of this invention are useful as dispersants, corrosion inhibitors and anti-wear agents in lubricating oil and fuel compositions. The predominant oil-soluble azo reaction product may be represented by the following formulas:



or



wherein

R represents an oil-solubilizing, synthetic, polymeric organic radical containing at least 20 carbon atoms, Y is independently selected from the group consisting of —OR₁, —NR₂R₃ and —SR₄,

R₁, R₂, R₃, and R₄ are independently selected from hydrogen, alkyl, cycloalkyl, aryl, alkaryl and aralkyl,

X is independently selected from oxygen, sulfur and =NR₅, with the proviso that when X is =NR₅, Y is —NR₂R₃,

R₅ is selected from the group consisting of alkyl, cycloalkyl, aryl and alkaryl,

Z represents a polyvalent organic radical having a valence of n and selected from hydrocarbon, oxahydrocarbon, azahydrocarbon and thiahydrocarbon radicals and their oxygenated and halogenated derivatives,

E is a monovalent radical selected from alkyl, cycloalkyl, aralkyl, aryl, and alkaryl, and

n is an integer from 2 to 5.

3,634,494

CATALYTIC PROCESS FOR MANUFACTURE OF UNSATURATED ACIDS AND ESTERS

Kin Hsueh-Yuan Tsu, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Apr. 23, 1969, Ser. No. 818,818

Int. Cl. C07c 69/54

U.S. Cl. 260—486 D

8 Claims

Lower aliphatic acids, e.g., isobutyric acid, and esters, e.g. methyl isobutyrate, are dehydrogenated in presence

of oxygen and a solid heterogeneous dehydrogenation catalyst at temperatures in the range from 250 to 600° C. The catalysts are calcined mixed phosphates of iron, bismuth and in some embodiments, lead. Good conversion and selectivity are demonstrated in the examples.

3,634,495

PRODUCTION OF ACIDS AND ESTERS

Arien Kwantes and Bernhard Stouthamer, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed July 10, 1969, Ser. No. 840,661

Claims priority, application Great Britain, Nov. 15, 1968, 54,330/68

Int. Cl. C07c 51/12

U.S. Cl. 260—488 K

10 Claims

Carboxylic acids and esters are prepared by reacting carbon monoxide with an alcohol in the presence of water-containing liquid hydrogen fluoride.

3,634,496

PROCESS FOR PRODUCING VINYL ACETATE

Naoya Kominami, 27-63, 3-chome, Nakadai, Itabashi-ku, Tokyo, Japan; Hitoshi Nakajima, 2716 Aza-oyama, Ooaza-Kawarabuki, Ageo-shi, Saitama-ken, Ageo-shi, Japan; Nobuhiko Tamura, 11-21, 6-chome, Sakuradai, Nerima-ku, Tokyo, Japan; and Kusuo Ohki, 224 Shirako, Yamatomachi, Kita-adachi-gun, Saitama-ken, Yamatomachi, Japan

No Drawing. Filed June 4, 1968, Ser. No. 734,203

Claims priority, application Japan, Sept. 7, 1967, 42/57,163; Mar. 26, 1968, 43/9,195

Int. Cl. C07c 69/14

U.S. Cl. 260—497 A

4 Claims

The production of vinyl acetate by subjecting a gas mixture containing ethylene, acetic acid and a molecular oxygen containing gas to a catalytic gas phase reaction at a temperature of from 50° to 300° C. in the presence of a catalyst composition consisting of (A) at least one metal of palladium, rhodium, ruthenium, platinum and iridium; (B) at least one of the metals, oxides, chlorides, formates and acetates of cadmium, zinc and uranium; (C) at least one of the chlorides and bromides of alkali metals; and (D) at least one of the acetates of alkali metals.

3,634,497

ACID RECONSTITUTION OF SPENT ALKALINE WASH SOLUTIONS USED IN REGENERATING NOBLE METAL UNSATURATED ESTER SYNTHESIS CATALYSTS

Clifford C. Budke, Cincinnati, Ohio, assignor to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 26, 1969, Ser. No. 853,191

Int. Cl. C07c 67/04; B01j 11/18

U.S. Cl. 260—497 A

10 Claims

Aqueous wash solutions, particularly the alkaline wash solutions used in the treatment and reactivation of catalysts for unsaturated ester production are regenerated and generally reconstituted for reuse by addition of an acid thereto to adjust the pH to the optimum level at which precipitation of impurities and decrease in color occurs. As an additional feature, after filtering, the alkaline solution obtained can be treated with activated carbon. Addition of alkali, with or without water dilution, as required, restores the wash solution to its original composition.

3,634,498

BENZYL-(ORTHO-TERTIARY-AMINOALKOXY) BENZYL THIOETHERS

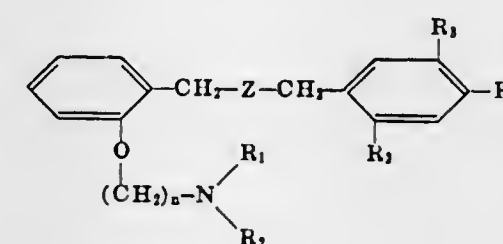
Gerhard Satzinger, Gundelfingen, Freiburg, Germany, assignor to Warner-Lambert Company, Morris Plains, N.J. No Drawing. Application Dec. 29, 1967, Ser. No. 694,362, now Patent No. 3,471,504, dated Oct. 7, 1969, which is a continuation-in-part of application Ser. No. 432,917, Dec. 23, 1964. Divided and this application June 10, 1969, Ser. No. 832,008

Int. Cl. C07c 93/06

U.S. Cl. 260—501.19

4 Claims

Ortho-substituted aryloxyamines having local anesthetic activity, have the following formula:



wherein R₁ and R₂ are either the same or different lower alkyl groups, or when taken with the amino nitrogen atom form a closed chain heterocyclic group; R₃, R₄ and R₅ may be the same or different groups such as hydrogen, halogen, lower alkyl and lower alkoxy; and R₄ and R₅ taken together form a methylene dioxy group; Z is oxygen or sulfur and the designation n represents the integer 2 or 3. These compounds are prepared by reacting ortho-hydroxybenzaldehyde with a suitable dialkylaminoalkylhalide, in the presence of an alkali metal carbonate, to obtain the corresponding ortho-(dialkylaminoalkoxy)benzaldehyde; reducing the aldehyde function to an alcohol; and reacting the ortho-(dialkylaminoalkoxy)benzyl alcohol with a suitable substituted benzyl halide to obtain the corresponding ortho-substituted aryloxyamines. Certain compounds within this class can also be used as anti-spasmodic, anti-inflammatory, anti-tussive, anti-pyretic, analgesic, antiarrhythmic, sedative and anticonvulsant agents.

3,634,499

ANTIFIBRINOLYTIC COMPOUNDS

Larry J. Loeffler, North Wales, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 690,404, Dec. 14, 1967. This application June 13, 1969, Ser. No. 833,161

Int. Cl. C07c 10/04, 101/34

U.S. Cl. 260—514 B

6 Claims

The compounds 4-aminomethylbicyclo-[2.2.1]-heptane-1-carboxylic acid, 4-aminomethylbicyclo-[2.2.2]-octane-1-carboxylic acid, 5-aminomethylbicyclo-[3.2.2]-nonane-1-carboxylic acid and the corresponding 2,5 and 6,8-diketo compounds respectively are useful in antifibrinolytic compounds.

3,634,500

2-(1,8-DIMETHOXY-4-METHYL-2-NAPHTHOYL)-3,5-DIALKOXYTEREPHTHALAMIC ACIDS

Jerry Robert Daniel McCormick, Spring Valley, and Nancy Hazlett Arnold, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 19, 1969, Ser. No. 851,476

Int. Cl. C07c 103/26

U.S. Cl. 260—517

8 Claims

This disclosure describes 2-(1,8-dimethoxy-4-methyl-2-naphthoyl)-3,5-dialkoxyterephthalamic acids useful as intermediates for the preparation of 6-methyl-1,3,10,11,12-pentahydroxynaphthacene-2-carboxamide.

3,634,501

SODIUM ACRYLATE AND SODIUM METHACRYLATE FROM PROPYLENE AND ISOBUTYLENE

Thomas A. Schenach, San Clemente, and Frederick F. Caserio, Jr., Laguna Beach, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

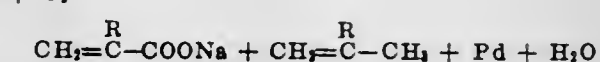
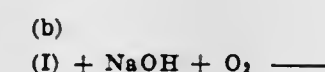
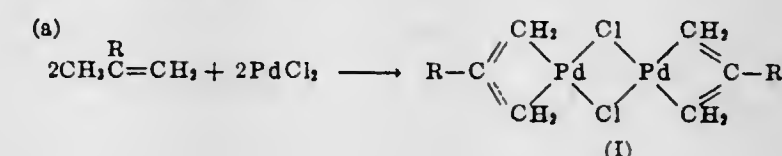
No Drawing. Filed July 3, 1969, Ser. No. 839,044

Int. Cl. C07c 57/04

U.S. Cl. 260—533 N

4 Claims

Sodium acrylate and sodium methacrylate are produced by the oxidation of allylpalladium complexes of propylene and isobutylene according to the following reaction scheme:



wherein R may be hydrogen or methyl.

3,634,502

PREPARATION OF UNSATURATED ALDEHYDES AND ACIDS

Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed July 1, 1969, Ser. No. 838,349

Int. Cl. C07c 57/04

U.S. Cl. 260—533 N

7 Claims

Unsaturated aldehydes and acids as acrolein and acrylic acid or methacrolein and methacrylic acid are prepared in excellent yields and at improved rates by the oxidation of propylene or isobutylene in the presence of a versatile catalyst containing molybdenum oxide, tellurium oxide and a boron phosphate. Calcination of the boron phosphate alone or in the catalyst mixture above 450° C. favors formation of aldehydes.

3,634,503

PURIFICATION OF POLY(MALEIC ACID)

William G. Bowman, Pasadena, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed May 13, 1969, Ser. No. 824,286

Int. Cl. C07c 51/42

U.S. Cl. 260—537 R

5 Claims

The undesirable coloration of poly(maleic acid) can be reduced by treating an aqueous solution of the poly(maleic acid) with 1–15 weight percent hydrogen peroxide at a temperature in the range of 50–200° C. for ¼–2 hours. The resulting product has a much lighter color and has greater aesthetic appeal and technical utility, for example, in the area of textile finishes.

3,634,504

ALPHA-MONOCHLORINATION OF CARBOXYLIC ACIDS

Arnold E. Young, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 9, 1968, Ser. No. 751,343

Int. Cl. C07c 53/16, 61/02, 63/10

U.S. Cl. 260—539 R

7 Claims

Carboxylic acids having at least one hydrogen atom attached to a carbon atom that is alpha to the carboxy group are chlorinated to give their alpha-monochlorinated derivatives by a process comprising contacting them with chlorine at a temperature between 75 and 225° C. while in the presence of a catalytic amount of trichloroacetyl chloride, trichloroacetic anhydride, trifluoroacetyl chloride or trifluoroacetic anhydride.

3,634,505

BIS (CHLOROSULFENYL) AND BIS (CHLORO-SULFONYL)-CARBORANES

Hansjuergen A. Schroeder, Hamden, and Nick S. Semenuk, New Haven, Conn., assignors to Olin Mathieson Chemical Corporation
No Drawing. Filed May 2, 1968, Ser. No. 726,195
Int. Cl. C07c 143/70, 145/00

U.S. Cl. 260—543 H 8 Claims
Bis(chlorosulfonyl)-carboranes are prepared by reacting a bismercapto-ortho-, -meta or -para-carborane with chlorine in an inert solvent. The bis(chlorosulfonyl)-carboranes thus formed can, in turn, be oxidized in the presence of sodium hypochlorite to yield the corresponding bis(chlorosulfonyl)-ortho-, -meta and -para-carboranes. Both the bis(chlorosulfonyl)-, and the bis(chlorosulfonyl)-carboranes are useful as high energy fuels when compounded with oxidizers.

3,634,506

PROCESS FOR THE MANUFACTURE OF BIGUANIDE DERIVATIVES

Werner Bollag, Basel, Henri Ramuz, Birsfelden, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed May 19, 1969, Ser. No. 825,977
Claims priority, application Switzerland, June 21, 1968, 9,358/68

Int. Cl. C07f 5/02

U.S. Cl. 260—551 B 12 Claims
Novel boric acid complexes of biguanide derivatives and the process for the preparation thereof comprising the condensation of biguanide derivatives with boric acid, a boric acid derivative, or a boron halide in the presence of an inert organic solvent.

3,634,507

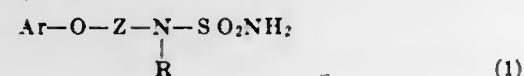
N-PHENOXYALKYL SULFAMIC ACID AMIDES AND THEIR ALKALINE SALTS

Jacques R. Boissier, Paris, and Roger Ratouls, Saint-Cloud, France, assignors to Societe Anonyme dite: Societe Industrielle pour la Fabrication des Antibiotiques (S.I.F.A.), Puteaux, France

No Drawing. Filed June 30, 1969, Ser. No. 837,876
Claims priority, application France, July 5, 1968, 157,994; Oct. 3, 1968, 168,629

Int. Cl. C07c 143/72

U.S. Cl. 260—556 N 5 Claims
The amides have the formula:



where Ar represents a phenyl or naphthyl radical, or a substituted phenyl or naphthyl radical. The substituent may be one or several members selected from the group consisting of halogen atoms, trifluoromethyl radical, phenyl radical, lower aliphatic hydrocarbon radicals, lower alkoxy radicals, and aliphatic hydrocarbon or alkoxy radicals linked to form a divalent radical such as polymethylene, methylenedioxy, polymethylenedioxy, Z represents a divalent saturated aliphatic hydrocarbon radical, which may be substituted by a hydroxy radical, and R represents hydrogen or a lower aliphatic hydrocarbon radical.

Amides of Formula 1 and their alkaline salts are very useful substances for human therapeutics, namely as sedative, tranquilizing, myorelaxant and anticonvulsant medicines.

Amides of Formula 1 are prepared by reacting sulfamide $\text{H}_2\text{NSO}_2\text{NH}_2$ with an amino compound of formula $\text{Ar}-\text{O}-\text{Z}-\text{NHR}$, wherein Ar, Z and R have the meaning above defined.

3,634,508

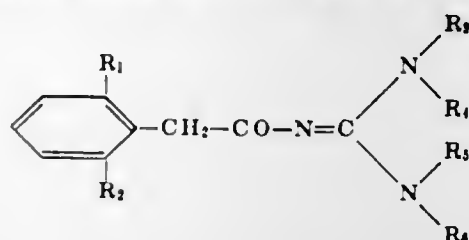
PHENYLACETYLGUANIDINES

John B. Bream, Redbourn, and Claude W. Picard, Welwyn Garden City, England, assignors to Dr. A. Wander SA, Bern, Switzerland

No Drawing. Filed Feb. 9, 1970, Ser. No. 9,973
Claims priority, application Switzerland, Feb. 20, 1969, 2,575/69; Mar. 27, 1969, 4,691/69; Nov. 7, 1969, 16,575/69

Int. Cl. C07c 103/22, 103/30

U.S. Cl. 260—558 R 8 Claims
The invention concerns a compound of formula:



in which

R_1 signifies hydrogen, chlorine or methyl, and R_2 signifies chlorine or methyl, and either each of R_3 , R_4 , R_5 and R_6 , which may be identical or different, signifies hydrogen, or an alkyl, hydroxy-alkyl or alkoxyalkyl radical containing up to 6 carbon atoms, with the proviso that at least one of the radicals R_3 , R_4 , R_5 and R_6 is other than hydrogen, or R_4 and R_5 together form a dimethylene or trimethylene chain, and each of R_3 and R_6 signifies hydrogen.

and pharmaceutically acceptable acid addition salts thereof.

The compounds are useful in the treatment of hypertension.

3,634,509

2,6-DINITROANILINOACETAMIDES

John Yates, Whitstable, Kent, and Barry R. J. Devlin, Sittingbourne, Kent, England, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 642,341, May 31, 1967. This application Sept. 3, 1969, Ser. No. 855,014

Claims priority, application England, Sept. 4, 1968, 42,055/68; June 8, 1966, 25,473/66

Int. Cl. C07c 103/22

U.S. Cl. 260—558 8 Claims
Novel herbicidal ortho-nitroanilinoacetamides such as 2-(2,6-dinitroanilino)-N-methyl-propionamide.

3,634,510

PREPARATION OF N-ALKYLCARBOXAMIDES

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Aug. 28, 1969, Ser. No. 853,963
Int. Cl. C07c 103/00

U.S. Cl. 260—561 R 10 Claims
Carboxamides, and particularly carboxamides containing alkyl substituents on the nitrogen atom, are prepared by condensing a nitrile with an alkyl halide in the presence of certain metal halides and water. In this way, N-t-butylacetamide is prepared from acetonitrile and t-butyl chloride.

3,634,511

1-(4-ACYLAMINO-2-ALKYLPHENOXY)-3-AMINO-2-PROPANOL DERIVATIVES

Ralph Howe and Leslie Harold Smith, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,456
Claims priority, application Great Britain, Sept. 7, 1967, 40,961/67

Int. Cl. C07c 103/44, 103/58

U.S. Cl. 260—562 A 4 Claims
The disclosure relates to 1-(4-acylamino-2-alkylphenoxy)-3-amino-2-propanol derivatives, processes for their

manufacture, pharmaceutical compositions containing them and a method of using them to produce cardiac β -adrenergic blockade in warm-blooded animals. Representative of the compounds disclosed is 1-(2-ethyl-4-propionamidophenoxy)-3-t-butylamino-2-propanol.

3,634,512

PRODUCTION OF DIAMINODICYCLOHEXYL-ALKANES OR ETHERS

Guenter Poehler, Ludwigshafen, Ludwig Wolf, Hassloch, and Hubert Corr and Kurt Pilch, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 2, 1968, Ser. No. 780,561
Claims priority, application Germany, Dec. 1, 1967, P 16 43 704.0

Int. Cl. C07c 85/14

U.S. Cl. 260—563 D 11 Claims

Production of diaminodicyclohexylalkanes or ethers by hydrogenation of diaminodiphenylalkanes or ethers at elevated temperature and superatmospheric pressure in the presence of a supported catalyst containing cobalt or nickel which has been prepared by treating the carrier material (and/or the finished catalyst) with a basic reacting alkali metal or alkaline earth metal compound and then with a binder, applying finely divided cobalt oxide or nickel oxide or finely divided compounds of cobalt or nickel which change into the oxides when heated, and then drying and heating it to 500° to 1100° C.

3,634,513

2-METHOXY-5-METHYL-m-XYLYLENEBIS (ISOTHIURONIUM CHLORIDE)

Harold Marvin Foster, Park Forest, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio

No Drawing. Filed Oct. 13, 1969, Ser. No. 865,978
Int. Cl. C07c 123/00

U.S. Cl. 260—564 E 1 Claim
A novel compound, 2-methoxy-5-methyl-m-xylylenebis(isothiuronium chloride), is synthesized from 2,6-bis(chloromethyl)-4-methylanisole. The novel compound is useful in the manufacture of 2-methoxy-5-methyl-m-xylylenedithiol, a microbiocide.

3,634,514

PRODUCTION OF MALONDIALDEHYDE DIOXIME

Herbert Armbrust, Gruenstadt, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Jan. 14, 1969, Ser. No. 791,154
Claims priority, application Germany, Jan. 23, 1968, P 16 43 747.1

Int. Cl. C07c 131/00

U.S. Cl. 260—566 A 9 Claims
Production of malonodialdehyde dioxime by reaction of β -aminoacroleins with hydroxylamine. The products are valuable starting materials for the production of dyes and herbicides.

3,634,515

ALKYL-PHENOL, ALKYLENE POLYAMINE, FORM-ALDEHYDE, ALDEHYDE REACTION PRODUCTS

Edmund J. Piasek, Chicago, Ill., and Robert E. Karil, Munster, Ind., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,534
Int. Cl. C07c 87/00, 87/18, 93/00

U.S. Cl. 260—570.5 PA 5 Claims

This invention concerns the condensation product of a higher molecular weight alkyl-substituted phenol, an alkylene polyamine, formaldehyde, and an aldehyde reactant having more than one carbon atom or ketone reactant or a mixture of both reactants. These products are useful as ashless dispersants for lubricants.

3,634,516

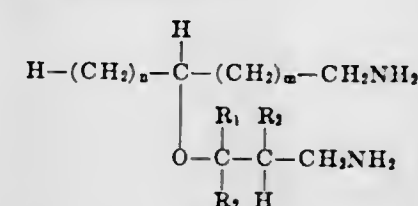
ETHER DIAMINES

John R. Nazy, Shoreview, and Robert C. Kuder, Excelsior, Minn., assignors to General Mills, Inc.

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,457
Int. Cl. C07c 93/00, 93/04

U.S. Cl. 260—584 C 9 Claims

Diamines of the formula



where n is 5 to 20, m is 0 to 15, the sum of n and m is 14 to 20, and R_1 , R_2 and R_3 are hydrogen or short chain alkyl groups of 1 to 4 carbon atoms. Diisocyanates derived therefrom with the same being useful for preparing polymers.

3,634,517

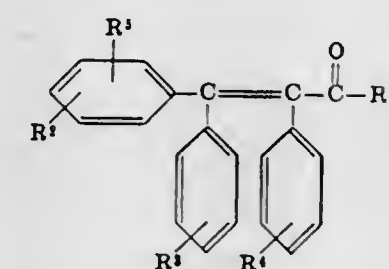
TRIARYLALKENONES

Frank P. Palopoli, Glenside, Pa., and Harvey D. Benson, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,741
Int. Cl. C07c 49/76

U.S. Cl. 260—590 14 Claims

Compounds of the formula:



wherein R^1 is lower alkyl; each of R^2 , R^3 and R^4 is hydrogen, lower alkyl, halogen, hydroxy, lower alkoxy, dilower-alkylaminoloweralkoxy or trifluoromethyl; and R^5 is hydrogen, lower alkyl, or diloweralkylaminomethyl, provided that when R^5 is diloweralkylaminomethyl R^2 is hydroxy in the para-position of said benzene ring and the diloweralkylaminomethyl is ortho to said hydroxy group; and pharmacologically acceptable, non-toxic acid addition salts of the basic compounds. These compounds possess estrogenic, anti-estrogenic and antiinflammatory activities.

3,634,518

PROCESS FOR PREPARING ALKYLIDENE PHOSPHORANES

Joachim Buddrus, Dortmund, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 11, 1969, Ser. No. 832,498
Claims priority, application Germany, June 15, 1968, P 17 68 680.5

Int. Cl. C07f 9/28; C07c 69/76

U.S. Cl. 260—606.5 P 6 Claims

A process for forming in a reversible reaction an alkylidene phosphorane as used in the Wittig reaction by dehydrohalogenating the corresponding quaternary phosphonium chloride, bromide or iodide in which the phosphorus atom is connected by a single bond to a saturated carbon atom bearing at least one hydrogen atom wherein an epoxide is used as the dehydrohalogenating agent. The process preferably permits direct conversion of aldehydes or ketones into olefinic compounds by reaction with the quaternary phosphonium halide in the presence of the epoxide.

3,634,519

PROCESS FOR THE PRODUCTION OF DIARYLETHERS

Francis Bentz, Cologne, Dieter Lesch, Cologne, Mulheim, and Günther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 26, 1968, Ser. No. 747,841
Claims priority, application Germany, Aug. 4, 1967, F 53,147

Int. Cl. C07c 41/00

U.S. Cl. 260—612 R

4 Claims

Process for the production of diarylethers by reaction of an aromatic compound containing a nitro group and a halogen atom in the para position to each other with an aqueous solution of an alkali hydroxide in a polar organic solvent.

3,634,520

NITRATION OF AROMATIC RING-CONTAINING COMPOSITIONS

James V. Crivello, Mechanicsville, N.Y., assignor to General Electric Company

No Drawing. Filed Oct. 23, 1969, Ser. No. 868,917

Int. Cl. C07c 43/20, 121/30, 79/10

U.S. Cl. 260—612 R

7 Claims

Certain aromatic organic compositions containing benzenoid-substituted hydrogen are readily nitrated by treatment with a mixture comprising a perfluoro saturated aliphatic acid anhydride of from 4 to 8 carbon atoms and a nitrating agent of either metal nitrates or ammonium nitrate.

3,634,521

METALLIC TREATMENT OF POLYPHENYL THIOETHERS TO IMPROVE OXIDATIVE STABILITY

Frank S. Clark, St. Louis, Mo., and Kenneth L. McHugh, Durham, N.C., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation of application Ser. No. 512,212, Dec. 7, 1965. This application May 21, 1969, Ser. No. 826,718

Int. Cl. C07c 149/30; C10m 3/36

U.S. Cl. 260—609 E

10 Claims

A process which comprises contacting polyphenyl thioethers with a metal selected from the group consisting of Group Ib and IIb of the periodic table thereby improving the oxidative stability of such thioethers and decreasing their corrosiveness metals. For example, m-bis (phenylmercapto)benzene is mixed with copper powder and heated to improve its oxidative stability.

3,634,522

SEPARATION OF ETHERS

Russell G. Smith, Edmonton, Alberta, Canada, and Alan Vanterpool, Morristown, N.J., assignors to Chemcell, Limited, Montreal, Quebec, Canada

No Drawing. Application Sept. 22, 1967, Ser. No. 669,728, which is a continuation-in-part of application Ser. No. 416,601, Dec. 7, 1964. Divided and this application Aug. 13, 1969, Ser. No. 862,575

Int. Cl. C07c 41/12

U.S. Cl. 260—615 R

1 Claim

In producing ether derivatives of alcohols, including polyols and more particularly polyols having a quaternary carbon atoms bonded to at least three methylol groups, by reacting the corresponding alkali metal alcoholate with an organic chloride selected from the group consisting of aliphatic chlorides and phenyl substituted aliphatic chlorides in which the chloride moiety is attached to a methylene group and including especially β,γ -unsaturated alkenyl chlorides, the reaction rate is accelerated, fully etherified derivatives of polyol reactants are produced if

desired, and a preliminary step in which a pre-formed alkali metal alcoholate of the alcohol is formed is dispensed with, by conducting the etherification reaction in a liquid medium comprising an aliphatic dihydrocarbyl sulfoxide, especially dimethyl sulfoxide. When a blend containing partially etherified polyhydric alcohols is obtained, the components may be separated and recovered by dissolving the blend in a hydrocarbon solvent and then extracting the solution with dimethyl sulfoxide which preferentially dissolves the less-etherified portion of the product.

3,634,523

DIHALOHYDRINS

Richard B. Lund, Whippany, John Vitrone, Parsippany, and John F. Sereno, Pine Brook, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Dec. 20, 1965, Ser. No. 515,208. Divided and this application Aug. 18, 1969, Ser. No. 864,248

Int. Cl. C07c 31/16

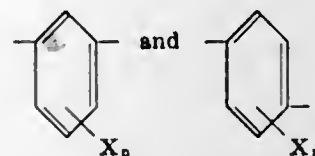
U.S. Cl. 260—618 D

3 Claims

Dihaloalcohols of the formula



wherein R and R' are lower alkyl groups, Y is halogen and M is



wherein X is hydrogen, halogen, nitro and alkyl groups and n is 1 or 2. These compounds are prepared by reaction of the corresponding dialkylene compounds with a hypohalous acid. The compounds are useful to form the corresponding diepoxides which can be cured to infusible resins.

3,634,524

PROCESS FOR PRODUCING OLEFINIC HYDROCARBONS FROM ALKYL HALIDES

Tatsuo Horie, Tokyo, Yasuo Fujiwara, Kanagawa-ken, and Tetsuya Takezono, Tokyo, Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

No Drawing. Filed Jan. 29, 1968, Ser. No. 701,099

Claims priority, application Japan, Feb. 9, 1967, 42/7,971

Int. Cl. C07c 11/02, 31/02

U.S. Cl. 260—677 XA

4 Claims

A process for producing an olefinic hydrocarbon from an alkyl halide using a catalyst consisting of an aqueous hydrogen chloride solution of antimony trichloride or zinc chloride.

3,634,525

HALOTRIFLUOROCYCLOPROPENES

Archie E. Barkdoll, Hockessin, Del., and Peter B. Sargent, Waynesboro, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

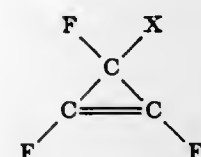
No Drawing. Original application May 6, 1966, Ser. No. 548,068, now Patent No. 3,418,275, dated Nov. 26, 1968. Divided and this application May 28, 1968, Ser. No. 823,195

Int. Cl. C07c 23/04

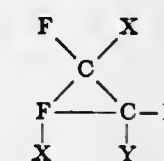
U.S. Cl. 260—648 F

3 Claims

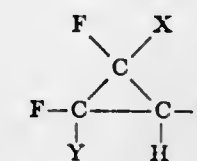
Halotrifluorocyclopropenes having the formula



wherein X is fluorine, chlorine or bromine can be prepared by dehalogenation of



wherein Y is chlorine or bromine, or by dehydrohalogenation of



The compounds can be copolymerized with ethylenically unsaturated monomers to form useful polymers, and are also useful as insecticides.

3,634,526

INHIBITION OF POPCORN POLYMER FORMATION IN CHLOROPRENE

Edwin Benjamins, Montague, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 28, 1969, Ser. No. 853,926

Int. Cl. C07c 17/42

U.S. Cl. 260—652.5 P

1 Claim

Formation of popcorn polymer in chloroprene is inhibited by incorporating therein about from .002% to 0.5% by weight, based on the weight of chloroprene, of free, acid-form N-nitrosophenylhydroxylamine.

3,634,527

SUPPRESSION OF ISOPENTANE FORMATION IN ETHYL CHLORIDE SYNTHESIS

John W. Wagner, Pine Grove, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed July 15, 1969, Ser. No. 842,006

Int. Cl. C07c 17/08

U.S. Cl. 260—663

5 Claims

The formation of isopentane and other C₅ and heavier hydrocarbons formed in the synthesis of ethyl chloride by the reaction of C₂H₄ and HCl in C₂H₅Cl-AlCl₃ is suppressed by the addition of oxygen to the reaction system.

3,634,528

PROCESS FOR PREPARING 1,5,9-CYCLODODECATRIENES

Jo Itakura, Hisao Tanaka, and Hiroo Ito, Nagoya, Japan, assignors to Toagosei Chemical Industry Co., Ltd., Minato-ku, Tokyo, Japan

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,424

Claims priority, application Japan, Aug. 21, 1968, 43/58,254, 43/59,134, 43/59,135, 43/59,513

Int. Cl. C07c 13/00, 3/10

U.S. Cl. 260—666 B

8 Claims

1,5,9-cyclododecatrienenes are prepared by subjecting conjugated diolefins to cyclization trimerization in the presence of a catalyst composition obtained by mixing an organic group-containing chlorotitanium compound with an alkylaluminum chloride.

3,634,529

PREPARATION OF CYCLOPENTANE

George R. Lester, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 22, 1969, Ser. No. 860,049

Int. Cl. C07c 5/00, 13/10

U.S. Cl. 260—666 P

7 Claims

Cyclopentane is prepared by passing normal pentane over an alkalized supported noble metal catalyst at am-

bient pressure or a low pressure and at an elevated temperature to prepare the desired product.

3,634,530

SEPARATION OF C₈ AROMATIC HYDROCARBONS WITH CUPROUS SULFONATE SALT COMPLEXES

James L. Bills, Provo, Utah, assignor to

Monsanto Company, St. Louis, Mo.

No Drawing. Filed Feb. 10, 1970, Ser. No. 10,312

Int. Cl. C07c 15/10, 7/16

U.S. Cl. 260—669 A

10 Claims

Mixtures of C₈ aromatic hydrocarbons are separated according to structure and type by contacting a mixture of at least two C₈ aromatic hydrocarbons having different structures and types with a liquid cuprous sulfonate salt complex. The combination of C₈ aromatic hydrocarbons and cuprous sulfonate salt complex is then cooled until a solid phase is formed. A hydrocarbon fraction recovered from the solid phase will be substantially richer in one of the C₈ aromatic hydrocarbons than in the original mixture.

3,634,531

PRODUCTION OF STYRENE

Rolf Platz, Mannheim, and Karl Gerhard Baur, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,850

Claims priority, application Germany, Oct. 30, 1968, P 18 06 080.5

Int. Cl. C07c 15/10

U.S. Cl. 260—669

6 Claims

The production of styrene by dehydrogenation of ethylbenzene with oxygen or a gas containing molecular oxygen in the presence of iodine, isolation of the crude styrene and distillation of the crude styrene with the recovery of pure styrene, wherein the crude styrene is in part catalytically hydrogenated.

Styrene is an important monomer.

3,634,532

PROCESS FOR THE DEALKYLATION OF AROMATIC HYDROCARBONS

Yoshisada Ogino, Akira Igarashi, and Michio Tsuchiya, Sendai-shi, Japan, assignors to Idemitsu Kosan Co., Ltd., and Mitsubishi Petrochemical Company Ltd.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,234

Claims priority, application Japan, Apr. 9, 1970, 45/29,777

Int. Cl. C07c 3/58

U.S. Cl. 260—672

5 Claims

Aromatic hydrocarbons are dealkylated in the presence of steam and a nickel-beryllium oxide catalyst having a nickel content of from 5 to 80 weight percent. The catalyst is prepared by impregnating basic beryllium carbonate, beryllium oxide, or beryllium hydroxide with an aqueous solution of a nickel compound such as nickel nitrate, drying the resulting product, calcining it at about 500° C. in a stream of inert gas, then pelletizing it, and reducing the resultant powder with hydrogen. The dealkylation is preferably carried out at a temperature of 350–500° C. The steam and aromatic hydrocarbon are respectively employed in a molar ratio of about 3–19 to 1. The dealkylation is preferably carried out at a space velocity of about 1500 to 6000 hr.⁻¹ based on the total volume of steam and aromatic hydrocarbon vapor, and at a liquid hourly space velocity of the aromatic hydrocarbon of about 0.8 to 4.3. Surprisingly, dealkylation occurs with little disintegration of the benzene ring.

3,634,533

METHOD FOR DEHYDRATING MOISTURE-CONTAINING MATERIALS USING CARBON MONOXIDE AND A CRYSTALLINE ALUMINOSILICATE CATALYST

Vincent J. Frillette, Morrisville, Pa., assignor to Mobil Oil Corporation

No Drawing. Continuation-in-part of application Ser. No. 307,785, Sept. 10, 1963. This application Aug. 29, 1969, Ser. No. 854,251

Int. Cl. C07c 7/00; C07b 5/00

U.S. Cl. 260—674

3 Claims

This invention relates to a method for dehydrating a moisture-containing material by contacting the same with carbon monoxide in the presence of a crystalline aluminosilicate catalyst under conditions such that the water in such material is removed by catalytic reaction with said carbon monoxide to yield carbon dioxide and hydrogen. In one embodiment the invention resides in a method for drying a wet crystalline aluminosilicate catalyst by contacting the same with carbon monoxide under conditions of time and temperature such that the water in the crystalline aluminosilicate catalyst reacts with the carbon monoxide to yield carbon dioxide and hydrogen.

3,634,534

SEPARATION OF CHEMICALS USING FRACTIONATION AND HETEROGENEOUS CATALYSIS

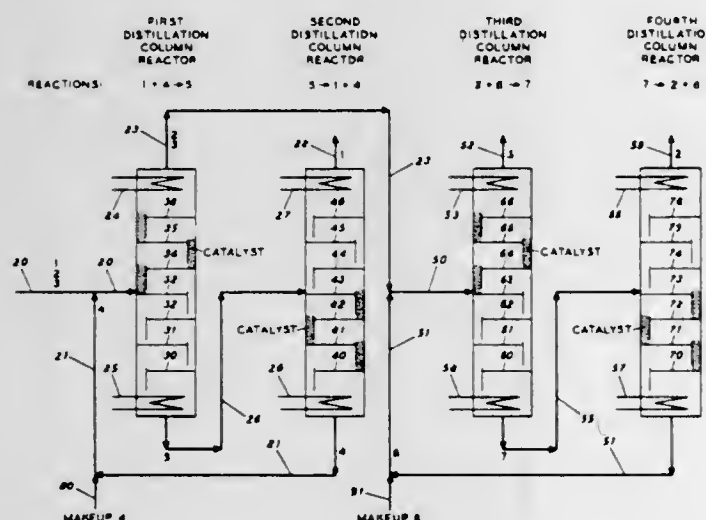
Willard M. Haunschild, Walnut Creek, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Aug. 22, 1969, Ser. No. 852,225

Int. Cl. C07c 11/12

U.S. Cl. 260—677 A

4 Claims



The disclosure relates to an invented process which may be used, for example, to separate components of a mixture of closely boiling hydrocarbons such as a mixture of tertiary pentenes, linear olefins, isopentane, and normal pentane. According to the disclosure, such a mixture is fed to a first distillation column reactor wherein the tertiary olefin is reacted with an alcohol so that the linear olefins and paraffins may be readily fractionated overhead. A mixed stream of ethers is removed from the bottom of the first distillation column reactor and is fed to second distillation column reactor wherein the ether is decomposed so that the tertiary pentenes may be readily fractionated overhead. Most of the alcohol is removed from the lower part of the second distillation column reactor and recycled back to the first distillation column reactor. The linear pentenes and the pentanes removed from the upper part of the first distillation column reactor are fed to a third distillation column reactor wherein the linear pentenes are reacted with an organic

acid so that the pentanes may be readily distilled overhead and the ester resulting from the reaction fractionated downwardly. The esters are removed from the lower part of the second distillation column reactor and are fed to fourth distillation column reactor wherein they are decomposed and the resulting linear pentenes are fractionated away from the organic acid. Linear pentenes are removed from the fourth distillation column reactor, and a separate stream rich in the organic acid is removed from the fourth distillation column reactor (and recycled as feed back to the third distillation column reactor).

3,634,535

SEPARATION AND CATALYSIS

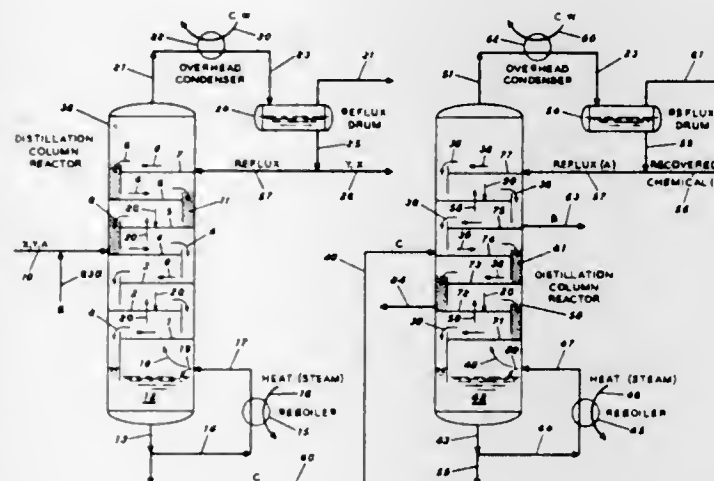
Willard M. Haunschild, Walnut Creek, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Aug. 22, 1969, Ser. No. 852,270

Int. Cl. C07c 11/12

U.S. Cl. 260—677 A

7 Claims



A process for separating a first chemical from a mixture of chemicals using two distillation column reactors in series. In the first distillation column reactor the first chemical undergoes a reaction to form a second chemical which is easily fractionated from the mixture of chemicals. This second chemical is then fed to the second distillation column reactor, where the reaction is reversed and the first chemical is recovered by fractionation.

3,634,536

SELECTIVE HYDROGENATION OF ALKYNES

Ludo K. Frevel, Midland, and Leonard J. Kressley, Saginaw, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 27, 1970, Ser. No. 32,378

Int. Cl. C07c 7/00

U.S. Cl. 260—681.5 R

2 Claims

An improved process for selectively hydrogenating acetylenic impurities in an isoprene- or butadiene- containing stream whereby from 0.7 to 15 volume percent CO is utilized during normal hydrogenation over a copper-based catalyst.

3,634,537

SOLVENT EXTRACTION PROCESS

John F. Hutto, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed May 14, 1969, Ser. No. 824,418

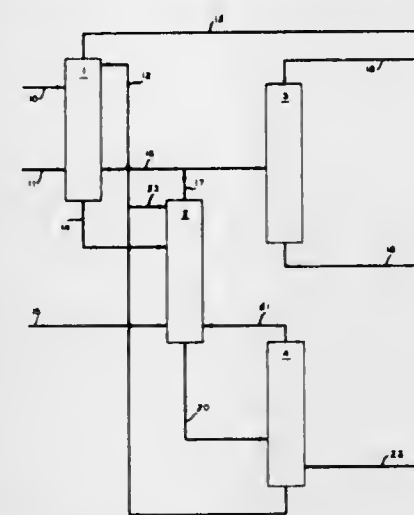
Int. Cl. C07c 7/10; C10g 21/28

U.S. Cl. 260—681.5 R

8 Claims

A process for the solvent extraction of a plurality of components from a plurality of hydrocarbon streams in

accordance with the carbon-hydrogen ratio of the components which separates a first stream comprising hydrocarbons of the general formula C_nH_{2n+2} , and a second



stream comprising hydrocarbons of the general formula C_nH_{2n} and a third stream comprising hydrocarbons in which the hydrogen to carbon ratio is less than 2.

3,634,538

PROPORTIONATION OF OLEFINS

Frederick W. Steffen, Laguna Beach, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 537,270, Mar. 25, 1966. This application Apr. 1, 1969, Ser. No. 812,271

Int. Cl. C07c 3/62

U.S. Cl. 260—683 D

8 Claims

A process for producing intermediate molecular weight olefins from mixtures of higher and lower molecular weight olefins by proportionating a mixture of said higher and lower molecular weight olefins over a molybdenum oxide, tungsten oxide, or mixed molybdenum oxide-tungsten oxide catalyst at 150° C. to 220° C., recovering the product which includes a major constituent intermediate molecular weight olefins not present in the feed, separating the mixture to produce an intermediate molecular weight olefin product and a mixture of higher and lower molecular weight olefins which are recycled to the proportionation stage in mixture with additional higher and lower molecular weight olefins is disclosed. Carbon monoxide may be passed through the proportionation reactor with the mixed olefin feed stock.

3,634,539

OLEFIN DISPROPORTIONATION

Henk J. Alkema, Dirk Medema, and Freddy Wattimena, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed June 2, 1969, Ser. No. 829,730. Claims priority, application Great Britain, June 10, 1968, 27,445/68

Int. Cl. C07c 3/62, 11/02, 13/00

U.S. Cl. 260—683 D

8 Claims

Olefins are disproportionated with a catalyst composition produced by contacting a molybdenum or tungsten halide and an inorganic oxide solid.

3,634,540

PROCESS FOR THE ISOMERIZATION OF OLEFINS

Jin-lang Wang, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 13, 1969, Ser. No. 866,038

Int. Cl. C01c 5/24

U.S. Cl. 260—683.2

6 Claims

There is disclosed a process comprising isomerizing branched and straight chain olefins to form isomers hav-

ing their carbon-to-carbon double bond in a more internally located position by subjecting such olefins to isomerization conditions to a tungsten complex compound corresponding to the formula $L-W(CO)_a-b$ wherein L is an unsaturated hydrogen compound having at least two carbon-to-carbon double bonds and where "a" is a whole number representing the valence of the tungsten metal and "b" is a whole number corresponding to the whole number of carbon-to-carbon bonds in L capable of forming coordinate bonds with the tungsten metal.

3,634,541

SULFO-MODIFIED POLYESTERS AND SHAPED STRUCTURES MADE THEREFROM

Jurgen Popp, Kelkheim, Taunus, Franz Jakob, Hofheim, Taunus, and Heinzhorst Mobius, Frankfurt am Main, Germany, assignors to Hyston Fibers Incorporated, Spartanburg, S.C.

No Drawing. Filed Aug. 8, 1969, Ser. No. 848,683

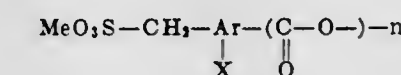
Claims priority, application Germany, May 10, 1969, P 19 24 050.7

Int. Cl. C08g 17/14

U.S. Cl. 260—75 S

12 Claims

The invention provides fiber-forming, synthetic linear polyesters comprising, in addition to the usual dicarboxylic acid moiety and diol moiety, definite amounts of araliphatic sulfonate radicals of the general formula



in which

Me stands for alkali metal,

Ar represents the benzene nucleus

X stands for hydrogen, methyl or the group

 $\text{MeO}_2\text{S}-\text{CH}_2-$ and

n is 1 or 2.

in the polymer molecule. The polyesters and the shaped structures made therefrom have a good affinity for basic dyestuffs and the dyeings obtained are very fast to light. Moreover, the filaments and fibers obtained have a low folding endurance and are, therefore, suitable for the manufacture of fabrics having a minor tendency to pilling.

3,634,542

UNSATURATED POLYESTERS ESTERIFIED WITH POLYCARBOXYLIC ACID ANHYDRIDE AND CONTAINING POLYEPOXIDE

Robert T. Dowd, Wichita Falls, Tex., and Thomas D. Clark, Mission Viejo, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,435

Int. Cl. C08g 45/04

U.S. Cl. 260—837 R

7 Claims

New, curable polyester compositions having controlled viscosity, which eliminate or reduce surface tack and which impart improved chemical resistance to glass reinforced structures are disclosed. These compositions comprise a mixture of (1) a partial half ester of (a) a hydroxy-substituted ethylenically unsaturated polyester reaction product of a polyepoxide and an ethylenically unsaturated organic carboxylic acid and (b) a polycarboxylic acid anhydride and (2) a dissimilar polymeric material possessing a plurality of epoxy groups. Also disclosed are the above-defined compositions containing a copolymerizable ethylenically unsaturated monomer, such as styrene.

3,634,543

NUCLEATED GRAFT POLYMERS OF POLYCAPROLACTAM ON CARBOXY CONTAINING COPOLYMERIC BACKBONE

Norman Sherman, Rockaway, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Aug. 12, 1968, Ser. No. 751,767
Int. Cl. C08g 41/04

U.S. Cl. 260—857 R 7 Claims

Nucleated compositions of polycaprolactam having improved ultimate elongation may be prepared by polymerizing caprolactam in the presence of about 0.1 to 1.5% by weight of a copolymer of an olefin and an unsaturated carboxylic acid, and adding thereto a nucleating agent. The resulting composition is a graft polymer wherein the copolymer forms the backbone chain and polycaprolactam forms the side chains. Except for ultimate elongation, the physical properties of the nucleated composition are similar to those of nucleated polycaprolactam homopolymer. The ultimate elongation of the composition is much greater than that of nucleated polycaprolactam homopolymer.

3,634,544

PROCESS FOR PREPARING FILMS OF POLY- γ -METHYL GLUTAMATE MODIFIED WITH POLYURETHANE RESIN

Yoshifumi Takeda, Tokyo, and Yasuo Takagi and Shigeo Mori, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
No Drawing. Filed Apr. 30, 1969, Ser. No. 820,652
Claims priority, application Japan, May 1, 1968, 43/29,325
Int. Cl. C08g 41/04

U.S. Cl. 260—858 3 Claims

A solution of poly- γ -methyl glutamate modified with polyurethane resin in a mixture of a chlorinated aliphatic hydrocarbon solvent with a water soluble organic solvent free from active hydrogen and having a boiling point higher than that of the chlorinated hydrocarbon is cast to form a solvated film, the chlorinated hydrocarbon is evaporated, and the resulting gel is leached with water to remove the residual solvent, leaving behind a leather-like film of high water vapor permeability.

3,634,545

ACRYLONITRILE GRAFT POLYMERS

Helmut Engelhard, Leverkusen, Francis Bentz, Cologne, and Wolfgang Giessler and Gunther-Ernst Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Aug. 14, 1969, Ser. No. 850,224
Claims priority, application Germany, May 16, 1969, P 19 24 827.2
Int. Cl. C08f 11/02, 29/56; C08g 39/10; D06d 3/72

U.S. Cl. 260—873 12 Claims

The present invention relates to acrylonitrile graft polymers containing at least 50% by weight of graft polymerized acrylonitrile and optionally up to 10% by weight of another graft polymerized acrylic, methacrylic, vinyl or vinylidene comonomer and, as graft substrate from 5 to 40% by weight of a linear polyether containing tertiary nitrogen atoms or a derivative thereof which is quaternized on the nitrogen.

3,634,546

CRYSTALLINE AND AMORPHOUS PROPYLENE POLYMER ADHESIVE COMPOSITIONS

Hugh John Hagemeyer, Jr., and Raymond Lewis Etter, Jr., Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 5, 1967, Ser. No. 628,525
Int. Cl. C08f 29/12

U.S. Cl. 260—876 B 6 Claims

Blends of amorphous propylene polymers and about 1 to 30%, preferably 5 to 10% by weight of crystalline pro-

pylene homopolymer, or crystalline block copolymers of propylene having inherent viscosities of at least 1, or thermally degraded crystalline polypropylene, provides adhesive compositions having good cohesive strength together with excellent adhesive strength.

3,634,547

THERMOPLASTIC COMPOSITIONS

John Brewster Rose, St. Albans, Carl Fraser Mathews and Eric Nield, Ware, and Peter Incledon Vincent, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Original application Apr. 4, 1966, Ser. No. 539,738. Divided and this application July 17, 1969, Ser. No. 842,709
Int. Cl. C08f 29/56, 15/40

U.S. Cl. 260—876 R 8 Claims

Graft copolymers comprising a substrate of a diene rubber and a superstrate containing a high proportion of acrylonitrile copolymerized with a vinyl ether and optionally an N-aryl maleimide.

3,634,548

POLYSTYRENE-ETHYLENE GRAFT COPOLYMER

Kenneth E. Harwell, Merriam, and Francis R. Gallano, Prairie Village, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Aug. 11, 1969, Ser. No. 849,159
Int. Cl. C08f 29/12

U.S. Cl. 260—877 6 Claims

A graft copolymer of ethylene onto the aliphatic carbon backbone portion of polystyrene is formed by contacting polystyrene in an inert hydrocarbon medium with a complex of an alkyl lithium with a chelating ditertiary amine, then contacting the polystyrene containing reactive sites with ethylene.

3,634,549

CONJUGATED DIENE BLOCK COPOLYMERS HAVING A RANDOM COPOLYMER ELASTOMERIC BLOCK AND THEIR HYDROGENATED COUNTERPARTS

Alfred W. Shaw, Stamford, Conn., and Eugene T. Bishop, Moraga, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,444
Int. Cl. C08f 29/12, 33/08

U.S. Cl. 260—880 B 2 Claims

Block copolymers exhibiting substantially reduced set at high extension and improved resistance to oxidation comprise block copolymers having at least two non-adjacent hydrogenated butadiene polymer blocks, each pair of said blocks being separated by an elastomeric random diene-mono vinyl arene copolymer block.

3,634,550

MOLDING COMPOUNDS OF POSTCHLORINATED POLYVINYL CHLORIDE AND ETHYLENE/VINYL ACETATE COPOLYMER

Bernhard Kraemer, Oberlar, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
No Drawing. Continuation of application Ser. No. 430,774, Feb. 5, 1965. This application Apr. 17, 1968, Ser. No. 722,132
Claims priority, application Germany, Feb. 13, 1964, D 43,619
Int. Cl. C08f 29/24, 29/12

U.S. Cl. 260—897 C 7 Claims

A postchlorinated polyvinylchloride plastic molding composition, containing, as a modifying agent which improves workability of the molding composition, copolymer of vinyl acetate and ethylene.

3,634,551

POLYBUTENE-1 BLENDS HAVING IMPROVED HEAT SEALABILITY

Arnold F. Stancell, Highland Park, and Malcolm P. Schard, Long Valley, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed Mar. 20, 1969, Ser. No. 809,049
Int. Cl. C08f 29/12

U.S. Cl. 260—897 A 1 Claim

By incorporating low density polyethylene (1–5 weight percent) into polybutene-1, heat seal strength is significantly increased. This is important in the formation of bags and other packaging from polybutene-1 film.

3,634,552

POLYMER BLEND COMPOSITIONS COMPRISING POLYPROPYLENE AND ETHYLENE/BUTENE COPOLYMER

Andrew J. Foglia, Plainfield, and Harold G. Tinger, Wayne, N.J., assignors to Mobil Oil Corporation
No Drawing. Continuation-in-part of application Ser. No. 555,012, June 3, 1966. This application Sept. 22, 1969, Ser. No. 860,026
Int. Cl. C08f 37/18

U.S. Cl. 260—897 A 5 Claims

Resinous blend compositions, particularly suitable for the preparation of oriented shrink film products, comprising a blend of from about 10% to about 90% by weight of a high isotactic content polypropylene blended with from about 10 to about 90% by weight of an ethylene-butene-1 copolymer resin containing a minor amount of ethylene.

3,634,553

HEAT SHRINKABLE FILMS OF POLYPROPYLENE AND AN ETHYLENE/BUTENE COPOLYMER

Andrew J. Foglia, Plainfield, and Harold G. Tinger, Wayne, N.J., assignors to Mobil Oil Corporation
No Drawing. Continuation-in-part of abandoned application Ser. No. 555,012, June 3, 1966. This application Sept. 22, 1969, Ser. No. 860,088
Int. Cl. C08f 37/18

U.S. Cl. 260—897 A 7 Claims

Biaxially oriented thermoplastic films, particularly suitable for employment as shrink films, comprising oriented thermoplastic films which have been formed from a blend of from about 10% to about 90% by weight of a high isotactic content polypropylene blended with from about 10 to about 90% by weight of an ethylene-butene-1 copolymer resin containing a minor amount of ethylene.

3,634,554

FLAME RESISTANT ACRYLIC CONTAINING ISOBORNYL ACRYLATE OR METHACRYLATE

George E. Forsyth, Treviso, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 444,853, Apr. 1, 1965. This application Apr. 25, 1969, Ser. No. 819,484
Int. Cl. C08f 29/50

U.S. Cl. 260—901 8 Claims

Acrylic sheet having superior flame resistance properties and a superior balance of physical properties is provided. The acrylic sheet comprises at least 50% methyl methacrylate, 5 to 30% isobornyl methacrylate or isobornyl acrylate, 5 to 25% of a flame-resistant polymeric phosphorus compound, and 0 to 10% of at least one other acrylic ethylenically unsaturated monomer.

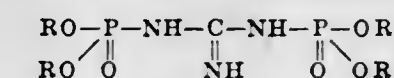
3,634,555

PHOSPHORYLGUANIDINE ESTERS

Fawzy G. Sherif, Cherry Hill, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 31, 1969, Ser. No. 846,594
Int. Cl. C07f 9/24

U.S. Cl. 260—926 2 Claims

Compounds of the formula:



in which R is a C₁₋₁₂ unsubstituted aliphatic hydrocarbon radical or a C₂₋₆ aliphatic hydrocarbon radical having one or more halogen and/or hydroxyl substituents on the 2–6 carbon positions; and cotton or rayon fibers bearing such compounds in an amount to impart flame-retardancy to them.

3,634,556

O-(1-ALKOXYCARBONYL-1-PROPEN-2-YL)-PHOSPHORODIHALIDATES AND -PHOSPHORODIHALOTHIONATES

Jean Pierre Leber and Karl Lutz, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 838,663, July 2, 1969. This application Nov. 12, 1969, Ser. No. 876,087

Claims priority, application Switzerland, July 15, 1968, 10,551/68; Nov. 16, 1968, 17,054/68
Int. Cl. C07f 9/14; A01n 9/36

U.S. Cl. 260—941 25 Claims

O - (1 - alkoxy carbonyl-1-propen-2-yl)-phosphorodihalidates and -phosphorodihalothionates useful as intermediates in the production of insecticides/acaricides.

3,634,557

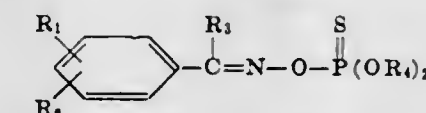
OXIME THIOPHOSPHATES

Adolf Hubele, Riehen, Switzerland, assignor to Ciba Limited, Basel, Switzerland

No Drawing. Filed July 10, 1968, Ser. No. 745,083
Claims priority, application Switzerland, July 14, 1967, 10,109/67
Int. Cl. C07f 9/06; A01n 9/36

U.S. Cl. 260—944 6 Claims

Oxime thiophosphates and pesticides containing them are disclosed. The active components correspond to the formula



wherein R₁ and R₂ are identical or different and denote hydrogen or substituents of the first or second order, R₃ is an alkyl radical and R₄ is methyl or ethyl.

3,634,558

METHOD OF PRODUCING MONODISPERSE SILICA SPHERES HAVING A DISPERSED RADIOACTIVE TRACER

Werner Stober, Penfield, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 29, 1968, Ser. No. 771,429
Int. Cl. G21c 21/00

U.S. Cl. 264—5 2 Claims

A process for producing monodisperse silica spheres of uniform size by agitating an aqueous alcoholic solution containing ammonia and lower alkyl tetraesters of silicic acid.

3,634,559

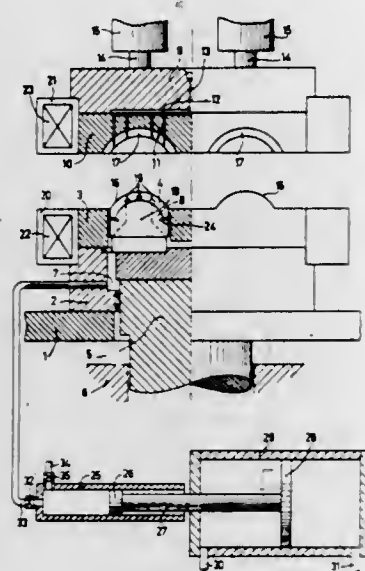
METHOD FOR MANUFACTURING CERAMIC MAGNETIC ARTICLES

Eduard Johannes Haes and Adrianus Theodorus van der Maat, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Original application Aug. 23, 1967, Ser. No. 662,599, now Patent No. 3,530,551, dated Sept. 29, 1970. Divided and this application Aug. 22, 1969, Ser. No. 870,838. Claims priority, application Netherlands, Aug. 27, 1966, 661,214

Int. Cl. B29b 1/24; C04b 33/28
U.S. Cl. 264—24

3 Claims



A method for molding ceramic magnetic articles, particularly stators for small electric motors, which provides articles possessing a uniform density and a uniform magnetic field. A ceramic mass suspension is injected in a molding cavity at high pressure thereby partially separating the solid ceramic mass from the liquid. The compressed mass is further compressed by a pressing die thereby removing all the remaining liquid from the ceramic mass. The separated liquid is removed in biaxial directions from the molding cavity. The ceramic mass is magnetized during the injection and pressing operations.

3,634,560

METHOD FOR SEALING LEAKS IN VESSELS

Amos R. Anderson, Adrian, Mich., assignor to Joseph J. Packo

No Drawing. Filed Jan. 30, 1970, Ser. No. 7,210. The portion of the term of the patent subsequent to May 11, 1988, has been disclaimed.
Int. Cl. B29c 23/00, 27/17

U.S. Cl. 264—36

7 Claims

The invention relates to a method for sealing leaks in pipes, conduits, gas lines, closed containers, tanks and the like. The interior of such equipment is first purged with a non-reactive dry gas, such as nitrogen, to remove any moisture and/or oxygen which may be present. Then the sealant composition is introduced into the interior of the equipment in a suitable inert gas vehicle under pressure. The sealant composition in the gas vehicle will escape from any leaks present in the equipment into the adjacent external environment such as the outer ambient atmosphere or adjacent soil in the case of pipelines buried in soil. The sealant reacts with oxygen and/or moisture to form at the situs of the leak a solid reaction product.

The sealant compositions comprise pyrophoric volatile alkyl aluminum etherates. Illustrative examples are trimethylaluminum dimethyletherate, trimethylaluminum diethyletherate, and triethylaluminum diethyletherate. These and similar compounds may be used singly

or in mixtures thereof. They may also be mixed with volatile organo-silane compounds in amounts ranging from about 1% to 99% by volume. Specific illustrative organo-silane compounds are trimethyl ethoxy silane, dimethyl diethoxy silane, and propyl trimethoxy silane.

3,634,561

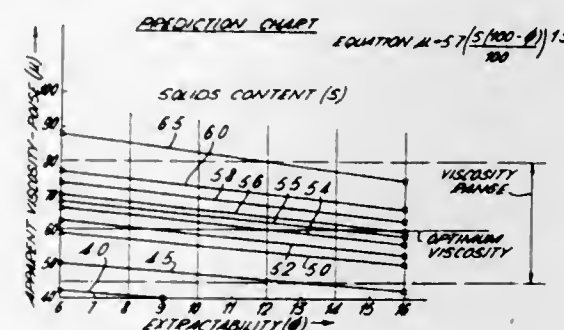
COLLAGEN PRODUCTS

Arthur Ernest Hawkins, Bedford, and Kenneth William Taylor, Higham Ferrers, England, assignors to Lever Brothers Company, New York, N.Y.

Filed Mar. 13, 1969, Ser. No. 806,923. Claims priority, application Great Britain, Mar. 18, 1968, 12,937/68

Int. Cl. A22c 13/00; C08h 7/04; D01f 9/04
U.S. Cl. 264—40

5 Claims



In the preparation of collagen dough the extractability, which is a measure of acid solubility, is determined by extraction with an acid, centrifugation, and determination of acid-soluble matter in the liquid portion. Extractability within a range of 8% to 16%, dry weight basis, a solids content within the range of 4.5% to 6.5% dry weight basis, and an apparent viscosity between 45 and 80 poises are characteristics which minimize variations in quality and provide a greater proportion of satisfactory casings for sausages or the like.

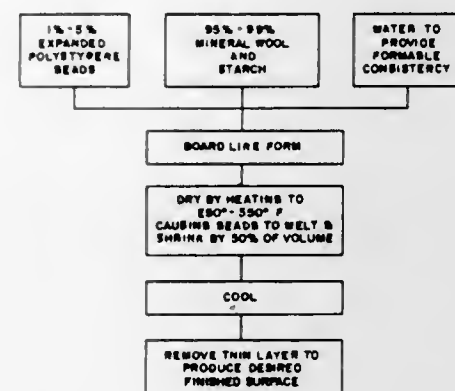
3,634,562

METHOD OF MAKING ACOUSTIC TILES HAVING VOIDS CONTAINING SHRUNKEN BEADS

Donald R. Kole, Cheektowaga, and Robert M. Johnson, Kenmore, N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

Filed Jan. 27, 1969, Ser. No. 794,401. Int. Cl. B29d 27/04; C04b 43/04; C08f 47/08
U.S. Cl. 264—41

3 Claims



In the production of acoustic tiles and grid panels from an aqueous slurry of board forming materials, the method of creating voids in the visible surfaces of and substantially throughout the said articles comprising the addition of preexpanded polystyrene beads to the said aqueous slurry of board forming materials, forming the said slurry of materials containing the expanded polystyrene beads

3,634,565

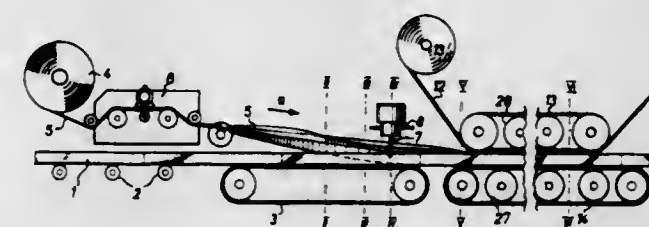
METHOD FOR CONTINUOUSLY MANUFACTURING FOAMED PLASTIC PROFILES

Andre Schaerer, 22 Sangglenstrasse, Pfaffhausen, Zurich, Switzerland

Filed Nov. 19, 1969, Ser. No. 878,011. Claims priority, application Switzerland, Nov. 20, 1968, 17,389/68. Int. Cl. B29d 27/04

U.S. Cl. 264—54

15 Claims



A method for the continuous manufacture of foamed profiles or sections of a thermoreactive resin, such as a urethane resin comprising the steps of continuously introducing a thermoplastic or metallic carrier web into an open top metallic carrier section having a cross-sectional shape corresponding to the cross-sectional shape of the foamed profile to be made. The thermoplastic carrier web is prefolded or precreased according to the cross-sectional shape of the plastic profile to be made, prior to the introduction of the web into the carrier section, to cause the web to snugly fit into the interior of the carrier section. The carrier section with the carrier web is then moved underneath and past a mixing head for the reactive resin mixture which flows out into the carrier web. Immediately thereafter a cover strip is moved over the open top carrier section to close the section while the resin mixture therein is foaming. The closed carrier section is then held under pressure until foaming is terminated and the foamed profile has hardened and can be removed from the carrier section. The carrier web can fully or partly surround the foamed profile. The carrier web can consist of different thermoplastic materials, or of metal such as aluminum foils or sheets.

3,634,563

METHOD FOR THE MANUFACTURE OF INORGANIC THERMAL INSULATION

Joseph J. Asbury, Knoxville, and John M. Googin, Oak Ridge, Tenn., assignors to the United States Atomic Energy Commission

No Drawing. Filed Mar. 13, 1970, Ser. No. 19,486. Int. Cl. B29d 27/08; C04b 21/06

U.S. Cl. 264—44

8 Claims

This invention relates to an inorganic thermal insulating product of a density less than 25 pounds per cubic foot and a thermal conductivity factor of less than 0.5 B.t.u.-in./ft.²-hr.-° F. at a temperature of 1500° C. The product is prepared by mixing minute silicon oxide particles with inorganic fibers, an organic liquid which wets the surface of the particles and inhibits crystallization and hydration of the particles, and a quantity of octanoic acid. The organic liquid and a portion of the octanoic acid are evaporated, with the remaining octanoic acid being retained. The mixture is ground and then pressed into a desired configuration of essentially final dimensions, with the octanoic acid flowing during the pressing step to act as a binder for the silicon oxide particles. After pressing the compact is lightly sintered in an inert atmosphere during which virtually all, if not all, of the remaining octanoic acid volatilizes.

3,634,564

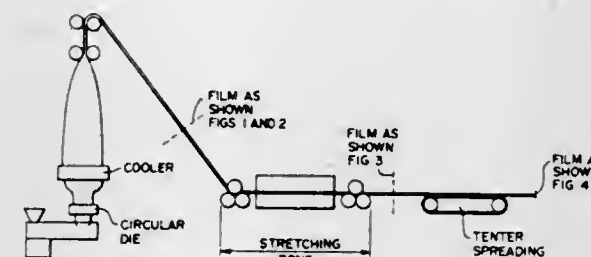
PROCESS FOR THE MANUFACTURE OF FIBRILLATED FOAMED FILMS

Katsumi Okamoto, Iwakuni-shi, Selya Iwama, Yokkaichi-shi, and Sanshiro Ozawa and Tutomu Moriwaki, Yamaguchi-ken, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Nov. 24, 1967, Ser. No. 685,693. Claims priority, application Japan, Dec. 1, 1966, 41/78,336; June 21, 1967, 42/32,280. Int. Cl. B29d 7/24, 27/00

U.S. Cl. 264—54

4 Claims



Process for the manufacture of fibrillated films from a thermoplastic resin, which comprises stretching a film of a film-forming synthetic thermoplastic resin having uniformly dispersed therein closed voids having an average diameter in a direction of thickness of $\frac{1}{40}$ to $\frac{3}{40}$ of the thickness of the film and having a void ratio of 0.1 to 0.6 at a stretch ratio of 2 to 12 in its longitudinal direction thereby to fibrillate the said film.

3,634,567

METHOD OF STEAM CURING HYDRAULIC SETTING CALCAREOUS CEMENT AND SILICA CONTAINING COMPOSITIONS

Julie Chin-Sun Yang, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

No Drawing. Filed Apr. 14, 1969, Ser. No. 816,115. Int. Cl. B28b 3/00; B29c 25/00; C04b 15/14

U.S. Cl. 264—82

14 Claims

Method of hydrothermally curing hydraulic cementitious compositions having a binder phase primarily composed of hydraulic setting calcareous cement and silica reactants, comprising a stepwise, two-stage steam curing procedure of subjecting a body of the composition essentially containing the hydraulic setting calcareous cement

and silica reactants as the primary source of the binder phase, to an atmosphere of steam applied thereto at two distinct and sequentially increased pressure levels.

3,634,568

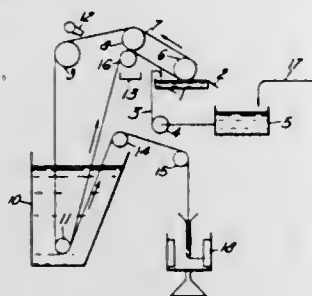
PRODUCTION OF COHERENT BODIES FROM ASBESTOS DISPERSIONS

William K. Donaldson, 23 Cringle Drive, Cheadle, Cheshire, England, and Werner Wilke, Schillerstrasse 34, and Hans Fetzner, Emil-Kost-Weg 5, both of Schwabisch Hall, Germany

Continuation-in-part of application Ser. No. 510,246, Nov. 29, 1965. This application Apr. 14, 1969, Ser. No. 839,748

Claims priority, application Great Britain, Dec. 4, 1964, 49,445/64

Int. Cl. B29d 7/02; D02g 3/02; D21h 5/18
U.S. Cl. 264-103 7 Claims



Continuous strand products of asbestos are produced by dispersing asbestos in water to provide a fibrous asbestos dispersion of film-forming constitution, then contacting the dispersion with an endless carrier while moving the carrier in a given direction and wetting the carrier with coagulating liquid ahead of the contacting locality. A film of asbestos dispersion is thus entrained by the carrier and coagulates at the face contacting the carrier. The other face of the film is supplied with further coagulating liquid. When the film is fully coagulated it is stripped from the carrier. Preferably the film is then twisted to yarn during its continuing travel. Several narrow strand components can thus be produced by contact entrainment in parallel relation to each other and are then twisted about each other to form the yarn.

3,634,569

METHOD OF MANUFACTURE OF DENSE GRAPHITE STRUCTURES

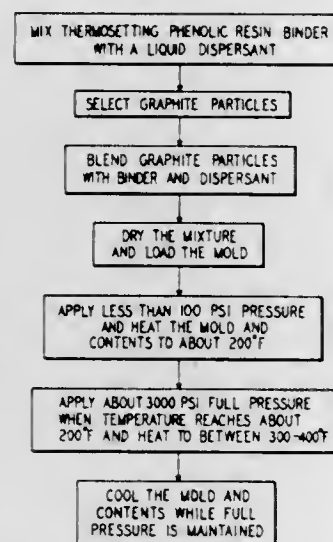
Roger C. Emanuelson, Glastonbury, and Warren L. Luoma, East Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 8, 1969, Ser. No. 789,780

Int. Cl. H01m 13/04

U.S. Cl. 264-105

9 Claims



This disclosure describes a graphite composition and a fabrication procedure for producing coolant and/or sup-

port plates for acid fuel cells. The composition consists of a graphite powder sized principally in the 50 to 150-micron range with about 7 percent of the graphite powder in the range below 50 microns. The process involves a controlled low-pressure heating step and an intermediate temperature full-pressure molding operation. Homogeneous graphite structures of high density with improved structural, thermal, and electrical properties can be provided in a variety of extremely intricate shapes by molding.

3,634,570

ELASTOMER GRANULATION PROCESS

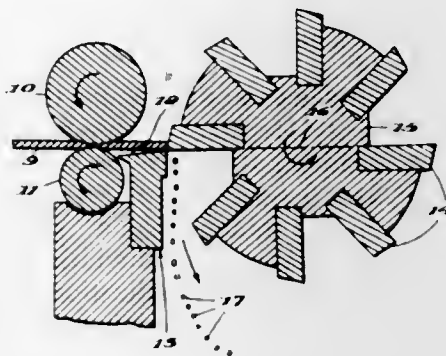
Louis Eugene Himelreich, Jr., and Nelson Arnold Thomas, Louisville, Ky., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 20, 1969, Ser. No. 867,810

Int. Cl. B02c 18/06

U.S. Cl. 264-130

6 Claims



An improved process for the manufacture of granular neoprene comprising the steps of simultaneously lubricating and slicing a unitary strand of neoprene longitudinally into a plurality of continuous filaments, maintaining the filaments in spaced relation to each other, continuously cross-cutting the filaments to form granular particles, dusting the granular particles with talc or a talc containing mixture, and collecting the granular particles.

3,634,571

LEAD WIRE LOCATING DEVICE

George Francis Klepp and Douglas Henry Rowlands, Paignton, England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Feb. 11, 1970, Ser. No. 10,540

Claims priority, application Great Britain, Feb. 14, 1969, 8,244/69

Int. Cl. B29d 3/00; B29c 24/00

U.S. Cl. 264-138

9 Claims



A method of and a device for locating in a given pattern a plurality of flexible wires projecting from a component, such as flying lead wires projecting from a numerical indicator tube. The device comprises a pair of plastic discs, each disc having a central aperture and a plurality of angular slots equally spaced from and communicating with the aperture and inclining opposite to those

of the other disc. The flexible wires are bunched and passed through the apertures of the two discs. The two discs are then slid down in sequence to the base of the component so that the leads fit into corresponding slots of the two discs. The two discs are then rotated in opposite directions to enclose the leads within the holes made by the oppositely inclined overlapping portions of the slots from the two discs. The two discs may be then withdrawn together to adjacent the ends of the wires, which ends are then correctly located.

3,634,572

TRANSMISSION BELT AND APPARATUS FOR AND METHOD OF MAKING SAME

Kenneth D. Richmond, Nixa, and Howard J. Jensen, Springfield, Mo., assignors to Dayco Corporation, Dayton, Ohio

Filed Dec. 23, 1968, Ser. No. 786,229

Int. Cl. B29d 29/02; B29h 7/22

U.S. Cl. 264-159

4 Claims



A method of making an endless power transmission belt having an accurately controlled length and having integral injection molded compression section means is disclosed wherein such belt is made in an inverted position and is ready for use upon being turned inside out.

3,634,573

METHOD FOR PRODUCING FIBROUS STRUCTURES

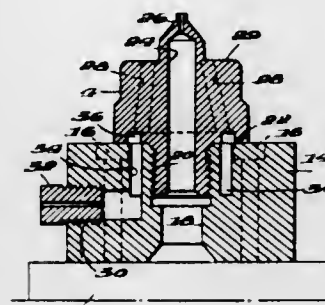
William Sherwood Wagner, Berkeley Heights, N.J., and John Drew Roberts, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Application June 28, 1968, Ser. No. 740,913, now Patent No. 3,543,332, dated Dec. 1, 1970, which is a continuation-in-part of application Ser. No. 581,075, Sept. 21, 1966. Divided and this application Apr. 13, 1970, Ser. No. 32,475

Int. Cl. B28b 3/20

U.S. Cl. 264-176

6 Claims



Method for producing filamentary material by extruding substantially axially through an orifice comprising contacting the extruded filament stream downstream of the orifice and prior to hardening with a plurality of high velocity gas streams, each moving in a direction having a major component in the direction of extrusion of the filament stream in a shallow angle of tangential convergence therewith to attenuate the filament stream.

3,634,574

PROCESS FOR THE CONTINUOUS PRODUCTION OF POLYAMIDE SECTIONS OR PROFILES

Klaus Reinking, Krefeld, Helmut Vogel, Krefeld-Gartenstadt, and Wilhelm Hechelhammer and Kurt Schneider, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

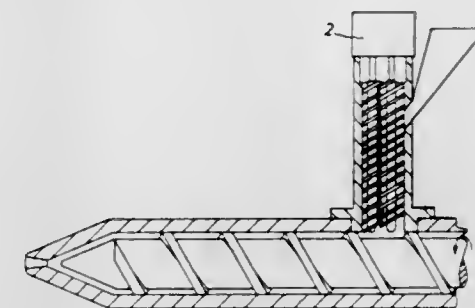
Filed May 21, 1970, Ser. No. 39,222

Claims priority, application Germany, May 31, 1969, P 19 27 923.3

Int. Cl. B28b 3/22

U.S. Cl. 264-176 R

9 Claims



The invention relates to a process for the continuous production of polyamide sections which comprises feeding a solid polymerisable mixture consisting of a lactam or a mixture of lactams, a basic catalyst and an activator to a pressure generator, delivering said mixture through the feed opening of a single-screw extruder, said delivering being effected under a pressure at least equivalent to the dynamic pressure generated by the single-screw extruder, melting said polymerisable mixture and polymersing it in the barrel of the single-screw extruder, said polymerising being effected at a temperature above the melting temperature of the polyamide to be formed and extruding the resulting polyamide melt.

3,634,575

MELT EXTRUSION OF ACRYLONITRILE POLYMERS

George Allibone Serad, Edison, N.J., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed Oct. 2, 1968, Ser. No. 764,615

Int. Cl. B28b 3/20

U.S. Cl. 264-176 F

3 Claims

High polyacrylonitrile polymers containing at least 85 percent acrylonitrile can be melt extruded into useful shaped articles when plasticized with a plasticizing system comprising a low boiling acetonitrile fraction and a high boiling fraction capable of plasticizing the polyacrylonitrile at extrusion temperatures.

3,634,576

SPINNERET UNIT AND METHOD FOR THE SPINNING OF CHEMICAL FILAMENTS

Rene Stuchlik, Villeurbanne, Rhone, France, assignor to Societe Rhodiaca, Paris, France

Filed Mar. 25, 1969, Ser. No. 810,193

Claims priority, application France, Mar. 25, 1968, 145,282

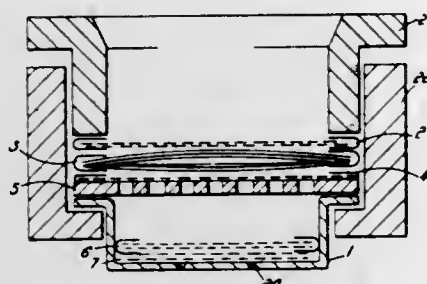
Int. Cl. B28b 3/20; D01d 1/10

U.S. Cl. 264-176 F

9 Claims

The specification describes a spinneret unit for spinning textile filaments, in which the spinneret is mounted at the downstream end of the housing. Within the housing is mounted a first filter, having filter elements having

a check threshold which decreases in the downstream direction. The flow rate is increased in a conduit of decreasing cross-section and the material then passes through a



second filter located immediately upstream of the spinneret, the second filter having a check threshold no greater than any of the first filter elements.

3,634,577

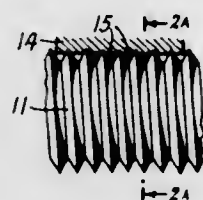
METHOD OF MAKING SELF-LOCKING FASTENERS

Francis R. Kull, Warminster, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa.
Continuation of application Ser. No. 700,134, Jan. 24, 1968. This application Apr. 15, 1970, Ser. No. 28,205

Int. Cl. B29d 3/00

U.S. Cl. 264-267

6 Claims



Method of making a plastic patch locking element on a metal fastener by fusing powdered plastic on a surface of the fastener while constraining free flow of the fused plastic to an area within which said locking element is to be formed.

3,634,578

METHOD FOR MOLDING A HOLLOW ARTICLE

Tadao Suzuki, 266 Maedaminami-cho, Toyohashi-shi, Aichi-ken, Japan

Filed Sept. 30, 1969, Ser. No. 862,326

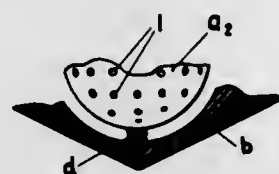
Claims priority, application Japan, Oct. 19, 1968,

43/76,231

Int. Cl. B29c 5/04, 6/00

U.S. Cl. 264-275

5 Claims



Method of forming a hollow article wherein a perforated core containing thermoplastic resin powder is placed within a mold cavity which is heated to effect melting of the resin which flows into the clearance between the core and cavity.

METHOD OF MANUFACTURE OF CONTAINER AND CLOSURE

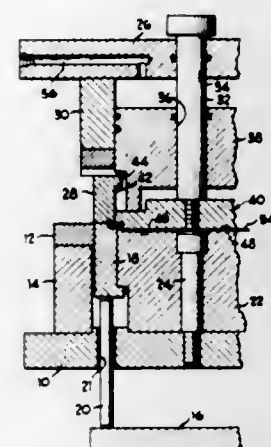
Walter F. Matras, Port Clinton, and William R. Meadors, Fremont, Ohio, assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Aug. 25, 1969, Ser. No. 852,655

Int. Cl. B29c 24/00

U.S. Cl. 264-296

1 Claim



A container and closure, or similar articles, are cold-formed from thermoplastic sheet material using a combination forming and edge curling die. A convoluted curl, i.e. one in which the edge is completely rolled under the primary curl, is produced in a die set having curling grooves in both the upper and lower draw rings. During the return stroke of the forming operation, a primary curl is formed and, as the lower and upper draw rings travel relative to the punch, a secondary curl is formed to provide a convoluted edge.

3,634,580

PROCESS FOR PREPARING FIBERS OF THE POLYESTER SERIES HAVING DIFFERENT DYEABILITY

Hideo Watase, Akira Kobayashi, Tadashi Hirakawa, and Atsushi Sugiyama, Tokyo, Japan, assignors to Telfin Limited, Osaka, Japan

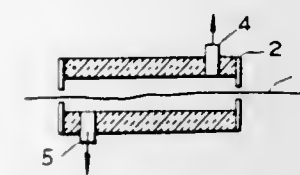
Filed Feb. 4, 1969, Ser. No. 796,469

Claims priority, application Japan, Feb. 7, 1968, 43/7,542

Int. Cl. B29c 25/00

U.S. Cl. 264-342

1 Claim



Process for preparing fibers of the polyester series having different dyeability, characterized by subjecting fibers of the polyester series to a non-contact heat treatment momentarily under very low tension in the atmosphere kept at a temperature above the melting point of said fibers, whereby remarkable different dyeability is imparted to the fibers along the fiber length direction.

3,634,581

PYRIDAZINE REAGENTS AND MEANS FOR STABILIZING BLOOD PLATELETS THEREWITH

William Raymond Thomas, Chicago, Ill., assignor to Armour Pharmaceutical Company, Chicago, Ill.

No Drawing. Filed Dec. 23, 1968, Ser. No. 786,423

Int. Cl. G01n 1/00, 33/16

U.S. Cl. 424-3

11 Claims

A way to stabilize blood platelets and thereby facilitate their counting for blood diagnosis is achieved by the addi-

tion of a measured amount of pyridazine to a sample of whole blood or platelet rich plasma prior to counting and while the sample is fresh.

3,634,582

PHARMACEUTICAL COMPOSITIONS

Phillip Saxton Hartley, Kegworth, and Stephen Raymond Gunning, East Leake, near Loughborough, England, assignors to Fisons Pharmaceuticals Limited, Loughborough, England

No Drawing. Filed July 31, 1968, Ser. No. 748,937

Claims priority, application Great Britain, Aug. 8, 1967, 36,270/67

Int. Cl. A61k 13/00; A61j 3/02

U.S. Cl. 424-14

14 Claims

Pharmaceutical compositions, useful for medication by oral inhalation, as for example as anaphylactic agents in the treatment of disorders of the bronchial tract, e.g. asthma such as specific allergic asthma, as mucolytics in the treatment of colds and the like which engender mucus in the respiratory tract, etc., are effective if of controlled particle size favoring maximum penetration into the lungs. The new compositions comprise a powdered medicament of a particle size in the range of 0.01 to 10 microns and a solid pharmaceutically acceptable water soluble carrier of a particle size of 30 to 80 microns.

3,634,583

PHARMACEUTICAL COMPOSITION FOR THE TREATMENT OF OEDEMATOUS CONDITIONS AND HYPERTENSION

Peter Werner Felt, Gentofte, Denmark, assignor to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

No Drawing. Filed July 24, 1969, Ser. No. 845,939

Int. Cl. A61k 27/00; A61j 3/10

U.S. Cl. 424-22

18 Claims

The invention relates to diuretic and saluretic preparations in dosage unit form, containing the hitherto unknown 3 - butylamino - 4 - phenoxy - 5 - sulfamyl-benzoic acid or a salt thereof with a pharmaceutically acceptable base as the active component, if desired together with a hypotensor, the dose of the diuretic being between 0.1 and 10 mg. calculated as the free acid.

3,634,584

SUSTAINED ACTION DOSAGE FORM

John W. Poole, Norristown, Pa., assignor to American Home Products Corporation, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 730,742, May 21, 1968. This application Feb. 13, 1969, Ser. No. 800,827

Int. Cl. A61j 3/10; A61k 27/12

U.S. Cl. 424-21

8 Claims

The invention is directed to a sustained-release dosage form utilizing a carboxy vinyl polymer and polyethylene glycol complex as a means of controlling the rate of release of a drug, substantially independent of pH.

3,634,585

DENTIFRICE PREPARATION

Roderick David Manahan, Dunellen, and Virgil John Richter, West Orange, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation of application Ser. No.

377,519, June 24, 1964, which is a continuation-in-

part of application Ser. No. 238,017, Nov. 15,

1962. This application Aug. 11, 1966, Ser. No.

571,693

Int. Cl. A61k 7/16

U.S. Cl. 424-52

4 Claims

A dentifrice preparation containing sodium monofluorophosphate and a compatible polishing agent at least a major part by weight of which is dicalcium phosphate. A minor part by weight of the polishing agent may be calcium carbonate.

3,634,586

STABLE AQUEOUS SUSPENSIONS OF AMPICILLIN

Walter Edwin Kaser and Murray Arthur Kaplan, Syracuse, and Alphonse Peter Granatek, Baldwinsville, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Dec. 4, 1968, Ser. No. 781,270

Int. Cl. A61k 21/00

U.S. Cl. 424-80

7 Claims

An antibacterial composition for intramuscular administration after reconstitution with water which comprises a mixture of a source of sodium ions and finely-divided amphoteric ampicillin coated with both a surfactant and a viscosity regulator. In a preferred embodiment for a single dose the mixture comprises sodium chloride, trisodium citrate and 200 mesh amphoteric ampicillin coated with small amounts of lecithin and polyvinylpyrrolidone; the addition of sterile water q.s. 1 ml. provides a suspension which is stable at room temperature for at least three months and is highly suited for intramuscular injection.

3,634,587

METHOD OF IMMUNIZING CATTLE AGAINST BOVINE RESPIRATORY DISEASE SYNDROME

Roland W. Ament and Joseph F. England, Overland Park, Kans., assignors to Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed Nov. 6, 1969, Ser. No. 874,701

Int. Cl. C12k 5/00

U.S. Cl. 424-89

11 Claims

A method of enhancing the immunity of cattle to Respiratory Disease Syndrome has been developed which employs an intramuscularly administered quadrivalent vaccine containing three modified live viral components: Infectious Bovine Rhinotracheitis (IBR), Bovine Viral Diarrhea Mucosal Disease (BVD-MD), and Parainfluenza-3 (PI-3) which is reconstituted with a diluent containing a Pasteurella bacterin and simultaneously administered with an intranasal bivalent vaccine containing Parainfluenza-3 (PI-3) virus and a Pasteurella bacterin.

3,634,588

ELECTRIC GLASS FURNACE

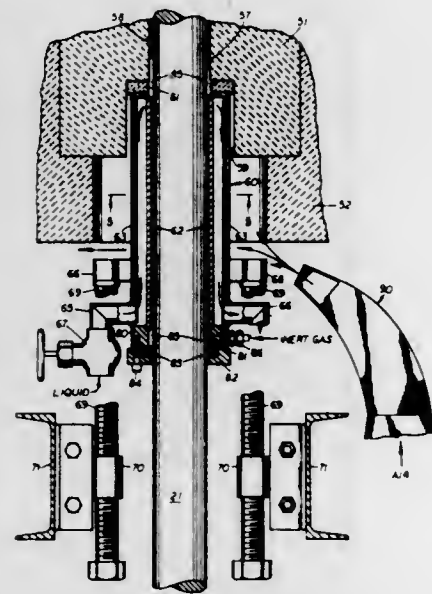
William R. Steltz, Toledo; Robert O. Bradley, Ottawa Hills, both of Ohio, and Thomas H. Waterworth, Bridgnorth, Salop, England, assignors to Toledo Engineering Co., Inc., Toledo, Ohio and Elemelt, Ltd., Kingswinford, Brierley, Staffordshire, England, part interest to each

Filed May 28, 1970, Ser. No. 41,385

Int. Cl. C03b 5/02; H05b 3/60

U.S. Cl. 13-6

12 Claims



An electric glass furnace in which one or more axially movable electrodes connected to the same terminal project up through the bottom of the furnace and are mounted in special refractory blocks which form platforms above the bottom of the furnace so that electrodes for each terminal are separated by troughs. Also a separate electrode can be provided in the molten glass drawoff riser, which separate electrode may be selectively connected to an opposite terminal of an electrode adjacent the riser in the furnace, grounded, or disconnected. Furthermore, each electrode is sealed in its refractory block by an inert gas, and it and its block are cooled both by a jacket for coolant liquid around the electrode at least partly recessed in the block, and by a blast of cool air from below and against said jacket, the electrode, and the bottom of the block.

3,634,589

CONTROL MECHANISM FOR AN ELECTRODE-CLAMPING ASSEMBLY IN AN ELECTRIC FURNACE

Harald Krogsrud, Gjettem, Norway, assignor to Elkem A. S., Elkmuset, Majorstua, Norway

Filed Oct. 30, 1970, Ser. No. 85,392

Claims priority, application Norway, Nov. 13, 1969, 4498/69

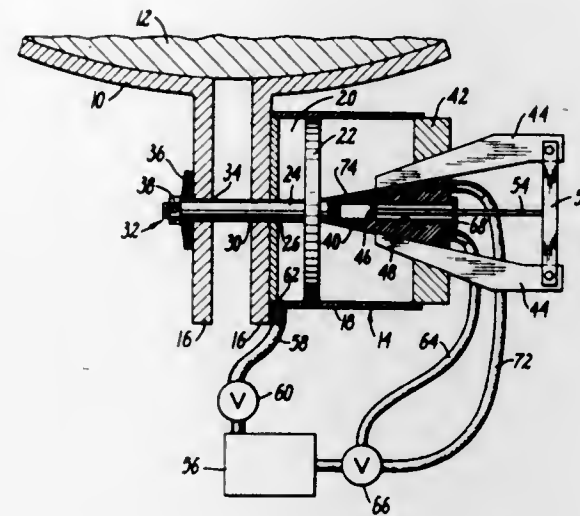
Int. Cl. H05b 7/12

U.S. Cl. 13-16

15 Claims

The grip of the holder on an electrode in an electric smelting furnace is controlled by a mechanism which transmits the

force generated by a pressure medium to the holder. Mechanical locking means are provided for maintaining the



grip of the holder upon relaxation or failure of the pressure medium.

3,634,590

STABILIZED COPPER ELECTRODE FOR VACUUM ARC FURNACE

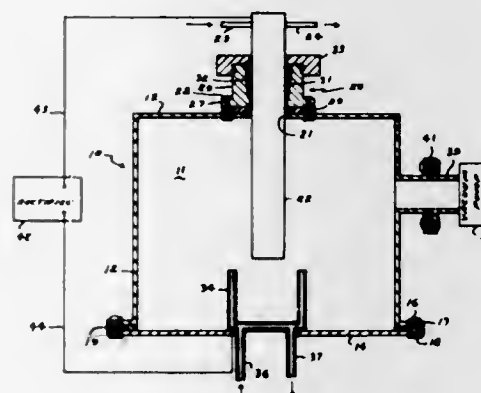
Shingo Inouye, and George Saul, both of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force

Filed July 2, 1970, Ser. No. 51,788

Int. Cl. H05b 7/08

U.S. Cl. 13-31

4 Claims



In a vacuum chamber there is positioned above an open receptacle or mold an electrode comprising three concentric copper tubes and a permanent magnet disposed in the lower end of the inner tube. A heat exchange medium is circulated between the walls of the tubes to provide for cooling of the electrode. A source of direct current is connected to the electrode which directs and conducts an arc onto a metal or alloy to be fused or melted in the mold.

3,634,591

FURNACE ASSEMBLY FOR THERMAL ANALYSIS USE

Horst G. Langer, Wayland, Mass., assignor to The Dow Chemical Company, Midland, Mich.

Filed July 9, 1969, Ser. No. 840,363

Int. Cl. H05b 3/00

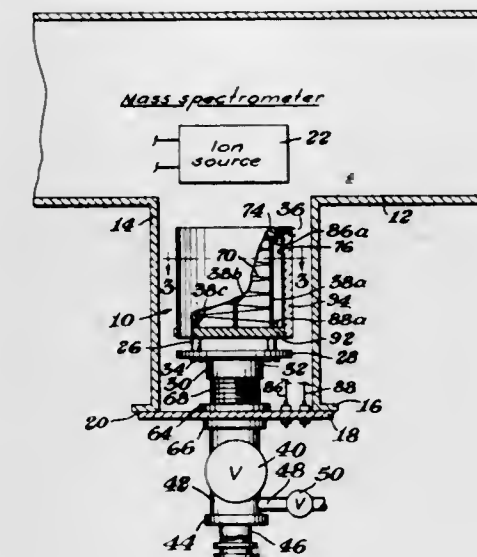
U.S. Cl. 13-31

5 Claims

This invention relates to a heating furnace assembly which is adapted to be coupled to and become a part of a mass

spectrometer adjacent to the ion source (usually) within the instrument. The furnace is a radiant heating device utilizing a helical coil and reflective surface and is adapted to be con-

nect to distribute the sponge iron between the openings in a proportion determined by the angular positions of the vanes. The vanes are adjustable within limits in accordance with the consumption of electrical energy of each electrode.



trolled by means of temperature sensing means disposed within a separate thermal analysis cell which is adapted to be disposed within the furnace.

3,634,592

SYSTEM FOR CHARGING ELECTRIC-ARC FURNACES

Heinz-Dieter Pantke, Essen-Frintrop, and Ulrich Pohl, Oberhausen-Osterfeld, both of Germany, assignors to Huttenwerk Oberhausen Aktiengesellschaft, Oberhausen, Germany

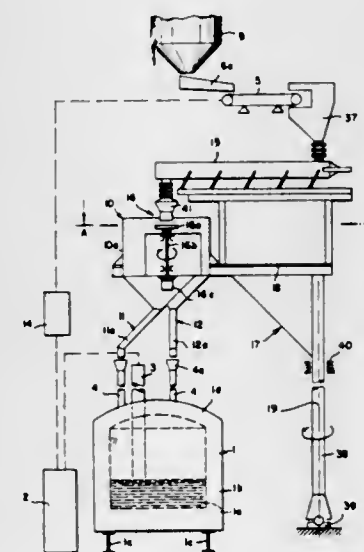
Filed Oct. 16, 1970, Ser. No. 81,286

Claims priority, application Germany, Oct. 23, 1969, P 19 53 378.9

Int. Cl. F27d 3/10

U.S. Cl. 13-33

10 Claims



An electric-arc furnace for the smelting and refining of sponge iron has respective electrodes each connected to one phase of the polyphase output of a transformer. The sponge iron is fed to a distributor at a rate determined by the total electrical power consumption of all of the electrodes and is distributed into the furnace through charging doors adjacent each electrode by a compartmented distributor, the capacity of the compartments of which is adjustable in accordance with the electrical consumption of the respective electrical phase. The distributor is a circular receptacle having angularly equispaced openings, each connected via a duct with a charging door, and vanes internally subdividing the recepta-

3,634,593

KEY-OPERATING MECHANISMS FOR ELECTRONIC MUSICAL INSTRUMENTS

Takehiko Nagano, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Oct. 29, 1970, Ser. No. 84,955

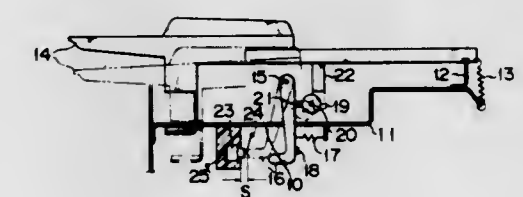
Claims priority, application Japan, Oct. 31, 1969, 44/193324;

44/103325; 44/103326; 44/103327; 44/103328

Int. Cl. G10c 3/12; G10h 1/00

U.S. Cl. 84-1.01

13 Claims



In an electronic musical instrument having a plurality of keys which are selectively depressed to generate tone signals of predetermined pitches, each key is provided with a piezoelectric element for producing a pulsating signal having a voltage level varied directly with the depressive force applied upon the key and an electrical circuitry for controlling the volume and/or tone color of the reproduced musical sound in response to the voltage level of the pulsating signal.

3,634,594

TOUCH-RESPONSIVE TONE ENVELOPE CONTROL CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENTS

Ryu Hiyama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

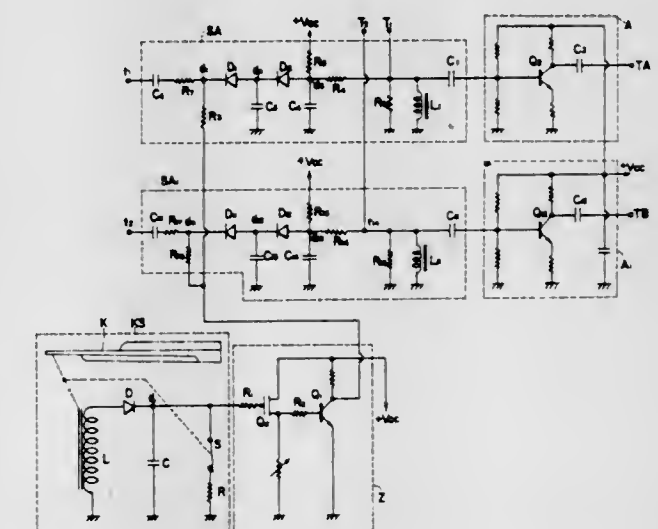
Filed Aug. 3, 1970, Ser. No. 60,280

Claims priority, application Japan, Aug. 5, 1969, 44/74358

Int. Cl. G10h 1/02

U.S. Cl. 84-1.1

5 Claims



In a keying system for an electronic musical instrument in which an individual keyer is controlled in response to the intensity of depression of a corresponding playing key so that a keyed tone signal has an amplitude in accordance with the key depression intensity, there are further provided impedance converter circuits for providing keying signals of low output impedance and waveform-shaping circuits for converting the keyed tone signal into a required waveform each corresponding in number to the number of the keyers. The

arrangement enables each of the tone keyers to be of a low impedance so that the individual keyer is easily connected with the corresponding waveform-shaping circuit resulting in prevention of unwanted inductive interferences.

3,634,595

A GENERATOR OF HARMONIC SIGNALS WITH A HELICAL SPRING

Giorgio Pasquall, 59 Via Zuretti, Milan, Italy

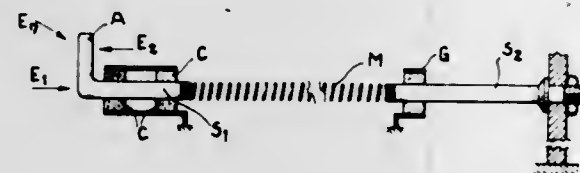
Filed Mar. 23, 1970, Ser. No. 21,822

Claims priority, application Italy, Mar. 31, 1969, 14 170 A/69

Int. Cl. G10h 3/00

U.S. Cl. 84-1.04

6 Claims



A generator of harmonic signals consisting of a spiral spring that is caused to vibrate in a longitudinal direction and means to cause said longitudinally directed vibrations thereof. Means to detect said vibrations are provided, in the form of a coil-shaped pickup which operates on the basis of magnetic changes, as provided therein by a magnetic field permanently associated with said spring.

3,634,596

SYSTEM FOR PRODUCING MUSICAL TONES

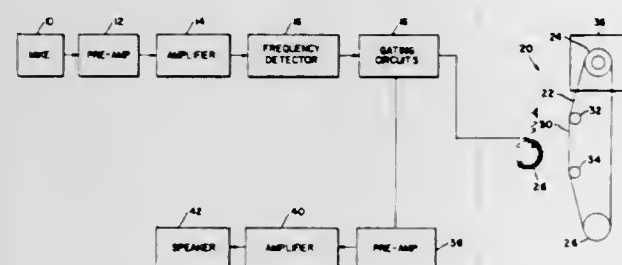
Robert E. Rupert, 288 7th Street, San Francisco, Calif.

Filed Aug. 27, 1969, Ser. No. 853,255

Int. Cl. G10h 3/04

U.S. Cl. 84-1.28

6 Claims



Prerecorded notes of a musical instrument are stimulated to play by means of a voice-responsive system or instrumental equipment. Magnetic as well as electro-optical storage and retrieval systems are provided in conjunction with control circuit operated by a microphone or other input to convert a voice or keyboard signal, for example, into an output, as from a speaker, wherein the output is in the form of instrumental music.

3,634,597

CONDUCTOR SYSTEM FOR SUPERCONDUCTING CABLES

Gerhard Ziemek, Hanover, and Bernd Ellhardt, Vinnhorst, both of Germany, assignors to Kabel-und Metallwerke Gutehoffnung-shutte Aktiengesellschaft, Hanover, Germany

Filed July 8, 1970, Ser. No. 53,185

Claims priority, application Germany, July 10, 1969, P 19 40 147.9

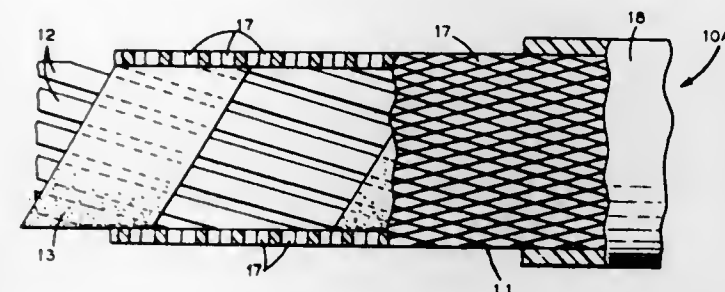
Int. Cl. H01b 7/02, 7/34

U.S. Cl. 174-15

9 Claims

A conductor system for superconducting electrical cables, wherein a tubular member supports on its inner surface su-

perconducting conductor strands disposed at an angle to the axis of the support member; the strands being adherent to the



support member at spaced points along the length of the strand and the strand portions between said points being nonadherent to the support member.

3,634,598

MOLDED PLASTIC ELECTRICAL ENCLOSURE WITH A GROUND STRAP

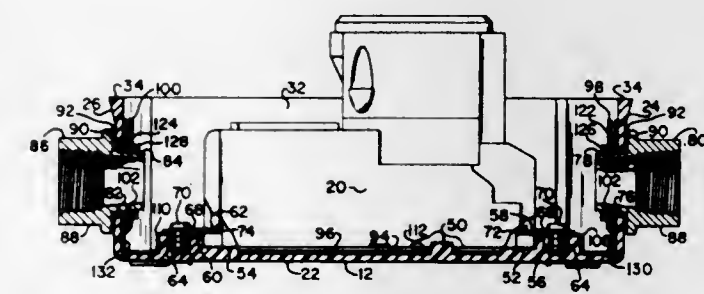
Harold W. Stanfield, Mequon, Wis., assignor to Square D Company, Park Ridge, Ill.

Filed Aug. 20, 1970, Ser. No. 65,384

Int. Cl. H05k 5/02

U.S. Cl. 174-51

10 Claims



A weatherproof electrical enclosure which is formed of a molded electrically insulating plastic material. The enclosure includes a grounding strap which is maintained in position in a box portion of the enclosure when electric conduit connections through a pair of conduits are made to the box and maintains the integrity of a ground circuit through the conduit connections after the enclosure is installed in an electrical installation.

3,634,599

ELECTRICAL JUNCTION BOX

Donald L. Kilewer, Minneapolis, Minn., assignor to The Telex Corporation, Tulsa, Okla.

Filed Oct. 1, 1970, Ser. No. 77,110

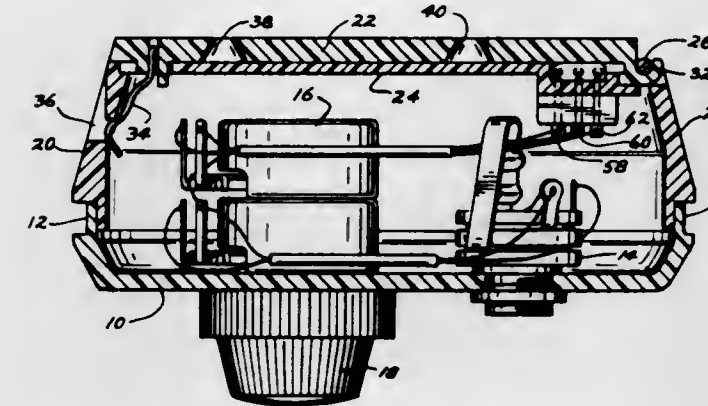
Int. Cl. H05k 5/00

U.S. Cl. 174-52 R

10 Claims

A molded plastic junction box having a hinged outer panel covering one end of the box with a removable inner panel that rests upon a peripheral ledge around the open end of the box underneath the hinged outer panel. A slot is formed in the inner panel near the hinged end of the outer panel for receiving three insulated conductors in side-by-side relation. Three sharp prongs are positioned within the slot in alignment with a corresponding one of the insulated conductors. When the hinged outer panel is closed, it presses the insulated conductors against the prongs and causes the prongs to pierce the insulation and make contact with the electrically conducting wires therewithin. Electrical connectors are attached to the prongs to receive conductors for coupling the

prongs to electrical components within the box. The outer panel is secured to the box in its closed position by means of a nonlocking latch which can be easily opened for inspection or repair purposes.



a nonlocking latch which can be easily opened for inspection or repair purposes.

3,634,600

CERAMIC PACKAGE

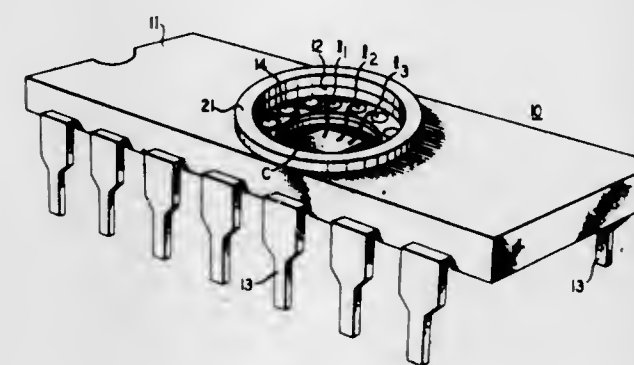
William F. Griffin, Summit, and Alfred Morena, Jr., North Plainfield, both of N.J., assignors to Ceramic Metal Systems, Incorporated, South Somerville, N.J.

Filed July 22, 1969, Ser. No. 843,382

Int. Cl. H05k 5/00

U.S. Cl. 174-52 S

12 Claims



A ceramic package bearing an electrically conducting pattern and adapted to receive diminutive electronic components such as semiconductor elements includes metallic plugs in the conducting pattern to serve as islands to which internal lead connections to the semiconductor element are made. The plugs permit a high degree of flexibility in material selection for contact areas providing different metals without costly selective plating techniques. The resulting structure can be fabricated without any gold plating steps. Similar plugs may be used as islands to which external leads are connected.

3,634,601

STAKING ELECTRICAL CONTACT AND METHOD OF MAKING AN ELECTRICAL CONNECTOR

William Vito Pauza, Palmyra, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

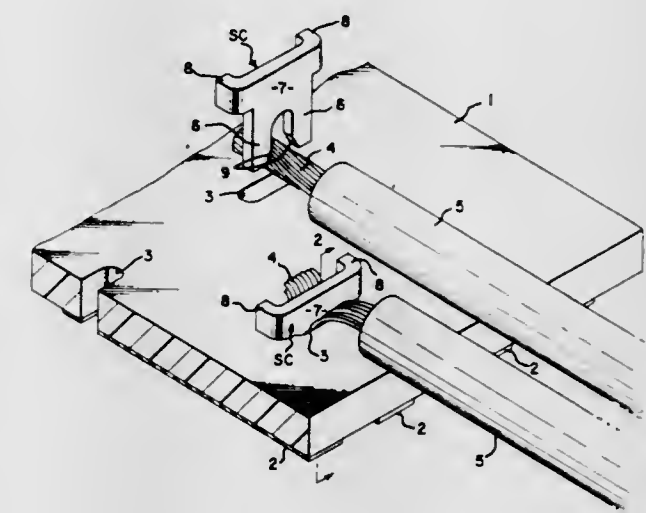
Filed Mar. 20, 1970, Ser. No. 21,327

Int. Cl. H05k 1/04

U.S. Cl. 174-68.5

6 Claims

A staking electrical contact for staking an electrical conductor onto a printed circuit board and in electrical engagement with a printed circuit path on the printed circuit board which comprises a body portion having spaced legs between which the electrical conductor is disposed and the legs are



bent into engagement with the printed circuit path and soldered thereto.

3,634,602

MULTILAYER CONDUCTOR SHEET

Karl vom Bruck, Kassel, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

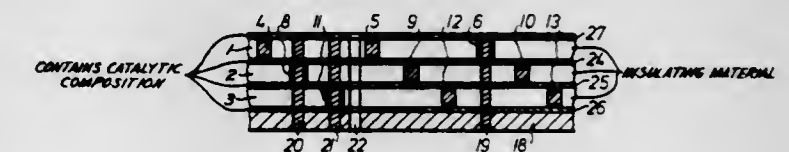
Filed Apr. 14, 1970, Ser. No. 28,413

Claims priority, application Germany, Apr. 17, 1969, P 19 19 421.9

Int. Cl. H05k 1/04

U.S. Cl. 174-68.5

11 Claims



A flat, multilayer conductor sheet having a plurality of bonded or laminated layers of resin impregnated layers of material. At least one of the layers of material is provided with a plurality of parallel conductors extending in a first direction and at least another of the layers of material is provided with a plurality of parallel conductors extending in a direction transverse to the first direction so that a grid pattern of conductors is formed. Preferably a plurality of layers of material having conductors extending in a direction transverse to the first direction are provided with the conductors in the plurality of layers of material being all parallel to one another and arranged such that they do not overlie one another. Connections between the conductors extending transverse to one another are provided by forming vertical bores through the sheet which intersect the two conductors after which the bore is metallized so that a multiplanar conductor pattern may be formed. Vertical bores through the multilayer sheet may also be provided to interrupt or divide one of the conductors.

3,634,603

ELECTRIC CABLE INSULATING HOUSING FILLED WITH HIGH-RESISTANCE MATERIAL

Petrus A. C. Bentvelsen, Den Hoorn, Netherlands, assignor to NKF Kabel N.V., Den Hoorn, Netherlands

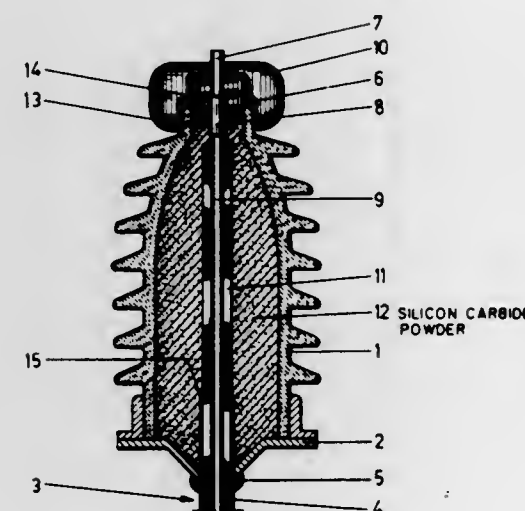
Filed June 3, 1970, Ser. No. 43,000

Claims priority, application Netherlands, June 17, 1969, 69.09217

Int. Cl. H02g 15/02

U.S. Cl. 174-73 R

4 Claims



An electric cable accessory having a housing filled with an insulating medium of a powdered material having a voltage-dependent resistance characteristic such that its specific resistance decreases with increasing voltage and wherein the insulating medium also has a field-controlling effect.

3,634,604

CLOSED CELL ELASTOMERIC SPONGE POWER CABLE TERMINATOR

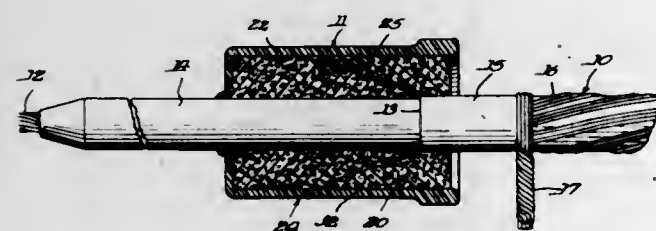
George E. Lusk, Downers Grove, Ill., assignor to G & W Electric Specialty Company, Blue Island, Ill.

Continuation-in-part of application Ser. No. 836,431, June 25, 1969, now abandoned. This application Nov. 9, 1970, Ser. No. 88,152

Int. Cl. H02g 15/02

U.S. Cl. 174-73 R

8 Claims



The closed cell elastomeric molded cone system of the invention essentially consists of a compressible dielectric material and thus, has the capability of accommodating a large range of cable diameters for a given cone size. Two sections of compressible elastomeric material, each having special properties, are bonded together to form the complete molded cone. The bonded cone assembly has the shape of a cylinder which matches the interior contour of its rigid insulator containment cup.

3,634,605

CONNECTING DEVICE

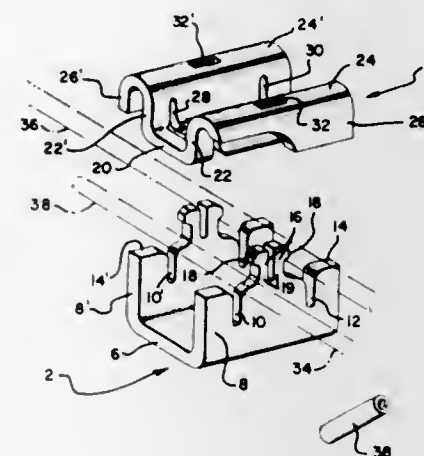
Frank Peter Dola, Port Richey, Fla., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 9, 1970, Ser. No. 79,458

Int. Cl. H02g 15/08

U.S. Cl. 174-88 R

9 Claims



Connecting device for connecting insulated wires to each other comprises U-shaped base section and U-shaped cap section which nests within the base section. Electrical contact to wires is established by aligned slots in base and cap sections into which the wires are moved when parts are assembled. Cap section has severing means which trims projecting ends of wires at time of assembly.

3,634,606

OUTER CONDUCTOR FOR COAXIAL CABLE

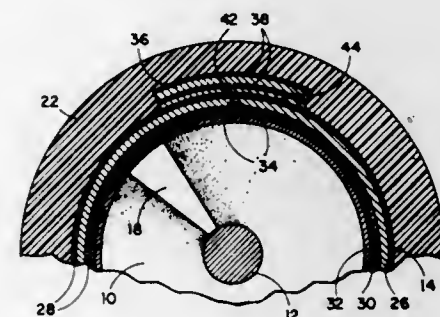
Rama Iyengar, Dorval, Quebec, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed June 15, 1970, Ser. No. 45,980

Int. Cl. H01b 7/18

U.S. Cl. 174-106 D

7 Claims



The outer conductor of a coaxial cable is formed from a transversely corrugated metal strip comprising a laminate of steel and copper. The strip is applied longitudinally and folded about the cable with its edges in butting relation. A narrow transversely corrugated steel tape is placed over the abutting edges of the laminated strip and soldered thereto throughout the length of the cable.

3,634,607

ARMORED CABLE

Neil Coleman, Highland Park, Ill., assignor to Coleman Cable & Wire Company, River Grove, Ill.

Filed June 18, 1970, Ser. No. 47,240

Int. Cl. H01b 7/18

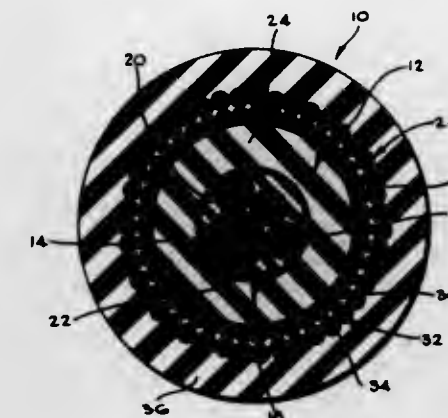
U.S. Cl. 174-120

7 Claims

An armored cable for use primarily in underwater geophysical exploration and in offshore oil-drilling operations includes helically wrapped layers of oriented thermoplastic

strands surrounding a jacketed core of one or more insulated conductors for providing high-strength armored protection

fixed to an insulator-holding structure either directly or indirectly through a support insulator, which bolt allows the insulating body to swing along the longitudinal direction of the line conductor, and at least one locking pin disposed in the



for the core while being resistant to the underwater environment.

3,634,608

STRAIN RELIEF BUSHING

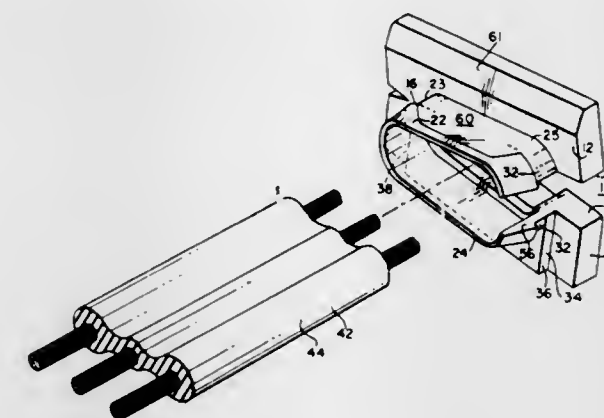
Donald E. Buhl, and Donald R. Schuster, both of Columbus, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 31, 1970, Ser. No. 59,880

Int. Cl. F16l 5/00

U.S. Cl. 174-153 G

11 Claims



The invention provides a strain relief bushing which is utilized to grip a wire conductor passing through a panel member or the like, with the bushing inserted in an aperture in the panel or in a slot contained therein and firmly gripped by its edges to compress the wire conductor so that the bushing resists any tensile pull placed on the conductor. The bushing includes further provision for means for receiving an additional overlapping panel member.

3,634,609

OVERLOAD-RELEASE-TYPE LINE POST INSULATOR

Tsuneaki Shimizu, Chita-gun, and Kazunao Ueno, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Filed Oct. 30, 1970, Ser. No. 85,531

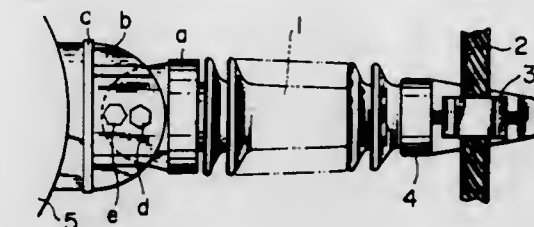
Claims priority, application Japan, Feb. 25, 1970, 45/17891

Int. Cl. H01b 17/16

U.S. Cl. 174-158 R

12 Claims

An overload-release-type line post insulator comprises an insulating body, a metallic cap secured to the insulating body and having a clamp for holding a line conductor, a metallic base secured to the insulating body, a hinge bolt for swingably connecting said metallic base to a mounting base



proximity of the hinge bolt for normally preventing the insulating body from swinging, whereby an overload from the line conductor to the insulating body is absorbed by the breakage of the locking pin and the swinging of the insulating body about the hinge bolt.

3,634,610

QUADRAPOST FAIL-SAFE INSULATOR

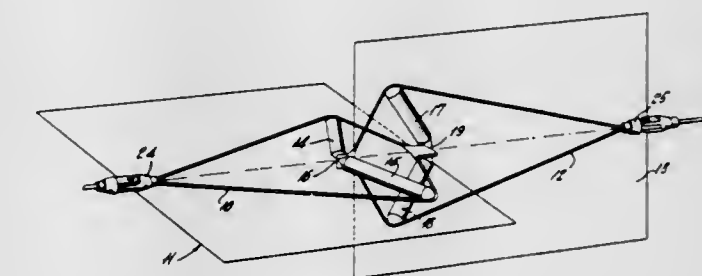
James F. Shafer, Dallas, Tex., assignor to Continental Electronics Manufacturing Co., Dallas, Tex.

Filed Aug. 14, 1970, Ser. No. 63,789

Int. Cl. H01b 17/02

U.S. Cl. 174-184

14 Claims



A fail-safe insulator includes a pair of interlocked cable loops in mutually normal planes and separated by four cylindrical insulators. Each pair of insulators has a common hinge joint, and lies in the plane of a different one of the cable loops. The cable loops extend from a primary tension line, around the unhinged ends of the pair of insulators in the respective plane, and around the junction of the other pair of insulators, so that each cable loop is supported in three places as it passes through the group of four insulators.

3,634,611

CATCHLIGHT CONTROL IN IMAGE REPRODUCTION SYSTEMS

Peter C. Pugsley, Pinner, and Mouayed Edouard Dobouney, Dartford, both of England, assignors to Crosfield Electronics Limited, London, England

Filed Nov. 12, 1969, Ser. No. 875,664

Claims priority, application Great Britain, Nov. 14, 1968, 54,038/68

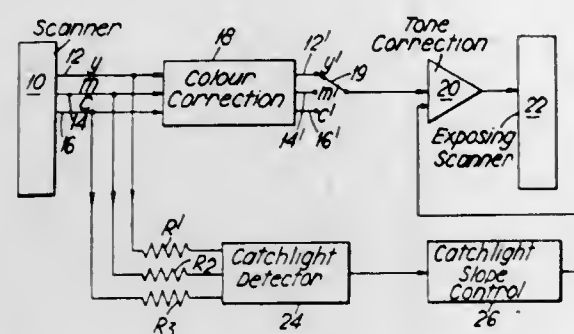
Int. Cl. H04n 1/46

U.S. Cl. 178-5.2 A

5 Claims

To reproduce colored images, color component signals generated by scanning an original are color corrected and then tone corrected and used to control the exposure of a sensitive surface. "Catchlights" are reproduced on an extended and nonlinear portion of the tone correction characteristic. To prevent the reproduction on this portion of the characteristic of signals which do not correspond to catchlights but which, through overcorrection in the color correction circuits, have a similar signal level, a catchlight detector circuit is connected in parallel with the color cor-

rection circuit so as to receive uncorrected color component signals and to modify the response of the tone correction circuit to a signal from the color correction circuit in the presence of a catchlight signal from the catchlight detector.



3,634,612

IDENTIFIER CIRCUITS FOR COLOR BAR TYPE TEST GENERATORS

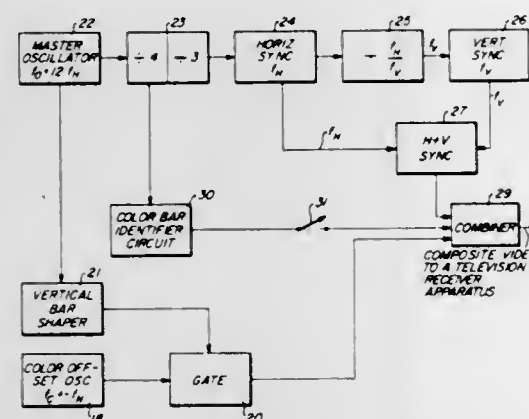
Walter Marshall Stobbe, Morrisville, Pa., assignor to RCA Corporation

Filed Jan. 6, 1970, Ser. No. 895

Int. Cl. H04n 9/12

U.S. Cl. 178—5.4 TE

7 Claims



A color-bar-type test apparatus provides a signal which is processed by color television receiver to provide a plurality of different colored vertical bars on the face of the picture tube.

The signal as provided by the test apparatus, comprises a series of pulses each one of which is coincident with one or more of a plurality of burst signals which are developed to provide the color information representative of the vertical bars. These pulses serve to affect the amplitude of the video signal to cause that vertical bar associated with the burst to be displayed at a different brightness level on the kinescope display.

3,634,613

AUTOMATIC CONTRAST CONTROL

Dennis G. Abel, Hanover Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Apr. 13, 1970, Ser. No. 27,554

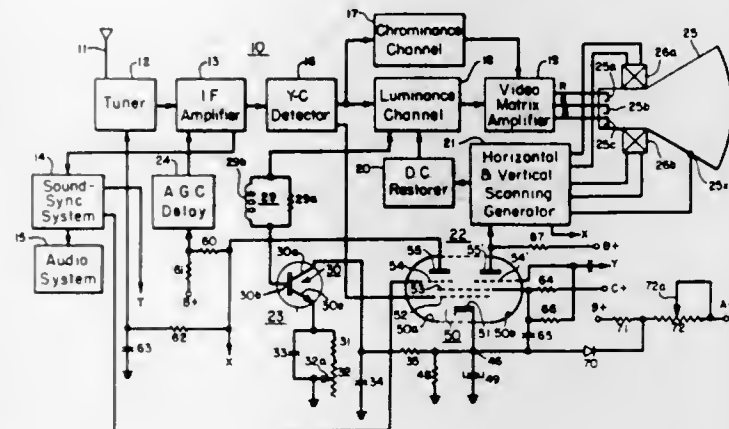
Int. Cl. H04n 9/12

U.S. Cl. 178—5.4 R

8 Claims

An automatic contrast control circuit for a color television receiver for stabilizing contrast level when switching between channels having different modulation levels or types of scene being televised. The control circuitry contemplates the provision of an added signal input to the automatic gain control (AGC) system of the receiver nominally providing an output control voltage responsive to the level of received carrier

strength to selectively control the amplification levels of certain of the receiver's initial amplifier stages. The automatic contrast control circuitry includes a storage device for developing an additional control potential at the cathode of the AGC amplifier and a voltage-dependent, variable impedance device, such as a transistor, connected in parallel



3,634,614

INFRARED-ENERGIZED VISUAL DISPLAYS USING UP-CONVERTING PHOSPHOR

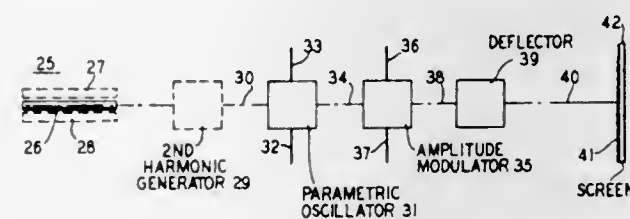
Joseph E. Geusic, Berkeley Heights, and Le Grand G. Van Uitert, Morris Township, Morris County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 16, 1969, Ser. No. 816,613

Int. Cl. H04m 9/12

U.S. Cl. 178—5.4 R

16 Claims



A color pictorial display is produced by scanning a phosphor layer with a frequency and/or amplitude-modulated infrared beam. Visible emission results by virtue of a two-photon or high-order multiphoton process.

3,634,615

CROSS-COLOR ELIMINATING APPARATUS FOR A TELEVISION RECEIVER

Reiichi Sasaki, and Yoshitomi Nagaoka, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed June 13, 1969, Ser. No. 832,987

Claims priority, application Japan, June 26, 1968, 43/45345

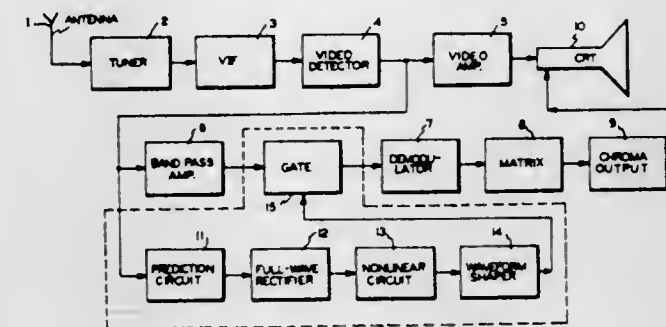
Int. Cl. H04m 9/12

U.S. Cl. 178—5.4 R

9 Claims

A cross-color eliminating apparatus for a color television receiver. A prediction means separates luminance components from composite color video signals. Estimation means are coupled to said prediction means and estimate the

possibility of cross-color interference. Control signals from said estimation means control an interruption means to inter-



rupt the transmission of a chrominance signal during a time interval which is long enough to eliminate cross color.

3,634,616

APPARATUS FOR CORRECTING ANGULAR ERRORS IN COLOR VIDEO SIGNALS WITH MODULATORS

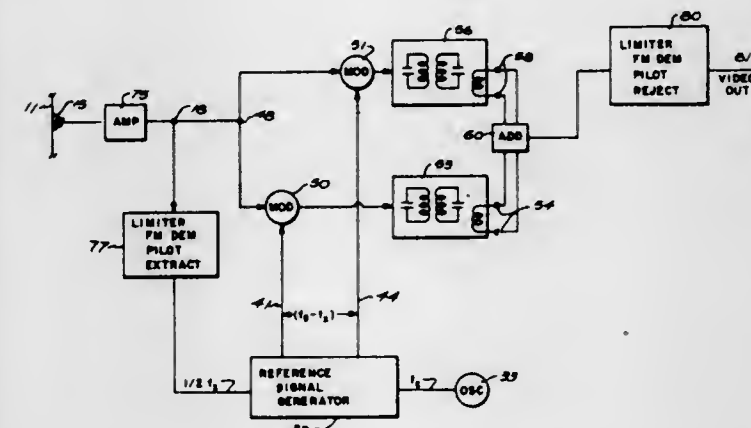
Bert H. Dann, Mountain View, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Oct. 31, 1969, Ser. No. 872,848

Int. Cl. H04n 5/76, 9/44

U.S. Cl. 178—5.4 CD

13 Claims



Apparatus for correcting effects of angular errors in a color video signal, wherein a first reference signal is modulated by at least a first portion of the spectrum of the video signal, and a second reference signal is modulated by at least a second portion of the spectrum of the video signal, wherein the second reference signal displays relative to said first reference signal an angular difference reflecting said angular errors, and wherein a composite modulated signal is produced in response to said modulated first and second portions, which composite modulated signal includes sideband components representing chrominance information of said color video signal and being disposed about a frequency which differs from a video picture carrier frequency by a stable frequency difference.

3,634,617

FACETTED CORRECTION LENS FOR MINIMIZING KEYSTONING OF OFF-AXIS PROJECTORS

Walter I. Welford, Blackheath, England, assignor to Harriers Electronics Corporation, Dothan, Ala.

Filed Dec. 4, 1969, Ser. No. 882,051

Claims priority, application Great Britain, Dec. 10, 1968,

58,580/68

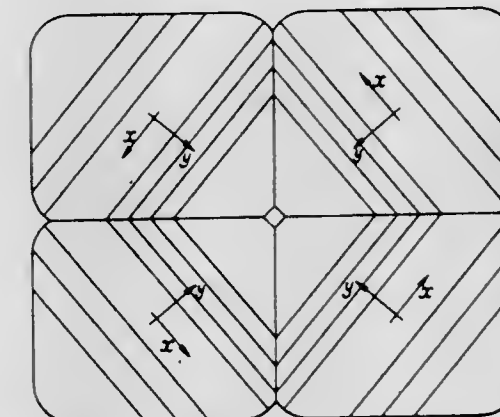
Int. Cl. H04m 5/72

U.S. Cl. 178—5.4 M

4 Claims

A color television display system employs a separate tube for each color and superimposes the color component images

on a common screen, each display tube being arranged at an angle to the common axis extending from the group of tubes to the screen. To correct for keystone distortion arising from the oblique projection, between the tubes and the screen there is a composite light-transmitting corrector plate having a different corrector element for each tube, each corrector



element having a surface which comprises a number of facets each varying in slope and separated from adjacent facets by lines of discontinuity of slope. Each corrector element is symmetrical about a line bisecting that element and passing through the center of the composite corrector plate and has its facets in the form of strips extending from boundary to boundary of the corrector element.

3,634,618

CIRCUIT FOR CONNECTING A TELEVISION SET TO A RECORDING INSTRUMENT

Wilfried von der Ohe, Ludersen, Germany, assignor to Telefunken Patent verwertungsgesellschaft m.b.H., Ulm/Donau, Germany

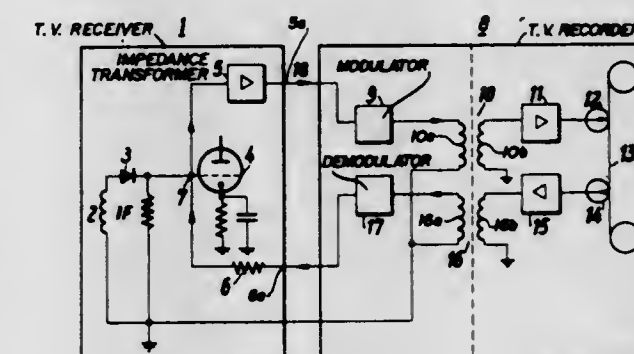
Filed Feb. 27, 1969, Ser. No. 802,855

Claims priority, application Germany, Feb. 28, 1968, P 15 62 039.0

Int. Cl. H04n 5/22, 5/78, 7/10

U.S. Cl. 178—6.6 A

4 Claims



A circuit for connecting a television set to a video recording set includes a terminal connectable to a video signal output terminal of an FM modulating means connected to the television receiver terminal impressing a video signal on a carrier, a transformer having a primary winding DC connected to the output of the modulating means, and a secondary winding which is AC connected to the primary winding to pass the modulated signal, but is DC isolated therefrom. The secondary winding is DC connected to a terminal which may be connected to the recording head of the recorder. The circuit is arranged so that there is no DC electrical connection between the television receiver and the recorder chassis so as to reduce interference therebetween. A further transformer is similarly arranged between the reading head of the recorder and an FM demodulator for use during playback.

3,634,619

REMANENT IMAGE ERASURE FOR RAPID SUCCESSIVE EXPOSURES

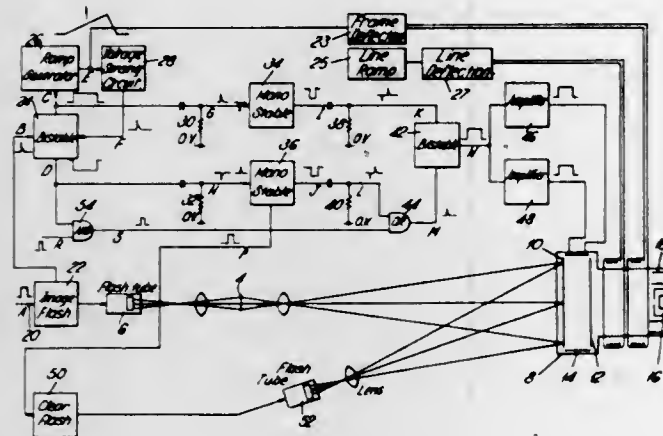
Edward Thomas Astley, Potters Bars, England, assignor to Crosfield Electronics Limited, London, England

Filed July 22, 1969, Ser. No. 843,388

Int. Cl. H01J 31/48

U.S. Cl. 178-7.2

5 Claims



In apparatus employing an image orthicon, when a signal corresponding to the image focused on the orthicon has been obtained by scanning the target of the orthicon, the photocathode is evenly flooded with light and at the same time the relative photocathode, accelerator and target potentials are such that photocathode electrons arrive at the target at an energy level at which they do not cause secondary emission but are absorbed by parts of the target on which positive charge remains. This removes any remanent image, permitting the image orthicon to be used for different images in rapid succession.

3,634,620

NOISE PROTECTED AGC CIRCUIT WITH AMPLITUDE CONTROL OF FLYBACK PULSES

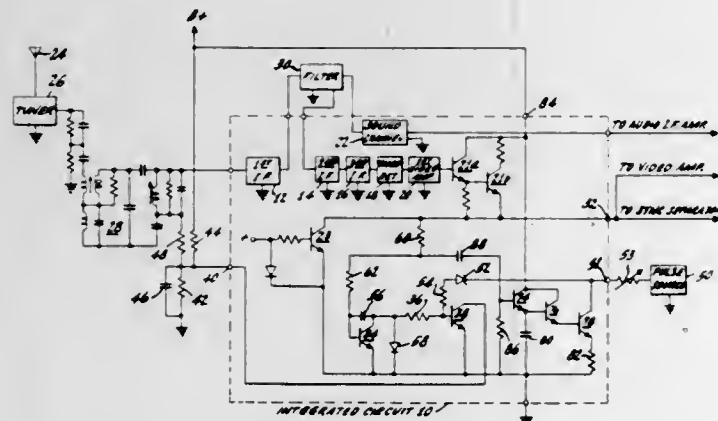
Jack Rudolph Harford, Flemington, N.J., assignor to RCA Corporation

Continuation-in-part of application Ser. No. 803,590, Mar. 3, 1969, now abandoned. This application May 20, 1970, Ser. No. 39,018

Int. Cl. H04n 5/52

U.S. Cl. 178-7.3 DC

26 Claims



A source of keying pulses which occur in time coincidence with the synchronizing pulse components of a video wave is coupled to the input circuit of an automatic gain control (AGC) transistor. The keying pulses are of a polarity to drive the AGC transistor into conduction to adjust the charge on a capacitor in AGC circuits connected in an output circuit of the transistor.

the transistor. Second and third transistors are connected across the input circuit to control the amplitude of the keying pulses applied to the AGC transistor. The normally conducting second transistor is driven by the video wave, and is responsive to the synchronizing pulse components above a predetermined amplitude, to cut off the second transistor and thereby permit keying pulses to develop across the input circuit and drive the AGC transistor into conduction. The third transistor conducts in response to impulse noise to attenuate the keying pulse, and thus substantially decrease the AGC system gain when impulse noise is present. Additional direct current sources are coupled to the AGC transistor under control of the second transistor to (1) prevent AGC lockout upon occurrence of sudden increases in received signal level under transient conditions and (2) speed the response of the AGC system under nonsynchronized, strong signal conditions.

3,634,621

MULTIPERSISTENCE DISPLAY ARRANGEMENT

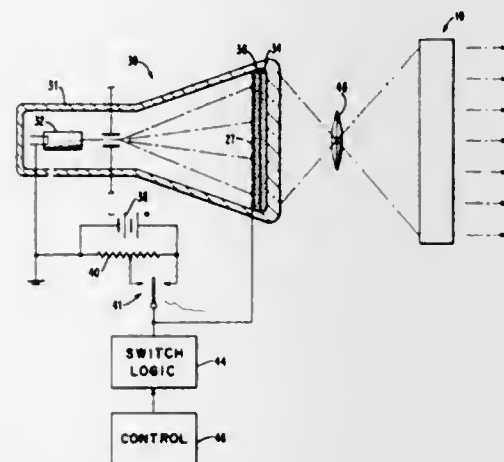
Euval S. Barrekette, New York, N.Y.; Herbert B. Baskin, Pinole, Calif., and Benjamin Kazan, Briarcliff Manor, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 4, 1969, Ser. No. 882,071

Int. Cl. H04n 5/74

U.S. Cl. 178-7.85

6 Claims



A multipersistence display device is described which comprises a cathode-ray tube whose faceplate is coated with a layer of an ultraviolet-emitting phosphor. Provided on the ultraviolet phosphor layer is a layer of a phosphor-emitting visible light. The electron beam accelerating voltage of the cathode-ray tube is selectively controlled; a lower voltage causing the electron beam to excite the visible phosphor layer, and higher voltage causing the electron beam to excite the ultraviolet phosphor layer. An image-storage panel is included for storing the ultraviolet image which is produced when the ultraviolet phosphor layer is excited. An optical image system is provided for projecting images appearing on the screen of the cathode-ray tube onto the image-storage panel. Thus, when the cathode-ray tube is operated at the lower voltage to excite the visible phosphor, dynamic information can be displayed on the image-storage panel and, when the cathode-ray tube is operated at the higher voltage to excite the ultraviolet phosphor, static information can be stored in the image-storage panel and displayed by the action of an electroluminescent material thereby.

3,634,622

REMOTE VIEW AND DIRECT VIEW CAMERA-POINTING SYSTEM

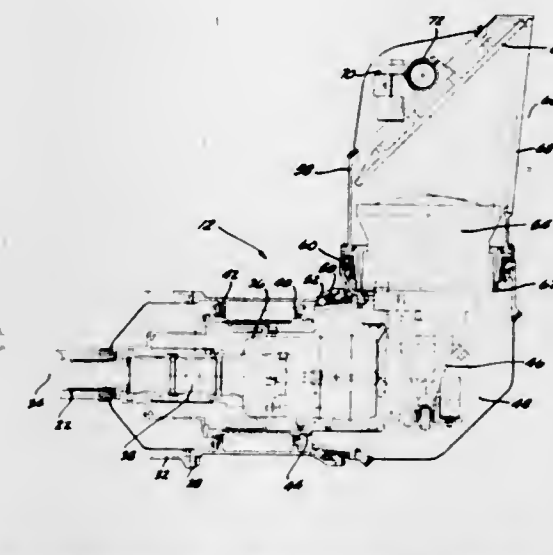
Bryce A. Wheeler, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 4, 1969, Ser. No. 830,590

Int. Cl. H01J 29/02

U.S. Cl. 178-7.8

11 Claims



The camera is an image-forming device which has an optical axis which is stationary with respect to a main frame, and the camera optical axis is directed to a mirror which rotates about the optical axis. The mirror forms a second optical axis at right angles to the camera axis. The second optical axis intersects with an optical objective and a second mirror. The second mirror is rotatable about the second axis. Thus, the image-forming device is able to see in any direction by mere rotation of the mirrors without changing the direction of the optical axis of the image former.

Upright image orientation is maintained by rotation of the image former on its axis as a function of rotation of the second mirror on its axes.

3,634,623

INTERLACED-SCAN-DEVELOPING HALF-LINE-DELAY CIRCUIT

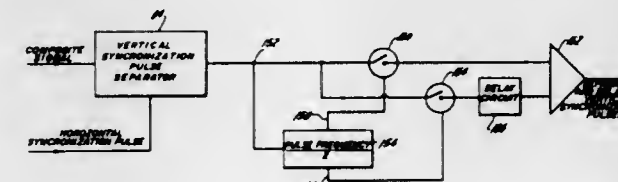
Renville H. McMann, Jr., New Canaan, and Donald W. Ridley, Stamford, both of Conn., assignors to Columbia Broadcasting System, Inc., New York, N.Y.

Filed July 7, 1969, Ser. No. 839,563

Int. Cl. H04n 5/04

U.S. Cl. 178-69.5 F

4 Claims



A vertical synchronization pulse separator first causes the vertical synchronization pulses to be removed from the composite signal. This signal, with the synchronization pulses removed, is subtracted from the composite signal by a differential amplifier which provides an input to a delaying device. The delaying device delays every second separated vertical synchronization pulse by a time interval equal to one-half interval between horizontal synchronization pulses. The delay of a vertical synchronization pulse causes the beginning of the horizontal lines traced on the screen thereafter to be displaced horizontally from the beginning of the horizontal lines preceded by an undelayed synchroniza-

tion pulse by one-half the horizontal dimension of the screen, thereby producing an interlaced scan.

3,634,624

CARD FILE ADDRESS LOCATOR AND CODE CHECKER

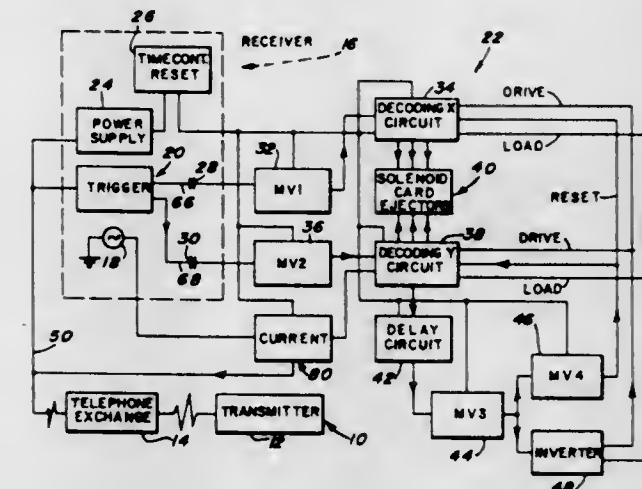
Roger C. Glidden, 12 Pleasant, Wenham, Mass.

Filed July 28, 1969, Ser. No. 845,236

Int. Cl. H04m 11/06

U.S. Cl. 179-2 DP

16 Claims



A train of signal pulses are transmitted from telephone message lines through two signal frequency channels at a receiving station for decoding and selection of one of a plurality of solenoid-operated card ejectors during an initial signal transmission interval. Reception of the same signal pulse train a second time supplies an energizing pulse to the selected ejector. Energy to operate the selected ejector is obtained from the message lines and is stored during the initial signal transmission interval.

3,634,625

SPEECH UNSCRAMBLER

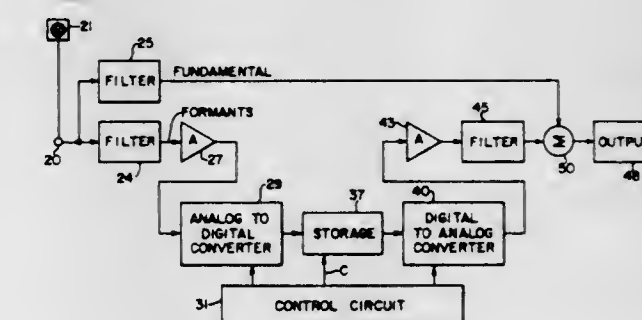
Kenneth P. Geohegan, Jr., and Edwin A. Shearin, both of Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 23, 1968, Ser. No. 761,637

Int. Cl. G101 1/00

U.S. Cl. 179-1 SA

12 Claims

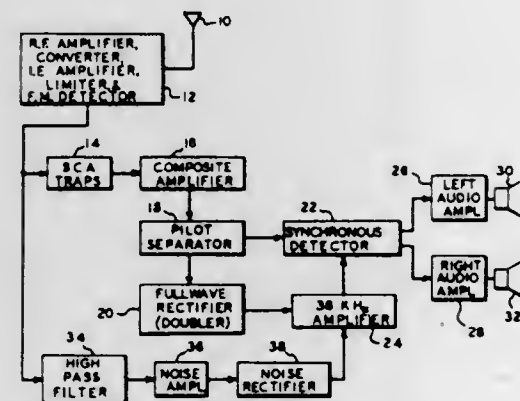


A digital device to make speech in a helium atmosphere more intelligible includes a recirculating storage and an analog to digital converter which periodically samples the speech and the digital samples are loaded into the storage at a rate determined by a load counter. An unload counter continuously operating at a predetermined slower rate than the load counter unloads the stored digital representations of the speech and a digital to analog converter converts it back to an analog signal. The analog signal is utilized by an output means such as a loudspeaker and is an intelligible translation

of the input speech. Since the storage is loaded at a faster rate than it is unloaded, it will periodically fill up, and no more digital samples are loaded, until such time as the storage is again emptied.

transmits the other of said two channel-supervisory indications and its own address as an acknowledgement. Upon receipt of the acknowledgement, the calling station switches

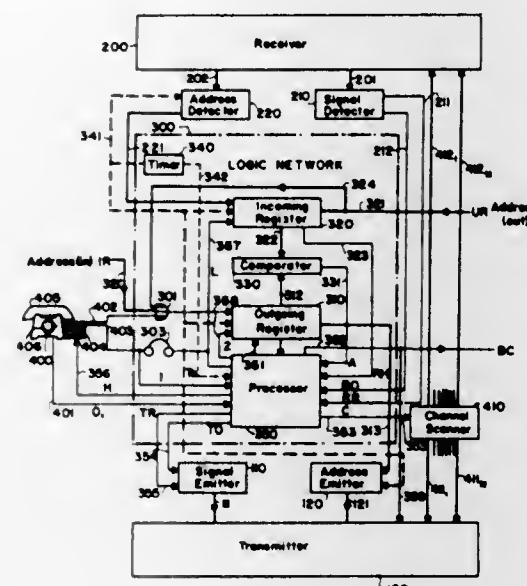
3,634,626
NOISE-OPERATED AUTOMATIC STEREO TO MONAURAL SWITCH FOR FM RECEIVERS
 James Gordon Staley, Batavia, N.Y., assignor to Sylvania Electric Products Inc.
 Filed Apr. 6, 1970, Ser. No. 25,903
 Int. Cl. H04h 5/00
 U.S. Cl. 179—15 BT 12 Claims



In an FM stereo receiver including an FM signal detector, a multiplex demodulating synchronous detector, and a circuit for coupling the output signal of the FM detector to one input of the synchronous detector and for separating a pilot signal from the FM detector output signal for application through a full-wave rectifier and transistor amplifier to provide a demodulating signal to a second input of the synchronous detector, a circuit for automatically switching from stereophonic to monaural operation in response to a predetermined noise level at the output of the FM signal detector. The switching circuit comprises a high-pass filter connected at the output of the FM signal detector, a transistor amplifier for processing the noise passed by the filter, a noise rectifier, and a voltage divider for applying the rectified noise signal as a base bias control voltage for the demodulating signal amplifier. The resistors comprising the voltage divider are selected to determine a noise level above which the demodulating signal amplifier is rendered nonconducting and below which that amplifier is biased to conduction. A manually operated switch in the base bias circuit of the noise amplifier provides means for inactivating the automatic switching circuit.

3,634,627
CHANNEL-ALLOCATION SYSTEM FOR A CHANNEL-ADDRESSING MULTIPLE-ACCESS TELECOMMUNICATION SYSTEM
 Nicola Valentini, Rome, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy
 Filed July 21, 1970, Ser. No. 56,765
 Claims priority, application Italy, July 23, 1969, 19,994-A/69
 Int. Cl. H04j 3/12

U.S. Cl. 179—15 BA 17 Claims
 In a channel-addressing multiple-access telecommunication system, a channel-allocation system is disclosed in which all stations scan the available channels. An available channel is seized by transmitting on that channel one of two channel-supervisory indications and the address of the called station. Receipt of said one channel-supervisory indication causes all stations to arrest scanning on the seized channel. The called station, upon reception and recognition of its own address

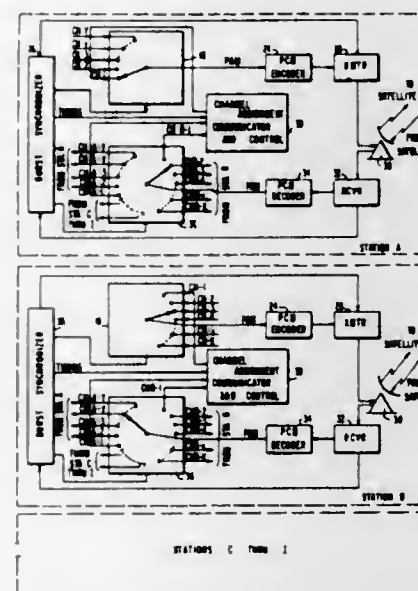


from transmission of said one to transmission of the other of said two channel-supervisory indications. A repeater embodiment is also disclosed.

3,634,628
METHOD AND APPARATUS FOR FORMING TDM SIGNAL BURSTS FOR A TIME DIVISION MULTIPLE ACCESS SATELLITE COMMUNICATION SYSTEM
 Tadahiro Sekimoto, Washington, D.C., and Ova G. Gabbard, McLean, Va., assignors to Communications Satellite Corporation, Washington, D.C.
 Continuation of application Ser. No. 594,817, Nov. 16, 1966, now abandoned. This application Jan. 13, 1970, Ser. No. 1,985

U.S. Cl. 179—15 BS

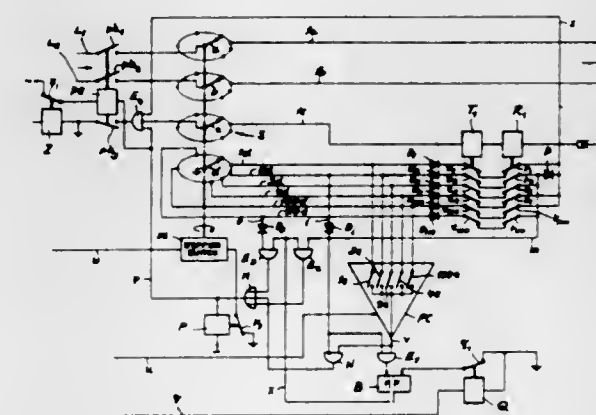
9 Claims



A method and apparatus by which active information channels are sampled at each station so that information bursts are formed directly by the sampler, thereby eliminating the need for a time-compressing memory to form the bursts. The active channels at each station are sampled at the proper time to reach the satellite in the TDM time slot assigned to the station. The sampling period is the Nyquist period and is equal to the satellite TDM frame time. The sampling period is divided into equal intervals identical in

number to the total number of channels in the system so that there is one channel in each interval. Consequently, the burst from the sampler of each station has a burst length or occurs in the period NT where y is the number of active channels at the station, N is the total number of channels in the system, and T is the Nyquist sampling period, which is 125 microseconds for voice intelligence. Channels may be added to a station's transmission burst by activating these channels at the sampler, thereby increasing the length of the burst to accommodate the added channels. The burst length is shortened if channels are dropped.

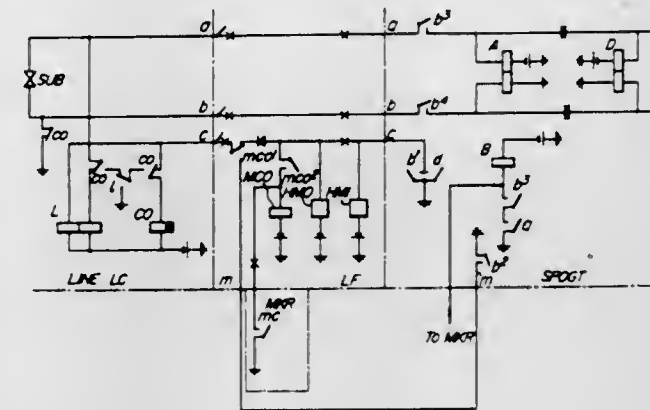
3,634,629
LINE SELECTOR GIVING ACCESS TO PBX MULTIPLES
 Franco De Marco, Milan, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy
 Filed Oct. 13, 1969, Ser. No. 865,701
 Claims priority, application Italy, Oct. 14, 1968, 22468/A68
 Int. Cl. H04q 3/28
 U.S. Cl. 179—18 HA 7 Claims



A rotary selector with a test wiper scanning bank contacts connected partly to individual subscriber lines and partly to a PBX multiple cooperates with a line monitor which controls a switching matrix PC for selectively connecting the associated lines to two parallel AND-gates N , E_1 also receiving a discriminating signal directly from these lines. If the selected line is an individual subscriber line 1, 4, 100, one AND-gate N responds to actuate a relay P arresting the selector; if it is the first line 2 of a PBX multiple, a flip-flop B is set to operate that relay as soon as the wiper either reaches a free intermediate line B of the multiple, as determined by a further AND-gate E_2 , or steps onto the last line 110 of the multiple as determined by yet another AND-gate E_3 .

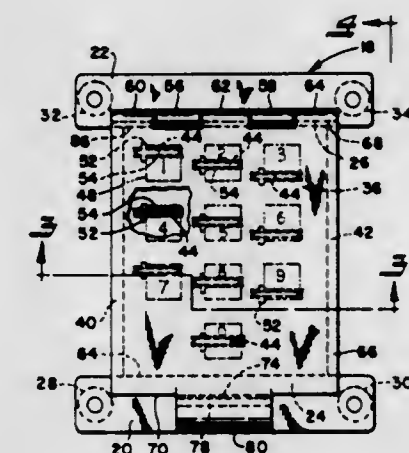
3,634,630
COMMUNICATION CHANNEL HOLDING SYSTEM FOR AN AUTOMATIC TELEPHONE EXCHANGE
 Chikai Ii, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
 Filed Oct. 23, 1969, Ser. No. 868,768
 Claims priority, application Japan, Nov. 4, 1968, 43/80469
 Int. Cl. H04q 3/72

U.S. Cl. 179—18 FH 2 Claims
 A system for holding a communication channel for a purpose such as malicious call tracing in an automatic telephone



traced, to originate a new call even when the original communication channel is held for tracing.

3,634,631
MECHANICAL PUSHBUTTON OPERATING DEVICE
 Wilbur R. Youngs, 1811 Windsor, Findlay, Ohio
 Filed May 12, 1969, Ser. No. 823,609
 Int. Cl. H04m 1/48
 U.S. Cl. 179—90 CS 10 Claims



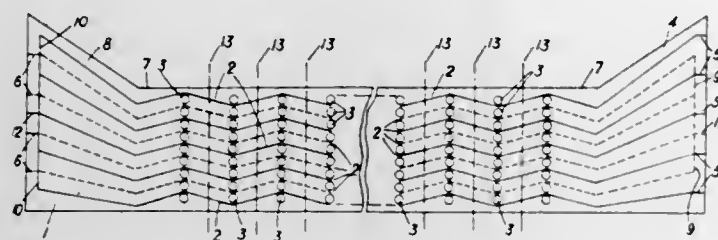
There is provided a device which may be placed over an existing digital keyboard, and which is characterized by a platelike member or card which may be drawn through the device in its superimposed condition over the keyboard. The card is provided with properly located mechanical members on the surface thereof which are capable of transmitting to the keys on a digit-by-digit basis a predetermined number as the card is drawn through the apparatus.

3,634,632
MAGNETIC RECORDING DEVICE WITH PRINTED CIRCUIT COILS FORMED WITH THE CIRCUIT SHEET FOLDED IN CONCERTINA FASHION
 Christopher Alan Watson, Takeley, England, assignor to Standard Telephones and Cables Limited, London, England
 Filed Oct. 27, 1969, Ser. No. 869,693
 Claims priority, application Great Britain, Nov. 29, 1968, 56,768/68
 Int. Cl. G11b 5/20, 5/42; H01f 7/06

U.S. Cl. 179—100.2 C 3 Claims
 The multihead recording device and a method of making same wherein a row of energization windings is constructed from a single printed circuit assembly of parallel wavy lines of conductor material on a nonmagnetizable sheet. The sheet is folded concertina fashion to form helices of the parallel

wavy lines. A hole is made axially through each helix and a single core piece of magnetizable material is fitted therein. The assembly is thereafter encapsulated in a block of potting

compound, with the end of each core and the last turn of the corresponding windings being flush with the recording surface of said block.



compound, with the end of each core and the last turn of the corresponding windings being flush with the recording surface of said block.

3,634,633

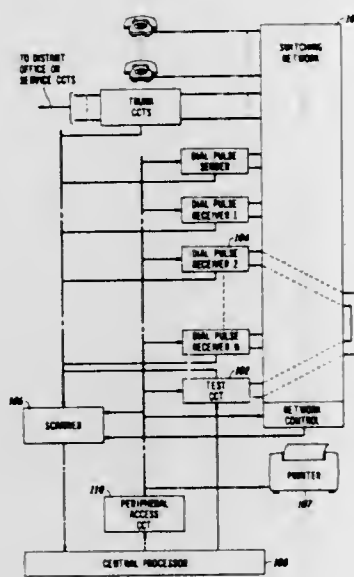
PRECESSED PULSE TEST ARRANGEMENT

John Joseph Driscoll, Wheaton, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 11, 1970, Ser. No. 36,071

Int. Cl. H04m 3/22

U.S. Cl. 179-175.2 R

8 Claims



A test arrangement for testing dial pulse receivers in a telephone switching system wherein such receivers are interrogated by means of scanning pulses occurring at a fixed scanning rate is disclosed. Test pulses synchronized to the scanning pulses are transmitted to a dial pulse receiver and are precessed (advanced) in time with respect to the occurrence of the scanning pulses. A defective dial pulse receiver is detected by comparing the number of test pulses transmitted to a dial pulse receiver during a fixed time interval with the number of pulses received therefrom during the same time interval. The test pulses are made to resemble dial pulses received from a subscriber line by means of distortion circuits which simulate various subscriber loop conditions.

3,634,634

DISCONNECT SWITCH FOR ELECTRIC POWER SYSTEMS

Fred H. Cole, 1028 South Sierra Bonita Ave., Los Angeles, Calif.

Filed Dec. 21, 1970, Ser. No. 100,127

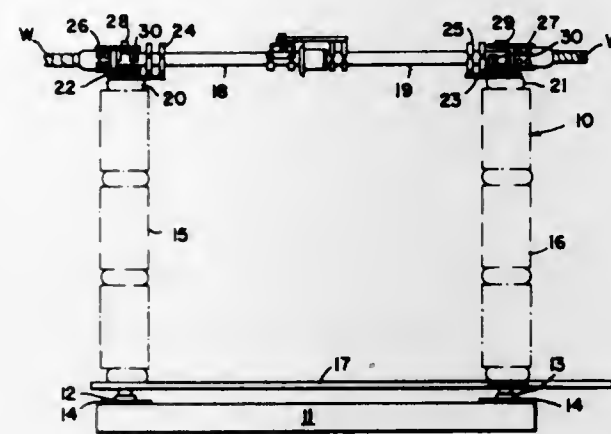
Int. Cl. H01h 31/00

U.S. Cl. 200-48

8 Claims

A disconnect switch for electric power systems wherein a pair of switch blades are aligned axially in a contacting posi-

tion when operative and pivotally connected to a pair of insulators at their noncontacting ends. Means are provided on each of the switch blades for preventing axial movement of



the switch blades when they are axially aligned while permitting the blades to be pivoted out of contacting engagement.

3,634,635

APPARATUS FOR DETERMINING THE LOAD ON A WHEEL AXLE IN A VEHICLE

Alan Elgar Herbert Ellis, Colchester, England, assignor to Ellis (Colchester) Limited, Colchester, England
Filed Mar. 12, 1970, Ser. No. 19,039

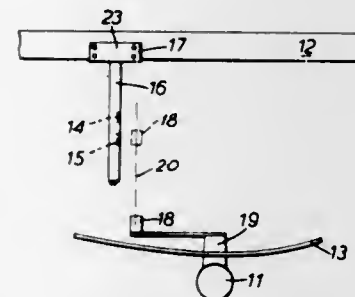
Claims priority, application Great Britain, Mar. 13, 1969,

13,212/69

Int. Cl. H01h 35/02

U.S. Cl. 200-52

12 Claims



An axle load detector comprises a post carrying at least one magnetically operated switch at a local position along its length, a separate body incorporating a magnet for operating the switch and means for mounting the body and post, one on a vehicle chassis and one on an axle of the vehicle. Progressive deflection of the axle spring causes the body to move along the post and operate the switch at a spring deflection corresponding to a given axle load.

3,634,636

AUTOMATIC CIRCUIT CONTROL SWITCH

Jerry H. Lyon, Stanhope, N.J., assignor to The United States of America as represented by the Secretary of the Army
Filed Sept. 9, 1970, Ser. No. 70,807

Int. Cl. H01h 35/24

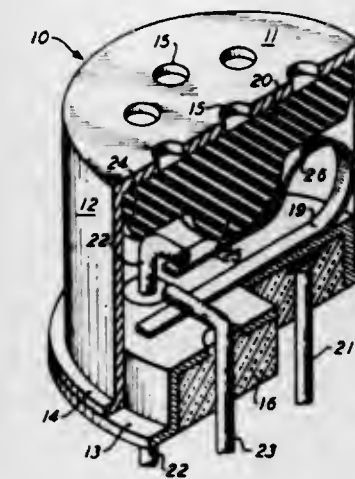
U.S. Cl. 200-61.03

11 Claims

An automatic switch for controlling an electronic circuit responsive to movement of a conductor blade from a first, or given, position relative to a lead in the switch, closing the circuit, to a second or different position relative to said lead, opening the circuit, said switch having a thruster positioned therein adjacent the conductor, said thruster being of given normal dimensions such that it will not move the conductor

out of contact with the lead but being made of a material permeable and expansion-sensitive to an ambient gas or vapor, such as Freon for expanding it beyond its said given dimensions when in said vapor. On such expansion, the thruster engages the conductor and displaces it from said

predetermined number when more than one operation is desired to be cycled, whereby the predetermined number of operations may be continuously cycled. The switch is moved back to the first position when the next-to-last of the operations has been completed.



lead, automatically opening the switch and thus the circuit controlled thereby until such time as said vapor evaporates from the thruster and the latter returns to its normal dimensions. The conductor thereupon automatically closes the switch and the circuit controlled thereby.

3,634,637

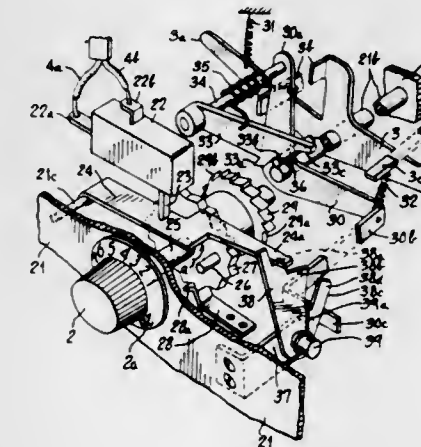
DEVICE FOR CYCLING PREDETERMINED NUMBER OF OPERATIONS OF CONTROLLED MACHINE OR THE LIKE

Shigeru Suzuki, and Yasumori Nagahara, both of Yokohama, Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan
Filed Apr. 24, 1970, Ser. No. 31,693

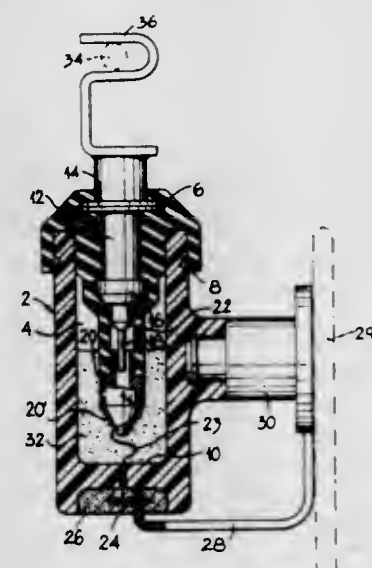
Int. Cl. H01h 3/16

U.S. Cl. 200-61.41

4 Claims



The invention provides a device for cycling a predetermined number of operations of a controlled machine, such as a photocopying machine, by presetting a dial and depressing a start button of the controlled machine without actuating a switch incorporated in the device. The switch is electrically coupled to the controlled machine such that when the switch is in a first position the machine is automatically stopped after accomplishing one cyclic operation. The switch is moved to a second position by presetting the dial to a



An electric switch responsive to sudden movements of an external element, but not to slow movements thereof, comprises a pair of electrical contacts separated by a yieldable connection which causes one to move with the other, and a flowable material, such as silicone putty, tending to resist the movement of the one contact with the other, the flowable material being free-flowing under low stress but not under a sudden high stress, whereby under a sudden movement of the external element and the one contact, the flowable material resists the movement of the other while the yieldable connection yields, thus effecting actuation of the switch; whereas upon a slow movement of the external element and the one contact, the flowable material flows and permits the other contact to move therewith, thus not effecting actuation of the switch.

3,634,639

BRAKE FAILURE WARNING DEVICE WITH RELATIVELY MOVABLE DETENTED CONTACT BARS ACTUATABLE BY DIFFERENT PRESSURE SOURCES

Howard R. Jilbert, Saint Joseph, Mich., assignor to The Bendix Corporation

Filed Nov. 4, 1970, Ser. No. 86,689

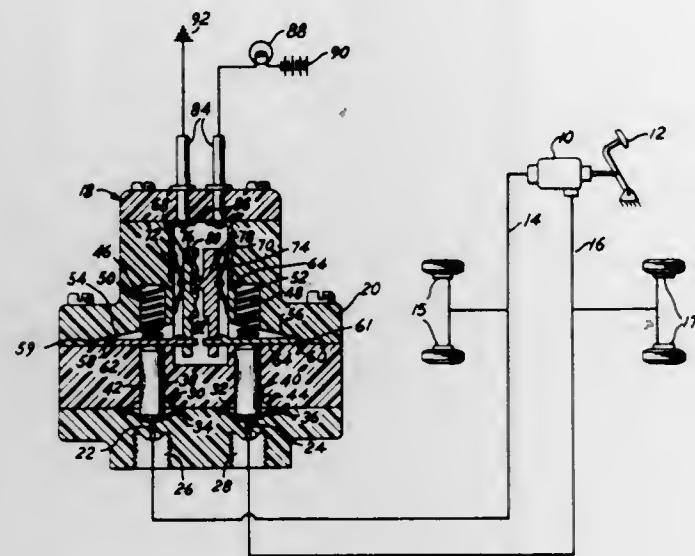
Int. Cl. H01h 35/26, 35/34, 35/38

U.S. Cl. 200-83 H

12 Claims

A dual plunger differential pressure indicating device for use in a ground vehicle having separate hydraulic braking systems for the front and rear brakes thereof which will indicate the occurrence of a malfunction in either one of the

hydraulic braking systems. The indicating device includes a detent latching device for maintaining the indicating device



in an activated position and mechanism for hydraulically resetting the device after correction of the malfunction.

3,634,640

OIL PUMP FOR OIL CIRCUIT BREAKER

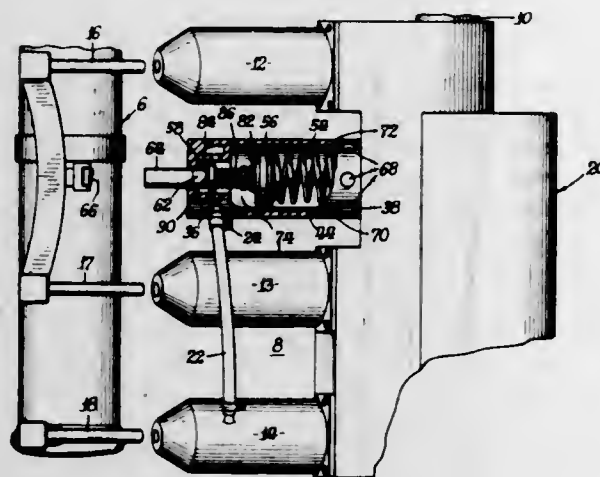
Melbourne G. Jawelak, McMurray, and Elwin E. Briggs, Bethel Park, both of Pa., assignors to McGraw-Edison Company, Elgin, Ill.

Filed Nov. 27, 1970, Ser. No. 93,292

Int. Cl. H01h 33/70

U.S. Cl. 200-150 G

13 Claims



An oil pump used with an oil circuit breaker for pumping oil through the arc drawn as the contacts of the breaker open to extinguish the arc. The pump includes a piston and a spring charged by a closing operation of the circuit breaker for pumping oil from an oil filled cavity in the cylinder through a second cavity in the cylinder and into the arc. The piston means is positioned within the oil filled cavity and a disc mounted on the piston means moves through a restricted portion of the second cavity having openings therein for discharge of the oil from the pump. However, the oil is confined in the oil filled cavity and movement of the piston means in pumping oil to the arc is delayed until the disc passes the openings in the restricted portion.

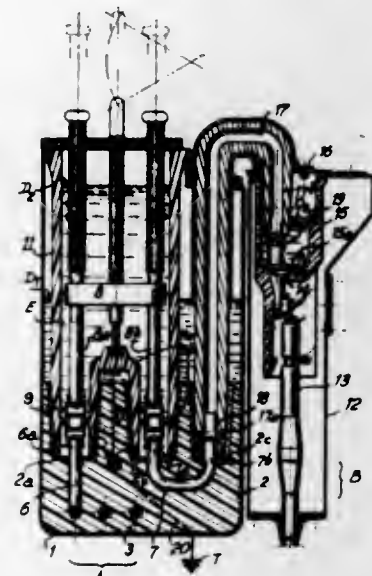
3,634,641
PREFABRICATED DISCONNECTABLE ELECTRIC STATION UNITS COMPARTMENT
 Jean-Pierre H. Boudiak, 26, rue d'Avron, Gagny, and Yves Bokshorn, 2, Route de Nolsy, Villiers-sur-Marne, both of France

Filed Feb. 12, 1970, Ser. No. 10,795

Int. Cl. H01h 33/68

U.S. Cl. 200-150 R

9 Claims



Prefabricated disconnectable electric station unit compartment comprising in a metal casing constituting the main housing thereof a set of conductors, a block of solid dielectric material enclosed in said metal casing to insulate said casing from said conductors of the detachable or disconnectable members (breaking device, connecting device, etc.), characterized essentially in that said detachable or disconnectable members are electrically connected to said conductors at junctions disposed in a liquid dielectric medium of moderate volume, independent of any similar medium which may be provided for another use, such as insulating and breaking a switching device.

3,634,642

MULTIPLE CONTROL SWITCH WITH SEQUENTIAL CAM LOBE ACTUATORS

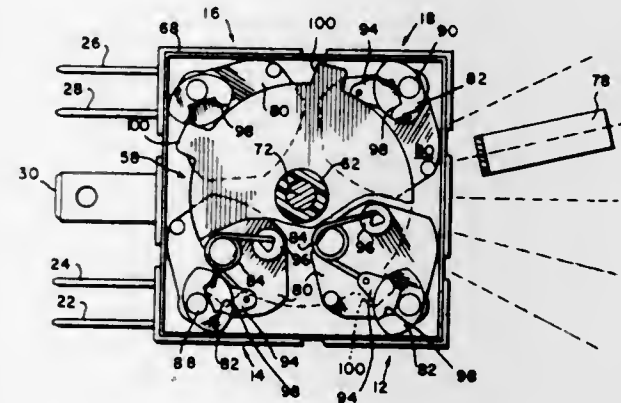
Malcolm T. Lybrook, Frankfort, Ind., assignor to P. R. Malloory & Co., Inc., Indianapolis, Ind.

Filed Feb. 24, 1970, Ser. No. 13,494

Int. Cl. H01h 3/42, 21/42

U.S. Cl. 200-153 LB

6 Claims



A plurality of switch means disposed about a centrally disposed control member are sequentially actuated according

to a programmed sequence as the control member is rotated about its axis. A plurality of cam lobes are attached to said control member, and engage spring-biased actuating means which are part of said switch means. A rotor which is responsive to said actuating means carries a boss which biases electrical contact means into selective engagement with cooperating electrical contacts.

3,634,643

GAS-SHIELDED WATER-COOLED ELECTRIC WELDING TORCH

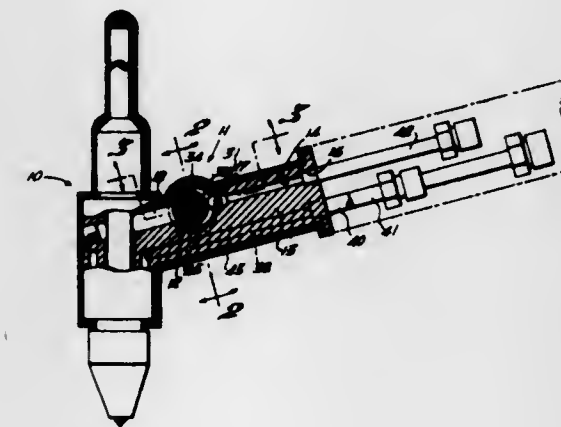
Louis F. Himmelman, 28 Arrowhead Drive, Upper Saddle River, N.J.

Filed Dec. 9, 1970, Ser. No. 96,475. The portion of the term of the patent subsequent to June 23, 1987, has been disclaimed.

Int. Cl. B23k 9/16

U.S. Cl. 219-75

9 Claims



A gas-shielded water-cooled electric welding torch having a rotary gas control and shut-off valve is described. The rotary mechanism of the valve is received in a transverse cylindrical bore formed in the torch body portion, an extension of which serves as a handle when the torch is manually operated. Construction is such that the rotary control handle of the valve may be placed at either side of the torch, depending upon in which direction it is inserted in the cylindrical opening. The body portion of the torch is also provided with longitudinal bores serving as conduit means for circulating coolant water through the torch head.

3,634,644

METHOD AND APPARATUS FOR WELDING TOGETHER BEAM COMPONENTS

Ralph Ogden, Park Forest, Ill., and William P. Lawson, Hammond, Ind., assignors to Ogden Engineering Corporation

Filed Dec. 30, 1968, Ser. No. 787,873

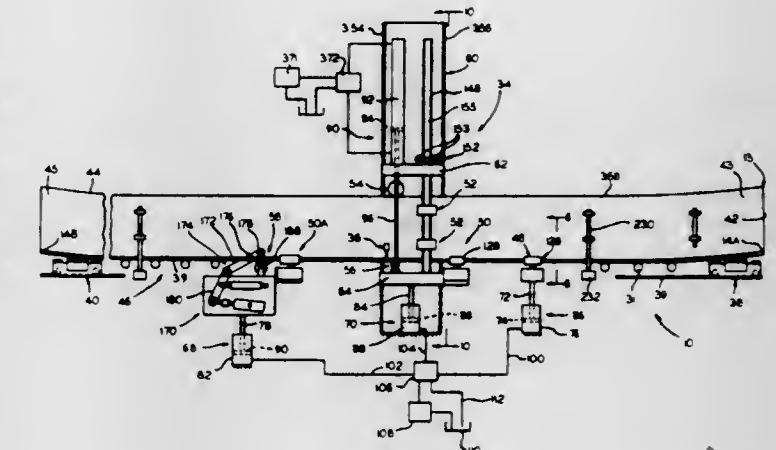
Int. Cl. B23k 9/02

U.S. Cl. 219-102

20 Claims

A method and apparatus for welding together the end flanges and cambered or noncambered webs of girder forming I-beams, box beams, and the like, in which one or more webs are placed on top of one of the end flanges, and the thus associated beam components are simultaneously moved past floating welding heads at a welding station that fillet weld the web or webs to the end flange. These beam components are positioned in their normal load supporting positions for this welding operation, that is, the web and end flange are respectively vertically and horizontally disposed, and they are clamped together adjacent the welding heads by a roller-type clamping arrangement that also floats. The beam components pass to and from the welding station on roller conveyors with their ends each riding on a supporting car or cart, and, adjacent the welding station, the beam flange component is engaged by transverse position correcting rollers that engage its side edges, and the beam web com-

ponent by web engaging rollers that are movement equalized. Downstream of the welding station, the flange component is engaged by a straightening device that overcomes bending of the flange along the fillets that are being welded. The beam components are driven at welding speed by a set of flange edge engaging rollers on the upstream side of the welding sta-



tion, the welding station flange supporting clamping roller, and a flange-engaging roller at the flange-straightening device. The flange edge engaging rollers, the welding station web-engaging rollers, the welding heads and clamping rollers, and the flange straightening device are arranged to float with the beam components to accommodate camber and the like that may be built into the beam.

3,634,645

WORK TREATING WITH ELECTRON BEAM

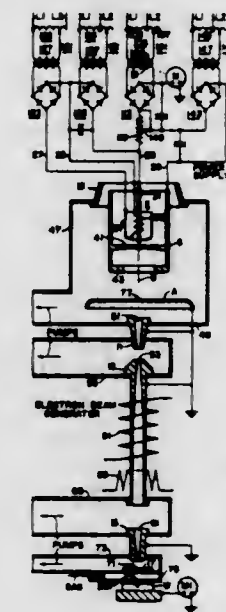
Joseph Lempert, Pittsburgh; Gerald F. Lowry, Murrysville, both of Pa., and Frederick M. Bonner, Washington, D.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation of application Ser. No. 636,181, May 4, 1967, now abandoned. This application Apr. 21, 1970, Ser. No. 30,605

Int. Cl. B23k 9/00

U.S. Cl. 219-121 EB

16 Claims



The electron beam B is projected on work W, usually in the atmosphere outside of the chamber where the beam is generated, through a plurality of aperture members 11, 13, 15, 17. The holes in the aperture members are as small as practicable to suppress the feedback of air into the chamber.

The beam B is focussed in regions 85 and 87 (FIG. 3) with reference to the aperture members so as to preclude damage to the members by impingement of the beam on the walls of the holes through which the beam passes. The beam current is varied in dependence on the demands of the work but the focus of the beam is maintained by bias resistor 115 (FIG. 1), without damage to the aperture member, by instantaneous change in the bias impressed on the beam by a control electrode G.

3,634,646

METHOD OF AND APPARATUS FOR CUTTING LOOPS PLACED ON A SUPPORT FOR PRODUCING HOOKS THEREFROM

Michel Camille Berger, St. Lambert-des-Bois, France, assignor to Velcro SA, Chalet Planoiras, Lenzerheide, Switzerland

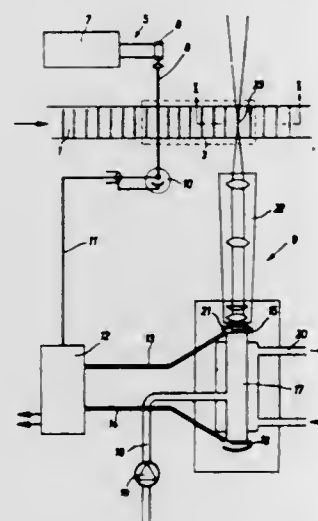
Filed June 3, 1970, Ser. No. 43,010

Claims priority, application Switzerland, June 3, 1969, 8464/69

Int. Cl. B23k 9/00

U.S. Cl. 219—121 L

13 Claims



The method of cutting loops fixed to a tape for the production of hooks is used in the manufacture of flexible separable fastener elements of the type formed by two parts provided respectively with interengageable loops and hooks. A tape having loops arranged in equally spaced transverse rows on the tape is caused to advance in longitudinal direction. The passage of each row of loops at a predetermined point is located by means of a luminous beam, and a high power laser beam is directed on each loop of the row when this latter passes said predetermined point to effect a cutting action on the loop.

3,634,647

EVAPORATION OF MULTICOMPONENT ALLOYS

Ernest Brock Dale, Jr., 2344 Bellehaven Road, Manhattan, Kans.

Filed July 14, 1967, Ser. No. 653,462

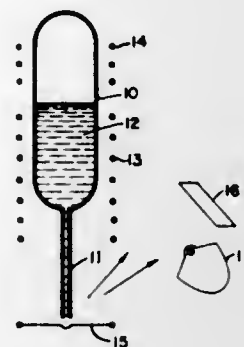
Int. Cl. B23k 9/00

U.S. Cl. 219—121 EB

18 Claims

A technique for evaporating a stoichiometric alloy by continually feeding a small evaporating area with liquid alloy through a capillary from a sealed reservoir of the liquid. The evaporating area is at a temperature higher than that of the liquid, and the material at this area will be rich in the less volatile element but the evaporant will be stoichiometric. A crucible is sown which is self-heated by current passing along its length, with shaping of the cross-sectional area of the crucible providing higher temperatures for the evaporating area, and for the upper end of the reservoir, to prevent

deposition inside the crucible of nonstoichiometric material from vapor above the liquid. Also, the evaporating area may



3,634,648

APPARATUS FOR WELDING FLANGES

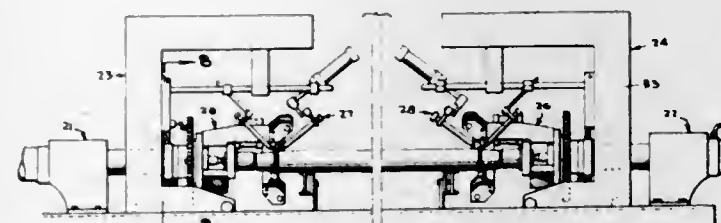
Thomas B. Morris, Montgomery; Fred Paul, Prattville, and Barney R. Powell, Montgomery, all of Ala., assignors to Standard Forge Axle Company, Incorporated, Montgomery, Ala.

Filed Jan. 23, 1970, Ser. No. 5,200

Int. Cl. B23k 9/12

U.S. Cl. 219—125 R

26 Claims



An apparatus for welding a flange about the periphery of a cylindrical member generally including a frame assembly, mounting means rotatably mounted on the frame assembly, means for detachably securing the cylindrical member to the mounting means for rotation therewith about the axis of the cylindrical member, the mounting means including means for securing the flange thereto in a predetermined position relative to the cylindrical member, welding means mounted on the frame assembly, directed toward adjacent portions of the flange and cylindrical member when the flange and cylindrical member are mounted on the mounting means for rotation therewith integrally, means for rotating the mounting means with the flange and cylindrical member secured thereto and means for energizing the welding means.

3,634,649

APPARATUS FOR AND METHOD OF JOINING STRANDED CABLE

Donald D. Rager; Robert L. Heflin, and Dana V. Wilcox, all of Richmond, Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed Mar. 19, 1970, Ser. No. 20,996

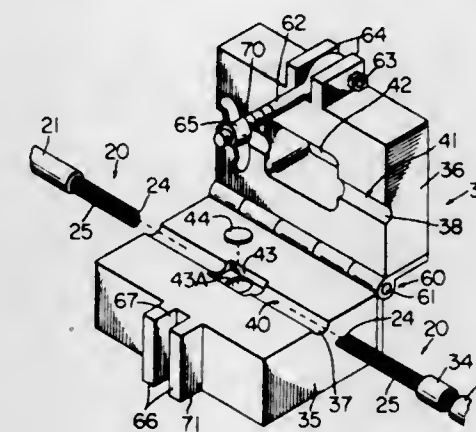
Int. Cl. B23k 9/00

U.S. Cl. 219—137

10 Claims

Stranded cables are joined utilizing apparatus and method of this invention by coating individual strands of the end portions of the cables to be joined with a suitable cleaning liquid and then ejecting a fluid under pressure against such end portions to remove the liquid and any foreign particles from the end portions including forcing such particles along the length of the cable. The cleaned end portions are then fixed in an

associated welding apparatus and welded together with a conventional welding device using an access port provided in the apparatus and the welding action provided assures that each cable strand is fused to the weld material. Any excess



weld material is then removed from the welded end portions after removal from the welding apparatus and a tubular sleeve may be fixed in position over the welded junction to reinforce the high-strength weld.

3,634,650

FILLET WELDING METHOD

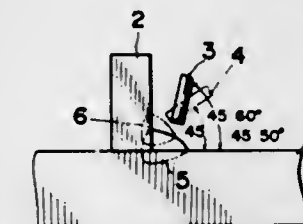
Hirokazu Nomura, Tokyo, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 20, 1970, Ser. No. 21,391

Int. Cl. B23k 9/18

U.S. Cl. 219—137

6 Claims



A method of joining steel plates or the like by depositing a fillet weld at the intersection thereof. At the intersection between a pair of such plates, one of which is substantially perpendicular to the other, a leading electrode participates in the deposition of a preliminary weld while a trailing electrode follows the leading electrode and participates in the deposition of a final weld which covers the preliminary weld. The preliminary weld serves to burn away paint or other undesirable coatings on the steel plate or the like while the welding current supplied to the trailing electrode is greater than the welding current supplied to the leading electrode by an amount sufficient to melt the preliminary weld and thus permit all organic matters which might form entrapped gas bodies or the like to become dissolved and to escape so that a perfect weld free of blowholes, piping, or other defects is achieved. The magnitude of the current supplied to the trailing electrode is on the order of twice the magnitude of the current supplied to the leading electrode.

3,634,651

SEROLOGICAL INCUBATOR

Maxwell E. Siegel, Sussex; Edward J. Rapoza, Butler, and Roger A. Chevalaz, Rockaway, all of N.J., assignors to Becton, Dickinson and Company, East Rutherford, N.J.

Filed Dec. 4, 1970, Ser. No. 95,203

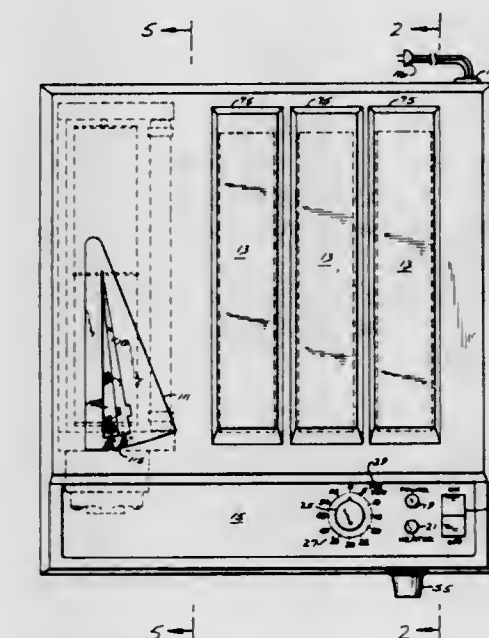
Int. Cl. F27d 11/02

U.S. Cl. 219—400

10 Claims

A hollow heat resistant plastic body has openings in a top surface thereof for receiving carriers containing objects to be

heated, each opening has a hinged hood formed to enclose parts of the carrier that extend above the top surface of the body. Each opening has associated therewith a spring-loaded elevator platform for sealing the opening to prevent air leakage when the platform is not being used and for lowering



into the body when a carrier is placed thereon. A blower is positioned within the body and adjacent to a thermostatically controlled heater for circulating air over the entire heater. A calibrated adjustable air inlet and baffles are provided to optimize the air circulation within the body and to maintain a uniform temperature.

3,634,652

AUTOMATIC TEMPERATURE CONTROL CIRCUIT IN A HIGH-FREQUENCY HEATING APPARATUS

Tetsuji Shimizu, Nagoya City, Aichi Prefecture; Hajime Sumida, Nagoya City, Sinichi Ueno; Susumu Usami, both of Nagoya City, Aichi Prefecture, and Sinzi Tatematu, Aichi Prefecture, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Saisakusho, Nishikasuga-gun, Aichi Prefecture, Japan

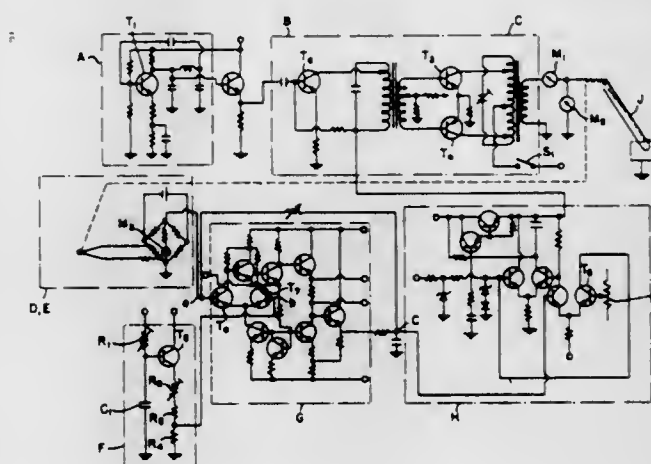
Filed Aug. 19, 1969, Ser. No. 851,314

Claims priority, application Japan, Aug. 20, 1968, 43/71167

Int. Cl. H05b 1/02

U.S. Cl. 219—497

7 Claims



An automatic temperature control circuit in a high-frequency heating apparatus comprising a differential amplifier circuit receiving at one of its input terminals signals from a temperature-setting voltage circuit and at another input ter-

minal signals from a thermister provided with a heating needle which contacts with a load to be heated and amplifying the difference between said two signals, and a voltage control circuit taking said amplified difference of signals and controlling a power voltage in a high-frequency amplitude control circuit. A high-frequency power amplifier circuit in the heating apparatus is thereby controlled so that the temperature of the heating needle at its contact point with the load can be kept under a predetermined degree of temperature.

3,634,653

THERMOSTAT CIRCUIT FOR ELECTRONIC COMPARTMENTS

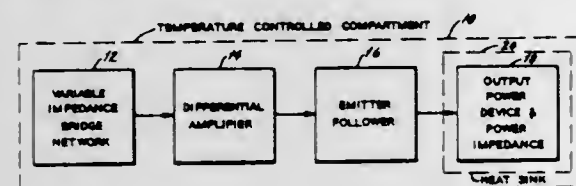
Huel C. Tucker, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed June 1, 1970, Ser. No. 42,113

Int. Cl. H05b 1/02

U.S. Cl. 219-501

10 Claims



Disclosed is an electronic thermostat circuit including a differential amplifier stage which is biased by a bridge network having a thermister and a set point resistor therein. An output power device, such as a power transistor, is DC coupled through an emitter-follower stage to the output of the differential amplifier stage and is conductively controlled by electrical signal variations at the output of the differential amplifier stage. The power device is mounted in a heat sink and dissipates sufficient heat therefrom to maintain a substantially constant temperature within a compartment housing the thermostat circuit. The thermostat circuit tracks changes of temperature inside the compartment and thereby tends to null the voltage at the output of the bridge network of the thermostat circuit.

3,634,654

ELECTRIC THERMAL WINDOW WITH AN ADJUSTABLE TERMINAL STRUCTURE

Hans Dieter Peetz, Aachen, and Herman Lurssen, Laursen, both of Germany, assignors to Compagnie De Saint Gobain, Neuilly sur Seine, France

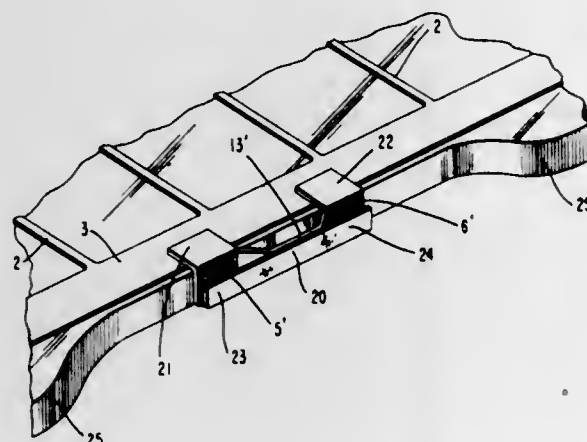
Continuation of application Ser. No. 666,795, Oct. 11, 1967, now abandoned. This application Sept. 14, 1970, Ser. No. 72,132

Claims priority, application France, Sept. 13, 1966, 76151

Int. Cl. H05b 3/06

U.S. Cl. 219-522

14 Claims



A thermal window having a glass pane, an electrical heating grid including bus bands affixed to the glass pane, and flat

terminals having spaced portions fixedly attached to the bus bands at spaced points. The terminal intermediate the fixed points of attachment being free of attachment to the glass pane and the bus band and capable of easy change in dimension in response to external stimuli.

3,634,655

MULTIPLE HEATING PAD ASSEMBLY

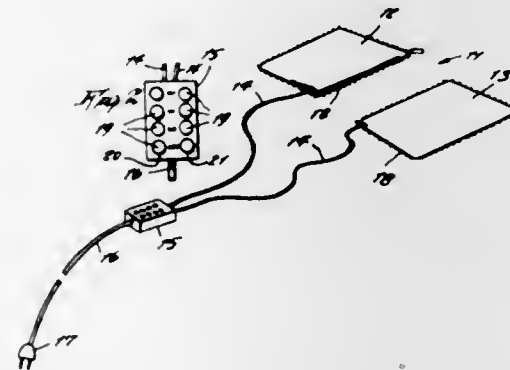
Mickey S. Jordan, 4371 Glenwood Road Apt. C-1, Decatur, Ga.

Filed Mar. 20, 1970, Ser. No. 21,294

Int. Cl. H05b 3/06

U.S. Cl. 219-527

2 Claims



An improved heating pad unit comprising a pair of individual heating pads which may be selectively joined together and positioned one over the other to form a single twin-heat unit, or wherein the individual heating pads may be separated and used as two heating pads for positioning against different parts of a patient's body.

3,634,656

CREDIT CONTROL SYSTEM

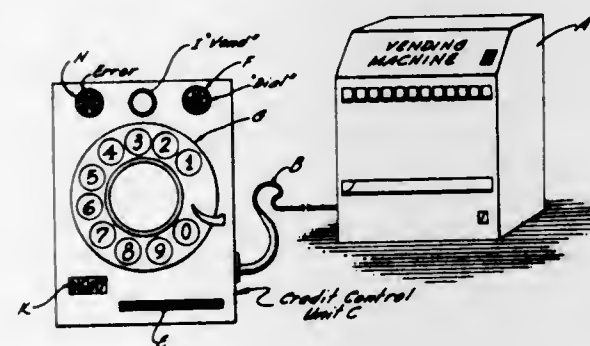
Kenneth Robert Krechmer, Beverly Hills, and Isidore William Salmon, Van Nuys, both of Calif., assignors to Canteles Corporation

Filed Oct. 31, 1967, Ser. No. 679,410

Int. Cl. G06k 7/08

U.S. Cl. 235-61.7 B

27 Claims



A credit card system is described wherein credit cards are equipped for magnetic recording of credit balances and cooperate with a control unit reproducing the recorded data, updating the value and recording the updated value on the card. The system is designed for slow card motion operation and is tamper proofed. The control unit may control automatic vending operations and can be adapted to selectively add or subtract numbers to the reproduced credit balance.

3,634,657

ELECTRONIC READER MEANS FOR MAGNETIC CREDIT CARDS AND THE LIKE

Louis M. Ballard, and Waldo I. Rogers, both of Arcadia, Calif., assignors to Rusco Industries, Inc., Los Angeles, Calif.

Filed July 16, 1969, Ser. No. 842,190

Int. Cl. G06k 7/08; H03k 1/00

U.S. Cl. 235-61.11 D

7 Claims



A nonconductive substrate supports resistive elements with a plurality of parallel current paths, and a magnetic card is adapted to be positioned with a plurality of magnet portions thereof aligned with said elements. The resistive elements may be respective elements or different parts of a strip of resistive material. Embodiments are shown in which the elements are connected to a DC voltage source, and a respective DC amplifier is coupled to each element to develop a positive or negative output voltage depending upon the polarity of the end of the card magnet portion adjacent the element. In another embodiment, the elements are connected to an AC reference voltage source, and a respective AC amplifier is coupled to each element to develop an output that is in phase or out of phase with the reference voltage depending upon the polarity of the end of the card magnet portion adjacent the element. In the latter embodiment, phase detectors coupled to the AC amplifiers develop positive or negative outputs depending upon the phase relations of the amplifier outputs to the AC reference voltage.

3,634,658

PARALLEL BIT COUNTER

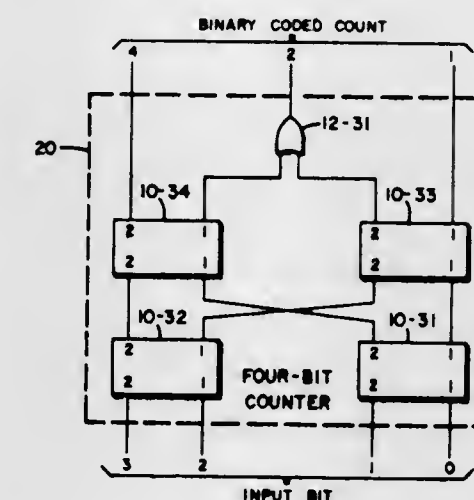
Richard R. Brown, New Brighton, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Mar. 19, 1970, Ser. No. 20,953

Int. Cl. H03k 21/12

U.S. Cl. 235-92 LG

2 Claims



A counter that generates the binary coded sum of a number of equally weighted parallel input bits. The counter is constructed of a plurality of similar building block circuits and OR circuits; each building block circuit has first and second inputs and generates as first and second outputs the EXCLUSIVE OR function and the logical product, respectively, of the two inputs. Counters of 2^n bits (where n is a positive integer equal to or greater than 2) may be constructed.

3,634,659

HYBRID COMPUTER USING A DIGITALLY CONTROLLED ATTENUATOR

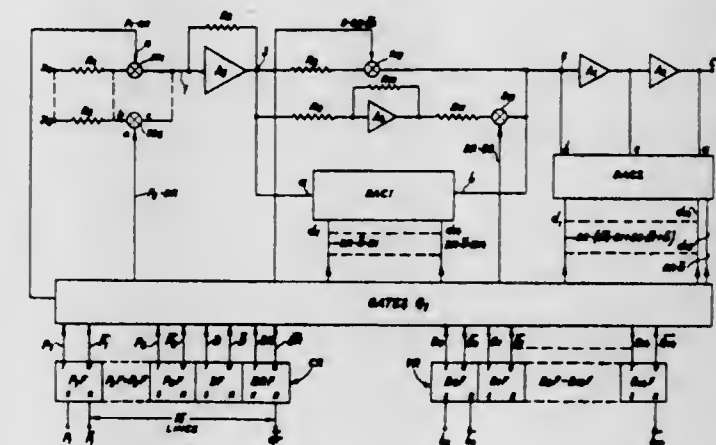
Paul G. Lucas, Sudbury, and Robert P. Talambiras, Brookline, both of Mass., assignors to Adage, Inc., Boston, Mass.

Original application Oct. 23, 1965, Ser. No. 503,291, now Patent No. 3,470,487, dated Sept. 30, 1969. Divided and this application June 18, 1969, Ser. No. 834,440

Int. Cl. G06j 1/00

U.S. Cl. 235-150.52

4 Claims



A hybrid computer for the high-speed multiplication or division of an analog signal by a number represented by a digital signal. The hybrid computer comprises a control register for storing a digital control expression determining the transfer function of the computer, and a value register for storing a digital value signal representing a digital number to be operated on in accordance with the selected transfer function. Also included are a set of input terminals, to which a desired number of analog signals may be applied, an output terminal for producing an analog signal, and a network including analog computing components and switches interconnecting the input terminals to the output terminals in an array determined by the control expression.

3,634,660

I. S. MACHINE CONTROL SYSTEM

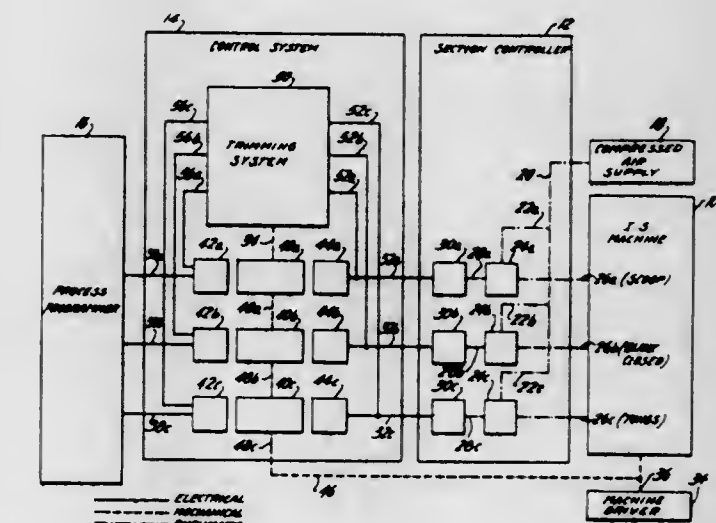
James M. Moran, Leominster, and Robert J. Saul, Boston, both of Mass., assignors to Glass Container Industry Research Corporation, New Castle, Pa.

Filed July 9, 1970, Ser. No. 53,570

Int. Cl. G05b 19/16; G04c 23/26

U.S. Cl. 235-151.1

8 Claims



A system for directing operation of the individual sections of a glass container making machine for initiating and discon-

tinuing section operation at preestablished times in the machine operating cycle and, upon demand, at other times in said cycle. Storage means containing a preestablished cam is associated with each section and section operation is initiated and discontinued in accordance with the cam, the time characteristics of the cam being modified by a cam-trimming system upon said demand.

3,634,661

DATA PROCESSING METHOD FOR MINIMIZING POTENTIAL ERRORS OCCURRING DURING LINEAR AND CIRCULAR INTERPOLATION

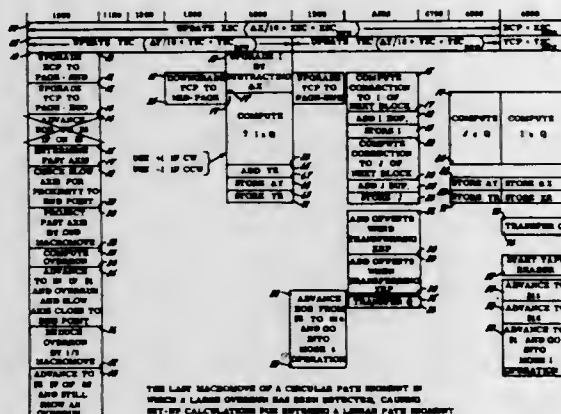
Arthur O. Fitzner, Fond du Lac, Wis., assignor to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed Sept. 26, 1968, Ser. No. 762,836

Int. Cl. G05b 19/30

U.S. Cl. 235—151.11

17 Claims



Successive linear or circular arc path segments are represented by successive "blocks" of data. A corrective change is made in the data block representing a given path segment if the preceding path segment did not terminate exactly at its designated end point.

3,634,662

NUMERICAL CONTROL SYSTEM AND METHOD

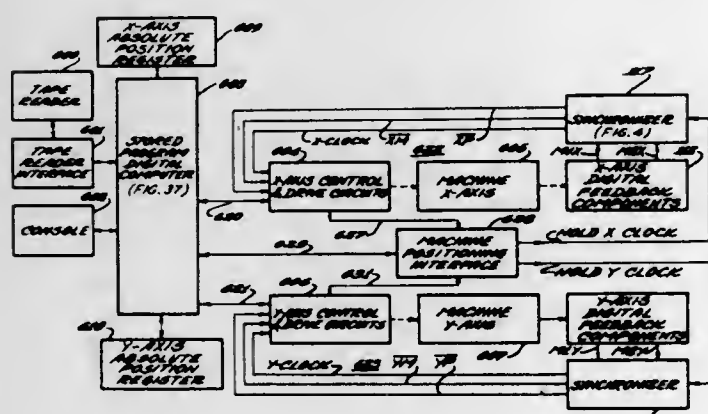
Kenneth Leonard Slawson, Depew, N.Y., assignor to Hou-daille Industries, Inc., Buffalo, N.Y.

Continuation-in-part of application Ser. No. 652,968, July 12, 1967, now abandoned. This application July 12, 1968, Ser. No. 744,392

Int. Cl. G06f 15/46; B23q 21/00

U.S. Cl. 235—151.11

42 Claims



A control system having a stored program digital computer for transmitting commands to digital servos for one or a plurality of punch presses; for changing new commands to correct for preceding servo errors and/or mechanical tolerance errors in the servos; the monitoring machine tool and servo condition and supervising punching, tool change and posi-

tioning operations; and having provision for assisting in the generation of coded record command tapes on the basis of incremental and/or absolute dimensional input, on a time sharing basis with automatic operation of the servos from a previously generated record tape.

3,634,663

REMOTE READING MEASURING SYSTEM

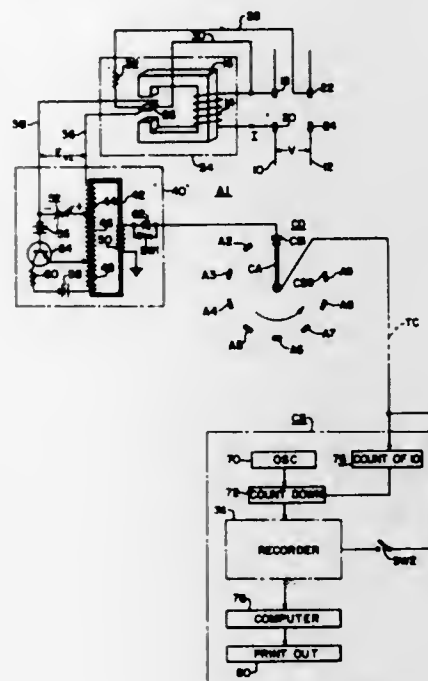
Wallace L. Williams, Raleigh, N.C., and David F. Wright, Bolton, Mass., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 25, 1969, Ser. No. 801,949

Int. Cl. G08c 19/00; G06f 15/20; G01r 19/16

U.S. Cl. 235—151.31

10 Claims



From each of a large number of remote stations an alternating current having a frequency dependent on a quantity to be measured is generated for the purpose of being transmitted to a central station at which measurements are to be computed or recorded. Each quantity is sampled at intervals. At the central station the samples are computed to determine the desired quantities and suitable records are prepared.

3,634,664

ADAPTIVE AND MANUAL CONTROL SYSTEM FOR MACHINE TOOL

Robert J. Valek, Brookfield, Wis., assignor to The Bendix Corporation

Filed Apr. 4, 1969, Ser. No. 813,456

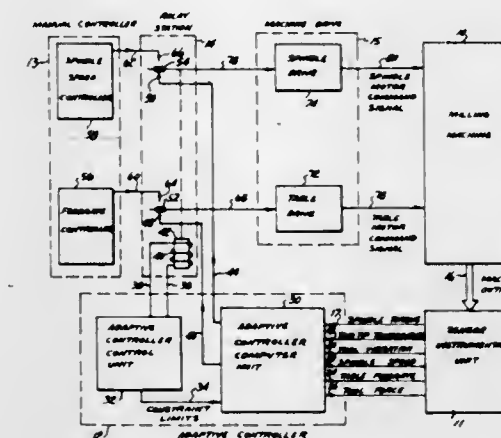
Int. Cl. G05b 13/02; G06f 15/46

U.S. Cl. 235—151.11

10 Claims

A control system for milling machines, and like metal-cutting machines, adapted to control the operation of the milling machines, at the option of an operator, in either a manual or an adaptive control mode. In the manual mode, a manual controller, comprising manually adjustable controls, is set to supply control signals having values determined by the settings to the milling machine drive system. In the adaptive control mode, an adaptive controller automatically generates control signals as a function of physical manifestations which exist at the work area when the milling cutter perform machining operations upon the workpiece. The physical manifestations are sensed and manifestation signals, which are a function of the physical manifestations sensed, are generated and supplied to a computer in the adaptive controller which compares the manifestation signals with constant signals having values establishing desired ranges of machine operation. If the manifestation signals have values which are within the range of values set by the constant

signals, control signals are generated to increase machine productivity in accordance with a predetermined strategy. If the values of the manifestation signals are without the range of values set by the constant signals, restricting control



signals are generated. The drive system receives the control signals and generates command signals in accordance with the values of the control signals received. The command signals are fed to the machine to regulate the relative rate of movement of the cutter and workpiece.

3,634,665

SYSTEM USE OF SELF-TESTING CHECKING CIRCUITS

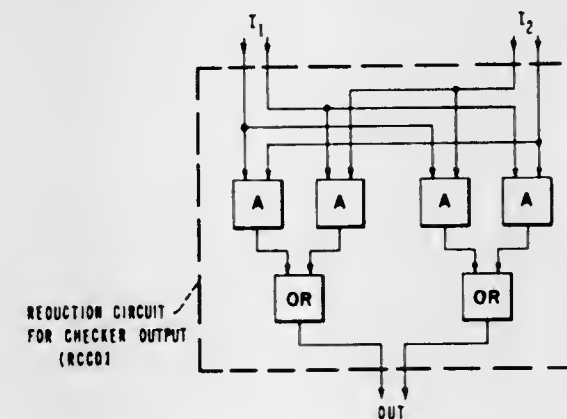
William C. Carter, Ridgefield, Conn., and Peter R. Schneider, Peekskill, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,596

Int. Cl. G06f 15/16

U.S. Cl. 235—153

9 Claims



A self-testing error-checking system for inclusion in a computer comprising a plurality of self-testing check circuits, each said circuit having a two-rail complementary output whenever both the circuits being tested and the checking circuit is operating properly and an identical output on each of the two output lines whenever a fault is detected. The improvement which comprises reduction checking means connected to all said two-rail outputs from said checking circuits, and means connected to the output of said reduction checker means for at least indicating that a failure has occurred. The output of said reduction checker itself is two rail and complementary when all inputs are correct and the checker itself is operating properly. The output of the present checking system may be connected to a computer interrupt circuit or to a visual logout means. Alternatively, the system output may be utilized to effect automatic self-repair.

3,634,666

ELECTRONIC DESK TOP CALCULATOR HAVING A DELAY LINE AND AUTOMATIC DECIMAL ALIGNMENT

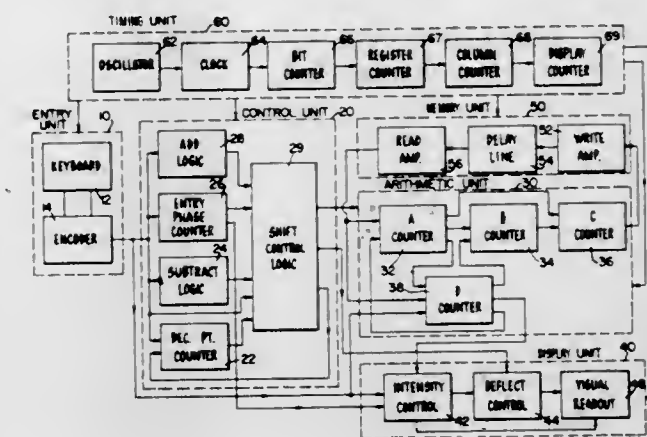
Robert A. Ragen, Hayward, Calif., assignor to The Singer Company

Original application Oct. 29, 1963, Ser. No. 319,704, now Patent No. 3,546,676, dated Dec. 8, 1970. Divided and this application Nov. 29, 1968, Ser. No. 779,666

Int. Cl. G06f 7/38

U.S. Cl. 235—156

27 Claims



An electronic desk top calculator having a recirculating memory and an arithmetic unit comprising a plurality of single character registers, which are shared with the memory. Data shifting operations, as well as some arithmetic operations, are performed by shifting data entered into an entry register a number of digit order positions controlled by the setting in a decimal point counter. The decimal point counter is controlled by a multiposition switch and other circuitry actuable by a decimal point key.

3,634,667

DIGITAL INTERPOLATOR

Kiyokazu Okamoto, and Masayuki Miyazaki, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

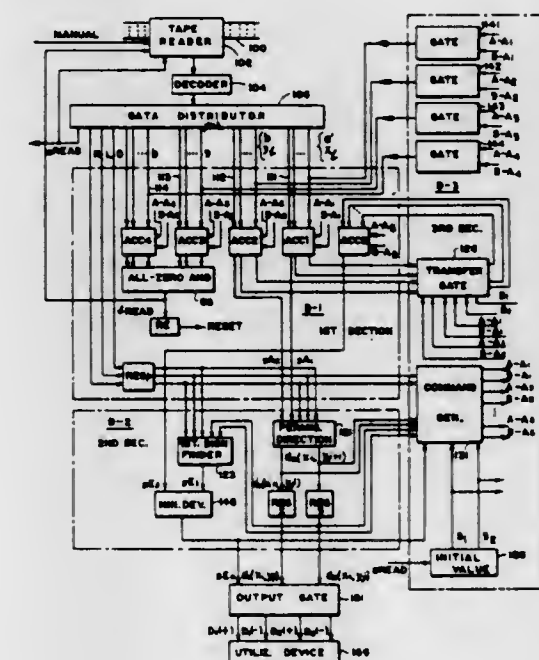
Filed Apr. 27, 1970, Ser. No. 32,094

Claims priority, application Japan, Dec. 21, 1965, 40/78771

Int. Cl. G05b 19/24

U.S. Cl. 235—152

9 Claims



A two dimensional curve $f(x, y)=0$ to be followed up or reproduced is replaced with at least one straight line segment and/or circular arc. Supplied with the data defining the kind

3,634,674

PORTRAIT UNIFORM LIGHTING DEVICE

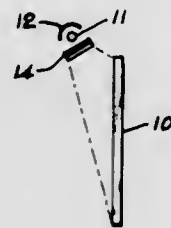
Fordyce E. Tuttle, deceased, late of Palm Beach, Fla., and Eleanor Porter Tuttle, executrix, P.O. Box 908, Palm Beach, Fla.

Filed Sept. 15, 1969, Ser. No. 858,911

Int. Cl. F21v 11/00, 5/00, 13/02

U.S. Cl. 240—1

7 Claims



An accessory for uniformly illuminating a picture or the like comprising a treated film and a transparent cylindrically lenticulated support positioned between an illuminating source and a picture providing uniform illumination to the viewer and the method of making the same.

3,634,675

HIGH-INTENSITY RADIATION DEVICE

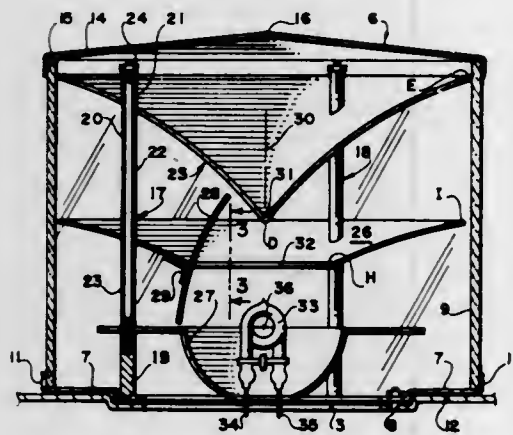
Andrew Madsen, Alamo, and John W. Hardy, Danville, both of Calif., assignors to Unitron International Systems, Inc.

Filed Aug. 7, 1969, Ser. No. 848,205

Int. Cl. B64f 1/20

U.S. Cl. 240—1.2

7 Claims



A compact high-intensity radiation device suitable for use as a light signaling means and for other purposes includes a base, an enclosing envelope mounted on the base and constructed of translucent material together with a cover portion of opaque material mounted atop the envelope to define a housing structure in which a main reflector and a secondary reflector are disposed in coaxial relationship with each other, each of said reflectors having reflecting surfaces of parabolic configuration. A point source of light is mounted at the focus of both the main and secondary reflectors and is surrounded by a hemispherical reflector. All reflectors are supported on the base by means of a plurality of support studs and a cutoff reflector is mounted on the secondary reflector to prevent undesired reflections within a limited segment, the device being generally adapted to direct a cone of light in all remaining horizontal directions and wherein the cone of light may be directed through an angle between a minimum of approximately 2° above horizontal and a maximum of approximately 20° thereabove.

3,634,676

COMBINED SPECTACLE FRAME AND LIGHT

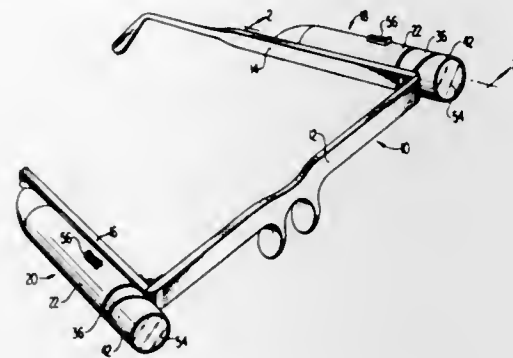
Angelo Castellano, 2710 Walnut Street, Tampa, Fla.

Filed Mar. 23, 1970, Ser. No. 21,814

Int. Cl. F21l 9/00, 15/14

U.S. Cl. 240—6.4 W

6 Claims



A lighting device including a spectaclelike frame to be worn on the head and including a battery-powered light assembly on each temple member of the frame. The lights are capable of being focused individually to selectively illuminate either a single area or two separate areas.

3,634,677

LIGHTING CONTROL FOR MOTOR VEHICLE LAMPS

Gerhard Wolffing-Seelig, Stuttgart; Gerhard Conzelmann, Leinfelden-Unterach; Gunter Schlirmer, Leinfelden, and Helmut Domann, Leonberg, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

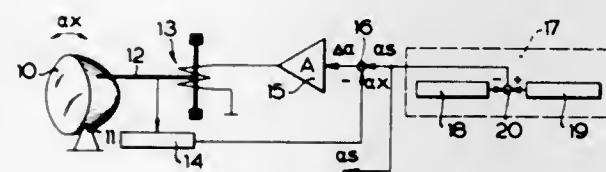
Filed Oct. 23, 1969, Ser. No. 868,857

Claims priority, application Germany, Oct. 31, 1968, P 18 06 312.2

Int. Cl. B60q 1/10

U.S. Cl. 240—7.1 LJ

23 Claims



A regulating arrangement for inclining lamps on a motor vehicle as a function of the inclination of the longitudinal axis of the vehicle with respect to the road surface. A potentiometer mounted between the chassis and the axle of the vehicle provides a signal representing the inclination of the axis of the vehicle with respect to the road surface. This signal serves as an input to a comparator which develops a difference signal by comparing the potentiometer output with a signal derived from the actual position of the lamp. The difference signal is amplified and applied to a positioning element in the form of a bimetallic member through which the lamps are positioned. A second potentiometer is used to provide the feedback signal for the comparator as a function of the actual displacement of the lamp.

3,634,678

DESIGN ACTIVITY SET

Marvin I. Glass, Chicago, and Palmer J. Schoenfeld, Evanston, both of Ill., assignors to Marvin Glass & Associates

Filed July 16, 1970, Ser. No. 55,446

Int. Cl. F21v 17/00, 33/00

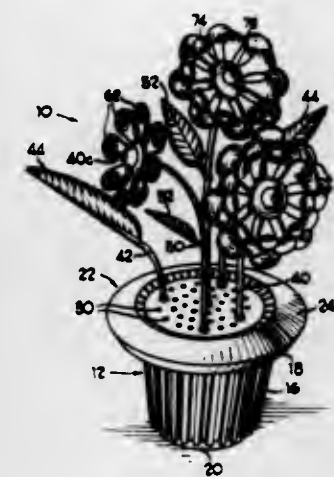
U.S. Cl. 240—10 P

13 Claims

A design activity hobby set of a flower-arranging-type characterized by the provision of a base having a light source therein with stem-receiving apertures in the closed top of the

base and translucent rodlike stem tubes for reception in the apertures with at least some of the stem tubes terminating in a petal-receiving end for assembling plural translucent plastic

conventional digitally operable reciprocally slidable or button switch with which flashlights are equipped and which operate on the principle of connection to one pole of the battery or batteries through the flashlight casing where it is metal or through a conductor in or on the casing, and the opposite pole of the battery or batteries through a conductor insulated from the casing or the first-mentioned conductor. In



petal components thereon for creating individual simulated flower arrangement designs to be illuminated by the light from the light source in the base being transmitted upwardly through the translucent rodlike stems.

3,634,679

DECORATIVE LIGHTING APPARATUS

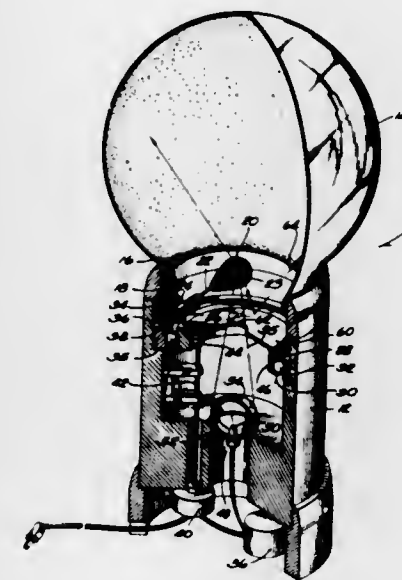
Michael J. Krzyston, 3800 South 84 Street, Milwaukee, Wis.

Filed June 19, 1970, Ser. No. 47,816

Int. Cl. F21p 3/00

U.S. Cl. 240—10.1

9 Claims



Disclosed herein is lighting apparatus for display or decorative purposes in which a multifaceted jewel or a light dispersing and deviating element located between a focused light source and a screen or frosted globe is rotated about first and second transverse axes to provide variegated or kaleidoscopic lighting effects on the globe.

3,634,680

PLUG-IN FLASHLIGHT EXTENSION

Truman L. Myrah, 48 Dewey Avenue, Northlake, Ill.

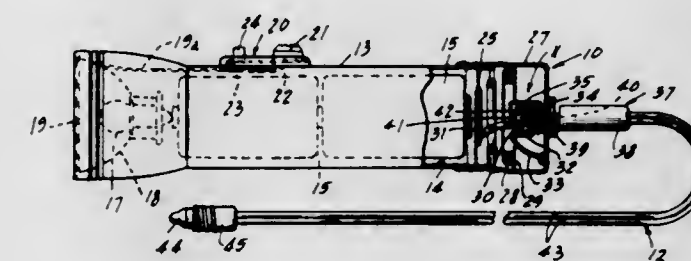
Filed Aug. 3, 1970, Ser. No. 60,366

Int. Cl. F21l 7/00

U.S. Cl. 240—10.6

10 Claims

A plug-in flashlight extension embodies an extension cord having a plug which is removably insertable in a jack carried by a flashlight assembly and connected in circuit with a switch carried by the flashlight casing and which may be the



one desirable arrangement, the jack is provided with means to disconnect the switch circuit from the conventional front-end light bulb socket. In another arrangement the jack is adapted to replace the front-end lamp bulb socket. A storage compartment is optionally provided for the extension cord when not in use. A probe light extension is optionally provided for the extension cord.

3,634,681

INTEGRAL BALLAST, LAMPHOLDER SUPPORT AND WIREWAY

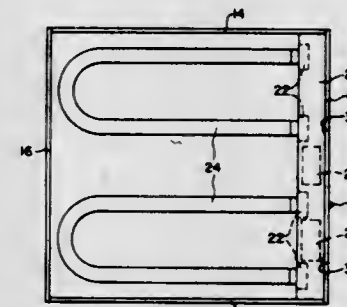
James C. Johnson, and William R. Eargle, Jr., both of Arlington, Tex., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 20, 1969, Ser. No. 808,873

Int. Cl. H05b 33/02

U.S. Cl. 240—51.12

5 Claims



A shallow lighting fixture for U-shaped fluorescent lamps having an integral electrical component compartment at one end of the fixture. The integral electrical component compartment accommodates in a compact closely spaced relationship, the capacitor, ballast coil, lampholders and wireway and provides for a substantial reduction in size, materials and weight in a fluorescent lighting fixture.

3,634,682

LASER INTERFEROMETER-TYPE SERVO-POSITIONING SYSTEM COMPRISING VELOCITY CONTROL NETWORK AND PHASE-LOCK NETWORK

Nathan Gold, Framingham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 13, 1970, Ser. No. 11,123

Int. Cl. G01b 9/02; G01j 1/20

U.S. Cl. 250—201

39 Claims

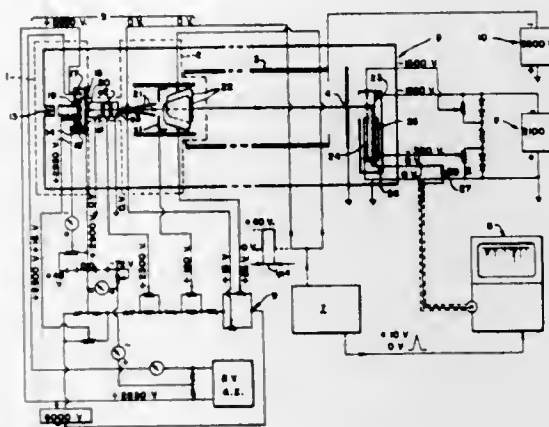
A precision servo-positioning system is provided for moving a stable platform to a predetermined position with extremely fine accuracy. Basically, a laser interferometer is utilized to detect changes in the position of the stable platform and provides output signals to an electronic control network

which in turn provides input signals to a motor used to drive the platform.

The electronic control network includes a velocity control network, a phase-lock network, and a velocity feedback network. The velocity control network provides a DC level input signal to the motor driving the platform such that the platform will be caused to attain a predetermined velocity and includes means for monitoring the output signals from the laser interferometer and determining velocity information therefrom. The velocity control network converts this velocity information into a DC level which is negatively fed back to the motor so as to null the input thereto when the platform has achieved a predetermined velocity. Once the platform has achieved such predetermined velocity, it continues to move under its own momentum.

As the moving platform approaches a predetermined position, at its predetermined velocity, the velocity control network is switched off and a phase-lock network is switched on to bring the moving platform to rest at such predetermined position. The phase-lock network incorporates a reference

provides ion bunching wherein the number of ions in each packet is independent of mass and the resolution is independent of mass.



dent of mass resulting in a sensitivity that is independent of mass.

3,634,684

ELECTRON BEAM SCANNING APPARATUS

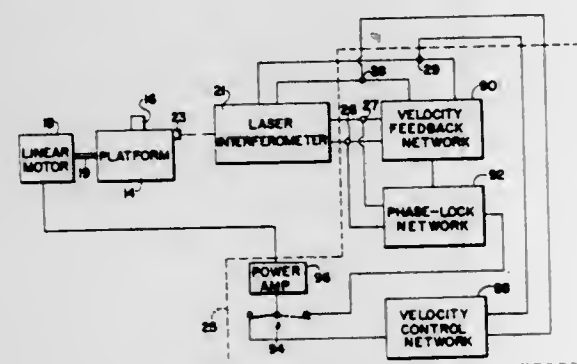
Masayuki Sato, Tokyo, Japan, assignor to Nihon Denshi Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 17, 1970, Ser. No. 20,199

Claims priority, application Japan, Mar. 17, 1969, 44/20193
Int. Cl. H01J 37/28

U.S. Cl. 250-49.5 D

4 Claims



signal source and compares the output signals from the laser interferometer with the signal from said reference to generate an error signal indicative of the phase difference between the setting of said reference signal source and said laser output signals. When the phase difference between the reference signal source setting and the signals from the laser interferometer is a predetermined amount the error signal will be 0. This error signal is fed back to the motor, which drives the stable platform, and is polarity sensitive to the phase difference between the laser interferometer output signals and the reference signal source setting. Thus, the phase-lock network will provide signals to the motor tending to drive the platform toward the predetermined position at which the error signal will be 0.

A velocity feedback network is used in conjunction with the phase-lock and provides negative feedback signals to the motor so as to oppose the velocity of the platform. Thus, the velocity feedback network serves to prevent the platform from overshooting the predetermined position and entering a cogging mode.

3,634,683

TIME-OF-FLIGHT MASS SPECTROMETER WITH STEP-FUNCTION-CONTROLLED FIELD

Johannes M. B. Bakker, Sittingbourne, England, assignor to Shell Oil Company, New York, N.Y.

Filed Apr. 13, 1970, Ser. No. 27,803

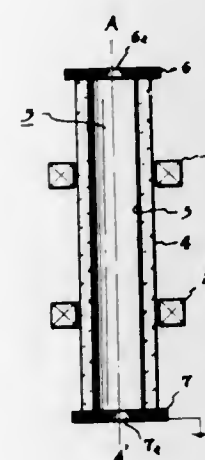
Claims priority, application Great Britain, Apr. 18, 1969, 20,005/69

Int. Cl. H01J 39/36

U.S. Cl. 250-41.9 TF

13 Claims

The performance of a time-of-flight mass spectrometer is improved by applying a step voltage to the deflection plates to produce a step-function-controlled electrical field perpendicular to the ion beam. The step-function-controlled field



An electron beam scanning apparatus comprising a chamber defined, for example, by a cylindrical glass structure spaced about a mean electron beam path. Deflection coils are positioned outside the chamber. An electroconductive coating, for example, a layer of gold vapor deposited on the inside surface of the structure is grounded. The electron beam is deflected by magnetic fluxes at right angles to the path produced by deflection coils. Stray electrons are collected by the electroconductive coating.

3,634,685

DEVICE TO MAINTAIN POSITION FOR CHEST RADIOGRAPHY

James A. Orwig, 109 Temple Terrace, Clarksburg, W. Va.

Filed May 19, 1970, Ser. No. 38,724

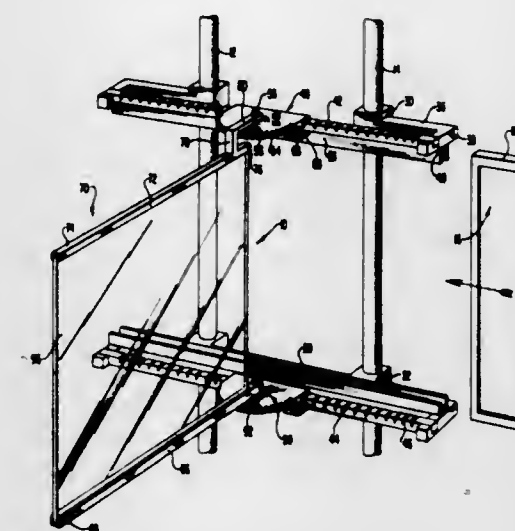
Int. Cl. G03b 4/116

U.S. Cl. 250-50

2 Claims

A cassette holder for radiography has slotted bars disposed forwardly of the cassette with angle brackets engaged in the

slots. Holders are mounted on the angle brackets to support a said source to a cassette and exposed film from a cassette to film-receiving means, said transfer means adapted to pass



transparent plate which serves to positively locate the patient during cassette exposure.

3,634,686

X-RAY STRESS-MEASURING APPARATUS

Junichiro Sekita, Tokyo, Japan, assignor to Rigaku Denki Company Limited, Tokyo, Japan

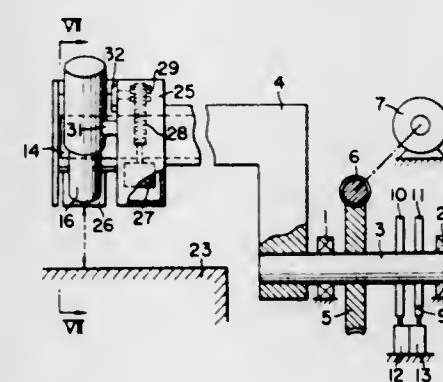
Filed Nov. 13, 1969, Ser. No. 876,259

Claims priority, application Japan, June 17, 1969, 44/47313;
44/56557

Int. Cl. G01n 23/20

U.S. Cl. 250-51.5

2 Claims



The present invention provides an X-ray stress-measuring apparatus wherein the angle of diffraction of X-rays is found out under rotary oscillation of a base equipped with an X-ray tube and an X-ray detector through a small angular range.

3,634,687

CASSETTE LOADING AND UNLOADING APPARATUS

James H. Somerset, 140 Humbert, Syracuse, N.Y., and Thomas T. Kassal, 19 Cotswold Drive, Centerport, N.Y.

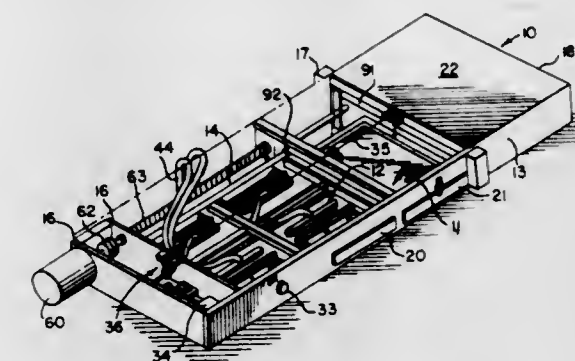
Filed June 15, 1970, Ser. No. 45,958

Int. Cl. G03c 3/00

U.S. Cl. 250-66

8 Claims

Apparatus for loading and unloading film from a cassette comprising a lighttight enclosure having a cassette access opening, a source of unexposed film, said source being in substantially planar alignment with said cassette access opening, means for opening and closing a cassette, and means moving in translation for transferring unexposed film from



between the separated portions of a cassette when it is in an open position.

3,634,688

MULTIMODE SPECTRAL ANALYZER

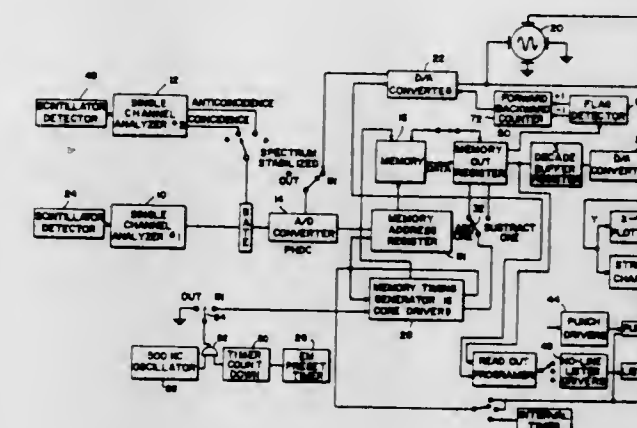
James V. Di Rocco, Winchester, Mass., assignor to Baird-Atomic, Inc., Cambridge, Mass.

Continuation of application Ser. No. 648,495, June 23, 1967, now abandoned. This application Jan. 19, 1970, Ser. No. 4,452

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 R

9 Claims



A multimode spectral analyzer which is capable of operating selectively as a multichannel pulse height analyzer, a multiscaler, a Mossbauer analyzer, or as a signal enhancer is provided for processing the output of radiation detectors. The multimode spectral analyzer includes a multichannel analyzer for determining the pulse amplitude range to be analyzed, an analog to digital converter for providing a series of pulses proportional to the pulse heights from the multichannel analyzer, a memory for storing the series of pulses from the analog to digital converter, and a display for presenting the information stored in the memory.

3,634,689

AUTOMATIC POSITION OR CONDITION CONTROL DEVICES USING RELATIVE ROTATION, LINEAR POSITIONING, AND MAGNIFICATION

Masakazu Ejiri, Hachioji-shi; Akira Kamoi, Musashino-shi; Toshio Numakura, Kodaira-shi; Kenichi Isoda, Kokubunji-shi, and Ryutaro Mori, Kodaira-shi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 22, 1969, Ser. No. 818,454

Int. Cl. G01J 1/20, 1/36; G05b 1/00

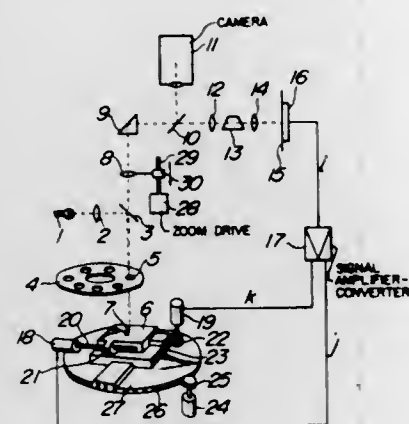
U.S. Cl. 250-201

10 Claims

An automatic condition control device comprising detecting means including at least a pair of detecting elements, such as photocells, spaced from each other and having a

boundary spaced therebetween. Means are provided for supplying to the detecting means an image of the object to be

cause sampling of deflection currents at the time of occurrence of said leading and trailing edges. The thus sampled currents are averaged to produce an analog output signal indicative of the angular position of the source of the radiant



measured and controlled, and the output of the detecting means is used to automatically adjust the relative position of the object or the image of the object.

3,634,690

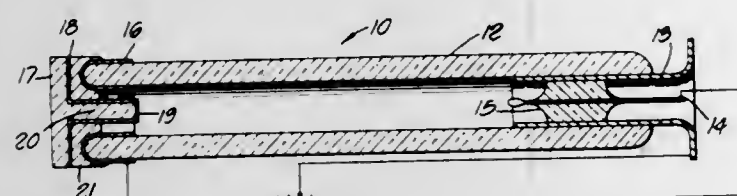
TUBULAR PHOTOCELL WITH SECONDARY EMISSION FROM INTERNAL SURFACE

John M. Grant, Granada Hills, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Mar. 23, 1970, Ser. No. 21,918
Int. Cl. H01j 39/12

U.S. Cl. 250-207

4 Claims



A photocell using channel-type electron multiplier operation. The photocell has a glass body which acts as a structural portion of an evacuated envelope and, at the same time, is provided with one or more holes therethrough which have surfaces that will support secondary emission.

The method of the invention utilizes a molten metal to seal off all the envelopes in a group simultaneously. The method, thus, achieves high-production efficiency.

3,634,691

APPARATUS AND METHOD FOR SENSING RADIANT ENERGY AND DETERMINING THE POSITION OF THE SOURCE

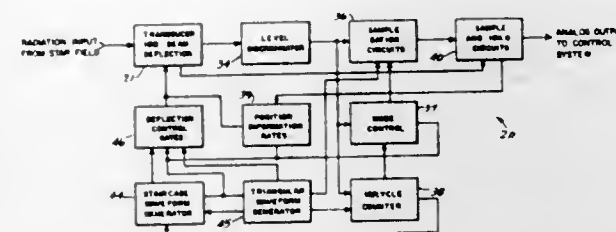
James R. Bancroft; Richard L. Cleavinger, both of Boulder, Colo.; James M. Hall, Bethesda, and Mark Harris, Wheaton, both of Md., assignors to Ball Brothers Research Corporation, Boulder, Colo.

Filed Feb. 14, 1968, Ser. No. 705,442
Int. Cl. G01j 1/20

U.S. Cl. 250-203

31 Claims

An apparatus and method for conducting a search of a predetermined area for radiant energy utilizing a raster-type scan and responsive to receipt of radiant energy automatically shifting the operational mode from search to track after which that portion of the predetermined area within which the radiant energy was located is repeatedly unidirectionally swept with each succeeding sweep being in quadrature relationship to the previous sweep. A pulse indicative of received radiant energy is produced during each sweep and if of sufficient magnitude, the leading and trailing edges are utilized to



energy within the predetermined area along the particular axis established by the sampled sweep currents. Also provided is a selection circuit whereby a particular source of radiant energy can be selected to the exclusion of other sources within the predetermined area.

3,634,692

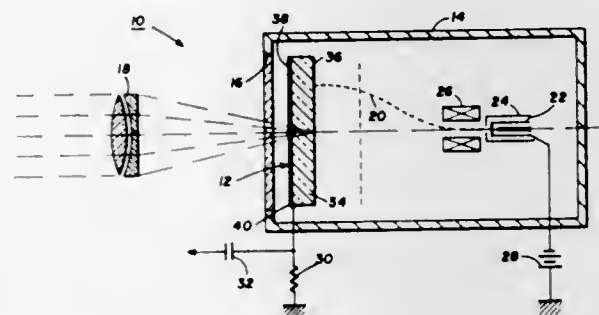
SCHOTTKY BARRIER LIGHT SENSITIVE STORAGE DEVICE FORMED BY RANDOM METAL PARTICLES

Francois A. Padovani, Dallas, and George C. Sumner, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed July 3, 1968, Ser. No. 742,323
Int. Cl. H01j 39/12

U.S. Cl. 250-211 J

6 Claims



An electronic camera utilizing a solid-state light sensitive storage device comprised of a sheet of semiconductor material having a large number of very small electrically isolated metal spots on one surface of the sheet each forming a rectifying, capacitive junction of the type referred to as a Schottky barrier. An electron beam is scanned over a surface upon which the metal spots are formed to reverse bias and capacitively charge the rectifying junctions. A light image focused on the other side of the semiconductor slice discharges each discrete capacitor in proportion to the intensity of the light at the location of said discrete capacitor. The current required to recharge each capacitor as the electron beam is scanned produces an output voltage across a load resistance. The light sensitive storage device is fabricated by properly preparing the surface of the substrate and then evaporatively depositing a layer of the metal, e.g. platinum or gold, at a temperature such that the metal nucleates to form a very thin, discontinuous film having discrete electrically isolated microscopic globules.

3,634,693

BANDWIDTH COMPANDOR SYSTEM

George G. T. Broussaud, and Erich Spitz, both of Paris, France, assignors to Thomson-CSF

Filed Feb. 17, 1970, Ser. No. 11,973
Int. Cl. G02f 1/28

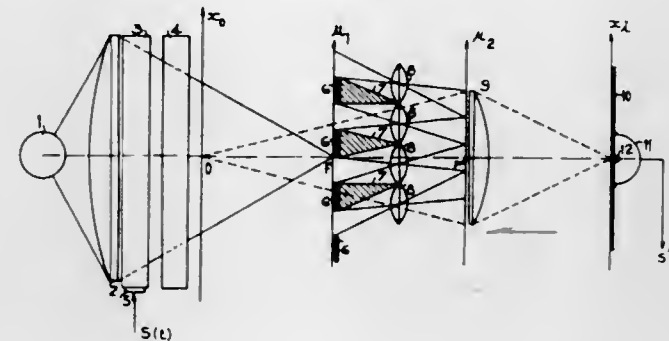
U.S. Cl. 250-216

11 Claims

In order to narrow the bandwidth of a communication channel through which electrical signals are to be transmitted

the latter are passed through an electro-optical device comprising double-diffraction optical system employing monochromatic light. The double-diffraction system is equipped with an electro-optical modulator to which the

light, the amount of light permitted to shine through the attenuator being a function of the intensity of the light, and (b) produces a rose diagram by providing a rotatable slit of adjustable length that is rotated in synchronism with the spatial



electrical signals are applied and a photoelectric transducer collects the spatially modulated monochromatic light after filtering therefrom of certain spectrum components, the remaining spectrum components having been juxtaposed.

3,634,694

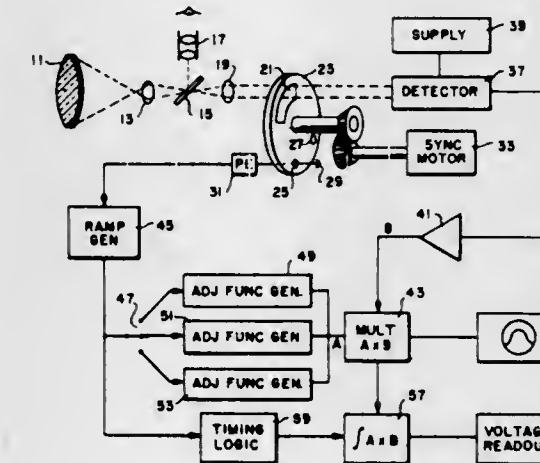
PROGRAMMED-RESPONSE SPECTRAL SCANNING TELEPHOTOMETER SYSTEM

George K. C. Hardesty, Mayo; Joseph W. Dickey, and Donald J. Waltman, Jr., both of Annapolis, all of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Mar. 18, 1969, Ser. No. 808,209
Int. Cl. G02f 1/28

U.S. Cl. 250-217

19 Claims



Visible and near visible light is spectrally scanned to produce a detection signal which is combined with another signal representing a correction function so that combination of the signals produce a response function essentially equivalent to that of the human eye for a wide variety of types of sources.

3,634,695

AUTOMATIC TRANSFORM ANALYZER

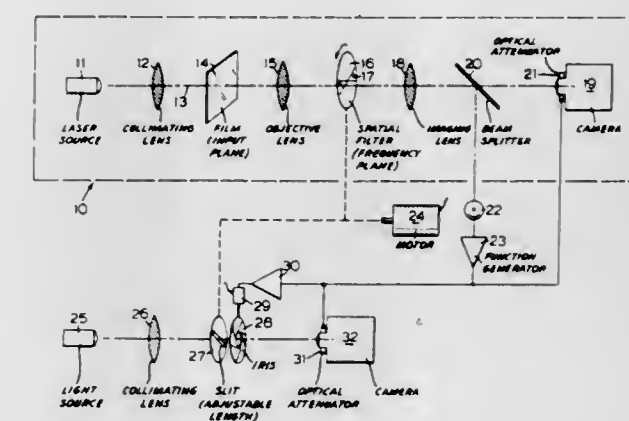
Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Rexdale, Ontario, Canada

Filed Feb. 2, 1970, Ser. No. 7,964
Claims priority, application Canada, Feb. 4, 1969, 06025/69
Int. Cl. G01n 21/30

U.S. Cl. 250-219 F

9 Claims

An optical data processing system of the coherent spatial filter type which (a) produces enhancement of the contrast of filtered images before they are photographed by providing a controllable optical attenuator in the path of the filtered



3,634,696

RADIATION-SENSITIVE OPTICAL SCANNING APPARATUS

Ernest Wildhaber, 124 Summit Drive, Rochester, N.Y.

Filed Mar. 9, 1970, Ser. No. 17,792

Int. Cl. G08c 9/06

U.S. Cl. 250-219 D

16 Claims



A line of light produced by an incandescent lamp is set coincident with the axis of a rotor that contains a plurality of lenses. These successively form a light image of said line of light on a record. Upon rotation of the rotor the brightly illuminated image sweeps the lines of characters of the record. The lighted character portions are projected back towards the rotor axis through lenses of said rotor to a common point occupied by a photocell. The characters of the record are made up of parallel bars approximately perpendicular to the line of characters. The light image is aligned with said bars.

3,634,697

ELECTRONIC COMBINATION LOCK AND THEFT PREVENTION DEVICE

Ian H. MacFarlane, 15525 Frazho Road, Roseville, Mich.

Filed Feb. 11, 1970, Ser. No. 10,521

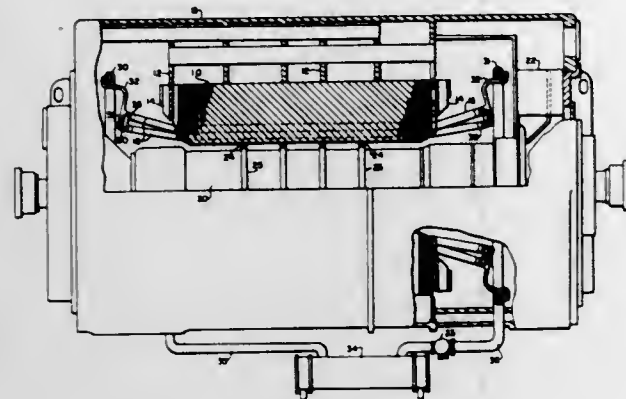
Int. Cl. H02g 3/00

U.S. Cl. 307-10 AT

12 Claims

The electronic theft prevention or detection device operates on the principle that the direction of electron flow can be detected and determined to be "correct" or "incorrect." An electrical path connected to the parallel combination of a diode and a relay coil is provided in that portion of an ignition circuit which would normally be "hot wired" by a thief. The jumping or "hot wiring" of the ignition circuit operates the relay coil which can actuate an alarm or means

of each winding conductor, or half-coil, which makes connection between the conductor and the coolant supply



system and also provides for electrical connection to the conductor.

3,634,706

IGNITION MEANS FOR A COOKING APPARATUS OR THE LIKE AND AN ACTUATOR FOR SUCH IGNITION MEANS

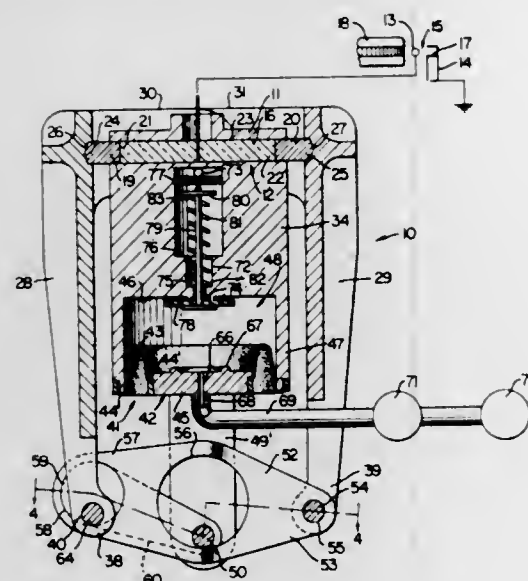
Kenneth G. Kreuter, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Aug. 2, 1968, Ser. No. 749,745

Int. Cl. H01v 7/00

U.S. Cl. 310-8.3

12 Claims



This disclosure relates to an improved means for altering the stresses in piezoelectric crystal means for spark igniting purposes and the like, the stresses in the crystal means being altered by a pair of pivotally movable arms being moved toward and away from each other to compress and relieve the compression of the crystal means disposed therebetween by a pneumatically operated actuator that automatically cycles itself between its actuated and deactuated positions as long as a pneumatic source is interconnected thereto.

3,634,707
MOTOR

Siegfried Tillner; Heinz Heilmann, and Joseph Ludemann, all of Oldenburg, Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Continuation-in-part of application Ser. No. 650,298, June 30, 1967, now Patent No. 3,500,092, dated Mar. 10, 1970.

This application Dec. 4, 1969, Ser. No. 882,194

Claim priority, application Germany, P 18 12 780.5

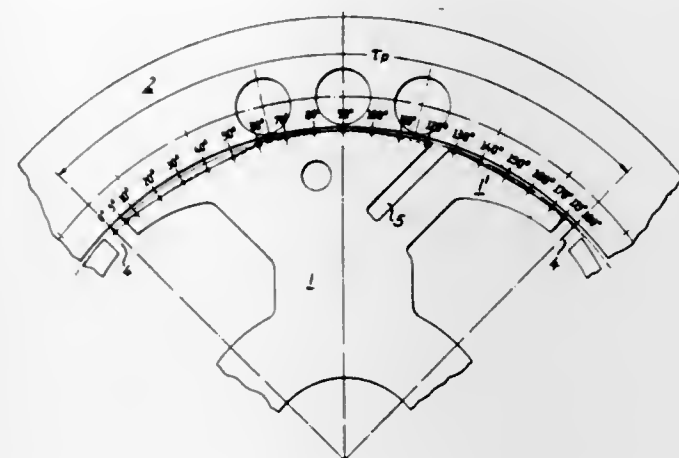
Int. Cl. H02k 17/10

U.S. Cl. 310-172

13 Claims

The electrical characteristics of a centrosymmetrical-shaded pole motor having salient poles and concentrated windings are improved by shaping the poles of the motor so

that the angle enclosed between the pole axis and the neutral axis on the shaded pole side of the pole axis is less than that on the main pole side, the shaded pole arc is at most equal to one-fifth of the pole pitch, and the airgap adjacent to the



pole has a nonuniform configuration such that the harmonics of the excitation field, and in particular, the third harmonic, are substantially eliminated, whereby the starting torque, the breakdown torque and the efficiency of the motor are improved.

3,634,708

IMPROVED LOW INERTIA ARMATURE WINDING FORMED OF A CONTINUOUS WIRE

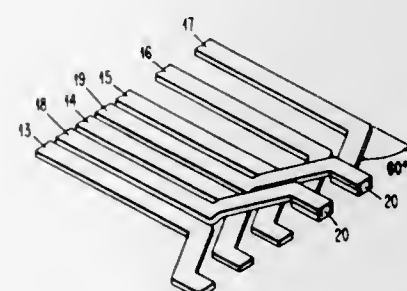
Gene Alan Fisher, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 4, 1970, Ser. No. 33,997

Int. Cl. H02k 3/00

U.S. Cl. 310-195

3 Claims



An armature, for use in a direct current machine, having a winding thereon formed so as to facilitate commutation directly on the crossover portion of the winding conductors. In the active area of the armature, where the armature winding cooperates with the magnetic field of the machine, the armature winding is formed of parallel, side-by-side, conductors which longitudinally abut to occupy a single-wire-thickness plane. At each end of this plane, alternate conductors of the single plane incline in opposite directions and cross over each other to form two contiguous single-wire-thickness planes, one plane of which is a continuation of the plane of the active area of the armature. The conductors in this crossover region are inclined at an angle of approximately 60° so that, within each of the two contiguous planes, the conductors longitudinally abut. Commutation occurs on the crossover region, where brushes cooperate with the conductors in one of the two contiguous planes. The armature winding can be formed by utilizing printed circuit techniques with discrete bridging conductors joined to the printed circuit conductors, by utilizing discrete conductors which are joined one to the other, or by utilizing a continuous conductor wire element having no joints.

3,634,709

ARRANGEMENT FOR SECURING CONDUCTORS IN ROTOR SLOTS OF DYNAMOELECTRIC MACHINE

Jacques Le Henaff, Paris, France, assignor to Compagnie Electro-Mecanique, Paris, France

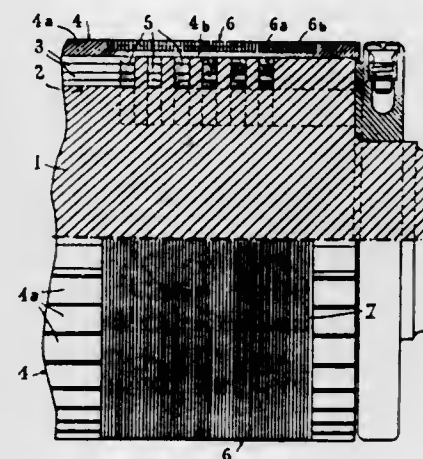
Filed June 8, 1970, Ser. No. 44,516

Claims priority, application France, June 17, 1969, 6920134

Int. Cl. H02k 3/48

U.S. Cl. 310-214

1 Claim



A rotor construction for a dynamoelectric machine is provided with the usual arrangement of longitudinally extending slots within which to receive the conductor bars of a distributed winding. Retainer bars making a dovetail connection with the outer ends of the rotor slots serve to secure the slot conductors in place, and end portions of these retainer bars extend beyond the rotor slots so as to overlie the end turn portions of the winding. In order to hold these portions of the retainer bars in place over the end turn portions of the winding a double layer helical wire winding is applied. The layers are wound from a single length of wire, which is of rectangular cross section and preferably made of a material which has high tensile strength and is also conductive such as bronze, and the opposite ends of the wire are anchored to the end heads of adjacent retainer bars. The wire is also soldered to the retainer bars so as to establish a short circuit ring interconnecting all of the retainer bars, also conductive, which thereby establishes a cage similar to that used in asynchronous motors.

3,634,710

BRUSH HOLDER FOR ELECTRIC MOTORS AND GENERATORS

Karl Woda, Vienna, Austria, assignor to Elin-Union Aktiengesellschaft fur elektrische Industrie, Vienna, Austria

Continuation of application Ser. No. 600,104, Dec. 8, 1966, now abandoned. This application Dec. 2, 1969, Ser. No. 876,194

Int. Cl. H02k 13/00

U.S. Cl. 310-239

10 Claims



A brush holder intended to carry unfitted brushes, having a self-recoiling spring which surrounds a contact member connected to a current supply for securing current flow to and

from the brush, the contact member being preferably axially symmetrical, with the shape of a spool, of two half-spools, or of a solid or a hollow circular cylinder which is preferably not stepped.

3,634,711

LUMINESCENT DEVICE HAVING RARE EARTH-DOPED SILICA GLASS LUMINESCENT MATERIAL

Stephen W. Barber, Toledo, Ohio, and William F. Nelson, Port Washington, N.Y., assignors to Owens-Illinois, Inc.

Original application July 1, 1969, Ser. No. 841,690, now Patent No. 3,527,711, dated Sept. 8, 1970. Divided and this application May 28, 1970, Ser. No. 41,455

Int. Cl. H01j 29/20; C09k 1/10, 1/54

U.S. Cl. 313-92

12 Claims

This disclosure relates to a luminescent device having a uniformly coalesced, transparent, luminescent silica glass target containing an activating amount of at least one selected rare earth oxide. This disclosure further relates to a luminescent process, a composition, and an article of manufacture.

3,634,712

CHANNEL-TYPE ELECTRON MULTIPLIER FOR USE WITH DISPLAY DEVICE

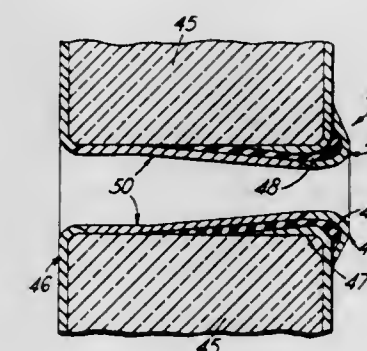
Richard K. Orthuber, Sepulveda, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Original application Aug. 19, 1968, Ser. No. 753,448. Divided and this application Mar. 16, 1970, Ser. No. 19,727

Int. Cl. H01j 43/00, 31/26

U.S. Cl. 313-103

4 Claims



A television-type display which utilizes a special scanning mode in combination with a picture tube including a channel-type electron multiplier and a continuous primary electron source for all the holes therethrough. The electron multiplier has channels or holes across which two sets of insulated conductive strips extend. One set is perpendicular to the other. One strip of each pair is supplied with a voltage to allow only one hole at a time in the electron multiplier to emit electrons. Scan is thereby effected. Intensity may be controlled by applying a suitable voltage between perforate conductive layers bonded to opposite sides of the electron multiplier or the strips themselves. A semiconductive coating may be used on the internal surfaces of the holes of the electron multiplier to provide for large current pulses while maintaining a high gain. A unique double layer conductive electrode arrangement is provided at one end of the channels of said multiplier.

3,634,713

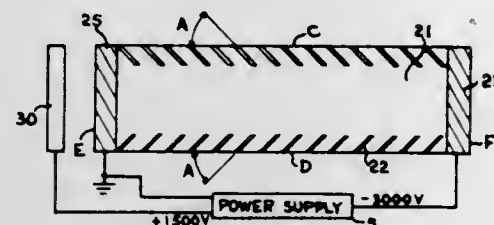
ELECTRON MULTIPLIER HAVING MEANS FOR ALTERING THE EQUIPOTENTIALS OF THE EMISSIVE SURFACE TO DIRECT ELECTRONS TOWARDS THE ANODE

Theodore Foote, Holley, N.Y., assignor to The Bendix Corporation

Filed Sept. 8, 1969, Ser. No. 855,889
Int. Cl. H01j 43/20, 43/14, 43/24

U.S. Cl. 313-103

11 Claims



A plurality of electron conducting paths are arranged in a pattern along the sides of the emissive surface of an electron multiplier to cause emitted electrons to travel towards the anode along a path defined by the sides of the emissive surface.

3,634,714

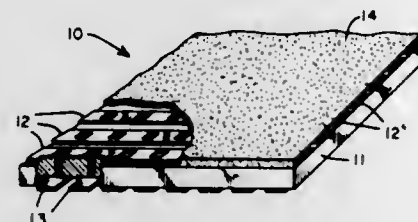
ELECTROLUMINESCENT DISPLAY DEVICE WITH APERTURED ELECTRODES

Donald E. Anderson, and Richard L. Swisher, both of Northfield, Minn., assignors to G. T. Schjeldahl Company, Northfield, Minn.

Filed Feb. 16, 1970, Ser. No. 11,564
Int. Cl. H05b 33/02

U.S. Cl. 313-108 A

6 Claims



A matrix addressable electroluminescent device comprising a substrate member having electrode receiving upper and lower surfaces with a first plurality of individual relatively spaced ribbon electrodes secured to the upper surface of said substrate and forming a pattern array thereon, and a second plurality of individual relatively spaced ribbon electrodes secured to the lower surface of said substrate, disposed orthogonally to said first plurality of electrodes and forming a plurality of intersection points with said first plurality of electrodes. Means are provided for coupling an electrical signal to individual electrodes in each of said arrays, and a plurality of openings are formed in the surface of each electrode in the upper electrode array, the openings defining window areas having an inner periphery defining the opening, and an isolated electrode island disposed on said upper surface within said opening and being spaced from the inner periphery of the opening so as to define an annular gap zone therewith. A plurality of bores are formed through the substrate generally at the intersecting points and an electrical conductor is disposed along the bore and extending therethrough, with each conductor coupling one of said first electrodes to one of said isolated electrode islands. The electroluminescent material responds to differences in potential applied between the electrodes, and illumination occurs in the area of the annular gap zone.

3,634,715

LAMP HAVING TWO SEPARATE PHOSPHOR COATINGS

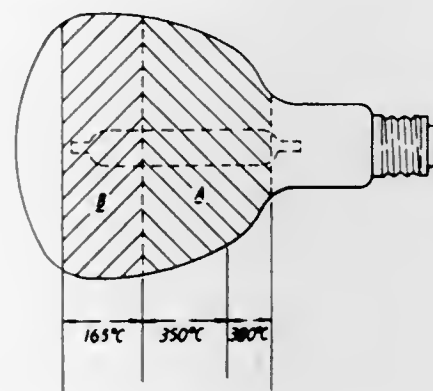
Eric John George Beeson, and Horace Edward Stanyon, both of London, England, assignors to Thorn Lighting Limited, London, England

Filed Apr. 13, 1970, Ser. No. 27,876
Claims priority, application Great Britain, Apr. 15, 1969, 19,304/69

Int. Cl. H01j 61/48

U.S. Cl. 313-109

4 Claims



A lamp comprises an envelope within which is disposed a source of electromagnetic radiation. A coating of a "high-temperature phosphor" and coating of a "low-temperature phosphor" are provided on discrete regions of the inner surface of the envelope of the lamp so as to operate at respectively a higher and lower temperature during normal working of the lamp.

3,634,716

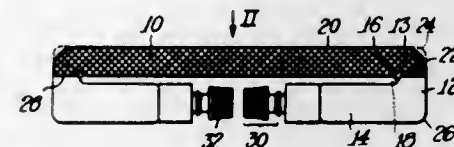
RECTANGULARLY-SHAPED GAS-FILLED LAMP FOR PHOTOCOPYING MACHINES

Walther von Grabe, Koenigstein, Germany, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Apr. 30, 1969, Ser. No. 820,577
Claims priority, application Japan, Apr. 30, 1968, 43/29031
Int. Cl. H01j 61/30, 61/44

U.S. Cl. 313-109

1 Claim



A rectangularly shaped gas-filled lamp for photocopying machines having a main portion bent at right angles at its ends. The bent ends have a larger radius at the outer surface than at the inner surface, and the inner surface has a reduced portion to decrease the cross-sectional area and provide more brightness at the bent ends.

3,634,717

DISCHARGE LAMP HAVING VAPOR PRESSURE CONTROL MEANS

Raymond Claude Emile Boucher, La Garenne-Colombes; Jean-Louis Marie Otto, Boulogne, and Andre Marc Victorin Taxil, Rueil Malmalson, all of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed June 30, 1969, Ser. No. 837,500
Claims priority, application France, July 15, 1968, 159,213
Int. Cl. H01j 17/26, 61/24

U.S. Cl. 313-174

9 Claims

A device for use with fluorescent lamps, including a mercury and metal amalgam disposed on a bimetallic element,

said element being attached to a supporting member which is resiliently mounted against the lamp wall. The device is so placed inside the tube that the amalgam is moved towards a



colder area of the tube as the tube heats, thereby providing substantially constant pressure and luminous flux output over a wide temperature range.

3,634,718

HIGH-PRESSURE GASEOUS DISCHARGE LAMP INCLUDING A STARTING ELECTRODE

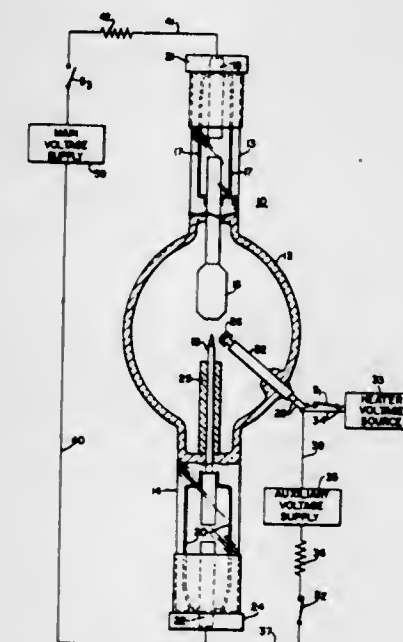
Daniel A. Larson, Cedar Grove, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 6, 1970, Ser. No. 9,379

Int. Cl. H01j 61/54

U.S. Cl. 313-198

2 Claims



Ignition of the arc between the main electrodes of a high-pressure gaseous discharge lamp is achieved by placing an integral thermionic starting electrode adjacent one of the main electrodes and then concurrently heating the starting electrode and applying a low-voltage starting voltage to the starting electrode and the adjacent main electrode. After the resulting auxiliary arc has heated the adjacent main electrode, the operating voltage is applied across the main electrodes and the starting voltage is terminated, thus causing the arc to shift from the thermionic electrode to the other main electrode. The starting electrode is heated electrically by connecting it to an external power source through a pair of leads sealed through the lamp envelope.

3,634,719

GAS DISCHARGE DISPLAY/MEMORY PANEL HAVING LEAD OXIDE COATED DIELECTRIC PLATES WITH DECREASED AGING TIME

Roger E. Ernsthansen, Luckey, Ohio, assignor to Owens-Illinois, Inc.

Filed Sept. 8, 1970, Ser. No. 70,475

Int. Cl. H01j 17/04, 61/06

U.S. Cl. 313-210

10 Claims

There is disclosed a multiple gaseous discharge display/memory panel having an electrical memory and capable of producing a visual display, the panel being characterized

by an ionizable gaseous medium in a gas chamber formed by a pair of opposed dielectric material charge storage members which are respectively backed by a series of parallellike conductor (electrode) members, the conductor members behind each dielectric material member being transversely oriented with respect to the conductor members behind the opposing dielectric material member so as to define a plurality of discrete discharge volumes constituting a discharge unit, the surface of the dielectric material having a lead oxide applied thereto in an amount sufficient to substantially decrease the preliminary aging time of the panel and to provide stable panel-operating voltages which do not significantly change with panel-operating time.

3,634,720

GASEOUS DISPLAY PANEL HAVING TWO ARRAYS OF GAS CELLS

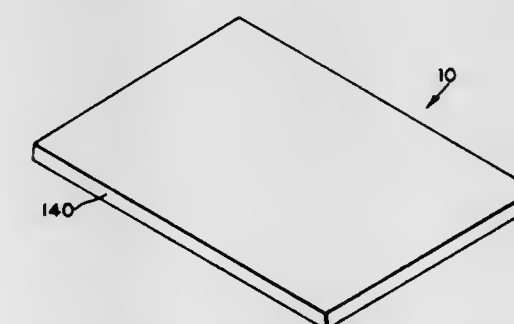
George A. Kupsky, Milford, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Mar. 31, 1970, Ser. No. 24,100

Int. Cl. H01j 61/30

U.S. Cl. 313-220

3 Claims



A display panel comprises a plurality of insulating plates, between which several arrays of electrodes are secured. The panel is assembled by first preparing at least one subassembly comprising an array of electrodes secured to an insulating plate and then sealing the various parts together.

3,634,721

METAL HALIDE DISCHARGE LAMPS

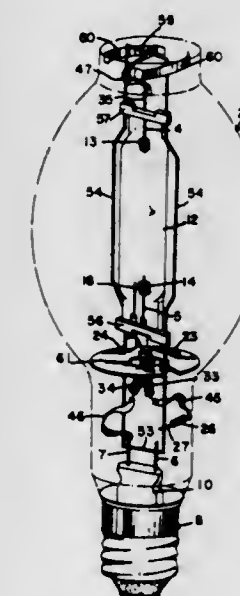
Saburo Ito, and Shingo Ezaki, both of Otsu, Japan, assignors to New Nippon Electric Company Ltd., Osaka, Japan

Filed Feb. 13, 1970, Ser. No. 11,037

Int. Cl. H01j 61/18

U.S. Cl. 313-225

1 Claim



A metal halide discharge lamp which emits all visible colors in the spectrum and contains a fill including mercury,

halogen and light emitting metals of cobalt and/or palladium. The lamp is an efficient producer of red and blue light appropriate for the growth of the plants.

3,634,722

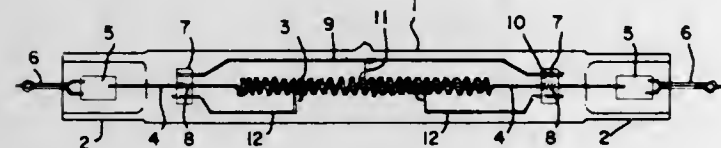
TUNGSTEN HALOGEN LAMP HAVING IMPROVED FILAMENT SUPPORT

Lewis H. Palmer, III, Marblehead, and Stephen F. Kimball, Beverly, both of Mass., assignors to Sylvania Electric Products Inc.

Filed Mar. 30, 1970, Ser. No. 23,617
Int. Cl. H01k 1/18

U.S. Cl. 313-279

4 Claims



A tungsten halogen lamp has a coiled coil filament tensionally mounted and axially disposed within a fused silica tubular envelope. A support rod extends substantially parallel to the filament for at least the entire length thereof. The filament is supported at one or more points throughout its length by means of suitable arms connected to the support rod or by loops in the rod itself. The ends of the support rod can be fixedly attached to rigid lamp members or one end may be slidably supported to permit longitudinal thermal expansion of the rod.

3,634,723

TRAVELING WAVE TUBE WITH A SPIRAL DELAY LINE

Franz Gross; Paul Kahl, both of Munich, and Wolf Wiehler, Neubiberg, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

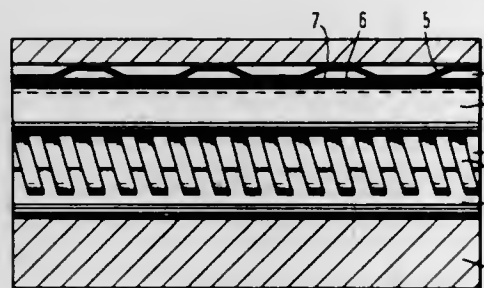
Filed June 15, 1970, Ser. No. 46,135

Claims priority, application Germany, July 24, 1969, P 19 37 704.9

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

11 Claims



A traveling wave tube construction includes a plurality of dielectric rods about the periphery of a spiral delay line, which rods and delay line are accommodated within a metal vacuum shell. The rods are disposed in rounded angles, in lateral cross section, of a regular polygon and at least one of the rods is provided with spring means for providing a firm, but elastic, lateral positioning of the spiral system.

3,634,724 AUTO THEFT PREVENTION SYSTEM

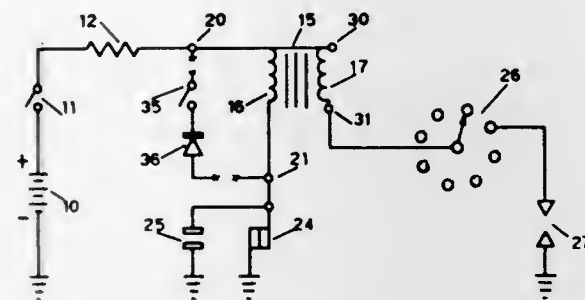
Gary W. Vest, 4480 Broadview Road, Cleveland, Ohio

Filed Sept. 16, 1969, Ser. No. 858,316

Int. Cl. B60r 25/00; H05b 37/02

U.S. Cl. 315-209

9 Claims



An auto theft prevention circuit in an ignition circuit, the theft prevention circuit including an impedance and switch means for connecting the impedance in parallel with one of the passive components of the ignition circuit, this theft prevention circuit downgrades the ignition capabilities and thus prevents or retards performance of the engine to a degree sufficient to prevent the vehicle from moving.

3,634,725

MODULATED ELECTRONIC FLASH CONTROL

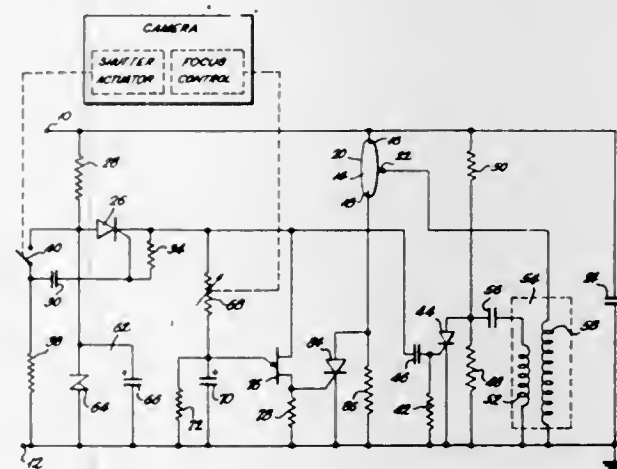
Conrad H. Biber, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sept. 28, 1967, Ser. No. 671,413

Int. Cl. H05b 41/32

U.S. Cl. 315-241 P

16 Claims



This specification discloses a photoflash circuit for modulating the flash output of a photoflash device in accordance with the focus setting of a camera. The circuit includes an energy storage device, a triggering circuit to supply the energy to the photoflash device and an energy dissipating resistor in series with the flash tube to limit its light output. The circuit includes a control means comprising an electronic switching means to shunt the energy dissipating resistor out of the photoflash device circuit to increase the light output from the flash tube and a timing circuit to produce a triggering signal to energize the switching means. The timing circuit includes an adjustable resistor mechanically coupled to the camera focus controls for varying the triggering time of the switching means and the time the resistor remains in the flash tube circuit.

3,634,726 PROCESS AND DEVICE TO REMOVE STATIC ELECTRICITY FROM PLASTIC FILMS

Pierre Jay, Decines, France, assignor to Progil, Paris, France

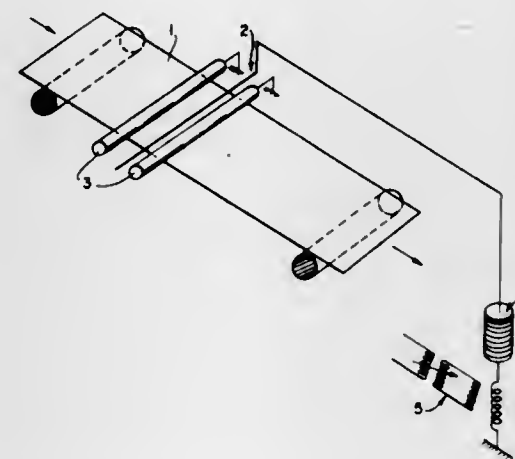
Filed May 27, 1970, Ser. No. 40,921

Claims priority, application France, June 3, 1969, 6917118

Int. Cl. H05f 3/04

U.S. Cl. 317-2 R

4 Claims



Process and apparatus to remove static electricity from the surfaces of thermoplastic films, sheets and fabrics comprising creating, near the thermoplastic support to be treated, a silent electrical discharge by means of an enamelled wire maintained under a high voltage disposed parallel to said support and above which are provided earth-connected conductive pieces.

3,634,727

CAPACITANCE-TYPE PRESSURE TRANSDUCER

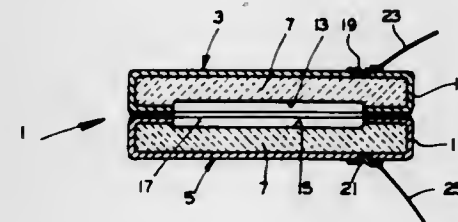
William Ronald Polye, River Edge, N.J., assignor to The Bendix Corporation

Filed Dec. 3, 1968, Ser. No. 780,666

Int. Cl. H01g 9/16

U.S. Cl. 317-231

12 Claims



A pressure sensor of the capacitance-type comprising a hollow capsule formed of a pair of discs of single crystal silicon doped to make it electrically conductive and having a layer of silicon dioxide on the surfaces of the discs with portions of the silicon dioxide layer and discs being cut away on opposing faces of the discs to form a cavity therebetween. The discs are insulated from one another and form the plates of a condenser which changes capacity when the sensor is subjected to pressure changes.

3,634,728

CURRENT CHOPPER FOR DC MACHINES CONNECTED TO THE TERMINALS OF A SOURCE HAVING AN INDUCTIVE IMPEDANCE

Pierre Moury, Paris, France, assignor to Jeumont-Schneider, Paris, France

Filed July 13, 1970, Ser. No. 54,154

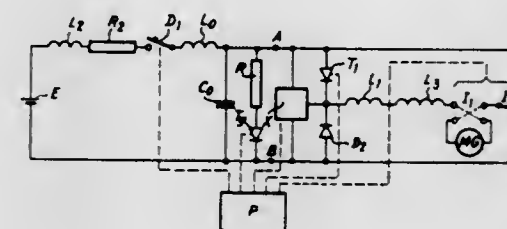
Int. Cl. H03k 17/08

U.S. Cl. 317-16

2 Claims

A current chopper for DC machines connected to the terminals of a source having an inductive impedance such as a

traction powerline. The chopper comprises a filter connected between the source and the switching devices of the chopper, a power dissipating circuit connected in parallel with the main circuit and located between the filter and the above-mentioned switching devices of the chopper. The power dissipating circuit is connected and disconnected from the circuit by means of a switching device connected in series with the power dissipating circuit. The chopper further comprises



a control and protection logic device controlling the operation of the chopper by detecting the abnormal operations thereof such as overcurrents and overvoltages, and by causing their cancellation by limiting the overvoltages resulting therefrom, in normal operation, by decreasing the current in accordance with a predetermined law and, in abnormal operation, by instantaneously blocking the chopper and simultaneously inserting across the source of power dissipating circuit.

3,634,729

CIRCUIT BREAKER INCLUDING IMPROVED OVERCURRENT PROTECTIVE DEVICE

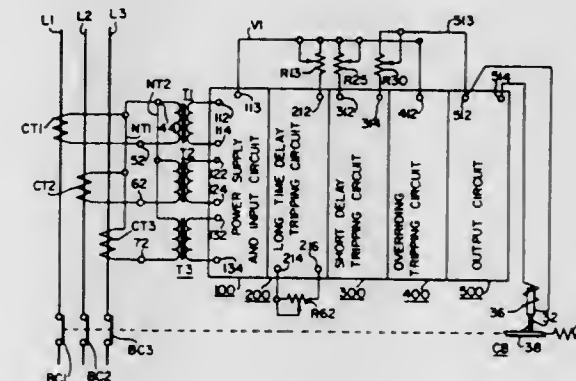
Allen J. Hendry, and John T. Wilson, both of Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 7, 1970, Ser. No. 35,382

Int. Cl. H01h 47/18

U.S. Cl. 317-36 TD

9 Claims



A circuit breaker having separable contacts and operating means for opening and closing said contacts. The circuit breaker includes an overcurrent protective device which is responsive to the current in the separable contacts for producing an output to actuate the associated operating means to open the associated contacts. The overcurrent protective device includes a first means which is responsive to a first predetermined value of current in the associated contacts to actuate said protective device to produce the above-mentioned output after substantially a predetermined time delay and a second means which is responsive to a second predetermined value of current in the associated contacts which is coordinated with the momentary current carrying capability of the circuit breaker for actuating said protective device to produce the above-mentioned output substantially instantaneously.

3,634,730

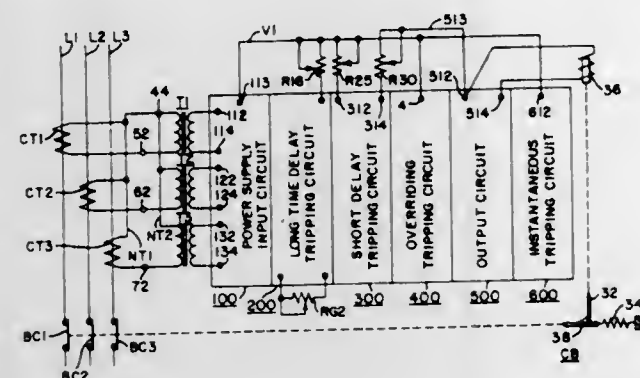
CIRCUIT BREAKER INCLUDING IMPROVED OVERCURRENT PROTECTIVE DEVICE

John T. Wilson, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 7, 1970, Ser. No. 35,409
Int. Cl. H01h 47/18

U.S. Cl. 317-38

11 Claims



A circuit breaker including separable contacts, an operating means or mechanism for opening and closing the contacts, and an overcurrent protective device including means which are responsive to the current in the separable contacts and in an electrical circuit which is being protected to actuate the operating means of the circuit breaker to trip or open the circuit breaker upon the occurrence of predetermined operating conditions. The protective device includes at least one means which is responsive substantially instantaneously when the current in the associated contacts or electrical circuit exceeds a predetermined value and an additional means which is connected to the first-mentioned means to render the first-mentioned means inoperative or to inhibit the operation of the first-mentioned means of the protective device during certain operating conditions of the circuit breaker.

3,634,731

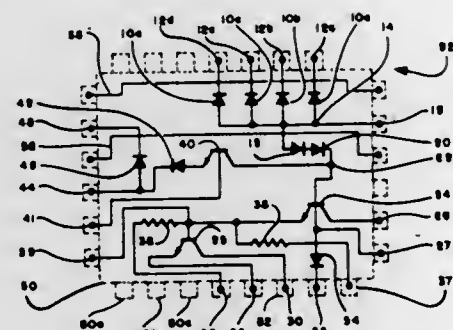
GENERALIZED CIRCUIT

David G. Skogmo, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 6, 1970, Ser. No. 61,569
Int. Cl. H01l 19/00

U.S. Cl. 317-101 A

3 Claims



A circuit arrangement and packaging comprising a semiconductor chip with active circuit elements, passive circuit elements and means for interconnecting the elements for forming a generalized multifunction "incomplete" circuit arrangement for producing electrical current in response to input currents, the semiconductor chip also including a plurality of conductive members distributed in a preselected array about the semiconductor chip with some connected to the interconnecting means at locations adjacent the elements for forming inputs and outputs to the elements and other

connected for crossover and crossunder networks; and a printed circuit board including a plurality of conductive lands in an array corresponding with the array of the conductive members and connected thereto in underlying fashion, printed circuit passive circuit elements disposed thereon, and printed circuit means for interconnecting the lands and the printed circuit passive elements and for providing a complete electronic circuit with the generalized multifunction circuit.

3,634,732

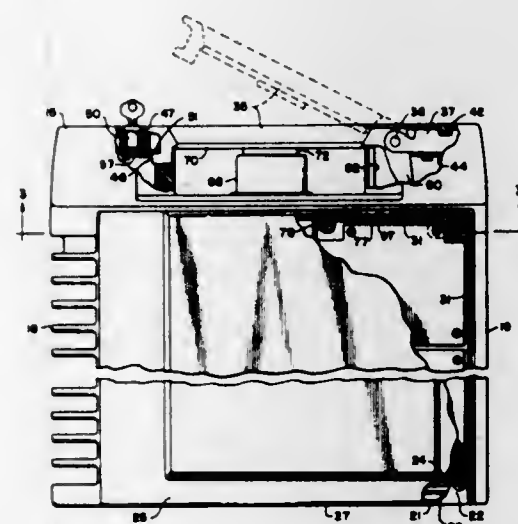
HOUSING FOR ELECTRONIC APPARATUS INCLUDING MULTIFUNCTION HANDLE MECHANISM

Carl Finger, Glenview; George J. Selinko, Palatine, and Stanley A. Yeager, Jr., Prospect, all of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Feb. 24, 1970, Ser. No. 13,335
Int. Cl. H04b 1/08; H01r 13/54

U.S. Cl. 317-120

19 Claims



A housing for a mobile radio includes a front housing member having a handle which is pivotally mounted on a hidden hinge at one end and operating in a closed position with a lock actuated latching plate holding it closed to clamp a front connector between the handle and the front portion of a recess in the front housing member. The handle additionally slides a floating locking plate carrying latching members thereon which engage the top and bottom covers of the radio receiver to hold them in a closed position. At least one of the covers is formed in a bowed configuration to provide a spring bias therefor.

3,634,733

CONTROL CIRCUIT FOR INDUCTIVE LOADS

Marcel-Louis Boyer, Chatillon, France, assignor to C.I.T. Compagnie Industrielle des Telecommunications, Paris, France

Filed Nov. 30, 1970, Ser. No. 93,749

Claims priority, application France, Nov. 28, 1969, 6941155
Int. Cl. H01h 47/32, 47/04

U.S. Cl. 317-148.5 R

10 Claims

For energizing an inductive load with a maximum current of brief duration followed by a steady current, less than the maximum, the inductive load is initially connected, by means of an amplifier switch, across a voltage source of relatively high-output voltage and subsequently connected, by means of another amplifier switch, across a voltage source of relatively low-output voltage. Trigger circuitry is operable to apply an input pulse of predetermined duration to the amplifier switch associated with the voltage source of high-output voltage and simultaneously trigger a delay circuit arranged to apply an input voltage to the amplifier switch associated with

the source of low voltage. Respective diodes connect a common point the outputs of the respective amplifier switches,

3,634,735

SELF-HOLDING ELECTROMAGNETICALLY DRIVEN DEVICE

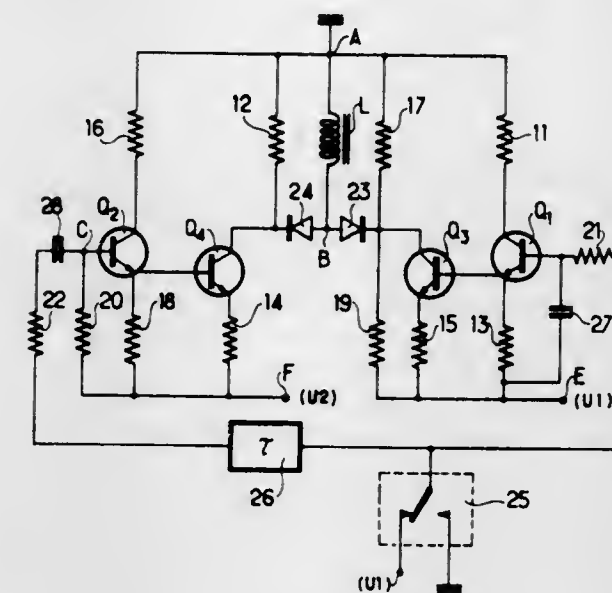
Mikio Komatsu, No. 384, Tokiwadai, Hodogaya-ku, Yokohama-shi, Kanagawa-ken, Japan

Filed Mar. 30, 1970, Ser. No. 23,619

Claims priority, application Japan, Apr. 3, 1969, 44/25774
Int. Cl. H01h 47/04; H01f 7/08

U.S. Cl. 317-154

5 Claims



the common point and a point at a reference potential provide respective first and second connections to the inductive load.

3,634,734

SCR CONTROL FOR INDUCTIVE POWER CIRCUIT

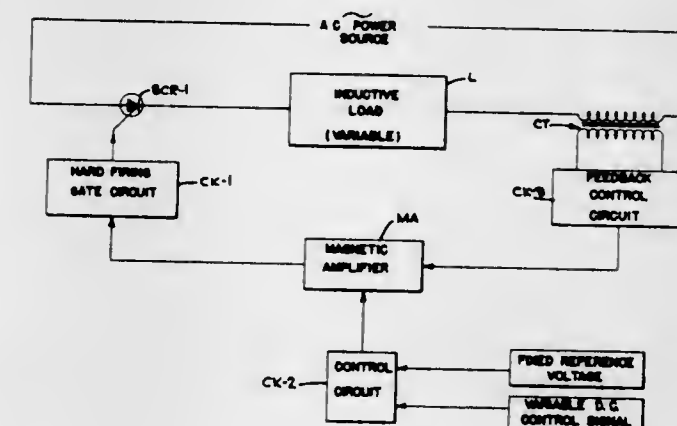
Junius D. Scott, Homer City, Pa., assignor to FMC Corporation, San Jose, Calif.

Filed July 16, 1969, Ser. No. 842,315

Int. Cl. H01h 47/32

U.S. Cl. 317-148.5

9 Claims



A control switch circuit for providing gate pulses to an SCR switch in an AC power circuit which circuit includes a variable inductive load. The control circuit includes a magnetic amplifier with one control winding energized by a fixed reference voltage or by a variable control signal and with a second, oppositely wound control winding energized through a feedback circuit the input of which is provided by a current transformer connection to the power circuit. The output of the magnetic amplifier is a series of pulses which are connected to the gate of the SCR and which are shaped so as to provide a steep, high-voltage leading edge for precise timing and for saturation of the gate junction of the SCR in a minimum time period.

894 O.G.-29

3,634,736

ELECTROLYTIC CAPACITOR EMPLOYING PASTE ELECTRODES

Donald L. Boos, and Joseph E. Metcalfe, both of Cuyahoga, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Sept. 14, 1970, Ser. No. 71,852

Int. Cl. H01g 9/00

U.S. Cl. 317-230

10 Claims



A high-capacitance, low-voltage electrolytic capacitor consists essentially of a pair of paste electrodes and a separator saturated with electrolyte which functions as an electronic insulator and an ionic conductor. One of said electrodes is composed of active carbon and the opposing electrode is composed of refractory hard boron carbide or a refractory hard metal carbide or boride wherein the metal may be tung-

sten, titanium, tantalum, niobium or zirconium, said electrodes being prepared by mixing finely divided particulate material of the above compositions with electrolyte to form a viscous paste and compressing the paste to form the electrodes.

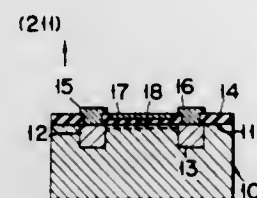
3,634,737 SEMICONDUCTOR DEVICE

Hajime Maeda; Yoshiyuki Takeishi, both of Tokyo; Tai Sato, Yokohama; Hisashi Hara, Kamakura, and Yoshihiko Okamoto, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Feb. 2, 1970, Ser. No. 7,979

Claims priority, application Japan, Feb. 7, 1969, 44/8700 44/8701

Int. Cl. H011 3/00

U.S. Cl. 317-234



A semiconductor device comprises a substrate made of a semiconductor of diamond-type structure or a compound semiconductor of zincblende-type structure, and an active area formed in the substrate in which electron current flows and to which an intense electric field is applied. Said active area has a specific crystal face which is in a [011] zone or a [100] zone. Said current flows in the prescribed direction decided by the crystal axis in accordance with said crystal face so as to increase the mobility in said area.

3,634,738 DIODE HAVING A VOLTAGE VARIABLE CAPACITANCE CHARACTERISTIC AND METHOD OF MAKING SAME

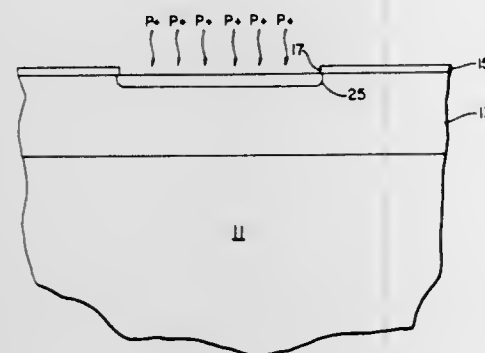
Frank A. Lelth, and Carl H. Guild, Jr., both of Andover, Mass., assignors to KEV Electronics Corporation, Wilmington, Mass.

Filed Oct. 6, 1970, Ser. No. 78,355

Int. Cl. H011 9/00

U.S. Cl. 317-234

10 Claims



In the method of the present invention, a lightly doped layer of semiconductive material is epitaxially grown on a relatively highly doped substrate so as to provide a relatively sharply defined transition in conductivity between the epitaxial layer and the original substrate material. Further, additional dopant material of the same conductivity type is implanted into the layer by particle bombardment thereby to provide a conductivity profile in which conductivity decreases with depth through the layer substantially down to the essentially uniform conductivity of the original epitaxial

material. A dopant providing conductivity of the opposite type is diffused into a relatively shallow portion of the epitaxial layer so as to form a diode junction in the layer. In the diode so formed, the depth of the depletion region varies as a predictable function of the controlled conductivity profile in the epitaxial layer. Since the substrate provides a region of high conductivity just beyond the epitaxial layer, the Q of the device is relatively high.

3,634,739 THYRISTOR HAVING AT LEAST FOUR SEMICONDUCTIVE REGIONS AND METHOD OF MAKING THE SAME

Edgar Borchert, Beleck; Werner Frese, Sichtigvor; Wolfgang Pikorz, Beleck, and Alois Sonntag, Mulheim, all of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

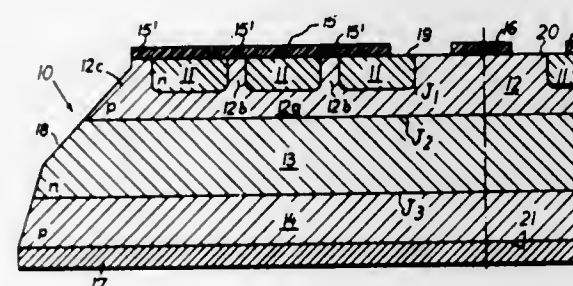
Filed Dec. 2, 1970, Ser. No. 94,429

Claims priority, application Germany, Dec. 2, 1969, P 19 60 424.1

Int. Cl. H011 11/10

U.S. Cl. 317-235

8 Claims



A thyristor having a base region shorted to an associated emitter region on one of the principal faces of the thyristor wafer, wherein there is a net impurity center concentration equal to at least 10^{18} impurity centers per cubic centimeter at the surface of the base region in contact with the shorting electrode, wherein there is a continual decrease of the net impurity center concentration in the base region from its value at the shorting electrode at least over the distance from the shorting electrode to the side of the emitter region farthest from the shorting electrode, and wherein there is an ohmic contact of very small contact resistance between the shorting electrode and the base region.

3,634,740 ELECTROSTATIC HOLDDOWN

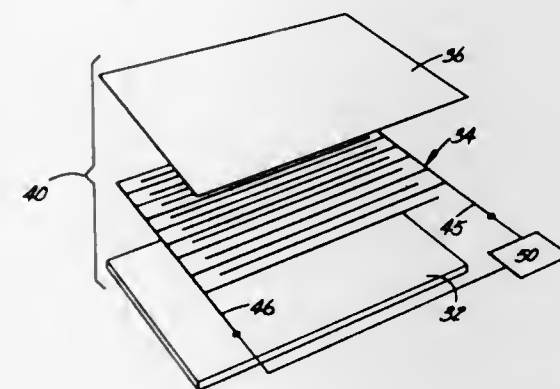
Phillip J. Stevko, Euclid, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Apr. 20, 1970, Ser. No. 29,910

Int. Cl. H02n 13/00

U.S. Cl. 317-262 E

5 Claims



An interdigitated grid, powered by a high-voltage generator, and covered by a bed of material having a bulk resistivity

which will allow an electrostatic charge to be built up quickly, but decay in holding power in a very short time.

3,634,741 METHOD AND APPARATUS FOR EFFECTING THE ACTUATION AND NONACTUATION OF A RESPONSIVE INSTRUMENTALITY

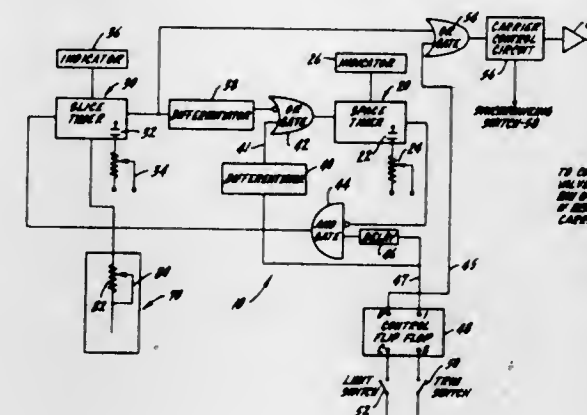
Frank S. Kasper, Hazel Crest, Ill., assignor to Amtron, Inc., Midlothian, Ill.

Filed Sept. 8, 1969, Ser. No. 856,005

Int. Cl. H03k 17/28

U.S. Cl. 328-72

13 Claims



There is disclosed a method and an apparatus for alternately effecting the actuation and nonactuation of a responsive instrumentality in a manner such that during actuation of the instrumentality, cooperation can be effected for a variable system condition. The apparatus comprises a first timer having a timing period and a nontiming period, a second timer connected to the first timer also having a timing period and a nontiming period wherein the first timer is adapted to switch to the nontiming period after the timing period is completed and upon switching to the nontiming period actuates the second timer into its timing period. The second timer is connected to the instrumentality to be actuated and the instrumentality is actuated whenever the second timer is in its timing period and is not actuated when the second timer is in its nontiming period. Sensing means are connected to the second timer for continuously sensing a predetermined system condition and wherein the duration of the timing period of the second timer is responsive to the sensing means. Control means are connected in circuit with the instrumentality to be actuated as well as to the first and second timer wherein the control means is adapted to initially place the first timer to its timing period and the second timer into its nontiming period wherein after the timing period of the first timer is completed, the first timer switches to its nontiming period thereby placing the second timer into its timing period and thereby causing the instrumentality to be actuated, this actuation continuing until the second timer switches into its nontiming period whereby the first timer again switches to its timing period thereby effecting the alternate actuation and nonactuation of the instrumentality.

3,634,742 MAGNETOSTRICTIVE APPARATUS AND PROCESS

Alden P. Edson, Chatham, N.J., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed June 22, 1970, Ser. No. 48,377

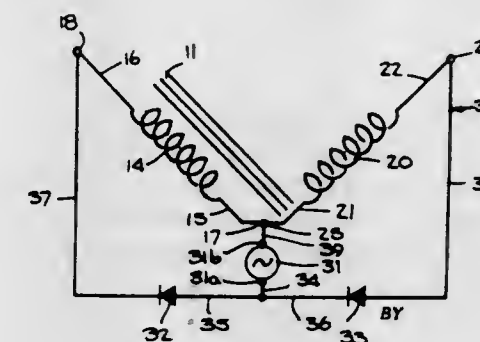
Int. Cl. H01v 9/00

U.S. Cl. 318-118

17 Claims

Electromechanical transducer core containing magnetostriuctive material is energized by two electromagnetic fields which are oriented transversely to each other and controlled

to vary the direction of magnetization of the core cyclically and vibrate the core by longitudinal and transverse mag-



netostriction to convert electrical power to mechanical power; conversion of mechanical to electrical power can be obtained by converse magnetostriuctive action.

3,634,743 ELECTROMECHANICAL OSCILLATOR FOR CONTROLLING A TIMING MOTOR

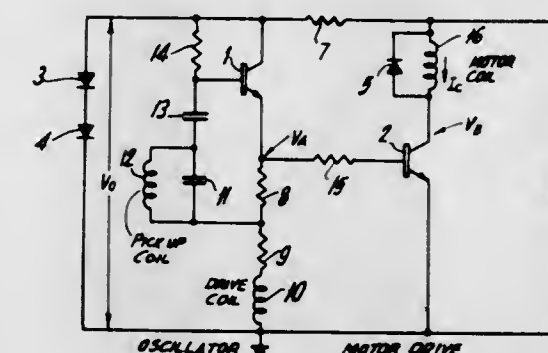
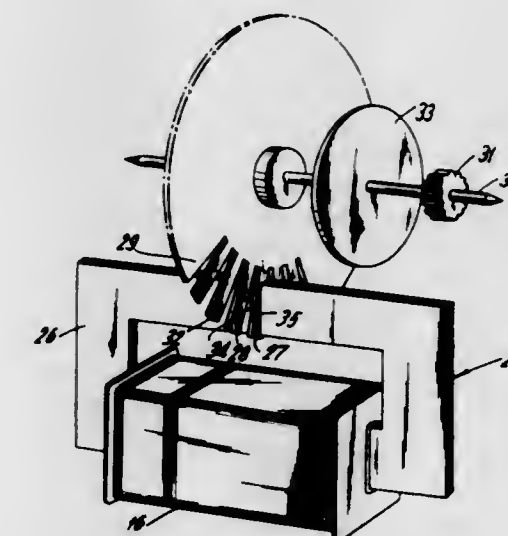
Michael Joseph Ingenito, Bronx, N.Y., assignor to General Time Corporation, Stamford, Conn.

Filed Nov. 5, 1969, Ser. No. 874,222

Int. Cl. H02k 29/00

U.S. Cl. 318-138

12 Claims



A timing device wherein an oscillator utilizing a mechanical resonator such as a tuning fork or a crystal is used to provide a nonsymmetrical output signal which drives a synchronous motor that is specifically designed to accommodate a nonsymmetrical drive signal. The motor is constructed so that the ratio of the width of the rotor teeth to the distance between the centers thereof is comparable to the duty cycle of the oscillator output signal. Accurate timekeeping over large variations in supply voltage and ambient tem-

perature is accomplished by utilizing as the oscillator voltage source, the potential developed across a number of series connected, forward biased diodes and by utilizing two transistors such that variations in voltage with temperature are offset by the temperature variable junctions of the transistors.

3,634,744

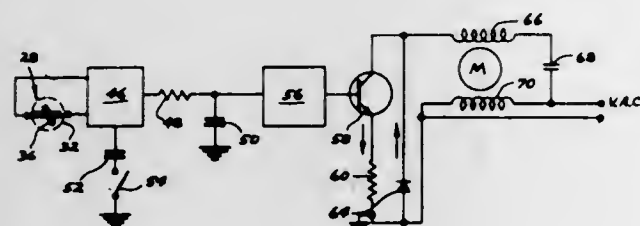
PROGRESSIVE ELECTRIC MOTOR SPEED CONTROL RESPONSIVE TO THE DRIVEN SYSTEM

Eyvand E. Toensing, and Robert E. Barbour, both of Minneapolis, Minn., assignors to Audiomatic Techniques, Inc., Minneapolis, Minn.

Filed Nov. 24, 1970, Ser. No. 92,425
Int. Cl. H02p 5/28

U.S. Cl. 318—225 R

4 Claims



A motor speed control which may be used in a tape recorder to govern the speed of the takeup reel drive motor in response to the speed of the supply reel during a tape winding operation so that the tape is slowed down as the end of the tape supply on the supply reel approaches. In this application, a reference voltage, developed in proportion to the speed of the supply reel, drives a power control means in one leg of a permanent split capacitor induction motor to reduce the takeup reel motor speed as the supply reel speed increases thereby limiting linear tape speed as the end of the supply is exhausted. The motor control is a single power control unit which simultaneously varies the alternating current and a biasing direct current in a winding of the motor inversely to vary motor torque from full power to power absorbing.

3,634,745

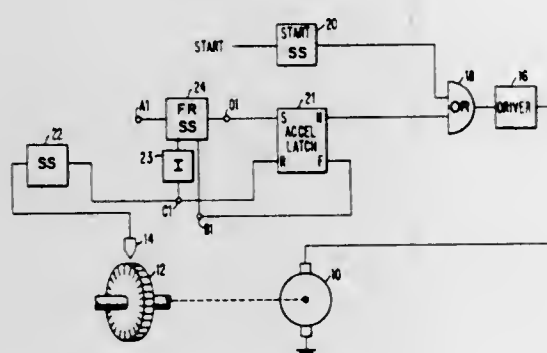
DIGITAL VELOCITY SERVO FOR DC SERVOMOTOR

Gerald J. Agin, Redwood City, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 27, 1970, Ser. No. 40,950
Int. Cl. H02p 5/16

U.S. Cl. 318—341

3 Claims



In a digital velocity servosystem for a DC servomotor a fast recovery single shot is used to set an accelerate latch to pro-

vide drive for the motor in response to feedback pulses, which are also used to reset the accelerate latch, so that the drive is effective to force the motor to operate at a speed such that the interval between the feedback pulses is equal to the timing interval of the fast recovery single shot.

3,634,746

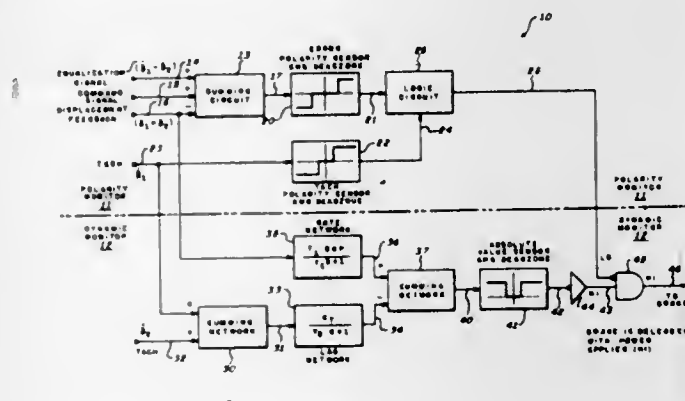
MONITOR FOR SERVOSYSTEMS

Robert J. Strege, Sr., Phoenix, Ariz., assignor to Sperry Rand Corporation

Filed Oct. 23, 1970, Ser. No. 83,566
Int. Cl. G05b 23/02

U.S. Cl. 318—565

5 Claims



Apparatus for monitoring the operation of servosystems. The apparatus includes a dynamic monitor for providing a failure signal in accordance with the comparison between the rate of change of the servo displacement feedback signal and the servo rate feedback signal. The apparatus also includes a polarity monitor for providing a failure indication whenever the servo rate feedback signal is not of the proper polarity so that the servo displacement error signal is reduced.

3,634,747

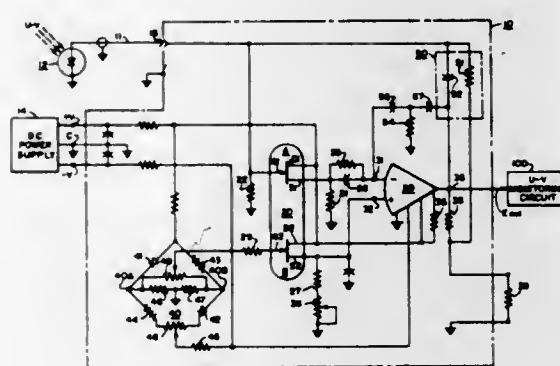
ELECTRONIC CURRENT TO VOLTAGE CONVERTER

Wallace D. Loftus, Clairton, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 20, 1969, Ser. No. 867,526
Int. Cl. H02m 1/08

U.S. Cl. 321—16

6 Claims



The invention is an electronic current to voltage converter circuit including a temperature compensating circuit, a differential amplifier circuit, a feedback circuit, and an input voltage zero adjust circuit for establishing and maintaining the input voltage signal to the circuit substantially zero to permit virtual short circuit current measurements of signals developed by a current generating device.

3,634,748

STATIC INVERTER CIRCUITS

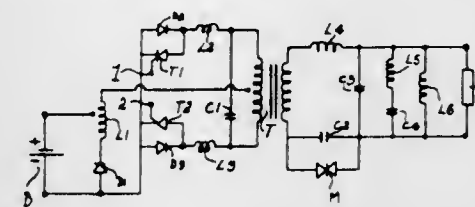
Bernhard Siegfried Rudert, 210 Fair Mead, Rudd Road, Il-Iovo, Johannesburg, Transvaal, Republic of South Africa

Filed June 3, 1970, Ser. No. 43,051
Claims priority, application South Africa, June 9, 1969, 69/4061

Int. Cl. H02m 7/48

U.S. Cl. 321—45 R

15 Claims



A method of regulating the output voltage of a complementary impulse commutated inverter which incorporates two silicon controlled rectifiers and has a commutation circuit which is arranged such that when the one silicon controlled rectifier is nonconductive and the other silicon controlled rectifier is conductive, firing of the nonconductive silicon controlled rectifier with a short trigger pulse of duration less than the turnoff time of each of the two silicon controlled rectifiers turns off both silicon controlled rectifiers in succession. A series of substantially similar signals are applied alternately to the gate of the one and the other silicon controlled rectifier, each signal comprising a short trigger pulse of a duration less than the turnoff time of each of the silicon controlled rectifiers followed after an interval of time by a long control pulse of duration longer than the turnoff time of each of the silicon controlled rectifiers and proportional to the required amplitude of the output voltage of the inverter. The one silicon controlled rectifier is fired when it is nonconductive and the other silicon controlled rectifier is conductive by application of the short trigger pulse of a signal to the gate of the one silicon controlled rectifier, thereby to turn off both silicon controlled rectifiers in succession. The one silicon controlled rectifier is subsequently refired by application of the long control pulse of the signal. The duration of the long pulse is varied to regulate the output voltage of the inverter.

Also apparatus for carrying out the method comprising an inverter of the type stated, pulse-generating means operative to apply signals as specified alternately to the gate of the one and the other silicon controlled rectifier, and control means associated with the pulse-generating means and operative to vary the duration of the long control pulse of each signal.

3,634,749

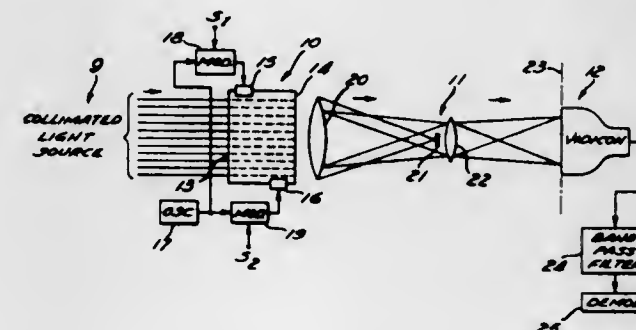
ACOUSTO-OPTICAL SIGNAL PROCESSING SYSTEM

Robert M. Montgomery, Indialantic, Fla., assignor to Radiation, Inc., Melbourne, Fla.

Filed July 15, 1970, Ser. No. 54,917
Int. Cl. G01r 23/16

U.S. Cl. 324—77 I

16 Claims



An acousto-optical signal processing system usable for signal correlation or spectrum analysis. Collimated light

passes through an acousto-optical cell to provide a spatial carrier that is modulated in accordance with signal information. A time integrating imaging detector, such as a Vidicon, receives this carrier, and a filter separates the modulating signal information from other light signals received by the imaging detector. Resolution requirements of the imaging detector are reduced by an optical grating. The acousto-optical cell may have reflectors causing the incoming light to make several passes across the cell before exiting.

3,634,750

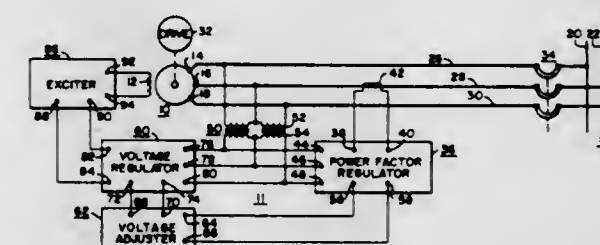
REGULATOR APPARATUS RESPONSIVE TO GENERATOR OUTPUT POWER FACTOR AND VOLTAGE

Powell O. Bobo, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 23, 1970, Ser. No. 31,295
Int. Cl. H02p 9/14

U.S. Cl. 322—20

4 Claims



Regulator apparatus for a synchronous machine having a field winding, and terminals connected to an electrical system. The regulator apparatus utilizes the power factor at the terminals of the synchronous machine to control the excitation of the field winding during normal circuit conditions, and the voltage at the terminals to control the excitation during system voltage disturbances.

3,634,751

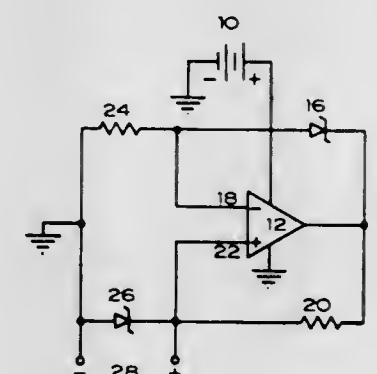
PRECISION VOLTAGE REGULATOR

Samuel A. Miller, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Feb. 1, 1971, Ser. No. 111,419
Int. Cl. G05f 1/46

U.S. Cl. 323—9

8 Claims



A voltage regulator providing a very stable output voltage with respect to time, temperature, and load, by supplying a stable, constant current to a reference diode. The regulator has an operational amplifier, and a plurality of zener diodes coupled thereto.

3,634,752

DUAL IGNITOR PROBE

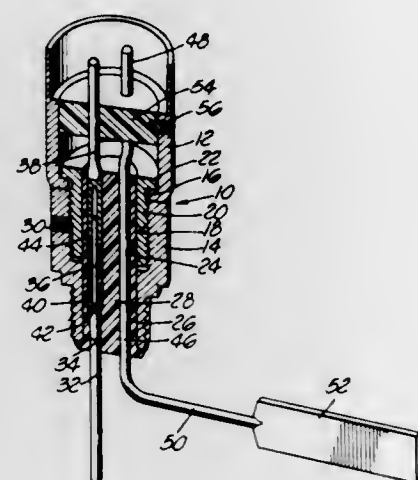
Richard S. Willing, Granada Hills, Calif., assignor to Universal Testproducts, Inc., Chatsworth, Calif.

Filed Feb. 29, 1968, Ser. No. 709,301

Int. Cl. G01m 15/00

U.S. Cl. 324-15

6 Claims



A dual-probe assembly adapted to be inserted in the access hole of an ignitor housing and having two probe elements, one of which makes electrical contact with the primary terminal of the coil and the other of which establishes a capacitive coupling with the secondary terminal of the coil.

3,634,753

METHOD OF MAPPING ICE THICKNESS BY FM ELECTROMAGNETIC RADIATION TO INDICATE SHALLOW THICKNESSES THEREOF

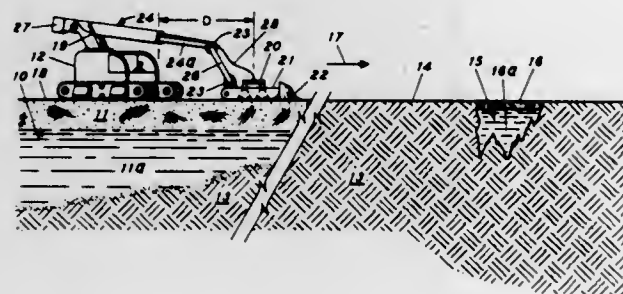
Robert R. Unterberger, Bryan, Tex., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of application Ser. No. 626,084, Mar. 27, 1967. This application June 2, 1969, Ser. No. 829,695

Int. Cl. G01v 3/12

U.S. Cl. 324-6

4 Claims



A method for accurately and quickly mapping from a position immediately forward of a surface traveling vehicle the thickness of ice and variations thereof atop a body of water, as found in winter in the northern United States, Alaska or Canada, by transmitting frequency modulated electromagnetic radiation into the ice, detecting a portion of energy reflected from the remote interface of the ice zone and indicating the two-way travel time of the energy so as to determine ice thickness ahead of the surface vehicle. In this way zones which may not support the surface vehicle can be detected in advance of the motion of the vehicle over these zones and thus avoided. Not only can lives be saved, but equipment loss can be avoided.

3,634,754

METHOD AND APPARATUS FOR LINEARLY MEASURING ELECTRON CAPTURE WITH AN ELECTRON CAPTURE DETECTOR

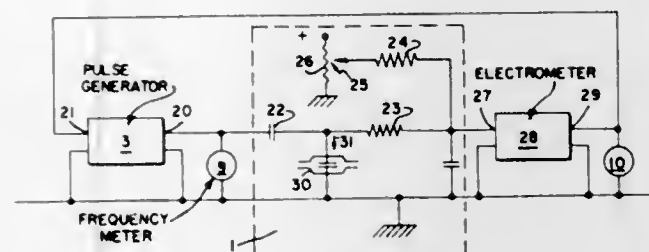
James E. Lovelock, Salisbury, Wilts; Albert J. Davies, and Frank R. Ferris, both of Hoole, near Chester, all of England, assignors to Shell Oil Company, New York, N.Y.

Filed June 23, 1969, Ser. No. 835,324

Int. Cl. G01n 27/62

U.S. Cl. 324-33

9 Claims



Linear response is obtained from an electron capture measuring device by pulsing an electron capture detector at a variable frequency, automatically varying the frequency in accordance with the detector current, measuring the frequency, and using the frequency measurement as the output of the device.

3,634,755

SYSTEM TO MEASURE THE FREQUENCY DOMAIN RESPONSE OF A RADAR COMPONENT

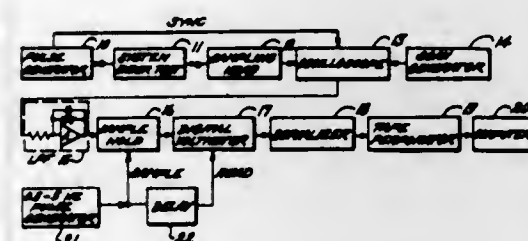
Alexander M. Nicolson, Concord, and Gerald F. Ross, Lexington, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Apr. 25, 1969, Ser. No. 819,288

Int. Cl. G01r 27/00

U.S. Cl. 324-57 R

8 Claims



A system for translation between time and frequency domains. Voltage impressions from a generator are applied to an electrical system under test, and the waveform of the reflected or transmitted response is recorded on a broadband sampling system, and Fourier transforms are applied to this recorded information in a computer so that the frequency domain response of the system under test may be obtained over a broad range of frequencies.

3,634,756

RF-EXCITED TRANSDUCER

Robert L. Carlise, Costa Mesa, Calif., assignor to North American Rockwell Corporation

Filed Mar. 9, 1970, Ser. No. 17,547

Int. Cl. G01r 27/04

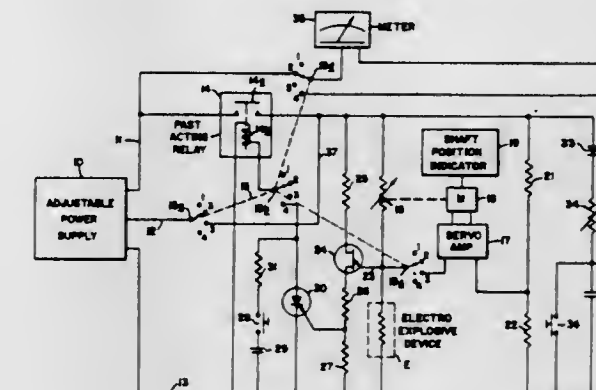
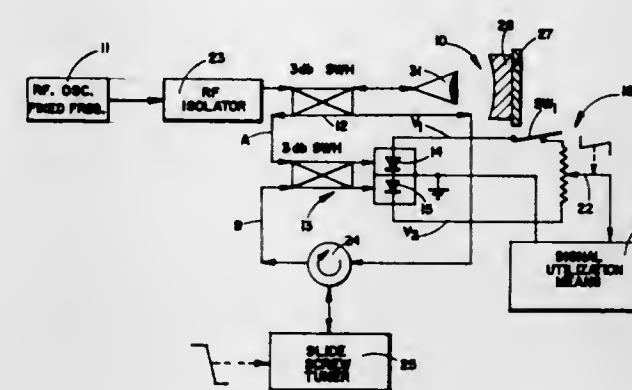
U.S. Cl. 324-58.5

1 Claim

RF carrier wave excited transducer means for providing a bipolar output signal having a sense and magnitude indicative of the sense and magnitude of a detected change of state from a reference state and corresponding to a fractional wavelength of the carrier wave. Modulating means responsive to a detected state modulates an applied carrier wave ex-

citation as a function of the detected state. Hybrid junction means responsive to the applied carrier and to the modulated carrier provides two RF outputs in mutual time phase

capable of firing it and measuring the time it takes for the initiator to reach a predetermined value bearing a known rela-



quadrature. Detected signal summing means having oppositely poled first and second detected inputs, each responsive to a respective one of said hybrid junction outputs, provides a bipolar output indicative of the difference between said hybrid outputs.

tion to the functioning time. The voltage is then terminated before the initiator fires.

ERRATUM

For Class 324-77 see:
Patent No. 3,634,749

3,634,757

MEASURING BRIDGE HAVING A TEMPERATURE-COMPENSATING TRANSISTORIZED VOLTAGE STABILIZER SHUNTING THE POWER SUPPLY TO THE BRIDGE

Alexandre Monomakhoff, Verneuil-en-Halatte, France, assignor to Charbonnages De France, Paris, France

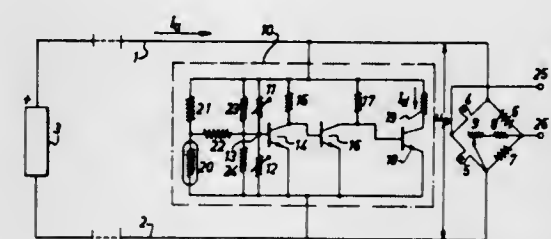
Filed Mar. 18, 1969, Ser. No. 808,251

Claims priority, application France, Mar. 21, 1968, 144,784

Int. Cl. G01r 27/02, 5/22

U.S. Cl. 324-65 TC

2 Claims



A direct-current supply circuit for apparatus of the type in which a measuring bridge is provided comprising at least one electric dosing filament, the resistance of which is a function of a value to be measured. The said circuit comprises a source of direct current of regulated intensity connected in series with the measuring bridge and a shunt voltage stabilizer circuit with transistors, connected directly to the terminals of the measuring bridge and which shunts at any moment the desired portion of the supply current of regulated intensity, so that the voltage at the terminals of the bridge is maintained at the desired value.

3,634,758

MEASURING THE FUNCTIONING TIME OF A SEMICONDUCTOR ELECTROEXPLOSIVE INITIATOR

Robert F. Flagg, Castro Valley, Calif., assignor to KDI Holes Incorporated, Cincinnati, Ohio

Filed Sept. 29, 1969, Ser. No. 861,744

Int. Cl. G01r 27/02

U.S. Cl. 324-65 R

6 Claims

The functioning time of a semiconductor electroexplosive initiator is determined by applying to the initiator a voltage

3,634,759

FREQUENCY SPECTRUM ANALYZER WITH A REAL TIME DISPLAY DEVICE

Tsuneji Koshikawa, Tokorozawa, and Masaharu Kobayashi, Hachioji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

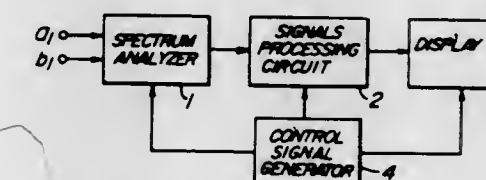
Filed June 18, 1970, Ser. No. 47,635

Claims priority, application Japan, June 20, 1969, 44/48243

Int. Cl. G01n 23/16

U.S. Cl. 324-77

4 Claims



A device for analyzing the frequency spectrum of each of two input signals such as sound signals or ultrasonic signals comprising a number of different frequency components, presenting a real time display of the time-sequential variations in the intensities of the signals at the respective frequency components, and displaying the analytical results of the two signals in mutually opposing positions about the display screen.

3,634,760

FREQUENCY SPECTRUM ANALYZER WITH FFT COMPUTER

Fernand R. C. Murtin, Paris, and Owen Storey, Jarcy, both of France, assignors to Societe Industrielle Electronique et d'Informatique, Paris, France

Filed June 22, 1970, Ser. No. 48,115

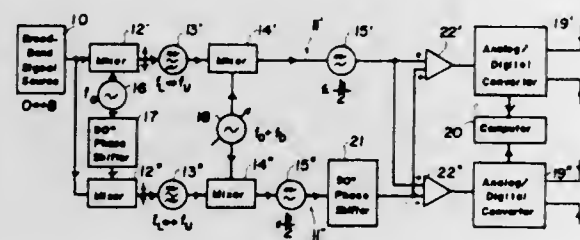
Int. Cl. G01r 23/16

U.S. Cl. 324-77 R

10 Claims

A broad band of signal frequencies, whose power spectrum is to be analyzed by the Fast Fourier Transform (FFT) technique, is sampled by heterodyning with various beat frequencies f_b and passage of the modulation products through a low-pass filter of bandwidth $b/2$ where b represents the width of a subband substantially narrower than the

overall band of width B . By concurrently performing the heterodyning operation in two parallel channels, with introduction of a 90° phase shift between beat and input frequencies in one of the channels, the two sidebands $f_b + f_x$ and $f_b - f_x$ (where f_x represents any frequency within the selected subband b) can be separated in the outputs of the



two channel filters. Frequency limit $b/2$ is selected in conformity with the capacity of an associated computer to handle the data from the FFT analysis of the subband spectrum. The sampling may be preceded by a transposition of the entire band B to a higher frequency range, in order to prevent any possible cluttering of the spectrum by harmonics of f_b .

3,634,761

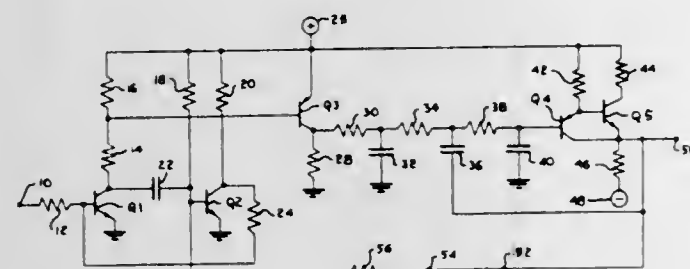
NONLINEAR RATE-MEASURING INSTRUMENT
Christopher C. Day, Newtonville, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed May 19, 1969, Ser. No. 825,772

Int. Cl. G01r 23/02, 15/10

U.S. Cl. 324-78 E

18 Claims



A nonlinear rate-measuring instrument. A multivibrator controls the generation of fixed-amplitude current pulses at a rate equal to that of an input signal whose rate is to be measured. The pulses are averaged and the output voltage is a function of the input rate. This generally linear type of operation is made nonlinear by using the output voltage to control the period of the multivibrator, i.e., the width of each generated current pulse. High-scale or low-scale compression can be achieved depending on whether the output signal is used to decrease or increase the multivibrator period.

3,634,762

LOGICAL DEVICE FOR COMPARING THE PHASE SHIFT OF AN ELECTRICAL MAGNITUDE TO BE CHECKED IN RELATION TO A REFERENCE ELECTRICAL MAGNITUDE

Claude-Auguste Queron, Seine, France, assignor to Compagnie Des Compteurs, Paris, France

Filed Jan. 28, 1970, Ser. No. 6,416

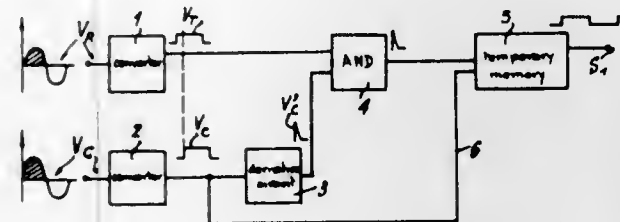
Claims priority, application France, Jan. 28, 1969, 6901613

Int. Cl. G01r 25/00

U.S. Cl. 324-83 D

7 Claims

Phase comparing process and device in which the alternations of both a reference electric magnitude and an electric magnitude to be checked are converted into rectangular pulses, then the rectangular pulse corresponding to the magnitude to be checked is derivated, in order to determine



whether or not there exists a time coincidence between said derivative and each rectangular signal corresponding to the reference electric magnitude.

3,634,763

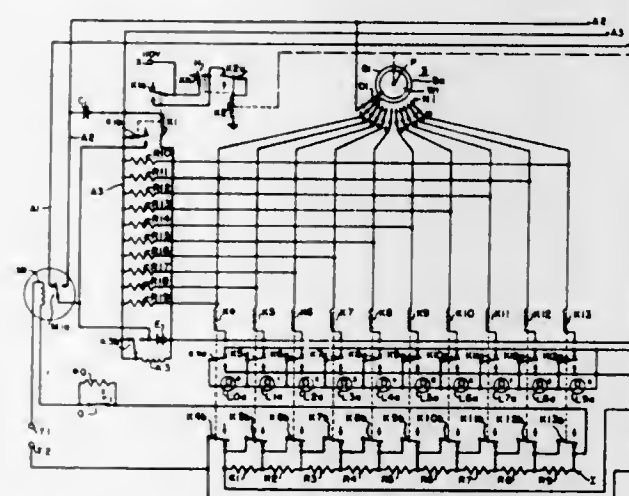
DIGITAL VOLTMEETER USING ADAPTIVE CIRCUIT TECHNIQUES

Salvatore Micale, 314 Benderemere Ave., Interlaken, N.J.
Continuation-in-part of application Ser. No. 586,005, Oct. 7, 1966. This application May 7, 1970, Ser. No. 35,545

Int. Cl. G01r 17/06; H03k 13/14

U.S. Cl. 324-99 D

6 Claims



A digital voltmeter which does not require comparison of the unknown voltage with a reference voltage and, which, during periods of no input voltage, does not consume energy. The voltmeter of the invention essentially is a constant current device wherein resistance from one or more resistor banks is added or deleted in stepwise fashion in series with a sensing relay coil, this series circuit being connected directly across the unknown voltage terminal. This voltmeter is adapted to measure voltages accurately to within a minimum digital increment of voltage which depends upon the sensitivity of the sensing relay coil. The current-sensing relay coil has a current threshold equal to the ratio of the minimum increment of voltage to be measured and the resistance of said sensing relay coil. The sensing relay includes a contact which moves back and forth between two positions, depending upon whether the current in the aforesaid circuit is greater than or less than a predetermined threshold value. The amount of resistance in the current path is partially dependent upon the position of said contact and will be governed by the magnitude of the unknown voltage. The digital voltmeter also includes a plurality of banks of relays associated with each bank of resistors and indicating means associated with said relay banks. The magnitude of each of the resistors in the various resistor banks is digitally related to the magnitude of the resistors in the other banks. There are n banks of resistors, where n is the number of digits of

the voltage to be measured. The magnitude of all resistors of a given resistor bank is equal and the magnitude of the resistors of the successive resistor banks, representing successively lower significant digits, decreases by a factor of 10. The resistance of the sensing relay coil must be equal to or less than one-tenth of the value of the resistance of each resistor of the resistor bank corresponding to the least significant digit of the voltage to be measured in order to insure accurate measurement of voltage. The voltmeter also includes a switch which sequentially applies a direct current voltage to the various relays of a corresponding relay bank when the contact of the current sensing relay is in one of its two positions. As each relay of the various banks is actuated in sequence, its contact either places a short circuit across, or removes a short circuit from, one or more of the resistors. All relays associated with a given bank of resistors which were actuated prior to reversal of the position of the current sensing relay contact are held closed by holding current. The current in the sensing relay coil goes through the threshold as many times as a digit of voltage is selected. In a first type of circuit, a bank of resistors in which all resistance is shorted out is disposed initially in circuit with the current sensing relay coil, while in a second type of circuit the shorting contact of a holding relay initially is in circuit with the sensing relay winding. In either type of circuit, the current increases from zero to above threshold upon appearance of an input voltage.

Control means are provided in this voltmeter responsive to the threshold current flowing through the relay sensing coil for sequentially selecting resistors from the various banks effectively placed in series with the relay sensing coil across the terminals of the voltage to be measured until the voltage drop across the selected resistances from the various banks of resistors is substantially equal to the input voltage to be measured, for input voltages which are at least equal to said minimum increment of voltage.

3,634,764

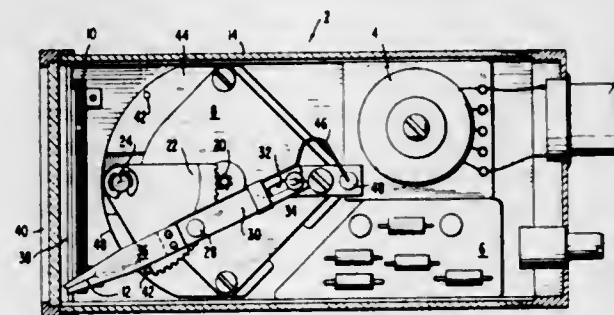
FLAT SCALE RECTILINEAR INDICATOR
Raymond W. Sargent, Bristol, Vt., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed Apr. 25, 1968, Ser. No. 724,087

Int. Cl. G01r 15/10, 17/06

U.S. Cl. 324-132

2 Claims



A flat scale indicating device for use with servo units having feedback loops, having an indicator arm pivotally mounted to a sector gear, the latter being in meshing engagement with a rotary pinion for transmitting rotary motion of the pinion to a straight line translatory motion at the pointer end of the indicating arm. The indicator arm further functions as a potentiometer wiper and an electrical connection is provided between the arm and a suitable amplifier bridge circuit.

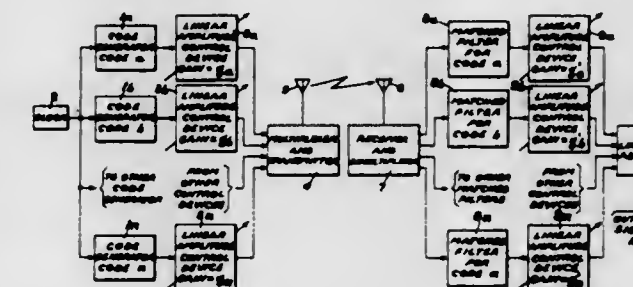
3,634,765
SYSTEM TO PROVIDE AN IMPULSE AUTOCORRELATION FUNCTION UPON LINEAR ADDITION OF A PLURALITY OF MULTIDIGIT CODE SIGNALS HAVING COOPERATING AUTOCORRELATION FUNCTIONS INCLUDING AMPLITUDE CONTROL OF THE DIGITS OF ONE OR MORE OF SAID CODE SIGNALS

Frank S. Gutleber, Little Silver, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Continuation-in-part of application Ser. No. 647,154, June 19, 1967, now abandoned. This application Feb. 9, 1970, Ser. No. 10,038

Int. Cl. H04b 1/66, 1/12; H04i 3/12

U.S. Cl. 325-42

10 Claims



A pseudonoise multiplexed code class where at least one code signal of a group of two or more code signals has its amplitude controlled according to a given weighting factor at either the transmitter or receiver to adjust the autocorrelation function thereof to provide cooperating autocorrelation functions for the group of code signals so that when autocorrelation functions of the group of code signals are linearly added together, an output signal having an impulse autocorrelation function results.

3,634,766

SINGLE SIDEBAND SYSTEM WITH MEANS FOR COMPENSATING FOR DOPPLER SHIFT

Marcel Louis Boyer, Chatillon, France, assignor to C.I.T.-Compagnie Industrielle des Telecommunications, Paris, France

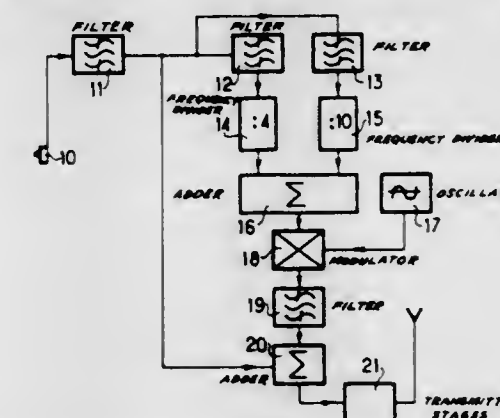
Filed Mar. 19, 1969, Ser. No. 808,406

Claims priority, application France, Mar. 19, 1968, 144397

Int. Cl. H04b 1/10

U.S. Cl. 325-65

8 Claims



A single or independent sideband radio transmitter having a high-frequency section for transmitting a high-frequency signal modulated by a low-frequency bandwidth and which is connected to receive the lower bandwidth section from a speech circuit and the upper bandwidth section from circuitry providing two lateral bands of equal width and equispaced from a reference frequency provided by an oscillator, the generation of the lateral bands being controlled by the speech level, and a radio receiver having separator filters connected to isolate respective subbands of equal width from

an upper section of a received frequency spectrum containing speech modulation components, modulating and filtering circuitry provided with a fixed-frequency local oscillator and deriving from the subbands and the oscillator output a signal having a frequency which is significant of the carrier frequency as modified by an uncontrollable frequency deviation, a demodulator fed by a variable-frequency oscillator and by the lower section of the signal frequency spectrum, and a system controlling the operating frequency of the variable oscillator in accordance with the output of a discriminator which compares the variable oscillator output frequency with said signal from said modulating and filtering circuitry.

3,634,767

RADIOMETER DETECTOR CIRCUIT

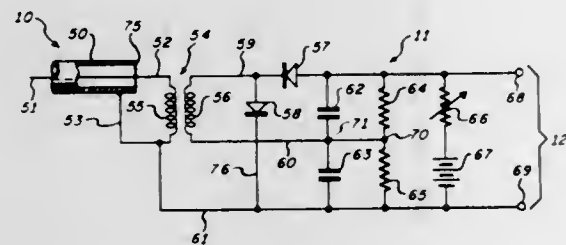
Robert S. Roeder, Dunedin, Fla., assignor to Sperry Rand Corporation

Filed Mar. 12, 1970, Ser. No. 18,973

Int. Cl. H03d 1/10

U.S. Cl. 325-363

4 Claims



A detector circuit for efficiently demodulating carrier signals having imposed upon them amplitude modulation data representing the radiometric difference in effective temperature between an unknown source of very high frequency signals and a standard reference is disclosed.

ERRATUM

For Class 328-72 see:
Patent No. 3,634,741

3,634,768

WIDE BANDWIDTH MICROWAVE MIXER CIRCUITS

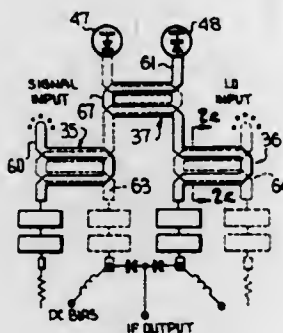
Earl W. Carpenter, Jefferson, Md., and Jerome E. Hill, Anandale, Va., assignors to Radiation Systems, Inc., McLean, Va.

Filed Nov. 7, 1969, Ser. No. 874,874

Int. Cl. H03d 7/14

U.S. Cl. 325-446

9 Claims



A symmetrical wide band microwave mixer is described which employs a unique microwave circuit and a pair of mixer diodes terminating a pair of transmission lines to a point of ground potential. The general purpose of this circuit is to provide a means for separating the input frequencies from the translated frequency of the mixer, by using

techniques which do not require the insertion of quarter-wave resonant or lumped-constant elements into the RF circuitry. In the circuitry proposed, 3 db. directional couplers are employed for two purposes: (1) to superimpose the input signals, and (2) to perform the duplexing function of separating the output signal from the input signals without loss of energy. The 3 db. coupler may be used to perform the duplexing function in either of two distinct ways: (1) one or more of the frequencies may be out of the coupler band and thus be transmitted along the conductor path through the coupler without energy loss; (2) the coupler and a pair of identical filters may be used to multiplex signals which are only slightly separated in frequency.

3,634,769

SEQUENTIAL GATING CIRCUIT

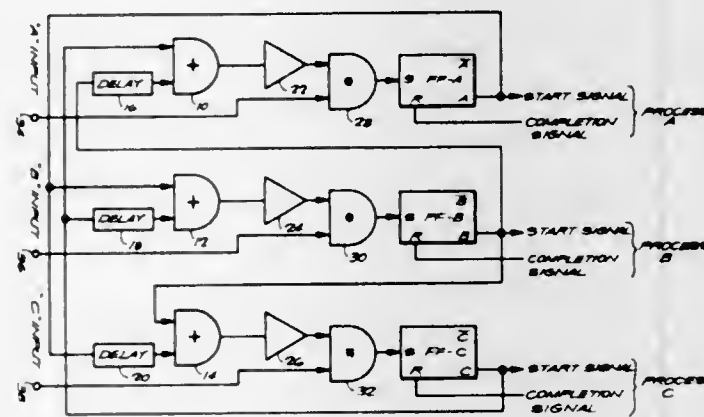
Roland G. Sleater, and Charles G. Reed, both of Dallas, Tex., assignors to Relux Corporation

Filed Dec. 12, 1969, Ser. No. 884,657

Int. Cl. H03k 17/26

U.S. Cl. 328-75

5 Claims



A gating circuit for sequentially initiating a plurality of different processes or events in accordance with a predetermined preferential sequence of activation. A plurality of gates are provided, each of which receives an independent input signal for initiating the corresponding process or event. The output signal of each gate circuit is fed back to all of the other gate circuits as an inhibiting signal to prevent any two of the gates from being activated at the same time. The inhibiting signals are applied to the other gates through a plurality of different delay lines which establish a preferential time sequence of gate activation. When one gate has been activated, it inhibits all of the other gates until the corresponding process or event has been completed, at which time the inhibiting signal to the other gates is removed. Due to the difference in delay time, however, the removal of the inhibiting signal occurs in a time sequence which establishes a preferential sequence of gate activation for the remaining gates.

3,634,770

CIRCUIT ARRANGEMENT RESPONDING TO A SIGNAL PEAK

Ernst Spreitzhofer, Zum Brachsen, Germany, assignor to Bodenseewerk Perkin-Elmer & Co. GmbH, Überlingen am Bodensee, Germany

Filed Jan. 23, 1970, Ser. No. 5,178

Claims priority, application Germany, Jan. 25, 1969, P 19 03 698.7

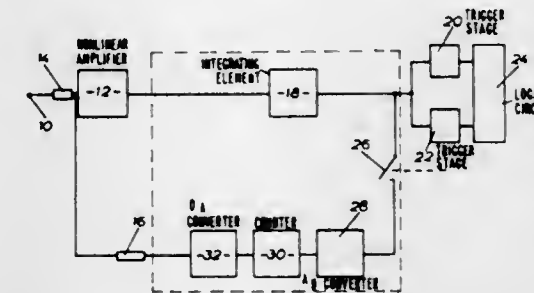
Int. Cl. H03k 5/20

U.S. Cl. 328-115

4 Claims

A peak detector detects peaks in an analog input signal. The input signal is first amplified and integrated and then applied to a compensating circuit. The compensating circuit includes an analog-to-digital converter that converts the in-

tegrated signal into a corresponding sequence of digital pulses. The digital pulses are counted and stored in a digital counter and then converted by a digital-to-analog converter into a correction signal that is applied to cancel out the input signal. Periodically the compensating circuit is disconnected



from the integrator so that a threshold detector, that is coupled to the integrator, can detect an increase or decrease in the amplitude of the input signal as compared to the correction signal. The threshold detector thereby signals the beginning and end of the peaks in the input signal.

3,634,771

FREQUENCY-COMPARATIVE CIRCUIT OF TWO SERIES OF PULSES

Jacques Edmond Hermel, Chilly-Mazarin, France, assignor to Compagnie des Compteurs, Paris, France

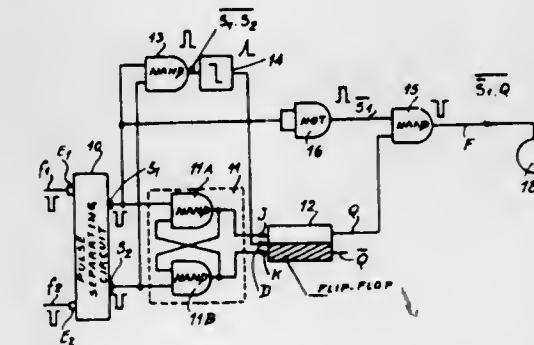
Filed Sept. 22, 1970, Ser. No. 74,275

Claims priority, application France, Oct. 2, 1969, 6933635

Int. Cl. H03d 13/00

U.S. Cl. 328-133

5 Claims



Frequency-comparative circuit of two series of pulses comprising a two-output bistable rocker having two inputs respectively receiving said two series of pulses, a flip-flop connected to the outputs of said bistable rocker and having an auxiliary input connected to the output of a two-input delay circuit whose two inputs are themselves connected respectively to the two inputs of said bistable rocker and a two-input NAND circuit of which one input is connected to one of the outputs of said flip-flop and the other input to one of the inputs of said bistable rocker through a reversing circuit whereby one pulse of one of said two series of pulses prevents the passage of the next pulse from the other series thus causing at the output of said NAND circuit pulses corresponding in number to the difference between the number of pulses of said two pulse series.

3,634,772

DIGITAL BAND-PASS DETECTOR

Joel Katz, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Jan. 5, 1971, Ser. No. 103,971

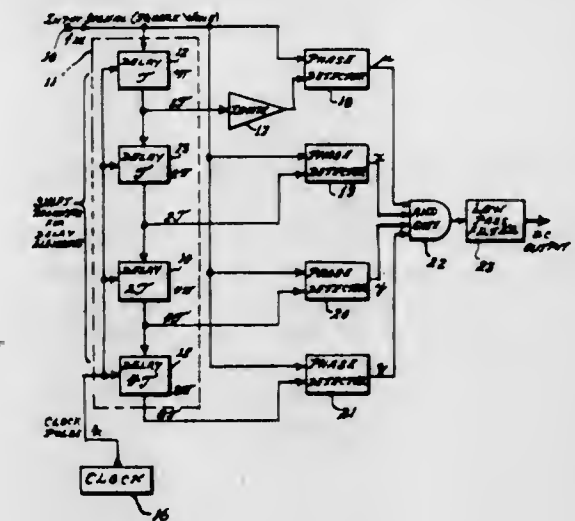
Int. Cl. H03d 3/00

U.S. Cl. 328-138

2 Claims

A digital band-pass detector is provided which utilizes the autocorrelation properties of a square wave signal to provide

a DC output only at a desired signal frequency, f_0 . Any number of individual autocorrelations can be combined to



yield an overall selectivity by using appropriate values of delay τ for each correlation.

3,634,773

CARRIER PHASE AND SAMPLING TIME RECOVERY IN MODULATION SYSTEMS

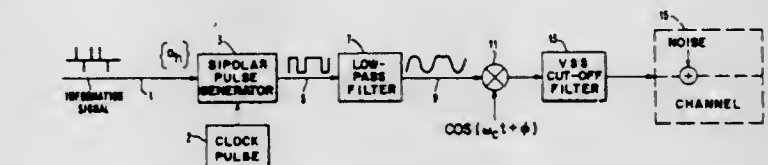
Hisashi Kobayashi, West Los Angeles, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 15, 1969, Ser. No. 889,093

Int. Cl. H03d 3/18

U.S. Cl. 329-50

26 Claims



Iterative and sequential techniques for carrier phase and sample time recovery are employed in the demodulator of PAM single sideband data transmission systems. The summation of the respective products of samples taken from an inphase and quadrature channel provide recursive estimates of the carrier phase for automatically converging the demodulator phase upon carrier phase. Likewise, the summation of the respective products of samples taken from the inphase and a differentiated inphase channel provide recursive estimates of sample time for automatically converging the demodulator sample time upon an optimum sample time.

3,634,774

ACOUSTIC SURFACE WAVE PARAMETRIC AMPLIFIER

Paul H. Carr, Bedford, Mass., assignor to The United States of America as represented by the Secretary of the Air Force

Filed July 15, 1970, Ser. No. 54,954

Int. Cl. H03f 7/00

U.S. Cl. 330-4.6

6 Claims



The acoustic surface-wave signal resulting from colinear interaction of pump and input signals is found to have an am-

plifying difference signal component and an overriding attenuating sum signal component. Amplification is achieved by noncolinear interaction of acoustic surface waves at an angle that utilizes the elastic anisotropic characteristics of certain substrate materials to suppress the sum signal component.

3,634,775

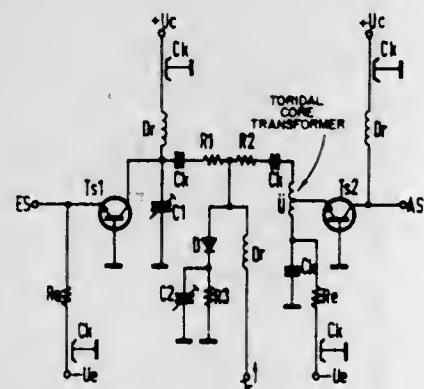
TRANSISTORIZED BROADBAND AMPLIFIERS WITH GAIN CONTROL

Wolfgang Ulmer, and Hermann Rausch, both of Munich, Germany, assignors to Siemens Aktiengesellschaft
Continuation of application Ser. No. 761,228, Sept. 30, 1968.
This application Oct. 19, 1970, Ser. No. 82,226
Claims priority, application Germany, Sept. 20, 1967, P 15 37 690.6
Int. Cl. H03g 3/30

U.S. Cl. 330-29

9 Claims

A transistorized broadband amplifier having a gain control which includes attenuation elements coupled between transistor amplifier stages and which has a diode coupled from a point intermediate the attenuation elements to circuit



conductors, and between said conductors and the shield being so related as to minimize crosstalk and attenuation, and maintain substantially constant characteristic impedance.

3,634,783 WAVEGUIDE LOAD

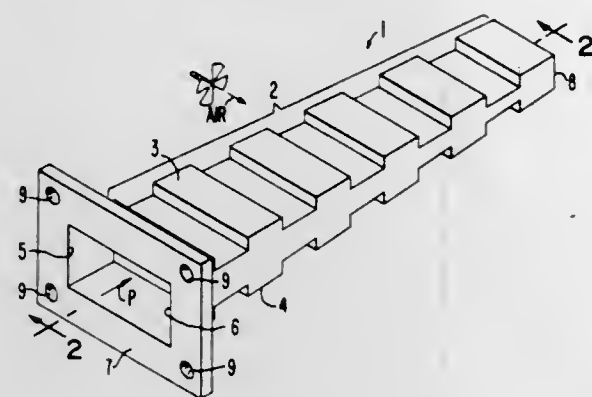
John P. Rooney, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Apr. 13, 1970, Ser. No. 27,584

Int. Cl. H01p 1/26; H03h 7/38; 7/30

U.S. Cl. 333-22 R

11 Claims



A rectangular waveguide load is disclosed. The broad walls of a rectangular waveguide are periodically loaded by means of corrugations to define a slow wave structure. The walls of the waveguide are made of a material having a loss tangent which is no less than the loss tangent of stainless steel for decreasing the physical length of the load. The height and width of the waveguide may be tapered as well as the depth of the corrugations for increasing the attenuation per unit length.

3,634,784

FLUID-COOLED COAXIAL LINE TERMINATOR

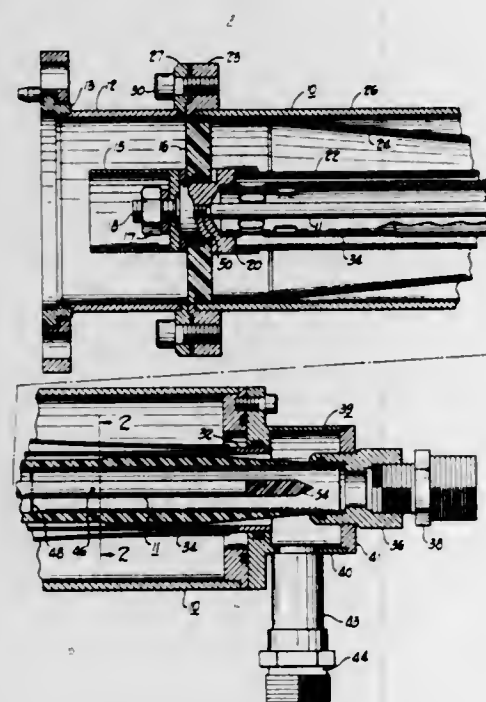
Leo Lesyk, Walton Hills, and James M. Lawson, Jr., Parma, both of Ohio, assignors to Bird Electronic Corporation, Solon, Ohio

Filed May 27, 1970, Ser. No. 41,026

Int. Cl. H01p 1/26

U.S. Cl. 333-22 F

3 Claims



An electrical coaxial line termination having greatly improved voltage standing wave ratio created by inserting a

solid rod conductor axially within and connected to one end of a resistor, one end is connected to the inner conductor of the coaxial line. Preferably, the resistor is positioned within a logarithmically tapered horn which is connected to the outer conductor of the coaxial line at one end and is connected to the end of the resistor remote from the connection of the resistor to the inner conductor of the coaxial line.

3,634,785

ELECTRICAL DELAY DEVICE OF UNITARY CONFIGURATION

Kazuo Kameya, Yokohama-shi, Japan, assignor to Toko Kabushiki Kaisha, Tokyo-To, Japan

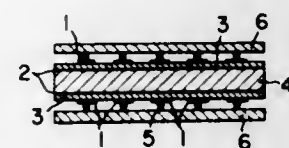
Filed May 19, 1969, Ser. No. 825,909

Claims priority, application Japan, Dec. 14, 1968, 43/91730

Int. Cl. H03h 7/30

U.S. Cl. 333-29

6 Claims



Disclosed herein is a delay device of unitary configuration in which a ground-side capacitor electrode is sandwiched between at least one surface of a magnetic core and one surface of a dielectric sheet. Several parallel capacitor electrodes are positioned on the other side of the dielectric sheet, and a coil is wound around the resulting laminar assembly and is connected to each of the parallel capacitor electrodes.

3,634,786

MICROWAVE CIRCUIT UTILIZING A SEMICONDUCTOR IMPEDANCE ELEMENT

Tohru Matsuoka, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

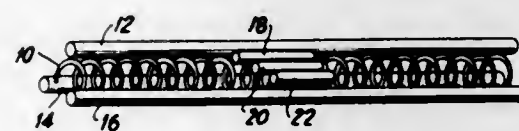
Filed Apr. 22, 1968, Ser. No. 723,022

Claims priority, application Japan, Apr. 24, 1967, 42/25923

Int. Cl. H03h 7/30

U.S. Cl. 333-31

11 Claims



A microwave circuit is described for use in a traveling-wave vacuum tube wherein the resistive impedance element is made of a single crystal semiconductor structure. Several microwave structures employing this element are shown.

3,634,787

ELECTROMECHANICAL TUNING APPARATUS PARTICULARLY FOR MICROELECTRONIC COMPONENTS

William E. Newell, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 649,214, June 27, 1967. This application Jan. 23, 1968, Ser. No. 699,835

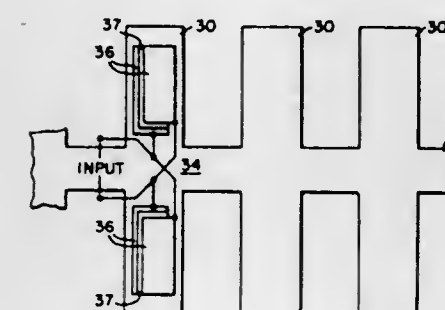
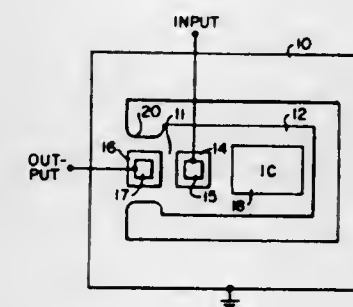
Int. Cl. H03h 9/20

U.S. Cl. 333-72

1 Claim

Tuning apparatus is described including a vibratory member on which layers of piezoelectric material are disposed for input and output transducers. The vibratory member may have a flat surface on which the piezoelectric

layers are disposed making the structure amenable to fabrication by techniques used for fabrication of microelectronic components. The vibratory member may be a body of semiconductive material. In addition to acting as an electromechanical tuning element, the vibratory member, when



of semiconductive material, may contain elements such as an integrated amplifier circuit for frequency selective properties without external tuning means. The vibratory member may be employed in various modes of vibration including flexural and longitudinal modes.

3,634,788

WAVEGUIDE FILTER

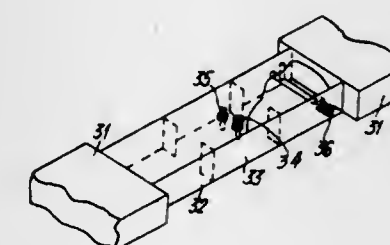
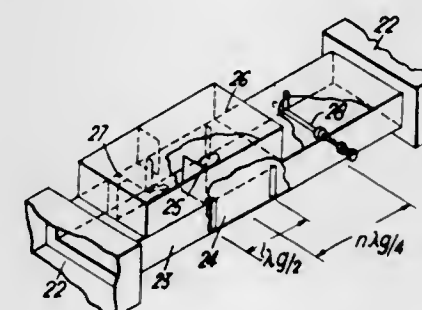
George Frederick Craven, Sawbridgeworth, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Sept. 27, 1967, Ser. No. 671,046

Int. Cl. H03h 13/00, 7/10

U.S. Cl. 333-73

4 Claims



This invention relates to waveguide filters wherein waveguide sections functioning in the evanescent mode for

frequencies in the desired passband are utilized to couple conventional cavity filter sections together. The evanescent sections operate in their normal modes at frequencies higher than the passband frequencies. Suppression devices are then coupled to one or more of the evanescent sections (instead of to the cavity filter sections) to suppress the parasitic harmonic waves while having negligible effect on the evanescent mode passband frequencies.

3,634,789

GEOMETRICALLY DEPENDENT DISTRIBUTED-SECTION TRANSMISSION LINE ATTENUATOR

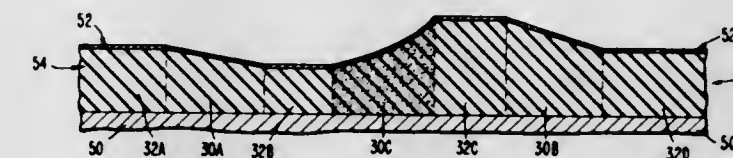
Paul E. Stuckert, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,740

Int. Cl. H01p 1/22

U.S. Cl. 333-81

11 Claims



The attenuators include distributed series and distributed shunt resistance sections which attenuate signals propagating in one direction with minimal distortion and reflection, and attenuate signals propagating in a second direction with equivalent minimal distortion but with significant reflection. In the distributed series and shunt resistance sections, the characteristic impedance, which is determined by the geometry of the transmission structure, varies continuously. Disclosed transmission line attenuators include two distributed series resistance sections separated by a distributed shunt resistance section or two distributed shunt resistance sections separated by a distributed series resistance section. The distributed series resistance is a resistive section in the signal line and the distributed shunt resistance is a section of lossy dielectric between and interconnecting the signal line and the ground conductor.

3,634,790

PARASITIC MODE SUPPRESSOR

Max Turteltaub, Paris, France, assignor to Thomson-CSF

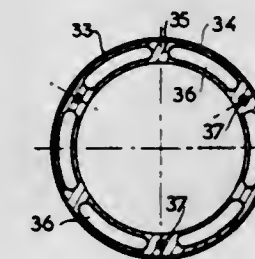
Filed Mar. 27, 1970, Ser. No. 23,332

Claims priority, application France, Mar. 28, 1969, 69/9363

Int. Cl. H01p 1/16, 7/04, 7/06

U.S. Cl. 333-82 B

2 Claims



A device for eliminating parasitic TE modes in a coaxial or cylindrical cavity, formed by two associated rings of electrically resistive material and which are axially movable. The rings have openings extending perpendicularly to the lines of force of the magnetic field of the mode which is to be suppressed. The dimensions of the slots are determined in such manner that they are resonant at the frequency of the parasitic mode.

3,634,791

PUSHBUTTON SYSTEM TUNER

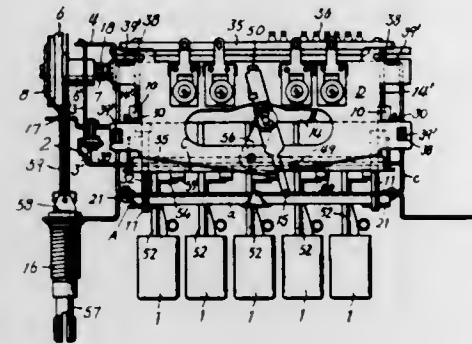
Yukitomo Yasuda, Urawa-shi; Tadashi Akasaka, Hanu-shi; Yasuhisa Nishikawa, Tokyo, and Mamoru Magi, Miman-Saitama-gun, Saitama-ken, all of Japan, assignors to Telkoku Dempa Company Limited, Tokyo, Japan
Filed July 3, 1969, Ser. No. 838,937

Claims priority, application Japan, July 5, 1968, 43/46897;
Jan. 30, 1969, 44/6324

Int. Cl. H03J 5/06

U.S. Cl. 334-7

11 Claims



A pushbutton system tuner has a frame, a coil case is provided on said machine frame and has a plurality of coils, a reciprocating plate engages a guide formed on the surface of said coil case whereby said cores can be moved into and out of said coils, a rotary frame which has parallel rods rotatably supported on said machine frame cooperates with said reciprocating plate, pushbuttons with arms are provided with a frequency adjuster to rotate said rotary frame, a shock adjusting means permits the manual adjustment of said rotary frame and a switching means is provided for releasing the connection between said shock adjusting means and said rotary frame through said arm member.

3,634,792

SYSTEM FOR AUTOMATICALLY SENSING AND INDICATING THE ACCELERATION AND DECELERATION OF A VEHICLE

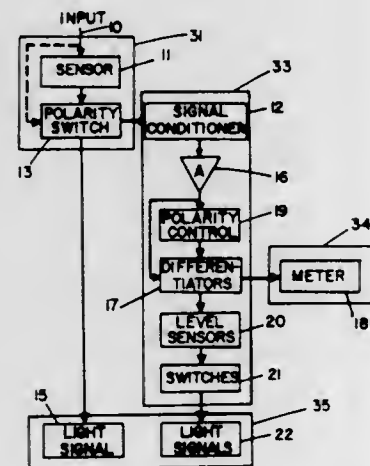
Robert W. Blumenkamp, Palo Alto, Calif., and Enrique J. Klein, 947 Alice Ln., Menlo Park, Calif., assignors to said Klein, by said Blumenkamp

Filed Sept. 30, 1968, Ser. No. 763,665

Int. Cl. G08b 21/00

U.S. Cl. 340-52

19 Claims



Apparatus for the determination of the acceleration and deceleration of a vehicle in which an electromechanical sensing device generates an output signal in response to the rotation of shaft turning at a fixed ratio to the vehicle drive shaft. Electronic circuitry processes the signal of the sensing

device for continuous monitoring of acceleration and deceleration on a meter, and for operating light signals indicating levels of acceleration and deceleration in a system that is integrated with conventional brake and backup light systems.

3,634,793

ELECTROMAGNETIC RELAY

Hans Sauer, Munchen, Germany, assignor to Matsushita Electric Works, Ltd., Osaka, Japan

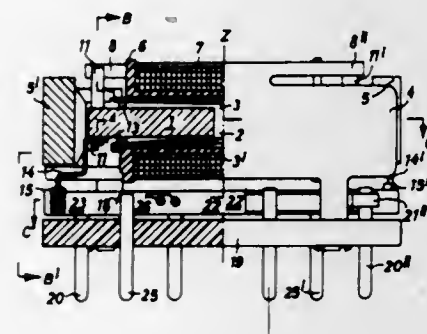
Filed Jan. 14, 1970, Ser. No. 2,916

Claims priority, application Germany, Jan. 20, 1969, P 19 02 610.9

Int. Cl. H01h 51/27

U.S. Cl. 335-78

6 Claims



An electromagnetic relay has a hollow coil with two facing pole shoes and an armature pivotally mounted within the hollow coil. A pair of permanent magnets having different temperature coefficients are positioned adjacent the armature. Contact springs which are actuated by the armature have mounted thereon contacts for engaging with stationary contacts.

3,634,794

CURRENT LEVEL SENSOR

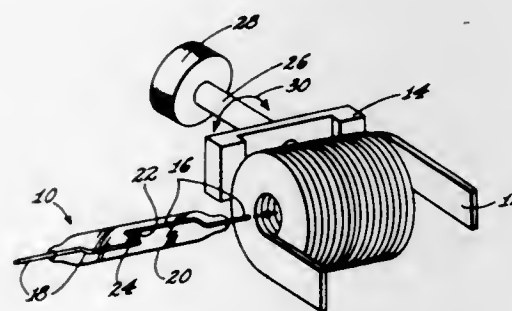
Pol R. Verbeke, Redondo Beach, Calif., assignor to Hughes Tool Co., Aircraft Division, Culver City, Calif.

Filed Feb. 16, 1970, Ser. No. 11,810

Int. Cl. H01h 51/28, 51/22

U.S. Cl. 335-153

15 Claims



A current level sensor system uses a magnetic switch such as a reed switch, and the system also includes a current-carrying coil which carries the current which has its level monitored. The current-carrying coil produces a first magnetic field having a magnitude in accordance with the level of the current and the first magnetic field interacts with the magnetic switch. A magnetic means is used which produces a second magnetic field which also interacts with the magnetic switch and the magnetic means is adjustable so that the second magnetic field is adjustable in characteristics. The adjustable magnetic means, therefore, may be set so as to control the level at which the current through the current-carry-

3,634,797

DATA SUPPORT DEVICE

Dori Burkholder, Wibichstrasse 80, Zurich, Switzerland

Filed June 9, 1970, Ser. No. 44,675

Claims priority, application Switzerland, June 12, 1969,
9117/69

Int. Cl. H01f 7/02

U.S. Cl. 335-302

11 Claims

3,634,795
ELECTROMAGNETICALLY RELEASABLE LATCHING MEANS WITH FLOATING LATCH MEMBER

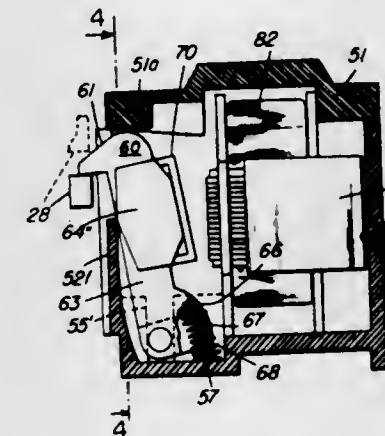
Harold E. Schleicher, West Hartford, Conn., assignor to Arrow-Hart, Inc.

Filed May 14, 1970, Ser. No. 37,206

Int. Cl. H01h 9/20

U.S. Cl. 335-170

11 Claims



An electromagnetically releasable floating latch mechanism holds an electromagnetic contactor device in energized position by engaging and latching the armature when it reaches attracted position after energization of the contactor. The floating latch member is pivotable about a fulcrum that is slidable laterally. A spring presses against an arm on, and extending perpendicular to, the latch member to bias the latch toward latching position. A solenoid magnet, when energized, attracts the latch to release it.

3,634,796

DEFLECTING YOKE

Minoru Nakano, Ashiya; Takashi Tsutsumi, Suita, and Tokuzo Kadota, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

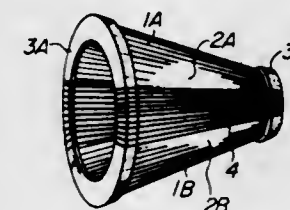
Filed Feb. 16, 1970, Ser. No. 11,589

Claims priority, application Japan, Mar. 28, 1969, 44/24003;
44/24004

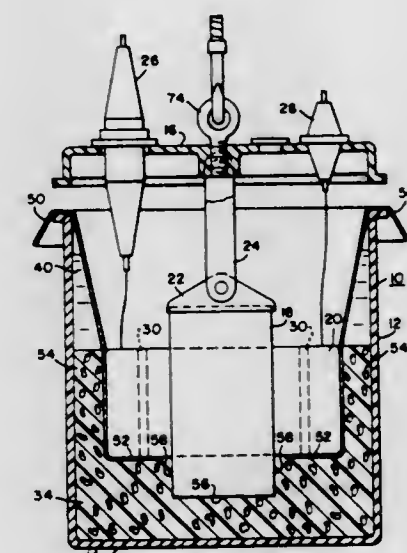
Int. Cl. H01f 7/00

U.S. Cl. 335-210

4 Claims



A toroidal-type deflecting yoke for use in television receivers, wherein a ring core having an elliptical cross section is longitudinally divided into two sections. Coils having a greater number of turns are wound on the two core sections respectively, the core sections having the coils wound thereon being joined to each other. Coils having a lesser number of turns are wound on the joined portions of said core sections, so that the winding of the coils can be effectively performed.



A distribution transformer having a core-coil assembly enclosed in a casing or tank with the core-coil assembly and other associated hardware, such as bushings, partially supported from the top of the casing or tank and partially supported from the bottom of the casing or tank by a foamed resin cushion positioned in the casing or tank and resting on the bottom of the casing or tank.

3,634,799

INDUCTIVE TRANSDUCERS

Henrich Strauch, 55 Bilton Road, Rugby, Warwickshire, England

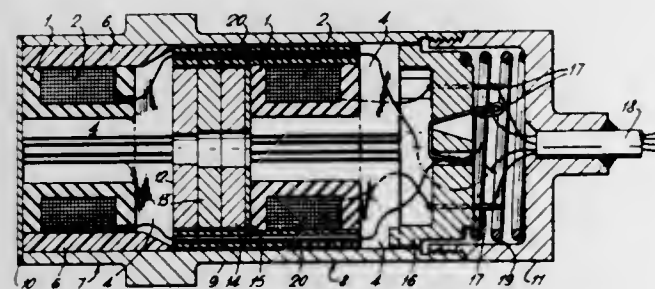
Filed Apr. 17, 1970, Ser. No. 29,569

Claims priority, application Great Britain, Apr. 18, 1969, 19,889/69

Int. Cl. H01f 27/02, 27/24

U.S. Cl. 336-92

14 Claims U.S. Cl. 337-41



An inductive displacement transducer comprising a hollow cylindrical coil and a plurality of flat U-shaped core pieces spaced from one another around the coil each with one leg within the coil and the other leg outside the coil with the free ends of their legs all at the same end of the coil. Also a compound transducer comprising two such inductive displacement transducers arranged coaxially in a common housing with one transducer serving as the active transducer and the other providing compensation for temperature changes.

3,634,800

TRANSFORMER STRIP WINDING

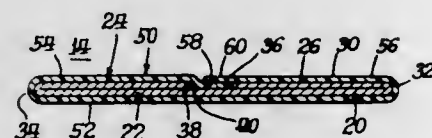
John L. Fisher, Lexington, Ky., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Jan. 7, 1971, Ser. No. 104,656

Int. Cl. H01f 27/28

U.S. Cl. 336-206

12 Claims



A transformer winding comprising a strip or foil conductor having two longitudinal fold portions which are folded against the length of the strip. The fold portions have opposed, spaced apart, facing edges which define a space between the edges. The conductor is insulated by an insulating strip which is also folded and has edges overlapped within the space defined by the opposed edges of the strip conductor.

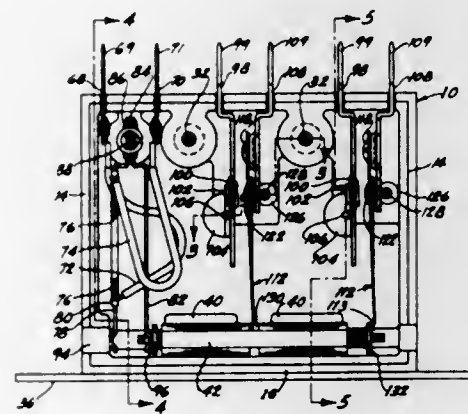
3,634,801
BIMETAL-ACTUATED SNAP ACTION SEQUENCING RELAY

Richard E. Gould; Arden L. Munson, and Walter A. Wydler, all of St. Louis, Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed May 18, 1970, Ser. No. 38,391

Int. Cl. H01h 61/00, 7 1/16

8 Claims



A bimetal-actuated, snap action, sequencing relay having one-piece, self-returning, snap action switch blades of E configuration, in which the switch actuation point may be varied by the application of variable laterally opposing forces to the free ends of the long legs thereof, and in which the stationary contacts are adjustable to vary the travel of the movable contacts, the contact pressure, and return force of the blades.

3,634,802

THERMAL CYCLING SWITCH

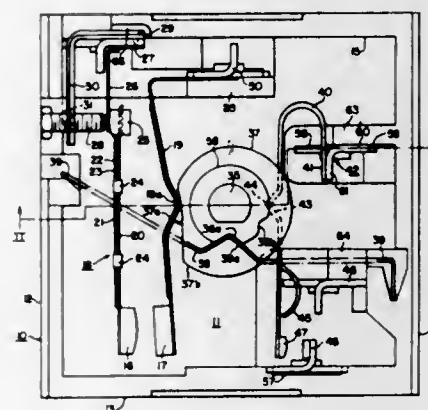
George C. Aklous, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 19, 1970, Ser. No. 21,013

Int. Cl. H01h 37/14, 37/24, 61/08

U.S. Cl. 337-101

4 Claims



A thermal cycling switch in which the main bimetal and the ambient compensating bimetal are supported from a common terminal with the adjustable means for the differential setting extending between the compensating bimetal and the main bimetal assembly. Also, the terminals for the switch are held by the switch casing in a way which braces the terminals against movement out of their normal position.

3,634,803

TEMPERATURE-RESPONSIVE SWITCH ASSEMBLIES

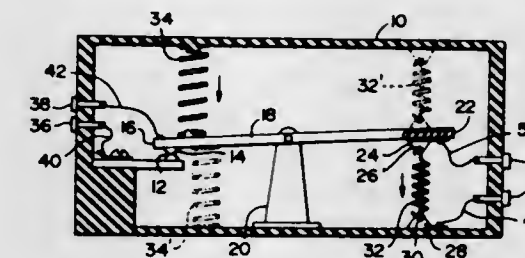
James R. Willson, Garden Grove; Keith T. Krueger, Garden Grove; Hugh J. Tyler, Santa Ana, and Wilbur F. Jackson, Rolling Hills, all of Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed July 22, 1969, Ser. No. 843,723

Int. Cl. H01h 37/46, 61/00

U.S. Cl. 337-123

28 Claims



Temperature-responsive switch assemblies including a control member controlling the position of a movable contact with respect to a stationary contact, the control member being constructed of a material having a temperature-actuated shape memory and having an initial shape and a distorted shape, means biasing the movable contact into one position when the control member has the distorted shape, and temperature control means for reverting the control member to the initial shape to move the movable contact to another position.

3,634,804

PLUG WITH FUSE

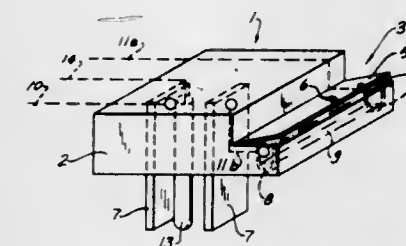
Charles J. Mineo, 39-50-65th Place Woodside Queens, New York, N.Y.

Filed Jan. 13, 1970, Ser. No. 2,562

Int. Cl. H01h 85/30

U.S. Cl. 337-206

10 Claims



A housing of electrically insulating material has an internal cavity which communicates via an opening with the exterior. Two or more male or female terminals are carried by the housing, and one of these terminals is directly connected with a conductor a free end of which is connectable with an energy source or a user device. A pair of metallic spring clips are located in the cavity and hold by friction a replaceable fuse which is removable and insertable through the opening. One section of another electric conductor conductively connects the other terminal with one of the spring clips and another section is connected to the other of the spring clips and has a free end connectable with the energy source or the user device. A cover, in form of a separate, hingedly connected or integral member is provided on the housing and normally closes the opening of the cavity. A snap latch holds the cover in place, and the cover is advantageously transparent so that the fuse may be inspected without removing the cover.

A construction wherein the "burned out" fuse effects the opening of the cover to provide visual indication of the circuit interruption, and a construction where the same indication is provided but where the fuse is replaced by a bimetallic element, are also disclosed.

3,634,805

MINIATURE SPINDLE POTENTIOMETERS AND METHOD FOR PRODUCING SUCH POTENTIOMETERS

Fritz Jestrzinski; Dieter Korbuss, and Gerhard Schulze, all of Berlin, Germany, assignors to Steatit-Magnesia Aktiengesellschaft, Lauf a.d. Pegnitz, Germany

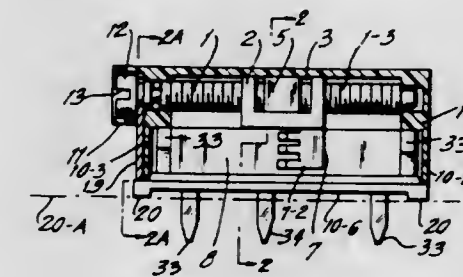
Filed Apr. 15, 1970, Ser. No. 28,803

Claims priority, application Germany, May 24, 1969, G 69 21 039

Int. Cl. H01c 9/02

U.S. Cl. 338-180

7 Claims



A miniature spindle potentiometer for disturbance-free operation adjacent and generally parallel to adjacent similar potentiometers has a small-area profile of narrow width approaching the profile and width of its spindle. It is composed of simple components which may be rapidly assembled into complete potentiometers. The potentiometer has a special slotted nut having two nut sections of strong elastic and insulating polymer material which are biased into play-free threaded engagement with a rotatable spindle which moves the nut and a contact spring coupled thereto along the spindle. Elongated resistance and contact tracks extending generally parallel to the spindle and transversely to the potentiometer mounting surface are slidingly engaged by the moving contact spring. The elastic material of the slotted nut causes the nut and spindle threads to glide across and over their engaged threads without damage and wear of the nut threads, even while the nut remains stationary in an end position while the spindle continues to rotate at substantial speed. A U-shaped contact spring has two contact arms which contact the parallel resistance and contact tracks, respectively, and its sheet junction section is coupled to the moving nut by interfitting coupling projections and recesses. Thus, the nut has at least one pin projection which enters into a corresponding recess or opening in the sheet junction section of the U-shaped contact spring. All components are of simple shape which make possible their rapid production and assembly on a mass production basis into completed potentiometers. The slotted nut of elastic material enables assembly of all potentiometer components except the spindle within a plastic polymer housing. The threaded spindle is thereafter inserted into the housing and into threaded engagement with the inwardly biased threads of the slot-separated nut sections. The exterior end of the spindle which passes through a passage in a transverse housing wall is surrounded by a housing extension which forms with this exterior spindle end a labyrinthine packing which suppresses entry of dust and other contaminants into the housing interior.

3,634,806

MATCHED IMPEDANCE CONNECTOR

Ian L. Fergusson, New Hope, Pa., assignor to Thomas & Betts Corporation, Princeton, N.J.

Filed Oct. 31, 1969, Ser. No. 872,906

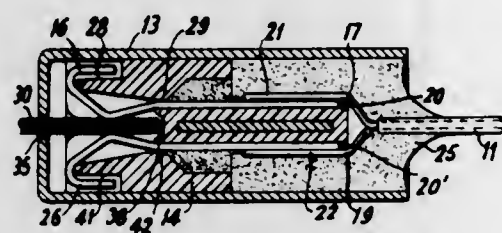
Int. Cl. H01r 3/06; H05k 1/07

U.S. Cl. 339-14 R

6 Claims

A matched impedance connector which prevents an impedance interruption when multiconductor flat cable is connected.

ected to a printed circuit board comprising a connector block having two staggered rows of molded cavities; a plurality of connector pins inserted in said cavities and electrically connected to the alternate signal and ground conduc-



tors of a multiconductor flat cable; a metallic plate disposed between the two rows of connector pins and preferably connected to the "ground" pins; and a cover affixed to the block by means of encapsulation.

3,634,807

DETACHABLE ELECTRICAL CONTACT ARRANGEMENT

Friedrich Grobe, Muenchen, and Artur Weltze, Pullach, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Mar. 19, 1970, Ser. No. 21,118

Claims priority, application Germany, Mar. 28, 1969, P 19 16 160.5

Int. Cl. H05k 1/02

U.S. Cl. 339—17 LC

4 Claims



A detachable electrical contact arrangement for positioning between contact surfaces on units to form electrical connections therebetween characterized by a thin insulating sheet having contact elements disposed thereon in a predetermined pattern and the contact elements having a current path through the sheet which is not more than one millimeter in length. In one embodiment the contact elements are either elastic hollow metal spheres or elastic wire balls mounted in openings in an insulating sheet. In another embodiment the insulating sheet has a net configuration form of strips and the contact elements are metal deposits surrounding the strip or points of intersection of the strip. A third embodiment is a thin flexible metal sheet sandwiched between a pair of insulating film or sheets which metal sheet has had portions removed to provide a plurality of contact elements interconnected by connecting strips. The insulating film is provided with openings to expose the surface of the contact element and a portion of the film and connecting strips are subsequently removed to electrically isolate selected contact elements from adjacent contact elements.

3,634,808

ELECTRICAL CONNECTORS AND ATTACHMENTS

Robert A. Morrison, La Canada, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

Filed Nov. 17, 1969, Ser. No. 877,274

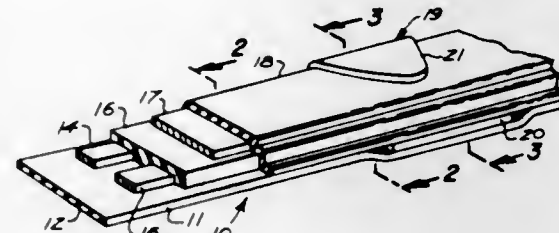
Int. Cl. H01r 9/00; H02g 3/00

U.S. Cl. 339—21 R

13 Claims

A conductor tape according to this disclosure comprises a first insulator layer having an adhesive for attaching the insulator to a wall surface. Conductors are attached to the op-

posite surface of said first insulation layer, and a second insulation layer overlaps the conductors. A metallic layer, such as a steel ribbon, is disposed over the second insulation layer. Spacers may be provided at regular intervals along the length



of the tape to separate the conductors from the first insulator layer so that a connector lip of an electrical attachment may be wedged between the first insulator layer and the conductors to make electrical contact with the conductors to supply the attachment with electrical energy.

3,634,809

ELECTRICAL DISTRIBUTION ASSEMBLY INTENDED TO FORM PREFABRICATED ELECTRIC CONDUITS

Jean Joly, Houilles, France, assignor to La Telemacanique Electrique, Nanterre Hauts-de-Seine, France

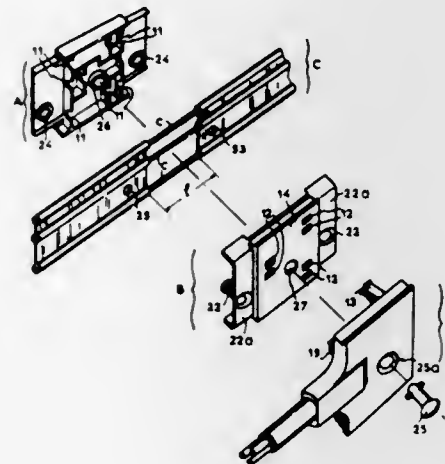
Filed Feb. 24, 1970, Ser. No. 13,442

Claims priority, application France, Feb. 21, 1969, 6904379; Feb. 6, 1970, 7004355

Int. Cl. H01r 13/60

U.S. Cl. 339—22 R

6 Claims



An electric distribution unit with electric current supply conductors advantageously embedded in a strip of insulating material of which a portion can be bared, said unit being mounted in an opening formed in a supporting wall and comprising: at least one element adapted to receive said bared portion of said conductors, at least two flexible parallel edges provided on said element and locking lugs carried by said flexible edges; whereby: said unit adapts itself on the perimeter of said opening and said strip containing said conductors is held flat against said wall.

3,634,810

ELECTRICAL BUS BAR CONSTRUCTION AND METHOD OF MAKING SAME

Donald L. Pemberton, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Feb. 3, 1970, Ser. No. 8,303

Int. Cl. H01r 13/60

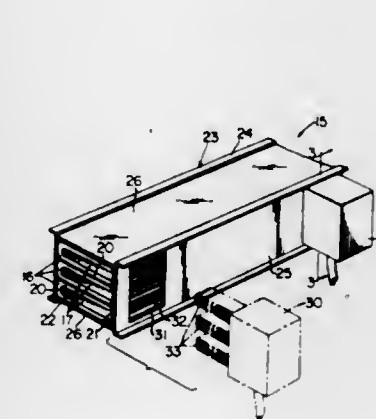
U.S. Cl. 339—22 B

18 Claims

An improved bus bar and method of making same is disclosed wherein an elongated electrical conductor is formed having a roughly V-shaped cross-sectional configuration

comprised of a bight and a pair of diverging legs having inside surfaces which are easily accessible and the inside surfaces are initially coated with an electrically conductive metallic material having a lower surface resistivity of oxida-

protruding terminal blades is provided with floating clamp members to grip and electrically connect with the fuse which



tion than the electrical conductor and the coated conductor is then worked so that the diverging legs are arranged in substantially parallel relation to define a receptacle for an associated male unit. This disclosure also presents an improved bus bar assembly and method of making same.

3,634,811

HERMAPHRODITIC CONNECTOR ASSEMBLY

Wladimiro Teagno, and Gianfranco D'Urso, both of Turin, Italy, assignors to AMP Incorporated, Harrisburg, Pa.

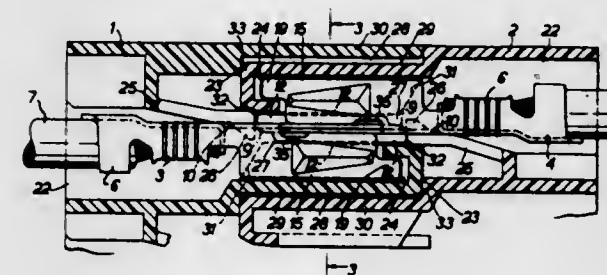
Filed Sept. 22, 1969, Ser. No. 859,652

Claims priority, application Italy, Sept. 23, 1968, 844256

Int. Cl. H01r 25/00

U.S. Cl. 339—47

9 Claims



The invention concerns a hermaphroditic contact and connector assembly and the contact comprises a wire-connecting section integral with male and female contact sections, wherein a channel from which the base extends as a tab and the sides extend over the tab as spring arms for receiving a tab of an identical complementary contact between edges of the arms and the tab. A longitudinal ridge on the tab of one contact engages between the arms of the complementary contact. A contact is assembled in a housing having a passageway partly closed at its insertion ends to expose edges of the arms and the tab for contact-engaging action.

3,634,812

FUSE CLAMP

Joseph A. Genova, Newington, Conn., assignor to Arrow-Hart, Inc., Hartford, Conn.

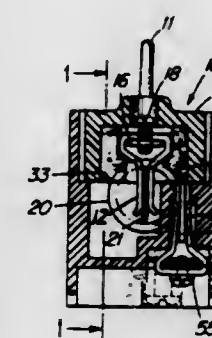
Filed Dec. 5, 1969, Ser. No. 882,585

Int. Cl. H01r 13/62

U.S. Cl. 339—64 R

6 Claims

A fuse holder for cylindrical cartridge fuses having axially



allow for dimensional and alignment errors of the fuse or the holder.

3,634,813

ELECTRICAL CONNECTOR

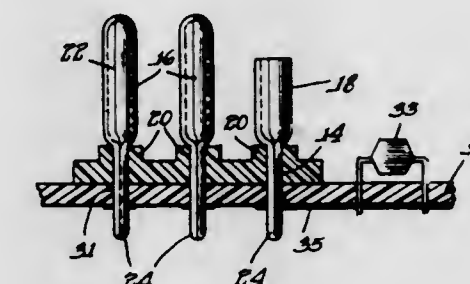
Bruno Baumanns, River Forest, Ill., assignor to Molex Products Company, Downers Grove, Ill.

Filed Feb. 26, 1970, Ser. No. 14,315

Int. Cl. H01r 13/64

U.S. Cl. 339—156 R

4 Claims



A multiple contact connector comprises a thin insulating wafer including a plurality of apertures therethrough, each of which receives and rigidly supports a longitudinal electrical contact member. The apertures and supported contact members are arranged in a given array so that common ends of the contact members may be inserted into printed circuit board apertures arranged in the same array for electrical connection therewith. The other common ends of the connecting members are connected to a cooperating socket for coupling external electrical components to the printed circuit board.

3,634,814

CARD-EDGE CONNECTORS WITH CONTACTS INTERCONNECTED BY BUS BAR

Frederick T. Inacker, Philadelphia, Pa., assignor to Elco Corporation, Willow Grove, Pa.

Continuation of application Ser. No. 535,197, Mar. 17, 1966, now abandoned. This application Oct. 9, 1968, Ser. No. 768,212

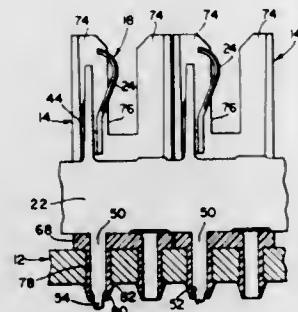
Int. Cl. H01r 13/46, 13/26

U.S. Cl. 339—176 MP

10 Claims

An electrical contact for use in a card-edge connector includes a wiping finger that establishes a curved surface tangent to the plane of a printed circuit board inserted into the connector. The wiping finger is connected to an upstanding support leg by a pivot arm; the support leg and the pivot arm lie parallel to, but spaced from each other, and are intercon-

connected by a U-shaped arcuate bend. A plurality of such contacts, when mounted in different connector housings, can be



connected by a bus bar, which may be integral with said contacts.

3,634,815

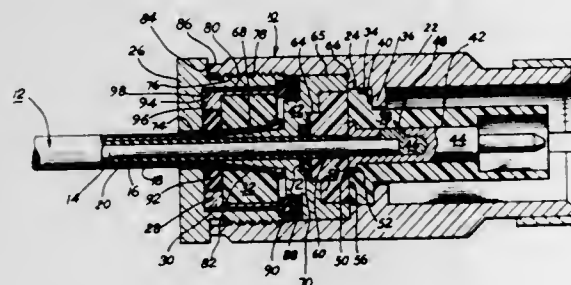
CONNECTOR ASSEMBLY ADAPTED FOR USE WITH A COAXIAL CABLE

William P. Stevens; George M. Hubbard, and William D. Wagner, all of Franklin, Ind., assignors to The Bendix Corporation

Filed Aug. 19, 1969, Ser. No. 851,325
Int. Cl. H01r 17/06

U.S. Cl. 339—177 E

4 Claims



An electrical connector assembly adapted for use with a coaxial cable to provide improved gripping of said coaxial cable.

3,634,816

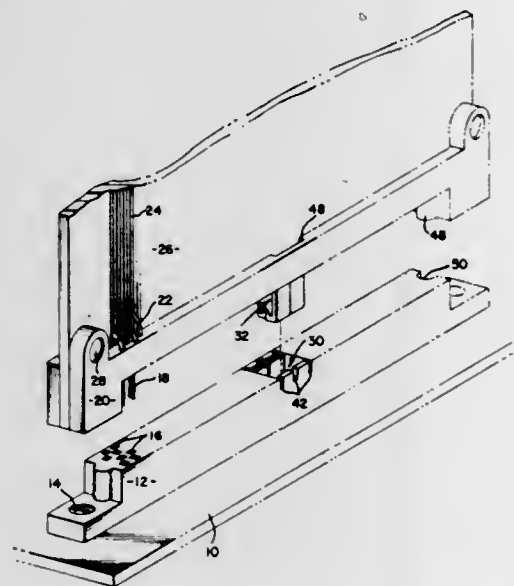
CONNECTOR KEYING SYSTEM

Dale Richard Zell, Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 9, 1969, Ser. No. 865,107
Int. Cl. H05k 1/02

U.S. Cl. 339—186 M

7 Claims



Disclosed is an electrical interconnection system for electrically and mechanically connecting together two printed

circuit boards or the like. The system comprises two connector members each molded for proper polarization and each adapted to receive a printed circuit board, one connector member having contact pins therein and the other connector member having contact receptacles therein. Each connector member has selectively positionable keying inserts fastened thereto and arranged in preselected positions to assure that the proper connector members are interconnected with each other.

3,634,817

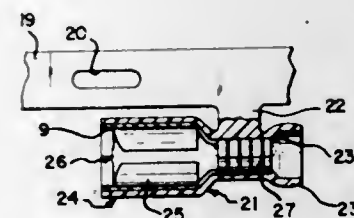
ELECTRICAL CONNECTOR ASSEMBLY AND METHOD OF MAKING SAME

Joseph Agusta Wise, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 15, 1970, Ser. No. 37,609
Int. Cl. H01r 13/50

U.S. Cl. 339—213 T

6 Claims



The disclosure relates to an electrical connector assembly comprising a strip of dielectric material from which integral tubular members extend. A heat stabilized plastic insert is positioned within each tubular member, either in strip form or otherwise. Electrical terminal members are positioned within the sleeve to form electrical connectors for connection with conductive members, the strip defining a feeding device for feeding the connectors in the crimping areas of crimping devices.

3,634,818

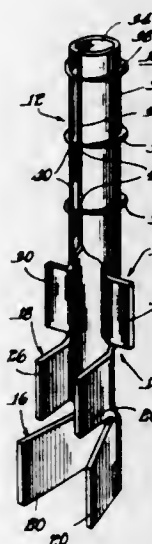
FEMALE ELECTRICAL TERMINAL

Stanley V. Horecky, Oak Park, Ill., assignor to Molex Incorporated, Downers Grove, Ill.

Filed Sept. 26, 1968, Ser. No. 762,748
Int. Cl. H01r 11/22

U.S. Cl. 339—223 R

5 Claims



A female electrical terminal of spring metal including a cylindrical barrel at one end thereof for receiving a complementary male terminal. The barrel has a longitudinal slit extending the length thereof and a plurality of eccentric rein-

forcing ribs formed integrally with an in spaced-apart relation thereabout to prevent overstressing of the barrel. Each of the ribs is tapered from a point opposite the longitudinal slit, circumferentially about opposite sides of the barrel toward the slit.

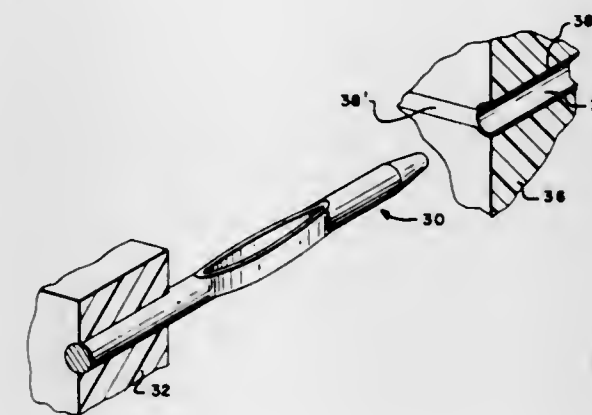
3,634,819

RESILIENT PIN AND METHOD OF PRODUCTION THEREOF

William Robert Evans, R.D. 1, Box 226, Hummelstown, Pa.
Original application May 16, 1967, Ser. No. 642,639. Divided and this application Mar. 18, 1970, Ser. No. 20,681
Int. Cl. H01r 13/06

U.S. Cl. 339—252 P

4 Claims



A length of bar stock is flattened and reformed to produce a section having spring characteristics whereby the bar is capable of resiliently mating with a nonresilient article. Alternatively, a length of flat stock is stamped or etched to produce resilient members, the flat stock being rolled or left flat depending on a particular use.

ERRATUM

For Class 340—52 see:
Patent No. 3,634,792

3,634,820

LAMP FAILURE WARNING CIRCUITS FOR ROAD VEHICLES

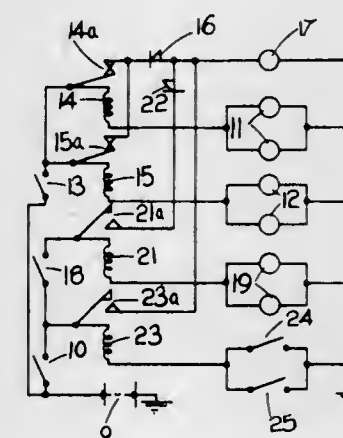
Harold Birtwistle, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Oct. 8, 1969, Ser. No. 864,597

Claims priority, application Great Britain, Oct. 14, 1968,
48,521/68

Int. Cl. B60q 1/00

U.S. Cl. 340—52

4 Claims



A lamp failure warning circuit for a road vehicle includes a warning lamp, a first relay coil in series with a lamp to be

tested and a first pair of normally open contacts in series with and operable by the relay coil upon failure of the lamp to be tested, the first pair of normally open contacts are closed and the warning lamp is operated. The circuit further includes a second pair of normally open contacts in series with the warning lamp and operable by a second relay coil to illuminate the warning lamp at the same time as an intermittently operable lamp on the vehicle is illuminated.

3,634,821

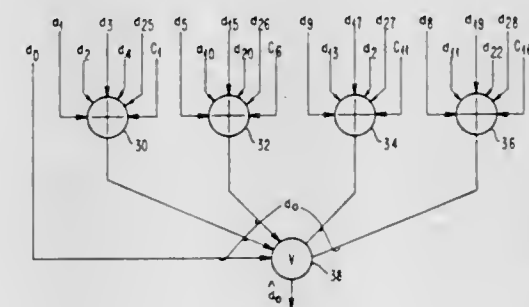
ERROR CORRECTING SYSTEM

Douglas C. Bossen, Wappingers Falls, and Mu-Yue Hsiao, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 13, 1970, Ser. No. 27,602
Int. Cl. G08c 25/00; G06f 11/00

U.S. Cl. 340—146.1

5 Claims



A multiple error correcting system for correcting t ($t \geq 2$) errors in message of k data bits, $m^2 k (m+1)^2$, where m is an integer of at least three, comprises encoding means and decoding means. The encoding means adds r check bits, each check bit corresponding to a number of data bits; each data bit is represented by $2t$ check bits; these $2t$ check bits have only the one data bit in common; and, the number, r , of check bits is: $2mt r 2(m+1)t$. The decoding means for each data bit has an error correcting circuit receiving $2t+1$ inputs from input circuitry, the inputs being the data bit itself, and $2t$ combinations of check bits and other data bits representing the data bit. The error correcting circuit is capable of producing an output signal correctly corresponding to a data bit if no more than t inputs thereto for that data bit were in error. A coding system for generating these r check bits by augmenting Latin square codes is described.

3,634,822

METHOD AND APPARATUS FOR STYLE AND SPECIMEN IDENTIFICATION

Chao K. Chow, Chappaqua, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

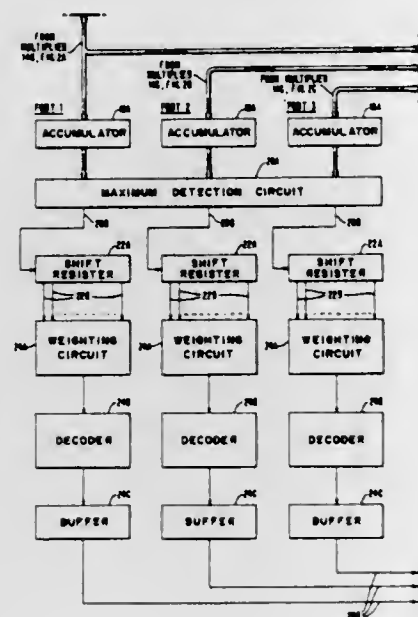
Filed Jan. 15, 1969, Ser. No. 791,222
Int. Cl. G06k 9/00

U.S. Cl. 340—146.3 S

11 Claims

The character recognition system identifies characters in each of three different fonts. Each character is scanned to obtain a binary word representation of the character. This representation is applied to three tables storing probability representations for each known character in the three fonts. Character comparison functions for each character in each font are produced which are stored in a buffer for later character identification and are also applied to three accumulators to provide three font comparison functions for the unknown character. From these functions the font is determined without, at that time, identifying the character. The results of a series of font identifications for a sequence of unknown characters are stored on a current basis, and from these results, font frequency functions are derived which are

then employed to modify the character comparison functions that have been stored in the buffer. The modified character



comparison functions are compared to identify the unknown character.

3,634,823 AN OPTICAL CHARACTER RECOGNITION ARRANGEMENT

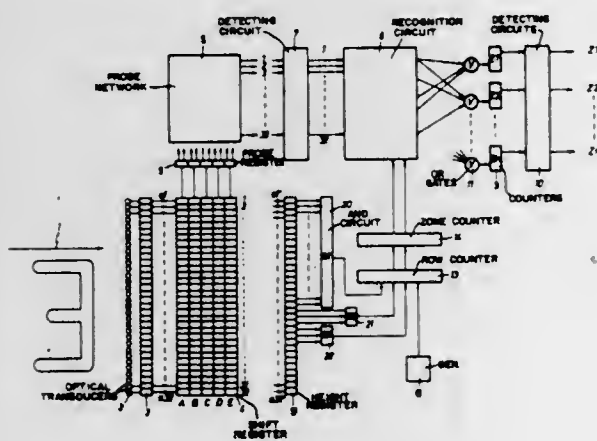
Walter Dietrich, Pforzheim, and Rudolf Schlupp, Kornwestheim, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y., by said Dietrich

Filed May 9, 1969, Ser. No. 824,752
Claims priority, application Germany, May 22, 1968, P 17 74 314.5

Int. Cl. G06k 9/12

U.S. Cl. 340—146.3 Y

8 Claims



Process of optical character recognition for different sizes of character, in which the characters are scanned in columns, stored in a shift register, removed therefrom in rows and the bit combinations are associated with outlets in a "probe" network. Then the bit combination, thus determined, of the character to be recognized is compared with the bit combinations of all of the stored compare characters simultaneously taking into account the location of the character in the character area, and the number of agreements is determined. The greatest number of agreements determines the character.

3,634,824 SIGNALLING SYSTEM UTILIZING FREQUENCY AND FREQUENCY DURATION FOR SIGNALING AND CONTROL FUNCTIONS

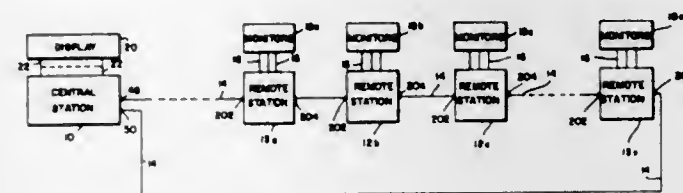
Leon Zinn, Syosset, N.Y., and Milton Bodin, Teaneck, N.J., assignors to AFA Protective Systems, Inc., New York, N.Y.

Filed Nov. 5, 1969, Ser. No. 874,160

Int. Cl. H04q 9/00

U.S. Cl. 340—147 R

22 Claims



A signaling system having a plurality of remote stations for detecting the states of monitors associated therewith and for transmitting a signal representative of said states along signal transmission means to a central station in response to an interrogation signal transmitted by said central station. Both the interrogation and state signals include tone pulses the characteristics of which permits the selective interrogation of each of said remote stations and the identification of the state signals therefrom at the central station for the purposes of disposing utilization circuits in a state representative of the state of said monitors.

3,634,825 FIELD EFFECT INTEGRATED CIRCUIT AND METHOD OF FABRICATION

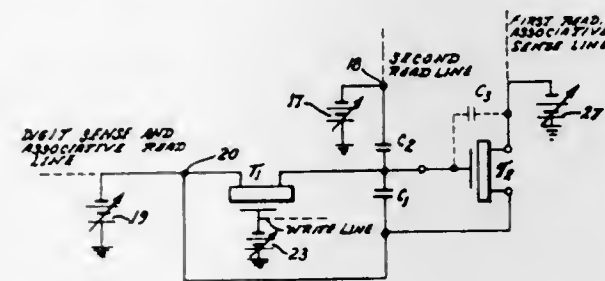
Mark W. Levi, 128 Arlington Rd., Utica, N.Y.

Original application June 24, 1968, Ser. No. 739,235, now Patent No. 3,513,365, dated May 19, 1970. Divided and this application July 17, 1969, Ser. No. 842,519

Int. Cl. G11c 5/02, 7/00, 11/40

U.S. Cl. 340—166 FE

14 Claims



An integrated circuit operating at about 77° K. having first and second field effect transistors, a digital terminal being connected to the source of each transistor and capacitively coupled to the drain of the first transistor and the gate of the second transistor. A first read terminal is connected to the drain of the second transistor and capacitively coupled to the drain of the first transistor while a second read terminal is capacitively coupled to the drain of the first transistor. The method of fabrication makes use of stray capacitance in the laying of the layers.

3,634,826 APPARATUS FOR TRANSMISSION OF INFORMATION

Siegfried Biedermann, Schellenberg, Liechtenstein, assignor to Uninorm Anstalt, Vaduz, Liechtenstein

Filed Sept. 5, 1969, Ser. No. 855,669

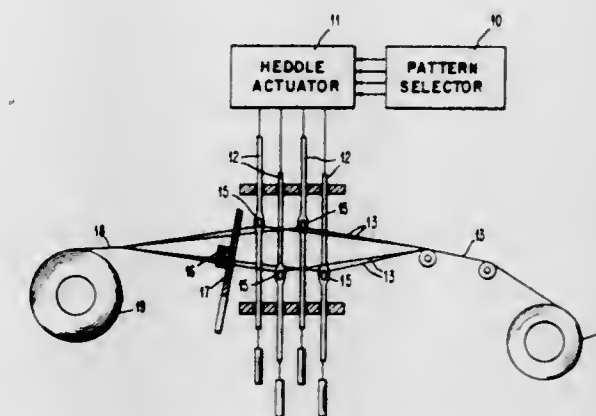
Int. Cl. H04q 9/00

U.S. Cl. 340—167 R

9 Claims

An apparatus for the transmission of information between a plurality of stations by means of a common transmission

path for light call installations, light call speaking installations, speaking installations, surveying installations, remotely operative installations, person-investigating installations, remote indicators, remote control means, and the like, which comprise receivers, an impulse exciter and a counter chain including flip-flops. The receivers are operated only upon occurrence of a predetermined binary code in the receivers, the binary code being delivered by the impulse exciter by means of the counter chain which includes the flip-flops. A time period section, divided into two partial time periods, is coordinated to each of the receivers, and a corresponding receiver is selected by the binary code during the time period section within one of the part-time periods and information is transmitted to the receiver within the other of the partial time periods. Synchronously running counter chains and a conduit common to all stations are also provided and the



coordinates are the particular row of one layer and the particular column of the other layer which are to be interconnected or interlaced.

3,634,828 GRAPHICAL DATA PROCESSING APPARATUS

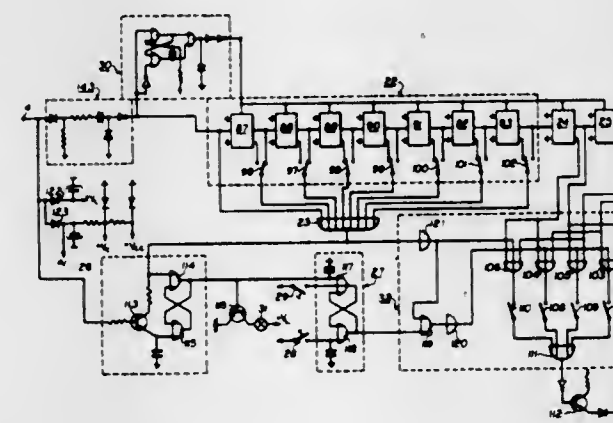
Roderick H. Myers, Wethersfield, and David L. Sharp, New Britain, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 26, 1970, Ser. No. 67,185

Int. Cl. G06f 3/12; G06k 15/10

U.S. Cl. 340—172.5

35 Claims



counter chains are connectable with the impulse exciter by means of the conduit for setting the time period stations. The counter chains have at least as many flip-flops, as are required for the number of provided channels corresponding with the binary coding given by the flip-flops. Decoding circuits respond to the same counter position and are connected with the counter chains of the stations to be coordinated relative to each other. A gate is applied to the conduit. Time gaps, disposed between the impulses of the impulse exciter applied to the gate serve the transmission of the information. Upon expiration of at least one of the partial time periods for the synchronization of the entire installations a synchronous impulse is transmitted by filling out of the last of the impulse gaps, and at least one joint main station is provided for a plurality of extension stations connectable with the transmission path.

3,634,827 PROCESSING OF MULTILAYER WEAVE DESIGN DATA

Janice Richmond Lourie, and Lin S. Woo, both of New York, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

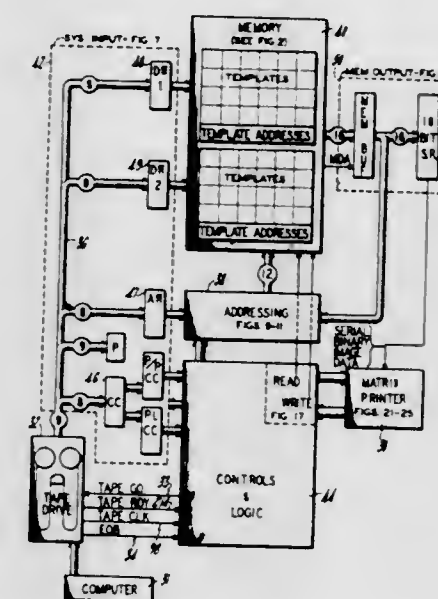
Filed Apr. 16, 1970, Ser. No. 29,228

Int. Cl. G06f 9/06; D03d 49/00

U.S. Cl. 340—172.5

10 Claims

Technique for developing a multilayer weave design matrix from individual weave pattern matrices for the respective layers, the final matrix being in the form of binary operating instructions to a loom for actuating the warp threads in such a way as to provide the desired multilayer weave design. The individual layer matrices first are assembled into a block diagonal form of matrix in which these layer matrices are arranged as nonoverlapping, diagonally adjacent blocks, on one side of which (e.g., lower side) the large matrix is filled with bits of one value (e.g., 1's), while on the other side of the diagonal blocks (e.g., upper side) the large matrix is filled with bits of the opposite value (e.g., 0's). Row and column interleaving operations then are performed so that in the final matrix the rows and columns of each layer matrix are interspersed as evenly as possible with those of the other



Hard copy graphical output of a suitably programmed data processing system is generated in a matrix printer in response to controls and binary image information presented to the graphical system of the invention in the form of serially received data blocks, such as from a tape drive. The graphical system in accordance herewith receives data blocks including binary information in the form of standard templates, 16 printable dots wide and 16 printable dots high. The data block includes an input address for storing each binary image data template which follows the address. The system also receives in the data blocks, literal address codes which are stored in predetermined sequentially addressed locations of memory, the order of receipt of the literal address codes relating to the order in which the templates are to be accessed for printing. The input addresses used for storing literal address codes and binary image data templates comprise high-order address portions, the system herewith supplying sequences of low-ordered address portions to be used

therewith for the purpose of accessing repetitively, in sequence, 16 storage locations for each input address received in the data block. Variations in graphical format are achieved with variations in the video clock rate with respect to the data presentation rate at the imager, variations in sheet transport speed, variations in the basic system clock rate, horizontal and vertical linking of basic templates, truncation of templates (to less than the standard size), and resolution variation resulting from single or quadruple spot generation per binary image bit. Data blocks received by the system include system control characters for controlling the above features. Indirect addressing includes automatic generation of low-order address bits for both read and write addresses of a read-write memory; automatic low-order address generation for read addresses controls scanning of the data through successive memory locations in a correct order to print one dot row at a time for as many data templates as should appear in the print line, repetitively, as many times as there are rows in the templates designated for the print line.

3,634,829

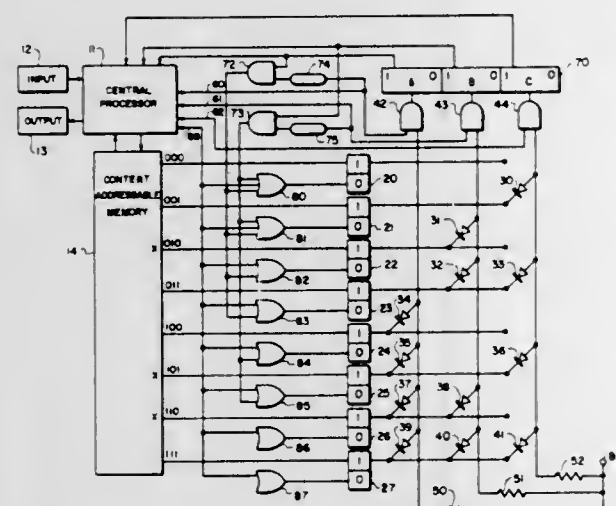
RESOLUTION OF ADDRESS INFORMATION IN A CONTENT ADDRESSABLE MEMORY

Anthony V. Campi, W. Long Branch, and Bruce H. Gray, New Shrewsbury, both of N.J., assignors to The United States of America as represented by the Secretary of the Army

Filed Oct. 8, 1970, Ser. No. 79,106
Int. Cl. G11c 7/00

U.S. Cl. 340—172.5

3 Claims



An address resolver for encoding the addresses of flagged information stored in an electronic memory. A matrix of cross conductors interconnected by diodes in the form of a binary tree has the 2^n input conductors connected to 2^n different two-state storage devices and the n output conductors connected to n AND gates. Under the control of a central processor, selected storage devices are set to indicate the location of the flagged information. The diodes are biased in one of two directions depending on whether the storage devices are set or reset. The bias on the diodes is detected by the AND gates and the results are stored in a register to indicate the highest address.

3,634,830

MODULAR COMPUTER SHARING SYSTEM WITH INTERCOMPUTER COMMUNICATION CONTROL APPARATUS

Herbert B. Baskin, Mohegan Lake, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

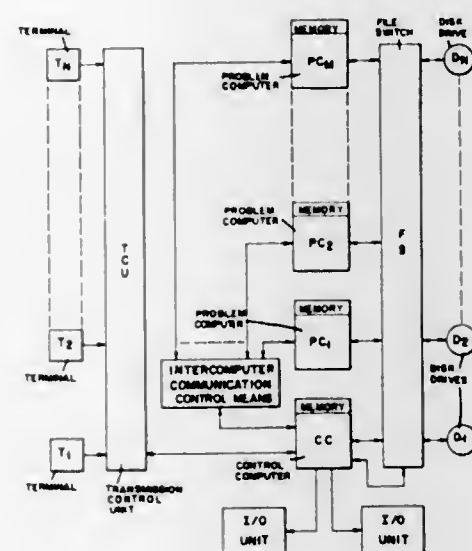
Filed June 13, 1969, Ser. No. 833,037
Int. Cl. G06f 15/16

U.S. Cl. 340—172.5

1 Claim

A bank of interchangeable computers are provided, each of which is a memory/processor pair, the computers being

respectively assigned to process terminal jobs as they arrive from a remote terminal. One of the computers serves as the master or control processor and supervises the collection and distribution of messages from and to the remote terminal, a disk drive suitably being provided for each connected terminal. A cross point switching network permits any of the disk drives to be connected to any computer of the bank,



under the control of the control computer. Thus, while each active terminal is operatively related to a dedicated disk drive each terminal user may share the control computer with many other terminal users in a simple manner. The ratio of users to computers is dependent on the size and power of the computers which are employed and the computation requirement of the particular combination of users.

3,634,831

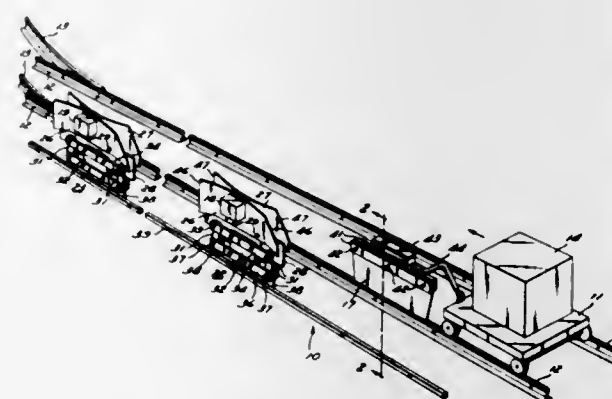
APPARATUS FOR MATERIAL UNIT IDENTIFICATION

Dean D. Riggs, Avon Lake, Ohio, assignor to Magneguide Corporation

Filed Feb. 25, 1970, Ser. No. 14,111
Int. Cl. G11b 5/58; B61b 1/00

U.S. Cl. 340—174.1 C

11 Claims



An apparatus for magnetically identifying a succession of material units in a system such as a materials handling system including a conveyor. The apparatus comprises a magnetic memory plate, preferably flexible, associated with each material unit, a magnetic recording or reading head, guide surfaces for aligning the magnetic plate and head, and a mounting arrangement permitting resilient movement of the magnetic devices for their alignment independent of conveyor side sway.

3,634,832

ELECTRONIC RECIRCULATING STORES

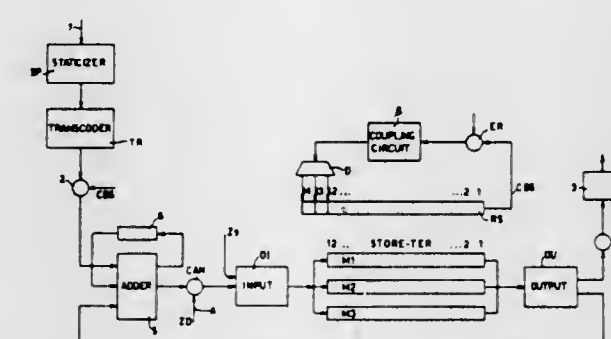
Romano Taddei, Cascinette D'Ivrea (Turin), Italy, assignor to Ing. C. Olivetti & C.S.p.A., Turin, Italy

Filed Oct. 1, 1968, Ser. No. 764,164

Claims priority, application Italy, Oct. 3, 1967, 53244-A/67
Int. Cl. G06f 13/02

U.S. Cl. 340—172.5

5 Claims



An electronic store comprising a plurality of data registers of the static, recirculating type operating in parallel with each other. In order to keep the numbers of the various registers aligned with each other, a marking register of the static recirculating type is provided and is common to all the data registers. A marking signal therein indicates the stage of the register which is being operated on at any given time, and a character marks the beginning of the contents of the data register to ensure the alignment of data therein.

3,634,833

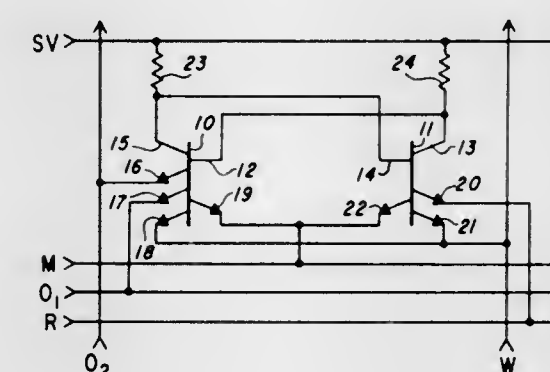
ASSOCIATIVE MEMORY CIRCUIT

Roger S. Dunn, Los Angeles; Michael Leo Canning, Sunnyvale, both of Calif., and Gerald E. Jeanson, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 12, 1970, Ser. No. 18,970
Int. Cl. G11c 11/40; H03k 3/286

U.S. Cl. 340—173 FF

8 Claims



An associative memory circuit suitable for integrated circuit fabrication, using multiemitter transistor logic techniques employs base-to-collector cross-coupled, bistable multivibrators to provide better memory cells with fewer components. In a circuit comprised of a plurality of memory cells, each cell includes means for addressing the cell, means for writing into it, means for reading out of it, and means for indicating whether the information stored therein is equal to other reference information, coupled to various emitters of the multiemitter transistors.

3,634,834

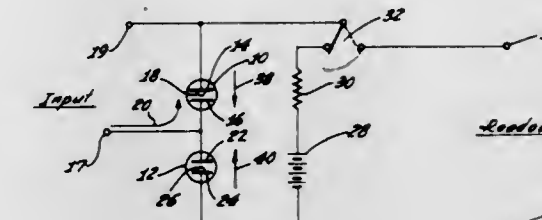
NONDESTRUCTIVE READOUT FOR ELECTROCHEMICAL STORAGE CELL

Thomas B. Bissett, Malibu, Calif., assignor to The Bissett-Berman Corporation, Santa Monica, Calif.

Filed Feb. 3, 1969, Ser. No. 795,971
Int. Cl. G11c 27/00, 11/00, 7/00

U.S. Cl. 340—173 CH

9 Claims



This invention is directed to a nondestructive readout system for an electrochemical storage cell using a second electrochemical storage cell in series with the first electrochemical cell and with the readout provided by passing a first current through both the first and second electrochemical cells so as to remove any information stored in the first cell while at the same time storing the same quantity of information in the second cell and then using a low-voltage source to provide a second current to the first and second cells in a direction to restore the information in the first cell while removing the information stored in the second cell and with the low-voltage source normally connected across the first and second cells.

3,634,835

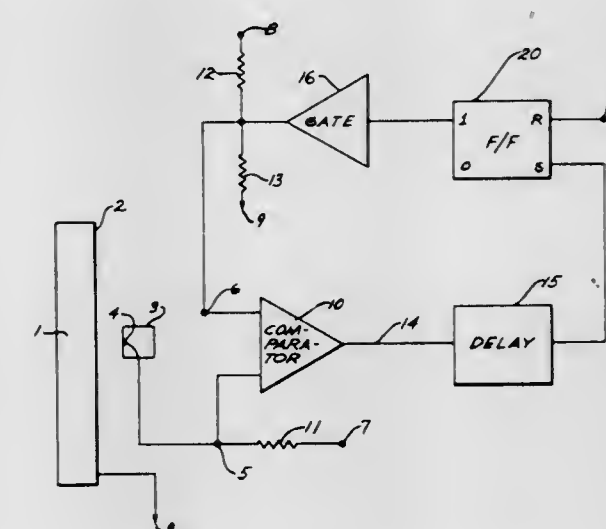
STORAGE SYSTEM HAVING A HEAD ASSEMBLY FOR READING AND WRITING ON A RECORD MEMBER HAVING A TOUCH INDICATOR CIRCUIT

John B. Houston, South Pasadena, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Jan. 9, 1970, Ser. No. 1,734
Int. Cl. G11b 5/48, 21/16

U.S. Cl. 340—174.1 B

18 Claims



A touch indicator circuit generates and stores a warning signal in response to an offending contact between a head apparatus and a moving record member having a magnetic surface. A differential input comparator senses a change in potential, with respect to a reference potential, which occurs in response to head/record member contacts.

3,634,836

RADIAL AND HORIZONTAL MAGNETIC-HEAD-POSITIONING MECHANISM

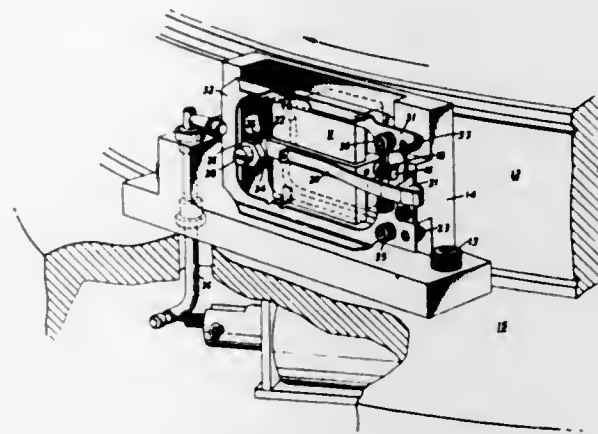
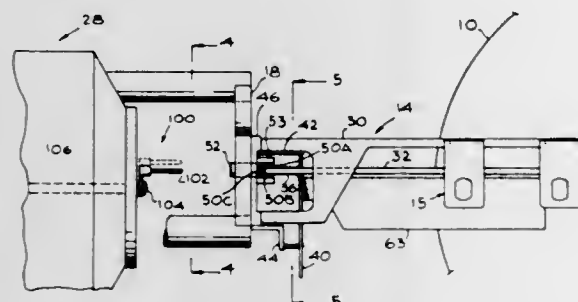
Clarence Huetten, Woodland Hills, and Jerome W. Gibson, Van Nuys, both of Calif., assignors to Data Products Corporation, Woodland Hills, Calif.

Filed Dec. 17, 1970, Ser. No. 98,986

Int. Cl. G11b 5/54, 21/12

U.S. Cl. 340—174.1 C

12 Claims



on the head or block to limit its pivotal movement about a yaw axis.

A magnetic-head-positioning assembly useful in a magnetic disc storage system. The positioning assembly is comprised of a linear motor coupled to a linearly movable carriage assembly including a mounting yoke. An arm set assembly is secured to the yoke for linear movement therewith. The arm set assembly is comprised of a backplate fixed to the yoke and a plurality of arm assemblies carried by the backplate. Each arm assembly includes a frame carrying one or more magnetic head assemblies and a cam rod linearly movable with respect to the head assemblies. Linear movement of the cam rod in a forward direction forces the magnetic heads to a landed position in which they are able to closely fly over a disc surface and cam rod movement in a rearward direction allows the heads to move away from the disc surface to an unlanded position. The cam rods are all tied to an arm set tie bar which is supported on the backplate for linear movement with respect thereto between a retracted position (heads unlanded) and an extended position (heads landed). Movement of the tie bar toward the extended position is opposed by a pair of springs which urge the tie bar toward the retracted position. Latching means are provided to latch the tie bar either in the extended or retracted position. The latching means are electrically controlled with electrical power being required both to release the tie bar for forward movement from the retracted position and to retain the tie bar latched in the extended position.

3,634,837

HEAD MOUNT FOR MAGNETIC DRUM STORAGE DEVICES

Peter Charles Ridgway, Middlesex, and Brian Charles Callcut, Berkshire, both of England, assignors to Sperry Rand Limited, London, England

Filed Mar. 26, 1969, Ser. No. 810,574

Claims priority, application Great Britain, Apr. 4, 1968, 16,149/68

Int. Cl. G11b 5/60, 21/20

U.S. Cl. 340—174.1 E

10 Claims

A mounting device for a flying head or a flying block having a number of flying heads used with magnetic drum storage apparatus comprising stationary location means providing location points for the head or block in an operative position close to a drum. One of the location points has a fixed pivot adapted to allow the head or block universal

pivotal freedom about the pivot. Another of the location points has a stop member positioned to engage an abutment

3,634,838

APPARATUS FOR DIGITALLY REPRESENTING ANGULAR DISPLACEMENT

Carl-Erik Granqvist, Lidings, Sweden, assignor to AGA Aktiebolag, Lidings, Sweden

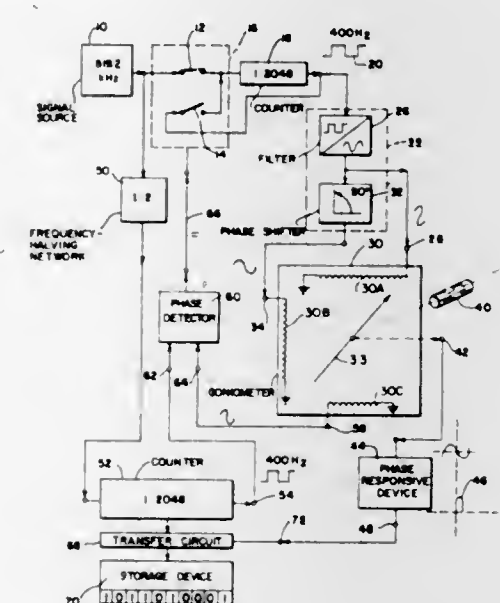
Filed Oct. 28, 1969, Ser. No. 871,929

Claims priority, application Sweden, Oct. 31, 1968, 14739/68

Int. Cl. G08c 19/16

U.S. Cl. 340—196

6 Claims



A goniometer arrangement providing a digital representation of the angular position of the goniometer rotor includes a high-frequency source, a frequency divider formed by a first counter for deriving low-frequency pulses which are shaped to provide a sinusoidal voltage, and a second counter for counting the periods of the high frequency. The sinusoidal voltage is applied in phase quadrature to the fixed windings of the goniometer and the phase of the output from the second counter, which should correspond to the angular position of the goniometer rotor, is compared with a reference voltage derived from a further fixed winding in the goniometer. The phase of the first counter relative to the second counter is controlled in accordance with this comparison by varying the number of pulses supplied to one of the counters.

3,634,839

METHOD AND APPARATUS FOR SUPPRESSING SPURIOUS ALARMS IN AN ELECTRICAL PROTECTION SYSTEM

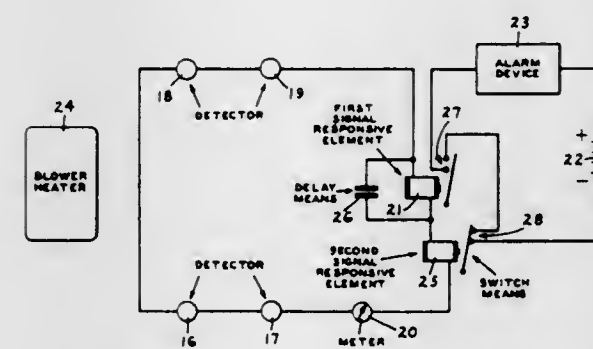
Theo N. Vassil, Flushing, and Howard Pearson, New York, both of N.Y., assignors to American District Telegraph Company, Jersey City, N.J.

Filed Mar. 11, 1968, Ser. No. 711,952

Int. Cl. G08b 29/00

U.S. Cl. 340—237 S

23 Claims



A method and apparatus for suppressing spurious alarms in an electrical protection system resulting from gross changes in a particular ambient condition lesser changes in which are characteristic of a true alarm condition. In the method of the invention, an electrical signal is produced in response to changes in the ambient condition at the protected place, the signal having a magnitude proportional to the amount of change in the ambient condition. The magnitude of the electrical signal is measured and when it reaches a threshold alarm level it triggers an alarm signal. If the magnitude of the electrical signal at least equals a threshold false alarm level different from the threshold alarm level by a predetermined amount, the alarm signal is suppressed.

The apparatus of the invention comprises a condition-sensing element arranged to detect the level of or changes in an ambient condition at a protected place and to produce an electrical signal proportional to the amount of the change. The electrical signal is applied to a first signal-responsive element which measures the signal and operates an alarm-signalling device when the electrical signal is above a threshold alarm value characteristic of a change or level in the ambient condition in turn characteristic of an alarm condition. The electrical signal is also applied to a second signal-responsive element which measures the signal and which is arranged to suppress operation of the alarm-signalling device if the electrical signal is at least at a threshold false alarm value differing from the threshold alarm value by a preselected amount.

3,634,840

HIGH-TEMPERATURE WARNING SYSTEM

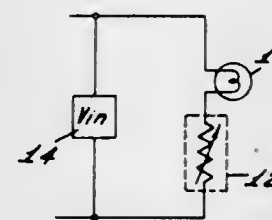
Bruce L. Wilkinson, Torrance, Calif., assignor to The United States of America as represented by the Secretary of the Army

Filed Dec. 19, 1969, Ser. No. 886,590

Int. Cl. G08b 17/06

U.S. Cl. 340—228 R

2 Claims



The present invention provides a novel temperature warning device comprising only a tungsten filament lamp, a

thermistor sensor device and a voltage source all in series circuit relation, which system when properly designed (i.e., the thermal time constant of the lamp exceeds that of the sensor) provides a visible signal which is a function of the temperature of the sensor's housing.

The present invention relates generally to temperature sensor and warning systems and more particularly to systems for determining when the temperature of an environment has exceeded a specified predetermined maximum.

3,634,841

TEMPERATURE AND SALINITY INDICATING AND/OR CONTROL APPARATUS

John Anderson Irvine, Midlothian, Scotland, assignor to Finlay, Irvine Limited, Midlothian, Scotland

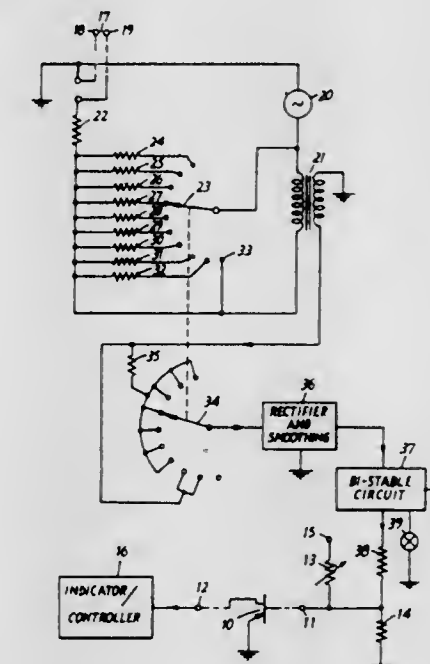
Filed Oct. 8, 1969, Ser. No. 864,734

Claims priority, application Great Britain, Oct. 10, 1968, 48,148/68

Int. Cl. G08b 21/00

U.S. Cl. 340—234

10 Claims



Apparatus for use in indicating and/or controlling the temperature of a road or like surface in the presence of ice includes a temperature-sensitive transistor mounted on or in the surface and arranged in the presence of a first bias voltage to generate a predetermined output signal when the temperature of the device falls to near 0° C. A conductivity detector is arranged to detect the presence of moisture of an electrical conductivity exceeding a predetermined conductivity and to trigger a bistable to apply a second bias voltage to the transistor. In the presence of the second bias voltage the transistor generates the predetermined output signal only when the temperature of the transistor falls to a predetermined temperature below 0° C. Thus if the surface has been covered with salt the indication or heating is inhibited until the temperature has fallen to the predetermined temperature below 0° C.

3,634,842

EMERGENCY SUMP PUMP APPARATUS

Karl O. Niedermeyer, 17W068, Bensenville, Ill.

Filed Apr. 9, 1970, Ser. No. 26,918

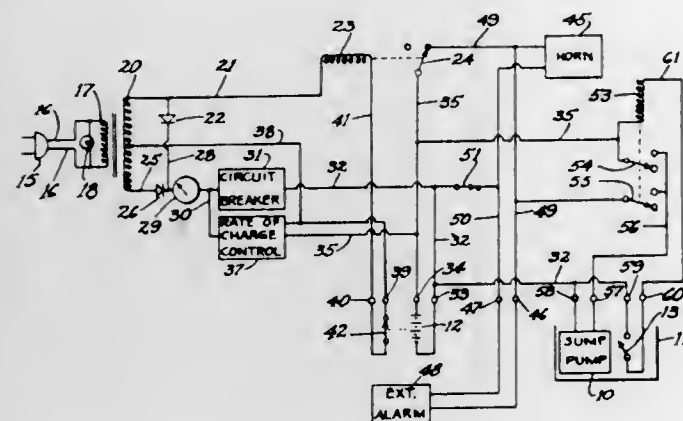
Int. Cl. G08b 7/00

U.S. Cl. 340—244

9 Claims

A float switch in a sump controls the energizing of a battery-operated sump pump regardless of the condition of the normal source of power (alternating current). The apparatus is plugged into the normal source of alternating current and

provides regulated charging for the battery. An alarm is activated when the normal source of power is not present, delay, alarm timing, reset, and amplifier circuitry coupled between the transducer, the latching switch and the alarm



when the battery needs electrolyte, and when the sump pump is turned on.

3,634,843

CIRCUIT AND METHOD FOR DETECTING LOCALIZED NOISE LEVEL CHANGES AND ESPECIALLY ELECTROMAGNETIC NOISE

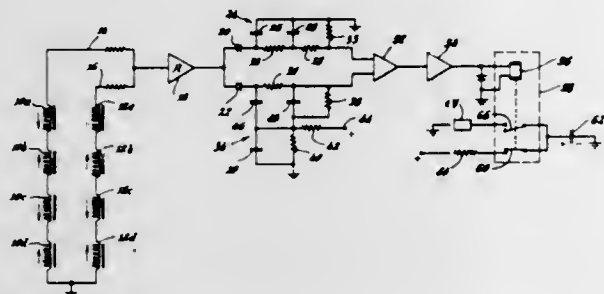
Charles J. Corris, Bridgeport, Conn., assignor to Product Development Services, Inc., Fairfield, Conn.

Filed Oct. 14, 1968, Ser. No. 767,357

Int. Cl. H04b 7/00

U.S. Cl. 340-258 D

10 Claims



A detection circuit responsive to a localized increase in magnetic noise level such as would be produced by an automobile ignition system. Sensing coils are positioned to detect the presence of such noise and provide an electrical output. The electrical output of the sensing coils is amplified and passed to networks having differing time constants. Both networks feed into a comparator which, in turn, actuates an alarm. The comparator actuates the alarm only when it receives signals of different intensities. Thus the two networks function to provide a threshold for the signaling device which is automatically reset as required.

3,634,844

TAMPERPROOF ALARM CONSTRUCTION

John G. King, 801 South 11th Street, Maywood, Ill.

Filed June 27, 1969, Ser. No. 837,195

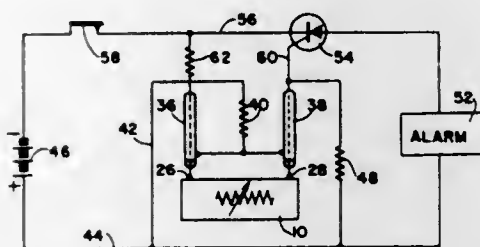
Int. Cl. G08b 13/12

U.S. Cl. 340-261

21 Claims

A vibration responsive transducer, in the form of an always-closed leaf contact switch, provides a variable resistor for triggering a latching switch to enable an alarm device. If the transducer is pre-detected, an attempt to short circuit or open circuit it will also trigger the latching switch by way of a shunt path leading from the transducer.

In addition to the transducer per se and the above-mentioned alarm arrangement, a complete tamperproof automobile alarm construction is provided and includes: enable



device. The alarm device is also coupled to be enabled by the circuit closing of the electric system of the automobile.

3,634,845

WINDOW SECURITY SYSTEM

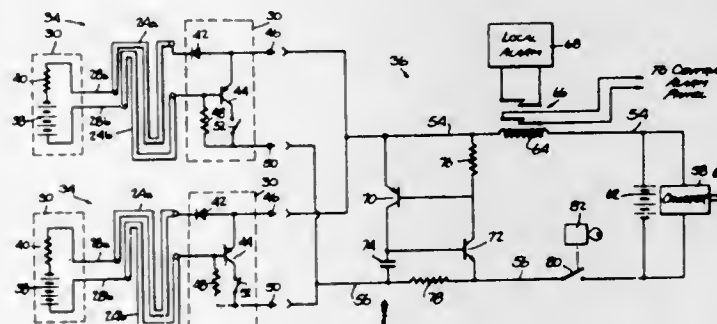
Robert Colman, New York, N.Y., assignor to General Alarm Corporation, New York, N.Y.

Filed Mar. 27, 1968, Ser. No. 716,544

Int. Cl. G08b 13/04, 13/22

U.S. Cl. 340-274

18 Claims



A window protection system in which a pair of electrically conductive strips extend across a window with a bias voltage source connected across one end of the strips and an alarm-actuating circuit connected across the other end of the strips, the alarm-actuating circuit being capable of energizing the alarm if the strips are broken or if they are bridged; and a battery which converts ray energy from radioactive materials to electricity through the intermediary of visible light.

ERRATUM

For Class 243-32 see:
Patent No. 3,634,861

3,634,846

INTRUSION AND FIRE DETECTION SYSTEM

Max Fogel, 155 East 4th Street, New York, N.Y.

Filed Apr. 9, 1969, Ser. No. 814,599

Int. Cl. G08b 19/00, 13/08

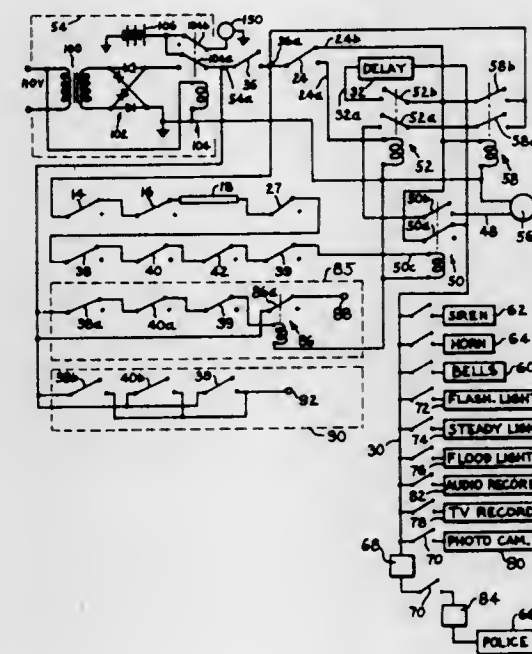
U.S. Cl. 340-274

12 Claims

A burglary and fire detection system in which sensors detect an intrusion into the space to be protected and transmit signals to logical control circuitry. After the signals from the sensors have been processed by the circuitry an alarm condition is sounded and/or appropriate authorities are notified.

The system is set with an exit door in open position, and no alarm is transmitted for as long as the door remains open. An

and a generally opaque tape having light transmitting areas arranged in a coded pattern according to the scale. The tapes pass a viewing aperture of a display instrument in overlaying relation for displaying the scale and within the instrument the



alarm is first transmitted after the door has been closed and then reopened.

3,634,847

TIMER-CONTROLLED EMERGENCY SIGNAL

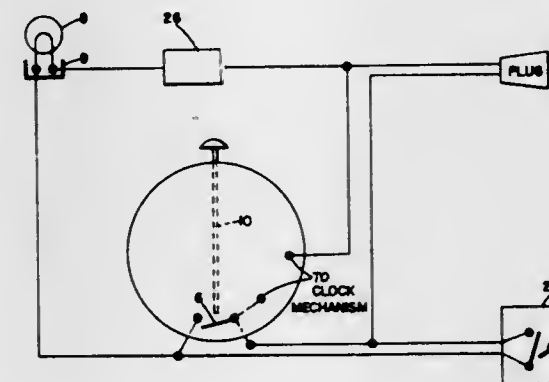
Henry D. Hukill, 2478 Breadwater Circle, Sarasota, Fla.

Filed Apr. 10, 1970, Ser. No. 27,208

Int. Cl. G08b 1/00; H01h 43/10, 7/08

U.S. Cl. 340-309.3

5 Claims



This invention embodies a visual signal in the form of a switch mechanism controlling the ignition of an electric light bulb, together with mechanism which may be set by the user to control the operation of the switch to initiate operation of the signal at any predetermined time. The invention also includes means embodied in the light circuit to cause an intermittent flashing of the light. A remote manually operated switch operable independently of the first control switch at any time the light has not already been ignited by the alarm switch to permit manual control of the energizing and deenergizing of the signal light.

3,634,848

OPTICALLY DIGITIZED TRANSMISSION DUAL TAPE OVERLAY DISPLAY APPARATUS

Emil R. Prunk, Hackensack, and Joseph P. Staluppi, Wayne, both of N.J., assignors to The Bendix Corporation

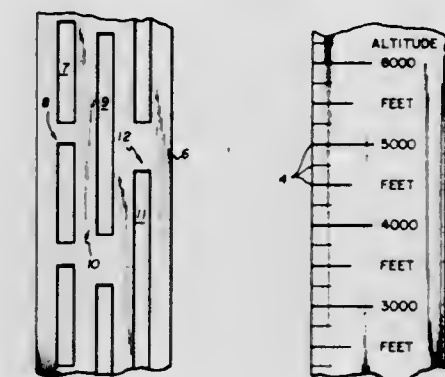
Filed Mar. 6, 1969, Ser. No. 804,887

Int. Cl. G08b 23/00

U.S. Cl. 340-324

12 Claims

Optically digitized transmissive dual tape overlay display apparatus including a display tape having a functional scale



coded tape passes intermediate light emitters and light sensors whereby light is transmitted in coded relation to the display for providing corresponding digital signals.

3,634,849

SIGNAL COLLECTING AND DISTRIBUTING SYSTEMS

Jun-ichi Nishizawa; Ichlemon Sasaki; Katsuhiko Ishida, all of Sendai-shi; Syoji Tauchi; Takeshi Nishimura; Takeo Swki, and Noboru Kozuma, all of Tokyo, Japan, assignors to Semiconductor Research Foundation, Kawauchi, Sendai-shi, Japan and Hitachi, Ltd., Tokyo, Japan

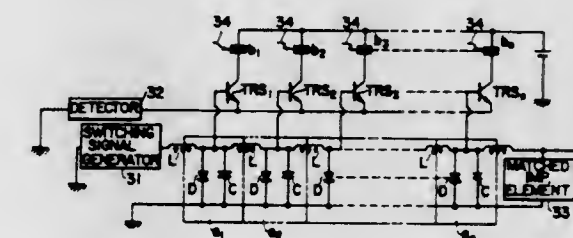
Filed Feb. 15, 1967, Ser. No. 616,385

Claims priority, application Japan, Feb. 19, 1966, 41/9987

Int. Cl. H04n 3/12, 1/04; H05b 39/06

U.S. Cl. 340-324

26 Claims



Signal collecting and distributing systems wherein an active transmission line possessing neuristor characteristics is provided as a means for scanning a plurality of signal transducers, which may be in the form of radiation-sensitive elements or electroluminescent elements, respectively, to effect actuation thereof in a prescribed order.

3,634,850

INDICATOR TUBE UTILIZING A PLURALITY OF DISCHARGE STATES

Kiroku Miyasaka, Kawasaki, Japan, assignor to Okaya Denki Sangyo Kabushikikaisha, Tokyo, Japan

Continuation-in-part of application Ser. No. 670,318, Sept. 25, 1967, now abandoned. This application Nov. 12, 1970, Ser. No. 89,110

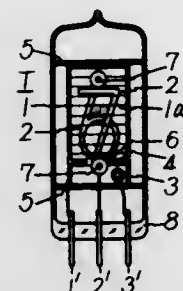
Int. Cl. H05b 35/00

U.S. Cl. 340-343

4 Claims

An indicator tube device which contains a gas mixture and containing a plurality of pattern display cathodes and a main anode disposed adjacent the cathodes, and with one or more auxiliary electrodes mounted in the tube, and a shield plate formed with an aperture mounted between the pattern display cathodes and the auxiliary electrode such that negative

glow discharge is produced on the auxiliary electrode or positive column discharge is generated in the vicinity of the aperture.



ture by controlling the amplitude and/or the polarity of the voltage applied to the auxiliary electrode.

3,634,851

SIGNAL CHARACTERISTIC MEASURING SYSTEM OF THE DIGITAL TYPE

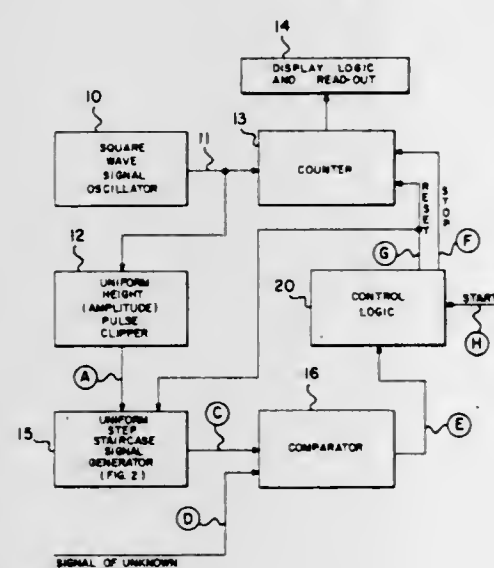
George P. Klein, 159 Robby Lane, Manasset Hills, N.Y.

Filed Mar. 4, 1970, Ser. No. 16,354

Int. Cl. H03k 13/02

U.S. Cl. 340-347 AD

10 Claims



The output of an oscillator drives a counter and a staircase signal generator, in synchronism. Interposed between the oscillator output and the staircase signal generator input is a uniform height pulse clipper which insures amplitude uniformity in the oscillator signal applied to the staircase signal generator. The staircase wave output and the signal to be interrogated are applied to a comparator which provides an output when a predetermined relationship, such as equality, between the two signals exists. The output of the comparator is applied to control logic which effectively interrupts advance of counter resulting in display of the count and resets both the counter and the staircase signal generator.

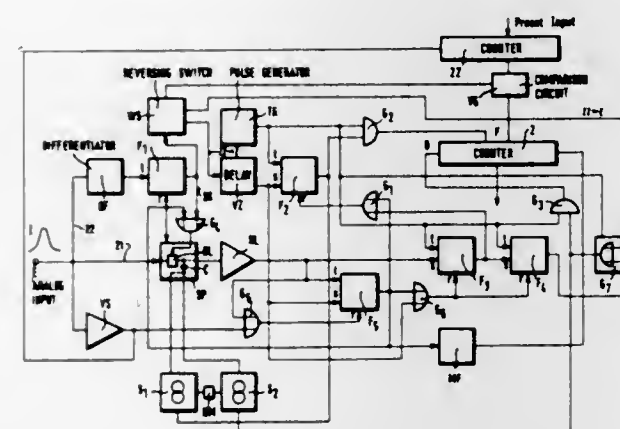
The uniform height pulses are applied to a novel staircase signal generator which includes two buffered ideal rectifiers connected back to back and two storage components. The staircase wave rises in increments synchronously with the digital advance of the counter. Uniformity of each incremental rise of the staircase wave provides predetermined value for each digital advance of the counter.

3,634,852
ANALOG-TO-DIGITAL CONVERTER
Abutorab Bayati, Neureut-Heide, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Feb. 2, 1970, Ser. No. 7,693
Claims priority, application Germany, Feb. 3, 1969, P 19 05 176.4

Int. Cl. H03k 13/02

U.S. Cl. 340-347 NT

7 Claims



A known process and apparatus for analog-to-digital conversion includes a storage circuit SP which includes a capacitor C which receives a charge corresponding to the voltage of an analog signal I to be measured, thereafter counts the change in charge of this circuit in two steps. During the first step of the process the stored circuit (SP) is discharged at a discharge rate adjusted to the coding rate. The discharge rate employed in the second step of the process is lower than the rate used in the first step. Accordingly, during the first step current from a source S_1 is applied to the storage circuit SP at a higher rate than in the second step and a correspondingly higher evaluation of pulses from a timing generator TG which are counted in a counter Z occurs, and during a second step the storage circuit SP receives current from a current source S_2 at a lower rate and a corresponding lower evaluation of pulses occurs. The expression "higher evaluation" means that the time-measuring impulses of the timing generator counted in the counter during the discharge of the first step of the process must have a greater weight than the impulses counted in the second step. To this end, counting impulses are added directly to counting stages of higher significance. This known apparatus is improved in the present invention by utilizing the current source S_2 as an additional voltage to be added to the analog voltage in storage, prior to the first step of the process, and in an amount controlled by the number of analog values to be converted in succession. At the same time as this additional voltage is added, a correspondingly evaluated number of counting pulses are delivered to the counter Z.

3,634,853

LIQUID DISPLACEMENT ENCODER

Charles P. Hedges, 3532 B Midwest Drive, Bryan, Tex.

Filed June 8, 1970, Ser. No. 44,327

Int. Cl. G08c 9/00

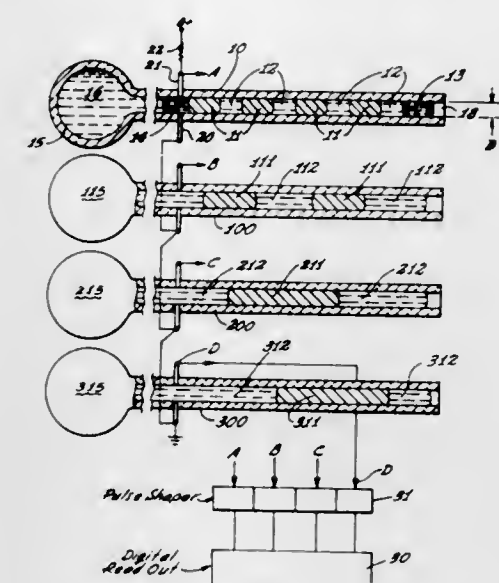
U.S. Cl. 340-347 P

12 Claims

A digitizer is disclosed, wherein the relative change in volume between two fluids is transposed directly into a digital code, in that a pattern of elemental liquid columns in a capillary is displaced relative to a pickup means operating

transverse to the capillary. Different arrangements for ob-

variable modulating current from a transducer so that pulses of first polarity are produced having a pulse width which depends upon the condition of the transducer.



taining higher significant digits as well as doubling the resolution is disclosed.

3,634,854

ANALOG-TO-DIGITAL CONVERTER

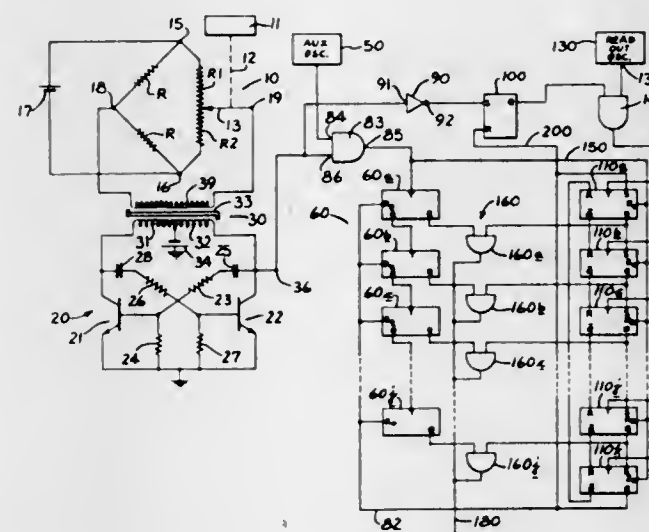
Wilmer C. Anderson, Stamford, Conn., assignor to General Time Corporation, Stamford, Conn.

Filed Feb. 7, 1969, Ser. No. 797,521

Int. Cl. H03k 13/02

U.S. Cl. 340-347 AD

8 Claims



An analog-to-digital conversion system in which a pulse width modulator is provided for producing a primary pulse having a width representative of a variable and in which the variable width pulse is used to gate a stream of higher frequency pulses from an auxiliary oscillator to a multistage binary counter. This auxiliary oscillator is disconnected at the completion of the primary pulse, and the binary coded number, stored in the counter, is read out, stage by stage, onto an output line. Upon completion of readout the count in the binary counter is set to zero in readiness for reconnection to the auxiliary oscillator upon receipt of the next variable width primary pulse of first polarity. In one of the aspects of the invention an improved pulse width modulator is provided in the form of a free-running oscillator having a symmetrical circuit including a saturable core reactor with windings for driving the core alternately to saturation in opposite directions and in which a modulation winding is subjected to

3,634,855
SELF-CLOCKING MULTILEVEL DATA CODING SYSTEM

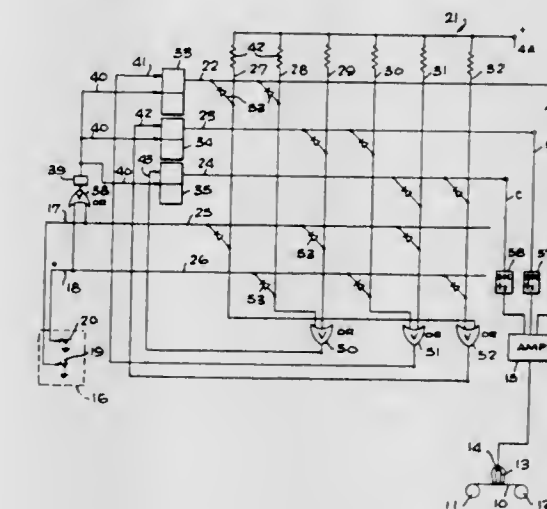
Wendell S. Miller, 1341 Comstock Ave., Los Angeles, Calif.

Filed May 5, 1969, Ser. No. 821,788

Int. Cl. H03k 13/24; G06f 5/00; H03k 13/252

U.S. Cl. 340-347 DD

2 Claims



A data processing system in which a series of data bits of two or more different types are coded as changes in state of a recording or transmission medium or the like, with there being three or more of the specified changes in state, and with the coding apparatus being operable in each data cell to adopt a coding pattern which utilizes a selected plurality but not all of the mentioned states to represent the different types of data bits, and with the coding pattern for each data cell being so selected as to avoid use in each cell of the same one of said states which was actually produced in the preceding cell. As a result, there must be a change of state in each data cell, which change in state may be employed as a self-clocking signal.

3,634,856

ANALOG TO DIGITAL ENCODER

Stig Erik Karlsson, Skarholmen, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

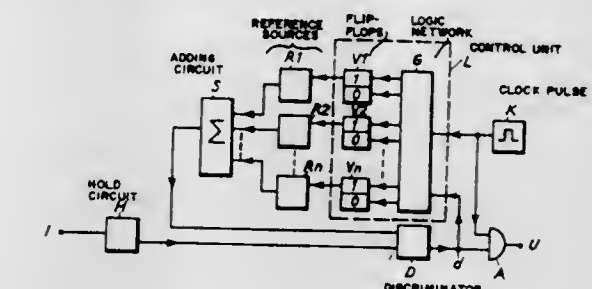
Filed Oct. 15, 1969, Ser. No. 866,451

Claims priority, application Sweden, Oct. 29, 1968, 14601/68

Int. Cl. H03k 13/04

U.S. Cl. 340-347 AD

1 Claim



An analog to digital encoder obtains the binary digits from successive comparisons between the analog signal and reference signals obtained from different combinations of a number of reference signal sources activated by means of setting appertaining flip-flops. The setting of the desired flip-flops is controlled by logical circuits interconnecting the flip-flops. By means of these logical circuits the shift register normally required in this type of coder can be eliminated.

3,634,857

DRUM INDICATOR

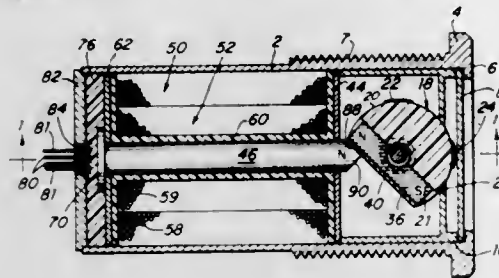
George E. Pihl, Abington, Mass., assignor to Miniature Electronic Components Corporation, Holbrook, Mass.

Filed Mar. 24, 1970, Ser. No. 22,260

Int. Cl. G08b 5/22

U.S. Cl. 340—373

15 Claims



A two-position indicating device including a rotatable indicator member that carries a single permanent magnet and is mounted so that it can rotate between two limit positions determined by a single pole piece of a stationary electromagnetic structure. The electromagnetic structure may comprise either one or two coils wound around the pole piece for establishing electromagnetic fields to effect movement of the indicator member between the two limit positions. The rotatable member is adapted to provide different indications in the two limit positions. A modification of the invention includes a permanent magnet associated with the electromagnetic structure to restore the rotatable member to a given limit position.

3,634,858

SYNCHRONOUS RADAR RECORDER AND REPRODUCER

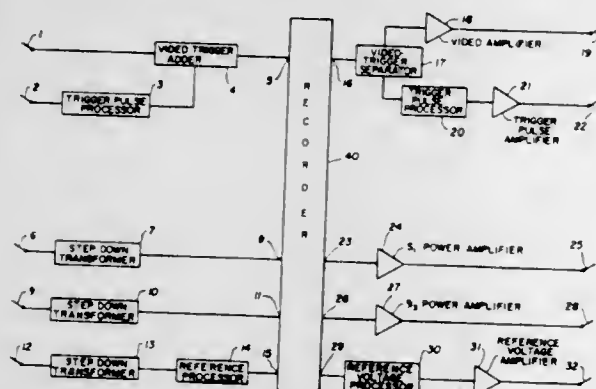
John Mitchell, 16 Weldon Lane, Farmingville, N.Y.

Filed Feb. 14, 1969, Ser. No. 800,369

Int. Cl. G01s 7/02

U.S. Cl. 343—5 R

1 Claim



This invention relates to radar apparatus for recording radar information on magnetic tape for subsequent playback into a radar display system. To accurately record this radar information a plurality of signals are recorded simultaneously. These signals include the radar video signal, the beginning of sweep or trigger signal, the reference servo voltage and the stator synchronizing voltage. This invention produces the desirable feature of locking the recorder to the antenna rotation for exact playback.

3,634,859

MOVING TARGET INDICATOR WITH AUTOMATIC CLUTTER RESIDUE CONTROL

Joachim E. Wolf, Severna Park, Md., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Aug. 8, 1967, Ser. No. 660,565

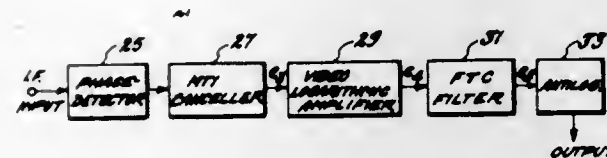
Int. Cl. G01s 9/42

U.S. Cl. 343—7.7

2 Claims

A radar system for eliminating effects of varying backgrounds in combination with an MTI. The output of a

phase detector with an IF input is fed to an MTI canceller producing a video signal which is fed to a logarithmic ampli-



fier followed by a high-pass FTC filter and then an antilog device.

3,634,860

DOPPLER RADAR WITH TARGET VELOCITY DIRECTION AND RANGE INDICATION, UTILIZING A VARIABLE-FREQUENCY GENERATOR

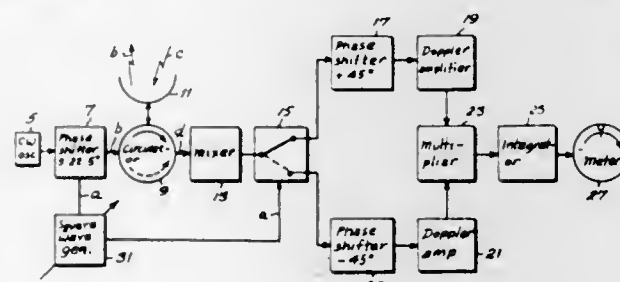
Otto E. Rittenbach, Neptune, N.J., assignor to The United States of America as represented by The Secretary of the Army

Filed Jan. 21, 1970, Ser. No. 4,656

Int. Cl. G01s 9/38, 9/50

U.S. Cl. 343—9

3 Claims



The energy output from the CW oscillator of this radar is periodically phase shifted plus and minus 22.5° under the control of the output of a variable frequency square wave generator. The echo signals are combined with a sample of the transmitted signals and applied to a single mixer. A pair of Doppler signals are sequentially derived from the mixer output by means of a gate circuit operated by the square wave generator. At a certain generator frequency which depends on target range, the relative phases of the two Doppler signals will indicate the sense of direction of target movement. The generator frequency-adjusting means can be calibrated in terms of target range.

3,634,861

CARGO-CONVEYING CARTRIDGE FOR PNEUMATIC CYLINDRICAL TUBE CONVEYING SYSTEM

Olof Henrik Hallstrom, Schatzmeisterstrasse 5, 2 Hamburg 70, Germany

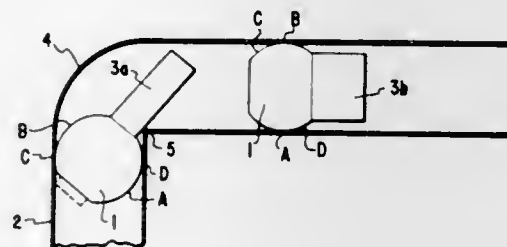
Filed Feb. 2, 1970, Ser. No. 7,862

Claims priority, application Sweden, Feb. 4, 1969, 1480/69

Int. Cl. B65g 51/06

U.S. Cl. 243—32

5 Claims



A pneumatically propelled conveying cartridge having spherical sealing portions.

3,634,862

PRECISION APPROACH AND LANDING SYSTEM

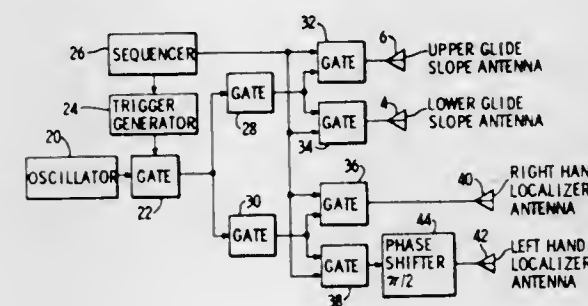
Harold C. Hiscox, Pasadena, and Larry R. Arnold, Glen Burnie, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1969, Ser. No. 825,840

Int. Cl. G01s 1/16, 1/18

U.S. Cl. 343—108

12 Claims



A precision approach and landing system (PAALS) utilizing phase interferometers disposed perpendicular to each other and each including two antenna elements separated by a predetermined distance. Carrier signals are radiated from the antennas in timed sequence to allow separation of the signals emitted from the various ground antenna elements. The use of timed-signals allows simpler hardware and more accurate implementation than heretofore available.

3,634,863

FLEXIBLE NOSE CONE ANTENNA

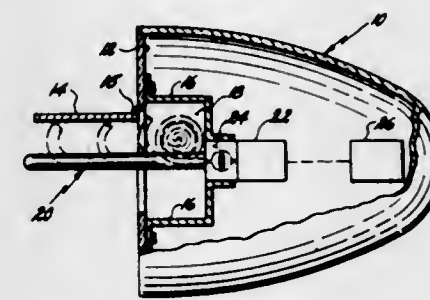
Norris F. Dow, Radnor, Pa., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Dec. 21, 1966, Ser. No. 604,529

Int. Cl. H01q 1/30

U.S. Cl. 343—707

3 Claims



A flexible tubular antenna is coiled and stored inside a nose cone, and released through a rear door by spring or fluid pressure, applied as necessary to uncoil the antenna and maintain rigidity. The antenna trails behind the cone a sufficient distance to remain effective during the reentry period. Cooling is supplied by an outside layer of ablative material.

3,634,864

ANTENNA FOR USE WITH AN AUTOMOBILE

Joseph Trachtenberg, New York, N.Y., assignor to Interdynamics, Inc., Brooklyn, N.Y.

Filed Sept. 14, 1970, Ser. No. 72,069

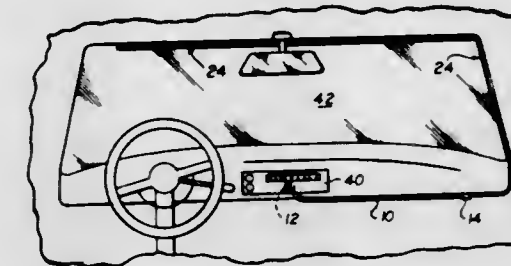
Int. Cl. H01q 1/32

U.S. Cl. 343—713

4 Claims

An automobile antenna is formed by laminating an electroconductive wire, between two layers of a clear synthetic tape. One surface or side of the tape is self-adhering and is capable of adhering to a window surface. The tape is clear

and will not yellow thereby not interfering with visibility. The electroconductive wire is electrically connected to a cable



adapted to be inserted into the antenna receptacle in the automobile radio.

3,634,865

METHODS AND APPARATUS FOR RECORDING WELL LOGGING DATA

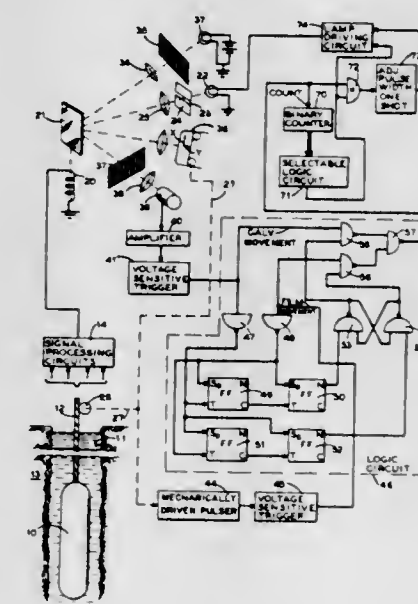
Clifford O. Schafer, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed May 15, 1970, Ser. No. 37,601

Int. Cl. G01d 15/14; G01v

U.S. Cl. 346—1

20 Claims



In accordance with illustrative embodiments of the present invention, techniques are described for producing relatively even density recordings of well logging signals even when the frequency of these signals, or the velocity of the recording medium, varies. To accomplish this, with optical recording means for example, the rate of movement of the recording light beam across the recording medium and the rate of movement of the recording medium itself are measured. Signals representative of these measured rates or velocities are processed and used to adjust a parameter of the light source which produces the recording light beam to cause a relatively even density recording to be produced.

3,634,866

VEHICLE AND DRIVER MONITORING SYSTEM

Howard P. Meyer, Route 1, Box 251, Kingsbury, Tex.

Filed July 24, 1969, Ser. No. 844,340

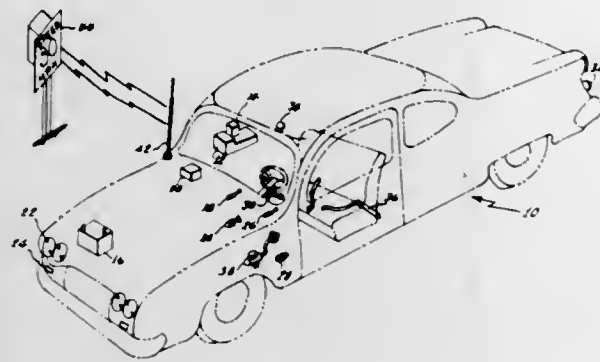
Int. Cl. G07c 5/08

U.S. Cl. 346—33 R

3 Claims

A vehicle and driver continuous monitoring system including an inkless strip chart actuated by a vehicle's ignition switch and a number of sensors connected to the various

vehicle systems which provide information to the recorder in either continuous or discrete form. The system includes transmitters combined with highway markers operating on



distinct frequencies and a vehicle receiver to convert the signals into information on the strip chart as the vehicle passes the highway marker.

ERRATA

For Classes 235—151 thru 343—802 see:
Patent Nos. 3,634,868 thru 3,634,888

3,634,867

ELECTROSTATIC RECORDER

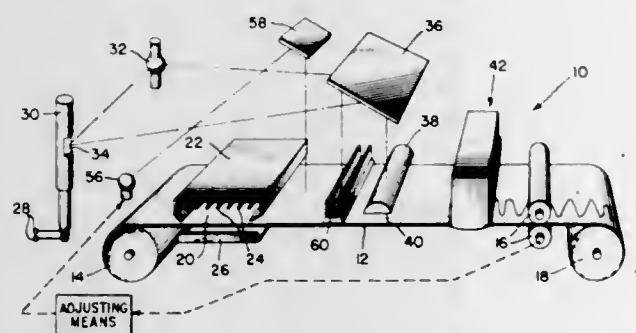
Robert G. McConnell, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 31, 1968, Ser. No. 772,306

Int. Cl. G01d 15/06; G03g 13/10, 15/10

U.S. Cl. 346—74 ES

6 Claims



An electrostatic recorder for recording input signals upon a recording medium having a surface coated with a conductive, electrostatically chargeable material is shown including an electrostatic charging device of the corona discharge type for evenly charging the coated surface of the recording medium. The charged surface is exposed to focused electromagnetic radiation which is transversely displaced across the recording medium for discharging the exposed portion thereof in accordance with the input signal to be recorded. The recording medium is then coated with a suspension fluid containing toner particles applied across the full surface thereof by an applicator arranged as a squeegee. The toner particles are attracted to the electrostatic charge gradient formed between the electrostatically charged surface of the recording medium and the discharged portion thereof.

3,634,868 METHOD AND APPARATUS FOR AUTOMATIC BASELINE AND STANDARD CALIBRATION OF AUTOMATIC, MULTICHANNEL SEQUENTIALLY OPERABLE FLUID SAMPLE SUPPLY, TREATMENT AND ANALYSIS MEANS

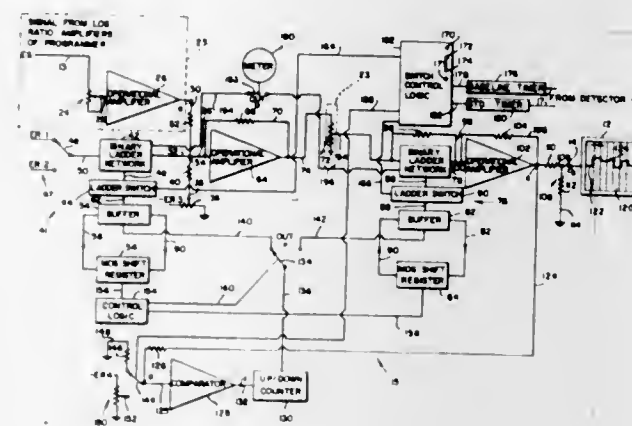
Milton H. Pelavin, White Plains; Allan I. Koszyn, Yonkers, and Earl Heier, Ardsley, all of N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Mar. 13, 1970, Ser. No. 19,194

Int. Cl. G01n 21/20

U.S. Cl. 235—151.3

27 Claims



New and improved method and apparatus for automatic, periodic baseline and standard calibration of analysis results recording means which record the results of sample analyses performed by multichannel sample analysis means in accordance with the output of the latter are provided to compensate for drift in said analysis means output, and comprise the conditioning of said sample analysis means and the adjustment of said output to a desired value for baseline calibration for each of said channels, the conditioning of said sample analysis means and the adjustment of said output to a desired value for standard calibration for each of said channels, the comparison of said output with said desired value thereof for baseline calibration for each of said channels and, if drift has occurred, the generation of information to drive said output to said desired value for baseline calibration, the comparison of said output with said desired value thereof for standard calibration for each of said channels and, if drift has occurred, the generation of information to drive said output to said desired value thereof for standard calibration, the storing of said baseline and standard calibration information for each of said channels for repeated reuse in sequence with channel changes during sample analysis operation of said sample analysis means, and the updating of said standard and baseline calibration information for each of said channels by the standard and baseline calibration information generated during subsequent operation of said calibration apparatus.

3,634,869

INTERPULSE TIME INTERVAL DETECTION CIRCUIT

Chia Ying Hsueh, 42 Old Colony Drive, Westboro, Mass.

Filed Dec. 29, 1970, Ser. No. 102,389

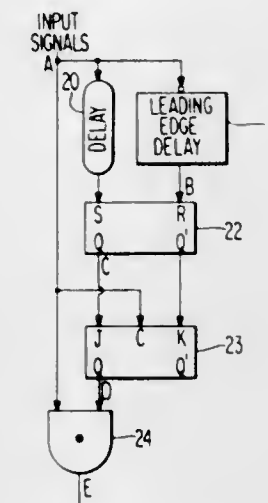
Int. Cl. H03k 5/18

U.S. Cl. 307—234

6 Claims

Circuit for producing an output signal when a group of serial input signals, which are separated by decreasing intervals of time, are separated by a given interval of time. The input signals set a flip-flop which is reset by the input pulses

delayed by the given interval of time. A second flip-flop producing the output signal is set by the input signals if the



first flip-flop is set and is reset if the first flip-flop is reset.

3,634,870

ROTATING ANODE FOR X-RAY GENERATOR

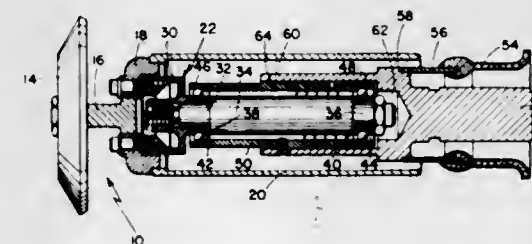
Gordon R. Kessler, Stamford, Conn., assignor to The Machlett Laboratories, Incorporated, Springfield, Conn.

Filed Mar. 3, 1970, Ser. No. 16,119

Int. Cl. H01j 35/10

U.S. Cl. 313—60

3 Claims



An X-ray tube having a rotating anode which is mounted on a bearing structure by means which minimizes the amount of heat which passes from the anode target to the bearings and which includes novel means for compensating for thermal expansion.

3,634,871

HEAT-SENSING CIRCUIT

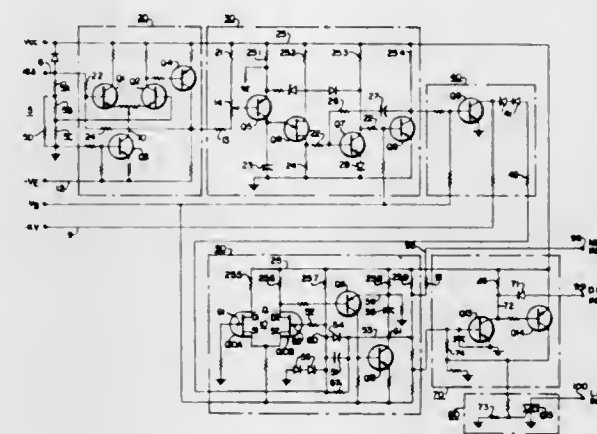
Melvin P. Siedband, and Jack L. James, both of Baltimore, Md., assignors to CGR Medical Corporation, Cheverly, Md.

Filed Apr. 15, 1970, Ser. No. 28,665

Int. Cl. H02h 5/04; H05g 1/34

U.S. Cl. 317—40 R

5 Claims



An analog voltage multiplier in combination with an operational integrator. The overall circuit measures the energy

input to an X-ray generator tube and compensates for its thermal dissipation. If safe bounds are exceeded, the tube is shut down. These circuits are independent of the normal control circuits so that the tube and patient are protected.

3,634,872

LIGHT-EMITTING DIODE WITH BUILT-IN DRIFT FIELD

Junichi Umeda, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

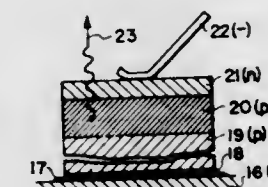
Filed Sept. 4, 1970, Ser. No. 69,747

Claims priority, application Japan, Sept. 5, 1969, 44/70002; Sept. 16, 1969, 44/72742

Int. Cl. H01l 3/20, 5/00, 11/12; H05b 33/00

U.S. Cl. 317—234 R

22 Claims



An injection electroluminescent semiconductor device having a light emitting conductivity-type layer with a PN-junction, wherein the distribution of effective majority impurity concentration decreases, or when a mixed crystal semiconductor material is used the component having a greater forbidden band width is reduced, with the increase of the distance from the PN junction. This construction causes the formation of an internal electric field which keeps injected minority carriers away from the PN-junction, thereby increasing the penetration length of injected minority carriers and improving the quantum efficiency of light emission.

3,634,873

HERMETICALLY SEALED DC-MOTOR-COMPRESSOR UNIT

Satoshi Nishimura, Osaka, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan

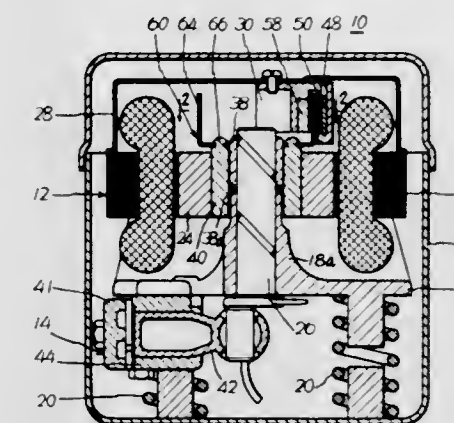
Filed June 11, 1970, Ser. No. 45,283

Claims priority, application Japan, June 12, 1969, 44/46384; July 2, 1969, 44/52611

Int. Cl. H02k 29/00

U.S. Cl. 318—254

13 Claims



A hermetically sealed DC motor-compressor unit comprises a compressor component, a DC motor component including a permanent magnet rotor and a stator, said stator having a plurality of phase-windings and transistor-switching elements for energizing the respective phase windings, reed switch means for controlling said transistor-switching elements, and a hermetically sealed casing enclosing therein the compressor component, the DC motor component and the reed switch means. Any time differences which may caused

due to the deflection of the magnetic flux for operating the reed switches and due to the delay of the switching operation of the reed switches per se are compensated by adjusting the length of the shielding member and by adjusting the relative location between the reed switches and their respective magnets, respectively.

3,634,874

TRIAC MOTOR SPEED CONTROL

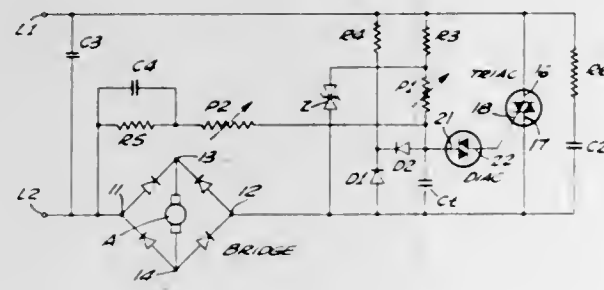
Raymond J. Mason, Lynwood, Calif., assignor to Minarik Electric Company, Los Angeles, Calif.

Filed July 27, 1970, Ser. No. 58,257

Int. Cl. H02p 5/16

U.S. Cl. 318-345

10 Claims



A motor speed control including a fullwave diode bridge rectifier for rectifying alternating current received from a supply circuit, a triac coupled in a series loop circuit with the bridge rectifier and the supply line for controlling the flow of current through the bridge rectifier during both positive and negative half-cycles of the supply line voltage, and a control circuit for controlling the firing of the triac, the control circuit including a diac coupled in series with a timing capacitor. A speed-setting potentiometer, coupled in series with the timing capacitor, is utilized for selecting the operating speed of the motor.

3,634,875

BIDIRECTIONAL DIRECT-CURRENT DETECTOR WITH TRANSFORMER ISOLATION

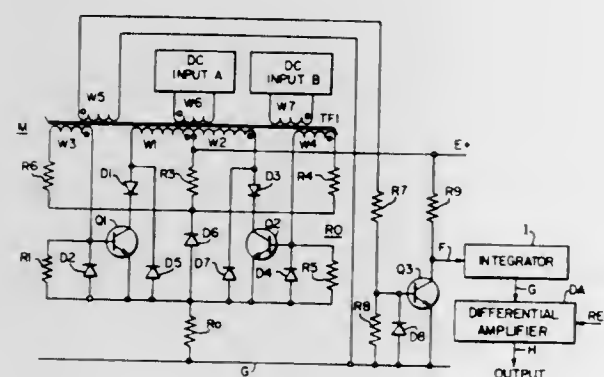
Bryan J. Bixby, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 24, 1970, Ser. No. 49,310

Int. Cl. G01r 17/02, 33/00

U.S. Cl. 324-98

10 Claims



A DC-detector wherein the DC to be detected is utilized to modify the amplitude and mark-space timing of an oscillator utilizing a common magnetic circuit and wherein the so-modified output is integrated and differentially amplified to provide a bidirectional output indicative of the amplitude and direction of the DC being detected.

3,634,876 SIGNAL DETECTING AND LATCHING CIRCUIT

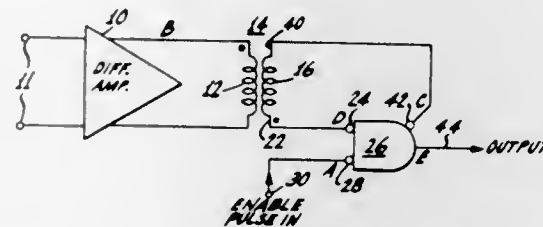
John James Yorganjian, West Palm Beach, Fla., assignor to RCA Corporation

Filed Aug. 21, 1970, Ser. No. 65,861

Int. Cl. H03k 19/24, 19/30, 19/34

U.S. Cl. 328-92

2 Claims



A sense signal detecting and latching circuit is disclosed which can be coupled to the output of a differential sense amplifier to provide a memory data register. An enable pulse, having a leading edge occurring before a sense signal to be detected and having a trailing edge occurring at a predetermined time following the end of the sense signal, is applied to one input of a coincidence gate. A transformer has a primary winding coupled to output terminals of the differential sense amplifier and has one end of its secondary winding connected to another input of the coincidence gate. The other end of the secondary winding is connected to an output terminal of the coincidence gate having a polarity to provide positive feedback through the secondary winding to the input of the coincidence gate. The coincidence gate responds to a sense signal to provide an output signal which is maintained until the time of the end of the enable pulse.

3,634,877

PLAYER PIANO KEY ACTUATING ASSEMBLY

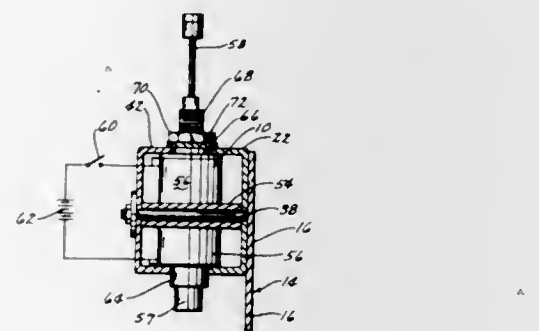
Richard L. Cannon, and Leonard R. D. Smith, both of Yankton, S. Dak., assignors to Dale Electronics, Inc., Columbus, Nebr.

Continuation-in-part of application Ser. No. 833,066, June 13, 1969, now Patent No. 3,581,254. This application Apr. 24, 1970, Ser. No. 31,556

Int. Cl. H01f 7/08

U.S. Cl. 335-255

4 Claims



An assembly for actuating piano-playing means which includes means for mounting solenoid key actuating units on a metallic channel means. The channel means includes a base plate having first and second channel members secured thereto in a spaced apart relationship. Third and fourth channel members are secured to the first and second channel members, respectively, so that the flanges thereof are spaced apart. The solenoid units have a threaded neck portion which extends from the solenoid body. The neck portion is received between the flanges of the first and second channel members or between the flanges of the second and fourth channel members. A nut assembly is threadably mounted on the neck por-

tion and engages the flanges of the channel members to selectively position the solenoid units with respect to the channel members.

3,634,878

ELECTRICAL COIL

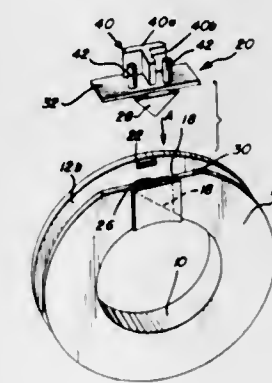
Dhu Aine J. Davis, Wheaton, Ill., assignor to Hermetic Coil Co., Inc.

Filed June 29, 1970, Ser. No. 50,370

Int. Cl. H01f 15/10

U.S. Cl. 336-192

4 Claims



An electrical coil which has a bobbin configuration with a terminal-mounting means. The terminal-mounting means includes a separate connector plate for receiving end wires from a coil wound on the bobbin for connection to appropriate terminal leads. The connector plate is snap-fit onto the bobbin at the peripheral edge of the bobbin end discs spanning the channel of the bobbin with the wound coil therein so as to position the connector plate for receiving the coil end wires and/or the terminal leads.

3,634,879

PIN RECEPTACLE AND CARRIER MEMBERS THEREFOR

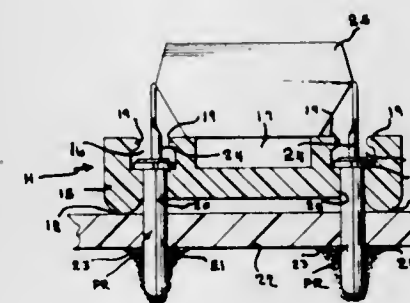
Bruce Cameron Longenecker; Armand Rene de Lyon, both of Harrisburg, and Lex Donald Kensinger, Hershey, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Original application July 15, 1968, Ser. No. 774,779, now Patent No. 3,538,491. Divided and this application June 8, 1970, Ser. No. 44,374

Int. Cl. H01r 13/50

U.S. Cl. 339-176 M

2 Claims



An integral pin receptacle comprises a seamed barrel member having a necked-down end and an extension extending inwardly from the necked-down end which is formed into a spring contact member enclosed within the barrel member and provided with spring members extending substantially parallel to an insertion axis from adjacent an open end of the barrel member and inwardly along the barrel member. The pin receptacles are carried in spaced relationship in a carrier member for connection with conductor members of an electrical component.

3,634,880

AUTOMOBILE ANTITHEFT APPARATUS

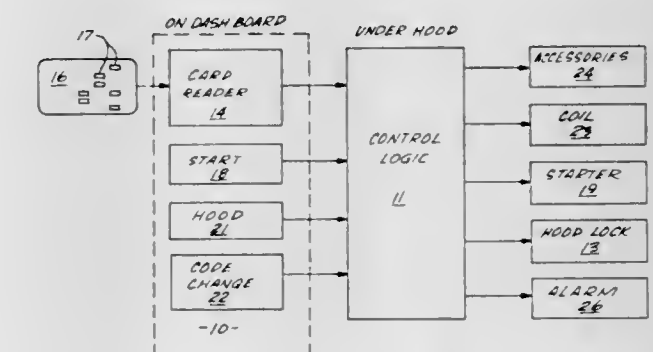
William J. Hawkins, North Brunswick, N.J., assignor to Popular Science Publishing Company, Inc., New York, N.Y.

Filed May 20, 1970, Ser. No. 39,009

Int. Cl. B60r 25/04

U.S. Cl. 340-63

9 Claims



Electronic means for preventing theft of an automobile or similar vehicle is provided wherein the vehicle is operated by a punchcard or other similar arrangement for operating a plurality of switch closures. A selected pattern of switch closures operated for a first card enables operation of all vehicle functions. A second pattern of switch closures selectively operable by a second card operates only the ignition and starter, permitting limited automobile operation, such as, for example, by a parking attendant. The two patterns or codes are mutually exclusive in operation, and means are provided for switching from the first code to the second code only when the card for the first code is in active use. Means are also provided for switching from the second code to the first code when the owner wishes to operate the entire vehicle again, and automatically if tampering with vehicle systems is attempted.

3,634,881

HIGH-PRESSURE AND LOW-PRESSURE WARNING SYSTEM FOR AUTOMOTIVE RADIATORS AND THE LIKE

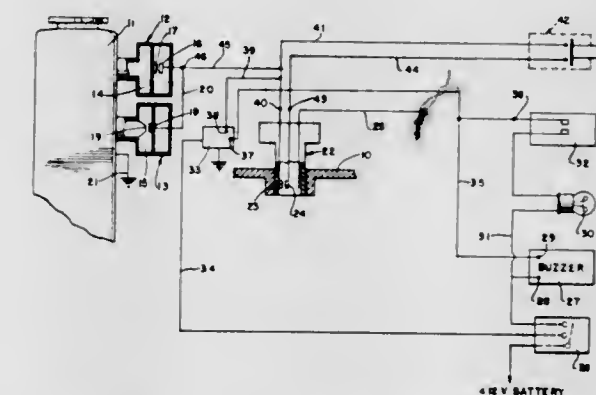
Thomas A. Cline, 1415 Atlantic Drive, Columbia, S.C.

Filed Sept. 14, 1970, Ser. No. 71,856

Int. Cl. B60q 1/26; G08b 21/00

U.S. Cl. 340-60

10 Claims



An automotive radiator or the like is equipped with high-pressure and low-pressure sensing switches. The closing of either switch will initiate the sounding of a buzzer and flashing indicator light in the driver's compartment to indicate excessive radiator pressure or loss of pressure. The system is activated by closing of the ignition switch and a liquid coolant temperature sensing switch in the system remains open and blocks the passage of current to the low-pressure radiator switch until the coolant temperature rises to a point at which normal radiator pressure is achieved. This feature

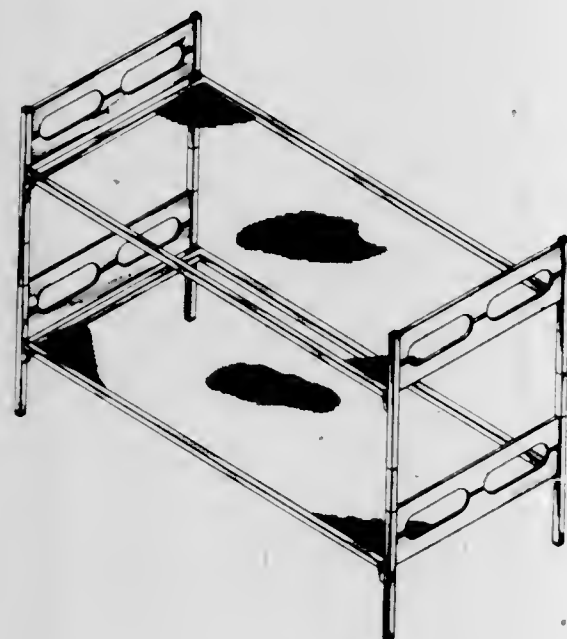
DESIGNS

JANUARY 11, 1972

222,821
BUNK BED

Josephus C. Crebolder, 's Hertogenbosch, Netherlands,
assignor to Dike & Coenen N.V., Uden, Netherlands
Filed Mar. 19, 1970, Ser. No. 21,966
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D5—4

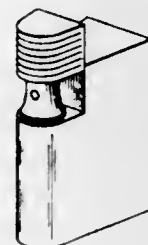


222,823

DISPENSING CONTAINER

Jerome S. Newman, 74—23 260th St.,
Floral Park, N.Y. 11004
Filed Nov. 14, 1969, Ser. No. 20,088
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—56

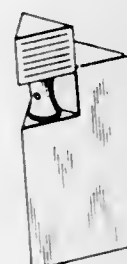


222,824

DISPENSING CONTAINER

Jerome S. Newman, 74—23 260th St.,
Floral Park, N.Y. 11004
Filed Nov. 14, 1969, Ser. No. 20,089
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—56

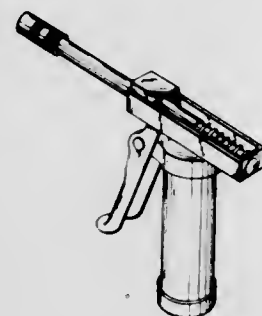


222,822

HAND GREASE GUN

Chester Dorn, Spencer, Iowa, assignor to Superior
Manufacturing Company, Spencer, Iowa
Filed June 15, 1970, Ser. No. 23,468
Term of patent 14 years
Int. Cl. D8—02

U.S. Cl. D8—14.1

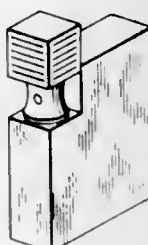


222,825

DISPENSING CONTAINER

Jerome S. Newman, 74—23 260th St.,
Floral Park, N.Y. 11004
Filed Nov. 14, 1969, Ser. No. 20,085
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—71



JANUARY 11, 1972

U. S. PATENT OFFICE

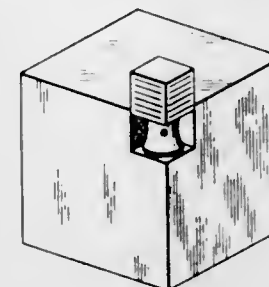
857

222,826

DISPENSING CONTAINER

Jerome S. Newman, 74—23 260th St.,
Floral Park, N.Y. 11004
Filed Nov. 14, 1969, Ser. No. 20,086
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—71



222,827

DISPENSING CONTAINER

Jerome S. Newman, 74—23 260th St.,
Floral Park, N.Y. 11004
Filed Nov. 14, 1969, Ser. No. 20,087
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—71

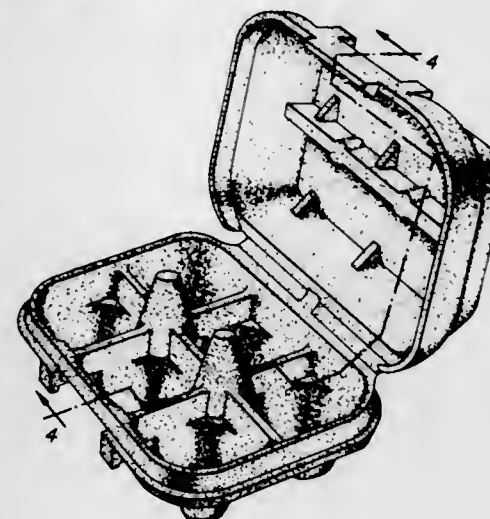


222,828

EGG-BOX

Jean Giraudet, Saint-Herblon, and Pierre Giraudet,
Ancenis, France, assignors to Giropor Societe a Respon-
sabilite Limitee Chemin de la Paonnerie, Anetz, Loire
Atlantique, France
Filed Oct. 9, 1970, Ser. No. 25,406
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—190



222,829

POURING SPOUT FOR A CONTAINER

Rudy R. Proctor, Arvada, and Denver L. Proctor, Wheat-
ridge, Colo., assignors to Jet-X Corporation, Denver,
Colo.
Filed Aug. 31, 1970, Ser. No. 24,779
Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—290

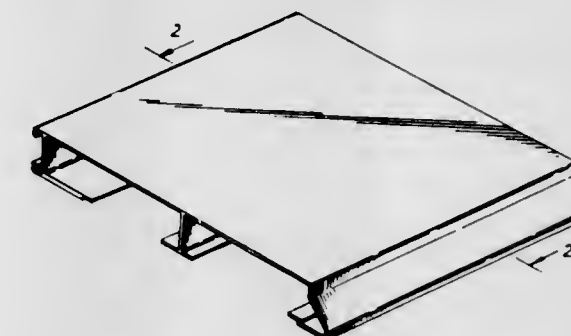


222,830

BOTTOM END LATH FOR A ROLLER SHUTTER

Donald Henry William Dover, "Igis," The Ridge, Little
Baddow, near Chelmsford, Essex, England
Filed Sept. 21, 1970, Ser. No. 25,099
Claims priority, application Great Britain Mar. 19, 1970
Term of patent 14 years
Int. Cl. D25—02

U.S. Cl. D13—1



222,831

CHAIR

Oscar Lax, South Orange, N.J., assignor to The
Bennington Company, Union, N.J.
Filed Apr. 17, 1970, Ser. No. 22,489
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D15—11

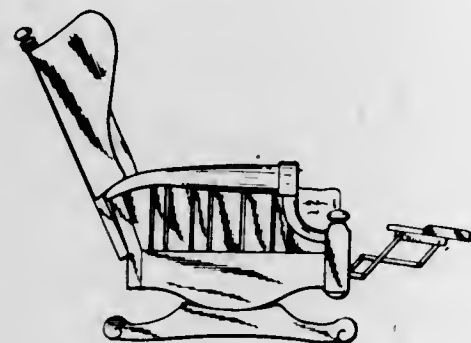


222,832

LOUNGE CHAIR

Oscar Lax, South Orange, N.J., assignor to The
Bennington Company, Union, N.J.
Filed Apr. 17, 1970, Ser. No. 22,490
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D15—11

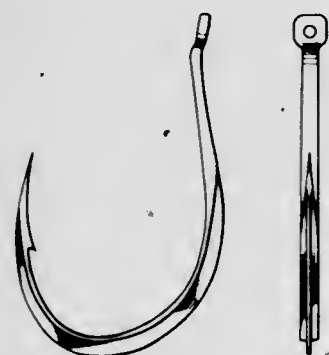


222,833

FISHHOOK

Toshitaka Fujii and Haruyuki Fujii, both of 417-2 Gose-
cho, Nishiwaki, Hyogo Prefecture, Japan
Filed June 10, 1970, Ser. No. 23,422
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—30



222,835

ARTIFICIAL CORSAGE

Gladys F. Rowland, 1327½ N. Hayworth Ave.,
Los Angeles, Calif. 90046
Filed June 10, 1970, Ser. No. 23,429
Term of patent 14 years
Int. Cl. D11—04

U.S. Cl. D29—1

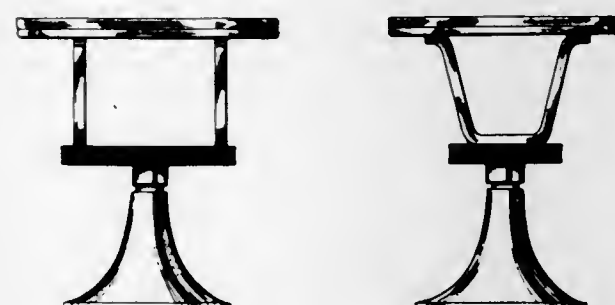


222,836

ANIMAL GROOMING TABLE

Leonard Sciarrino, 6915 61st Road, Middle Village, N.Y.
11379, and Joseph Di Natale, 311 W. Drive, Copiaque,
N.Y. 11726
Filed June 29, 1970, Ser. No. 23,755
Term of patent 14 years
Int. Cl. D6—03

U.S. Cl. D33—14



222,834

COMBINED AIR CONDITIONER FRONT AND
SIDE PANELS THEREFOR

Roger F. Chapin, Jr., Columbus, Ohio, assignor to
Westinghouse Electric Corporation
Filed June 10, 1970, Ser. No. 23,420
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—141

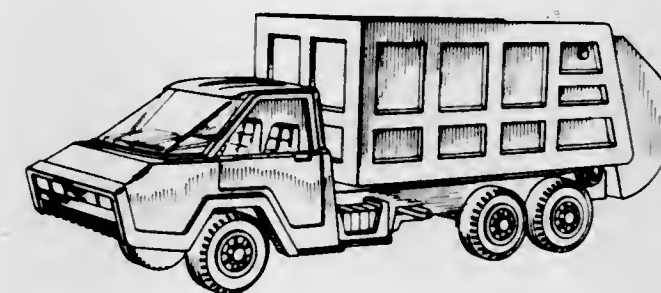


222,837

TOY DUMP TRUCK

Louis G. Muys and Albert G. Keller, Chicago, Ill.,
assignors to Strombecker Corporation
Filed June 29, 1970, Ser. No. 23,739
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—15

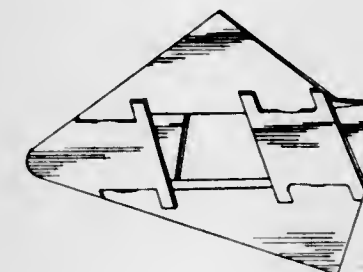


222,838

KITE

Robert M. Ferguson, Dallas, Tex., and Lindell O. Carpen-
ter, Rye, N.Y., assignors to Container Corporation of
America, Chicago, Ill.
Filed Sept. 10, 1970, Ser. No. 24,938
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—15

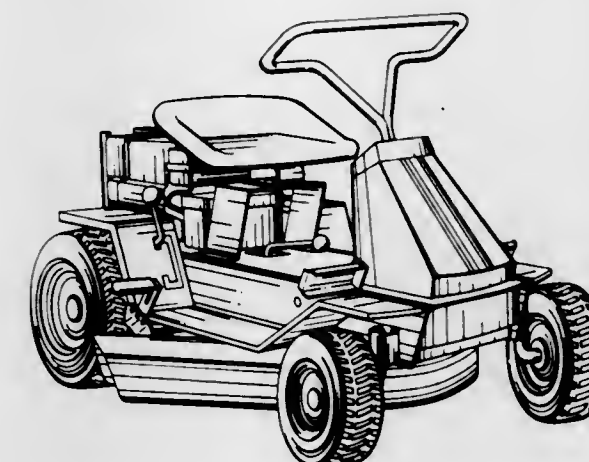


222,839

RIDING MOWER

Lloyd C. Hahn and Donald E. Dalley, Vanderburgh
County, Ind., assignors to Hahn, Inc., Evansville, Ind.
Filed June 26, 1970, Ser. No. 23,682
Term of patent 14 years
Int. Cl. D15—03

U.S. Cl. D40—1

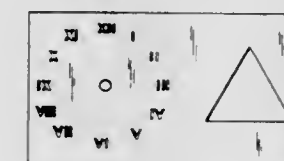
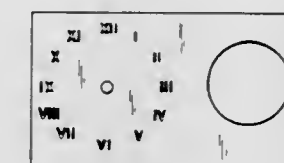


222,840

COMBINED CLOCK FACE AND PICTURE FRAME

Marion K. Summers, W. Commerce St.,
Brownstown, Ind. 47223
Filed Jan. 30, 1970, Ser. No. 21,160
Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D42—7

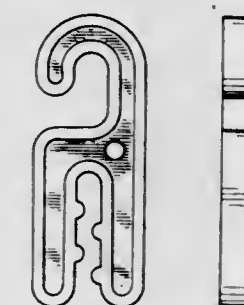


222,841

CLOTHESPIN

Fred C. McKee, 3305 31st Ave. S.,
Minneapolis, Minn. 55406
Filed June 15, 1970, Ser. No. 23,494
Term of patent 7 years
Int. Cl. D7—05

U.S. Cl. D49—1



222,842

WASTE RECEPTACLE OR SIMILAR ARTICLE
Walter J. Merck, Old Brookville, and Howard E. Thomp-
son, Huntington, N.Y., assignors to Lunn Laminates,
Inc., Wyandanch, N.Y.

Filed June 3, 1970, Ser. No. 23,290
Term of patent 14 years
Int. Cl. D7—05

U.S. Cl. D49—30

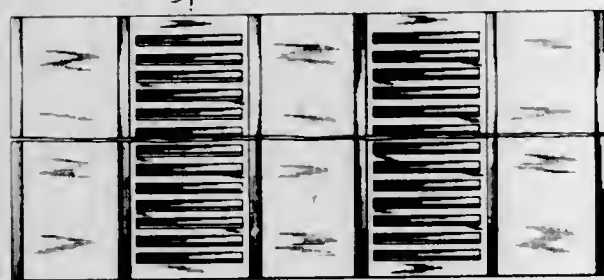


222,843
GRILLE

Patrick Zampetti, 13 Van Buren Ave., and Robert Deuchler, 15 Hawthorne St., both of Cranford, N.J. 07016

Filed Mar. 5, 1970, Ser. No. 21,774
Term of patent 14 years
Int. Cl. D25-02; D23-04

U.S. Cl. D54-2



222,844

METAL DETECTING PICK-UP COIL

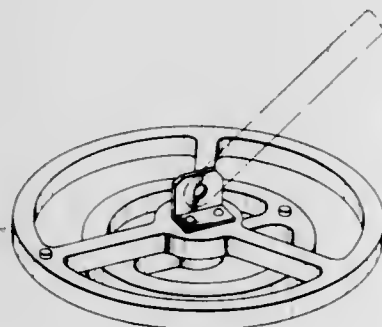
Thomas H. Doss, P.O. Box 10563, Houston, Tex. 77018

Filed June 12, 1970, Ser. No. 23,454

Term of patent 14 years

Int. Cl. D10-04

U.S. Cl. D52-1



222,845
CAMERA

Mutsuhide Matsuda and Eiichi Yoshioka, Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

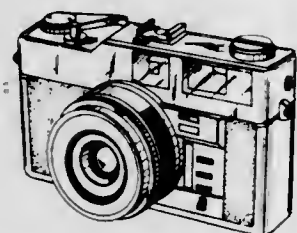
Filed Aug. 24, 1970, Ser. No. 24,675

Claims priority, application Japan Mar. 2, 1970

Term of patent 14 years

Int. Cl. D16-01

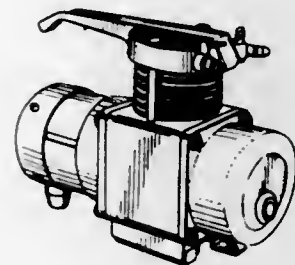
U.S. Cl. D61-1



222,846
MINIATURE AIR COMPRESSOR OR THE LIKE
Ryozo Kondo, 972 Tsutsumikata-machi, Ohta-ku, Tokyo, Japan

Filed May 4, 1970, Ser. No. 22,796
Term of patent 14 years
Int. Cl. D15-02

U.S. Cl. D65-1



222,847

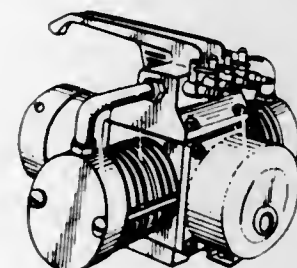
MINIATURE AIR COMPRESSOR OR THE LIKE
Ryozo Kondo, 972 Tsutsumikata-machi, Ohta-ku, Tokyo, Japan

Filed May 4, 1970, Ser. No. 22,811

Term of patent 14 years

Int. Cl. D15-02

U.S. Cl. D65-1



222,848

COMBINED MOLDED SKI CONTAINER AND CARRIER

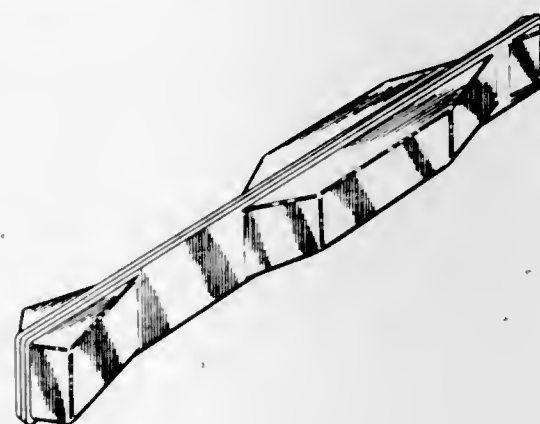
Richard L. Van Ausdall, 1571 Beeler St., Apt. 407, Aurora, Colo. 80010

Filed Oct. 2, 1970, Ser. No. 25,313

Term of patent 14 years

Int. Cl. D3-01

U.S. Cl. D87-1



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 11TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Abbey, Henry. Coaster arrangement. 3,633,863, Cl. 248-346.1
Abe, Kuniomi: See—
Ikegami, Yoshizo; Abe, Kuniomi; Nagai, Masakazu; Fukuda, Susumu; and Kakei, Takehiko, 3,633,484.
Abel, Dennis G., to Zenith Radio Corporation. Automatic contrast control. 3,634,613, Cl. 178-5.4
Abex Corporation: See—
Born, Ellis H., 3,633,809.
Ackermann, Friedrich W.; Casani, Ronald T.; Klawitter, William A.; and Heydt, Gerald B., to Carpenter Technology Corporation. Magnetic alloy. 3,634,072, Cl. 75-122.
Adage, Inc.: See—
Lucas, Paul G.; and Talambiras, Robert P., 3,634,659.
Adamovske strojirny, narodni podnik: See—
Jancsek, Jaroslav; and Svoboda, Antonin, 3,633,495.
Adams Equipment Company, Incorporated: See—
Adams, George R., 3,633,829.
Adams, George R., to Adams Equipment Company, Incorporated. Multi-stage sprayer. 3,633,829, Cl. 239-428.
Adams, James S.: See—
Burst, Francis J.; and Adams, James S., 3,633,225.
Addison, Charles J.; and Diamond, Joseph, to Coleco Industries, Inc. Decorated formed articles and method of making same. 3,633,221, Cl. 4-172.
Addressograph Multigraph Corporation: See—
Stevko, Phillip J., 3,634,740.
Addressograph-Multigraph Corporation: See—
Verderber, Joseph A.; Fortcamp, James A.; and Kolibas, James A., 3,634,007.
Adlerwerke vorm. Heinrich Kleyer A.G.: See—
Werner, Kurt; and Kuhn, Lothar, 3,633,721.
Adwest Engineering Limited: See—
Millard, Barry John, 3,633,933.
Aero-Flow Dynamics, Inc.: See—
Soumas, Charles A.; and Spontak, David J., 3,634,669.
Aerojet-General Corporation: See—
Morrison, Robert A., 3,634,808.
AFA Protective Systems, Inc.: See—
Zinn, Leon; and Bodin, Milton, 3,634,824.
AGA Aktiebolag: See—
Granqvist, Carl-Erik, 3,634,838.
Scholdstrom, Karl O. R., 3,634,011.
Agfa-Gevaert Aktiengesellschaft: See—
Hackenberg, Hubert; Zobel, Siegfried; Spinnler, Rainer; Becker, Erwin; and Engelsmann, Dieter, 3,633,477.
Aghnides, Elie P. Spray producing device in which the output jets are aerated. 3,633,824, Cl. 239-428.5
Agin, Gerald J., to International Business Machines Corporation. Digital velocity servo for D-C servo motor. 3,634,745, Cl. 318-341.
Aijala, Sulo A. Torque release hand tool. 3,633,445, Cl. 81-52.5
Air Reduction Company, Incorporated: See—
Hay, Wayne W.; and Thompson, Charles S., 3,633,606.
Ajax Hardware Manufacturing Corporation: See—
Read, George D., 3,633,955.
Ajinomoto Co., Inc.: See—
Takeda, Yoshifumi; Takagi, Yasuo; and Mori, Shiegi, 3,634,544.
Akamatsu, Toshiaki; and Honda, Shou, to Toyota Jidosha Kogyo Kabushiki Kaisha. Steering gear. 3,633,438, Cl. 74-500.
Akasaka, Tadashi: See—
Yasuda, Yukitomo; Akasaka, Tadashi; Nishikawa, Yasuhisa; and Magi, Mamoru, 3,634,791.
Akashi, Goro; Fujiyama, Masaaki; Hirakawa, Takashi; and Suzuki, Osamu, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 3,634,253, Cl. 252-62.54
Akashi, Goro; and Yamada, Yasuyuki, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 3,634,137, Cl. 117-235.
Akatsu, Mitsuhiro: See—
Yamamoto, Hisao; Inaba, Shigehiro; Hirohashi, Toshiyuki; Akatsu, Mitsuhiro; Maruyama, Isamu; and Izumi, Takahiro, 3,634,402.
Akiyama, Toyomi; and Higaki, Taiji, to Kamzaki Paper Mfg. Co., Ltd. Electrostatic recording sheet and process for making the same. 3,634,135, Cl. 117-221.
Aktiebolaget Electrolux: See—
Crener, Bengt Olof; and Ernolf, Stig Carl-Oskar, 3,633,240.
Aktiebolaget Gustavsbergs Fabriker: See—
Hellqvist, Ake Oscar Wilhelm, 3,633,610.
Aktiebolaget Thugus Mekaniska Verkstad: See—
Lindquist, Per G. E., 3,633,901.
Albus, Peter, to Siemens Aktiengesellschaft. Method of producing a high-frequency silicon transistor. 3,634,133, Cl. 148-187.
Alderman, Leslie: See—
Organ, Terrence John; Alderman, Leslie; Melley, Arthur; and Pratt-Johnson, William Henry, 3,634,106.
Aldous, George C., to Westinghouse Electric Corporation. Thermal cycling switch. 3,634,802, Cl. 337-101.
Alexander, James M., Jr.: See—
McKnight, John R.; Ballay, Joseph M.; Fabbro, Lawrence L.; and Alexander, James M., Jr., 3,633,326.
Algemene Kunstzijde Unie, N.V.: See—
Steenvoorden, Simon J., 3,634,124.
Alkema, Henk J.; Medema, Dirk; and Wattimena, Freddy, to Shell Oil Company. Olefin disproportionation. 3,634,539, Cl. 260-683.
Allen, George Rodger, Jr.: See—
Littell, Ruddy; and Allen, George Rodger, Jr., 3,634,420.
Allen, Gordon H.; Hosack, Robert C.; Schoening, Werner P.; and Yaeger, Luther L., to Griffolyn Company, Incorporated. Location of underground utility lines. 3,633,533, Cl. 116-114.
Allen, Louis N., to American Cyanamid Company. Recovery of sulfur from naturally occurring ores. 3,634,046, Cl. 23-308.
Alley, Ralph D.; and Sheridan, David S., to Sherwood Medical Industries Inc. Catheter placement device and method. 3,633,579, Cl. 128-214.4
Allied Chemical Corporation: See—
Barton, Oliver A.; and Murphy, Kevin P., 3,634,274.
Friedman, Cecil A.; Scarcello, Francis J.; Shultz, Andrew; and Walter, Julius E., 3,634,271.
Lamb, George E. R.; Prevorsek, Dusan C.; and Oswald, Hendrikus J., 3,634,163.
Lund, Richard B.; Vitrone, John; and Sereno, John F., 3,634,523.
Murphy, Kevin Paul; and Orfeo, Sabatino Robert, 3,634,255.
Schmitt, George J.; Klein, Karl P.; and Reimschuessel, Herbert K., 3,634,363.
Sherman, Norman, 3,634,543.
Shultz, Andrew; and Kaplan, Melvin, 3,634,361.
Allied Technology Inc.: See—
Riehl, Roger W., 3,633,694.
Allis-Chalmers Manufacturing Company: See—
Matthews, Ralph W.; Bernhoft, Gerald W.; and Schmidt, Michael R., 3,633,700.
Allmanna Svenska Elektriska Aktiebolaget: See—
Von Krusenstierna, Otto, 3,634,140.
Almhed, Lars Gosta: See—
Josefsson, Erik Anders Ake; and Almhed, Lars Gosta, 3,633,898.
Alton, Thomas W., to Pak-Well Corporation. Fan-fold envelope assembly. 3,633,816, Cl. 229-69.
Aluminum Company of America: See—
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Batson, Davis M., to Ethyl Corporation. Incendiary compositions. 3,634,157, Cl. 149-87.

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Bernardin, Rodney A., to United States of America, Navy. Dual mode fuse explosive train. 3,633,510, Cl. 102-74.

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- Brooks, William R., to Insta-Foam Products, Inc. Foam dispenser. 3,633,795, Cl. 222-134.
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- Bruelmanns, Karel Bernard Marie, to Fabrique Nationale d'Armes de Guerre, Societe Anonyme. Pulling and knocking-over device for two needle bed knitting machines. 3,633,386, Cl. 66-149.
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- Hendry, Allen J.; and Wilson, John T., to Westinghouse Electric Corporation. Circuit breaker including improved overcurrent protective device, 3,634,729, Cl. 317-36.
- Henningsen, Erik, to Ez Painter Corporation. Paint brush having supplemental reservoir, 3,633,234, Cl. 15-114.
- Henslee, Cletus Ray. Movable stake pockets, 3,633,516, Cl. 105-390.
- Heran, Robert F.; and Blackman, Calvin C. Method and apparatus for heating annular work pieces, 3,633,891, Cl. 263-42.
- Hercules Incorporated: See—
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- Hermel, Jacques Edmond, to Compagnie des Compteurs. Frequency comparative circuit of two series of pulses, 3,634,771, Cl. 328-133.
- Hermetic Coil Co., Inc.: See—
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- Herold, Robert J.; and Kaufman, Herbert C., to General Tire & Rubber Company, The. Lubricant having improved viscosity index, 3,634,244, Cl. 252-48.2
- Herrmann, Helmut Friedrich; and Dizon, Rolando M., to Metalloxyd Gesellschaft mit beschränkter Haftung. Aluminum foil or band with an electrically insulating or decorative coating thereon and a method for producing the same, 3,634,206, Cl. 204-28.
- Herrmann, Wolfgang: See—
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- Hersey, Gerald W., to Sperry Rand Corporation. Mechanical annunciator for indicating the position of the actuation shaft of a selector switch, 3,633,534, Cl. 116-129.
- Hertel & Reuss: See—
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- Heydt, Gerald B.: See—
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- Hicks, Raymond John, to Vickers Limited. Gear trains, 3,633,441, Cl. 74-801.
- Hiddenobu, Kondo, to Nippon Kogaku K.K. Safety wind-up device for camera, 3,633,480, Cl. 95-31.
- Higaki, Taiji: See—
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- Hill, Jerome E.: See—
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- Hill, Tore L. Screwdriver, 3,633,639, Cl. 145-50.
- Hill-Rom Company, Inc.: See—
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- Hillenbrand, George C., to Batesville Casket Company, Inc., The. Casket pallet, 3,633,861, Cl. 248-119.

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Himmelman, Louis F. Gas-shielded water-cooled electric welding torch. 3,634,643, Cl. 219-75.

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Hinterholz, Ernst; and Sulzer, Hubert, to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft. Rolling mill train. 3,633,399, Cl. 72-222.

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Hoffer, Max; and Mitrovic, Milan, to Hoffmann-La Roche Inc. 1-Methyl-2-isopropyl-5-nitroimidazole and water soluble salts thereof. 3,634,446, Cl. 260-309.

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Hoffmann, Gottfried, to United States Steel Corporation. Construction for connecting and aligning sections of a guide-roll rack. 3,633,655, Cl. 164-282.

Hogg, James W. Adhesive hanger. 3,633,865, Cl. 248-467.

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Howe, Ralph; and Smith, Leslie Harold, to Imperial Chemical Industries Limited. 1-(4-Acylamino-2-alkylphenoxy)-3-amino-2-propanol derivatives. 3,634,511, Cl. 260-562.

Howe, William E., to General Motors Corporation. Vapor deposition apparatus with planetary susceptor. 3,633,537, Cl. 118-48.

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Whitman, Robert L., to Zenith Radio Corporation. Acoustic holography with a frequency shifted reference beam, 3,633,407, Cl. 73-67.5
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Wilburn, Garlington C.; and Michel, George P., to Westinghouse Electric Corporation. Method of constructing electrical windings, 3,633,273, Cl. 29-602.
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Wildi, Bernard S.; and Westman, Thomas L., to Monsanto Company. Detergent compositions containing soluble polymer-enzyme product, 3,634,258, Cl. 252-89.
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Williams, Milton S., Jr.; and Eff, Christian A., to General Electric Company. Drive means for a rotisserie spit, 3,633,491, Cl. 99-340.
Williams, Wallace L.; and Wright, David F., to Westinghouse Electric Corporation. Remote reading measuring system, 3,634,663, Cl. 235-151.31
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Wilson, Doyné L.; and Bennett, Robert B., to Oil Base, Inc. Drilling fluid and method of use, 3,634,235, Cl. 252-8.5
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Wilson, John T., to Westinghouse Electric Corporation. Circuit breaker including improved overcurrent protective device, 3,634,730, Cl. 317-38.
Wininger, Charles W. Hassock frame assembly, 3,633,969, Cl. 297-462.
Winnie, Dayle D., to Stoelting Brothers Company. Cheese cheddaring method, 3,633,276, Cl. 31-89.
Wise, Joseph Augusta, to AMP Incorporated. Electrical connector assembly and method of making same, 3,634,817, Cl. 339-213.
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Worner, Howard Knox, to Conzinc Riotinto of Australia Limited. Method for refining metals, 3,634,065, Cl. 75-46.
Worner, Howard Knox, to Conzinc Riotinto of Australia Limited. Tin smelting, 3,634,069, Cl. 75-85.
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Yates, John; and Devlin, Barry R. J., to Shell Oil Company. 2,6-Dinitroanilinoacetamides, 3,634,509, Cl. 260-558.
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Yavorsky, Paul J.; and Cook, Louis S., to Basic Ceramics Incorporated. Aluminum polyoxochloride bonded castable refractory, 3,634,112, Cl. 106-55.
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- Zapata, Claudio G., to Zapata Industries Inc. Crown type closure with double removable liner unit enclosing trapped indicia. 3,633,781, Cl. 215-39.
- Zapata Industries Inc.: *See—*
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- Zegers, Incorporated: *See—*
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- Zell, Dale Richard, to AMP Incorporated. Connector keying system. 3,634,816, Cl. 339-186.
- Zenith Radio Corporation: *See—*
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- Zhukov, Gennady Konstantinovich; Krylov, Nikolai Ivanovich; Lebedev, Vyacheslav Ivanovich; Popov, Boris Vasilievich; Slonim, Alexandr Zosimovich; Sonin, Anatoly Leonidovich; Vasilenko, Sergei Iosifovich; Kondratiev, Valentin Vasilievich; and Krokhin, Nester Ivanovich. Pipe-straightening machine. 3,633,397, Cl. 72-79.
- Ziegler, Carrel G.; and Hoffman, Albert H., to Dittmar and Penn Corporation. Stethoscope. 3,633,704, Cl. 181-24.
- Ziemek, Gerhard; and Hannover, Eilhardt, to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Conductor system for superconducting cables. 3,634,597, Cl. 174-15.
- Zilver, Edwin. Device for operating a venetian blind. 3,633,646, Cl. 160-168.
- Zinn, Leon; and Bodin, Milton, to AFA Protective Systems, Inc., mesne. Signaling system utilizing frequency and frequency duration for signalling and control functions. 3,634,824, Cl. 340-147.
- Zinnes, Harold; Shavel, John, Jr.; Lindo, Neil A.; and Di Pasquale, Gene, to Warner-Lambert Company. 4-Alkylidene and 4-arylidene-5,6,7,8-tetrahydro-1,3(2H,4H)-isoquinolinediones. 3,634,415, Cl. 260-240.
- Zirps, George T.; and Worley, Arthur C., to Esso Research and Engineering Company. Vernier throttling/block valve. 3,633,626, Cl. 137-637.3
- Zobel, Siegfried: *See—*
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- Zschocke, Albrecht; and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Substituted triazolidine derivatives. 3,634,445, Cl. 260-308.
- Zweegers, Petrus Wilhelmus. Apparatus for spreading or sowing granular or pulverulent material. 3,633,796, Cl. 222-176.
- Zysman, Milton, to Foamcoil Services S. A., mesne. Spring upholstery assembly. 3,633,228, Cl. 5-353.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 11TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Altenpohl, W. F., Inc.: *See—*
Altenpohl, William F., Jr. Re. 27,274.
- Altenpohl, William F., Jr., to W. F. Altenpohl, Inc. Poultry shackle for overhead conveyor and carriage assembly. Re. 27,274, 1-11-72, Cl. 17-44.1.
- Barr and Stroud Ltd.: *See—*
Ritchie, David S., and Glass. Re. 27,265.
- Burroughs Corp.: *See—*
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- Cardinal Surveys Co.: *See—*
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- D-Mac Ltd.: *See—*
Ritchie, David S., and Glass. Re. 27,265.
- Denlinger, Carl E., to Owens-Illinois, Inc. Method and apparatus for removing molle. Re. 27,268, 1-11-72, Cl. 82-47.
- Glass, Thomas M.: *See—*
Ritchie, David S., and Glass. Re. 27,265.
- Harnsberger, Bobby G., and J. T. Payton, to Texaco Inc. Method and composition for stabilizing incompetent sand containing formatlon. Re. 27,271, 1-11-72, Cl. 166-276.
- Johnson, James R.: *See—*
Sowman, Harold G., and Johnson. Re. 27,264.
- Kupsky, George A., to Burroughs Corp. Electro-optical indicator devices with multiple anodes for each cell. Re. 27,273, 1-11-72, Cl. 313-109.5.
- Lillienstern, Vera D., to Mattel, Inc. Retractable hair doll. Re. 27,267, 1-11-72, Cl. 46-135.
- Mattel, Inc.: *See—*
Lillienstern, Vera D. Re. 27,267.
- Miller, Verle A., to Standard Brands Chemical Industries, Inc. Latex compositions. Re. 27,269, 1-11-71, Cl. 260-29.7.
- Minnesota Mining and Mfg. Co.: *See—*
Sowman, Harold G., and Johnson. Re. 27,264.
- Neotec Corp.: *See—*
Selgin, Paul J. Re. 27,270.
- Owens-Illinois, Inc.: *See—*
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- Payton, Joy T.: *See—*
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- Ritchie, David S., and T. M. Glass, fractional part interest to Barr and Stroud Ltd., and D-Mac Ltd. Apparatus for automatically copying lines. Re. 27,265, 1-11-72, Cl. 95-12.
- Selgin, Paul J., to Neotec Corp. Null type comparison reflectometer wherein nulling is accomplished by moving the light detector. Re. 27,270, 1-11-72, Cl. 356-211.
- Shaler Co., The: *See—*
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- Smith, Clarence J., to The Shaler Co. Studs for tires. Re. 27,266, 1-11-72, Cl. 152-210.
- Sowman, Harold G., and J. R. Johnson, to Minnesota Mining and Mfg. Co. Method of making spherules of a crystalline nuclear fuel carbide. Re. 27,264, 1-11-72, Cl. 264-5.
- Standard Brands Chemical Industries, Inc.: *See—*
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- Well Reconnaissance, Inc.: *See—*
Young, Marcus C. Re. 27,272.
- Young, Marcus C., fractional part interest to Cardinal Surveys Co., and Well Reconnaissance, Inc. Method of determining direction and velocities of fluid flow into a well by means of radioactive tracer introduction into the well. Re. 27,272, 1-11-72, Cl. 250-43.5.

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- Bennington Co., The: *See—*
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- Canon Dabushkiki Kaisha: *See—*
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- Carpenter, Lindell O.: *See—*
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- Chapin, Roger F. Jr., to Westinghouse Electric Corp. Combined air conditioner front and side panels therefor. 222,834, 1-11-72, Cl. D23-141.
- Container Corp. of America: *See—*
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- Crebolder, Josephus C., to Dike and Coenen. Bunk bed. 222,821, 1-11-72, Cl. D5-4.
- Dalley, Donald E.: *See—*
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- Deuchler, Robert: *See—*
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- Dorn, Chester, to Superior Manufacturing Co. Hand grease gun. 222,822, 1-11-72, Cl. D8-14.1.
- Doss, Thomas H. Metal detecting pick-up coil. 222,844, 1-11-72, Cl. D52-1.
- Dover, Donald H. W. Bottom end lath for a roller shutter. 222,830, 1-11-72, Cl. D13-1.
- Ferguson, Robert M., and L. O. Carpenter, to Container Corp. of America. Kite. 222,838, 1-11-72, Cl. D34-15.
- Fujii, Haruvuki: *See—*
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- Giraudet, Jean, and P., to Giropor Societe a Responsabilite limitee Chemin de la Paonnerie. Egg-box. 222,828, 1-11-72, Cl. D9-190.
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- Jet-X Corp.: *See—*
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- Keller, Albert G.: *See—*
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- Lax, Oscar, to The Bennington Co. Chair. 222,831, 1-11-72, Cl. D15-11.
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- Lunn Laminates Inc.: *See—*
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- McKee, Fred C. Clothespin. 222,841, 1-11-72, Cl. D49-1.
- Merck, Walter J., and H. E. Thompson, to Lunn Laminates, Inc. Waste receptacle or similar article. 222,842, 1-11-72, Cl. D49-30.
- Muys, Louis G., and A. G. Keller, to Strombecker Corp. Toy dump truck. 222,837, 1-11-72, Cl. D34-15.
- Newman, Jerome S. A dispensing container. 222,823, 1-11-72, Cl. D9-56.
- Newman, Jerome S. A dispensing container. 222,824, 1-11-72, Cl. D9-56.
- Newman, Jerome S. A dispensing container. 222,825, 1-11-72, Cl. D9-71.
- Newman, Jerome S. A dispensing container. 222,826, 1-11-72, Cl. D9-71.
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- Proctor, Denver L.: *See—*
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- Rowland, Gladys F. Corsage. 222,835, 1-11-72, Cl. D29-1.
- Sclarrino, Leonard, and J. Di Natale. Animal grooming table. 222,836, 1-11-72, Cl. D33-14.
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- Superior Manufacturing Co.: *See—*
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- Thompson, Howard E.: *See—*
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- Westinghouse Electric Corp.: *See—*
Chapin, Roger F., Jr. 222,834.
- Van Ausdall, Richard L. Combined molded ski container and carrier. 222,848, 1-11-72, Cl. D87-1.
- Yoshioka, Ellich: *See—*
Matsuda, Mutsuhide, and Yoshioka. 222,845.
- Zampetti, Patrick, and R. Deuchler. Grille. 222,843, 1-11-72, Cl. D54-2.

CLASSIFICATION OF PATENTS

ISSUED JANUARY 11, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

3A	3,633,214	19	3,633,246	243M	3,633,308	196	3,633,378	65	3,634,066	60BF	3,634,087
105	3,633,215	30SPB	3,633,247		3,633,309	202	3,633,379	66	3,634,067		3,634,088
168	3,633,216	73AP	3,633,248	58	3,633,310	217	3,633,380	72	3,634,068	87	3,634,089
	CLASS 3	77R	3,633,249			222	3,633,381	85	3,634,069	91R	3,634,090
1	3,633,217	81CR	3,633,250	195	3,634,053	21	3,633,382	101	3,634,070	99	3,634,091
	CLASS 4	84	3,633,251			23	3,633,383	109	3,634,071	116	3,634,092
10	3,633,218	123C	3,633,252	35	3,633,311	31	3,633,384	123D	3,634,072		CLASS 99
	3,633,219	261PC	3,633,253	199	3,633,313			125	3,634,074	2R	3,634,093
131	3,633,220	276	3,633,254	209	3,633,314	3	3,634,054	135	3,634,075	68	3,634,094
172	3,633,221			345	3,633,315	6	3,634,055	153	3,634,076	100P	3,634,095
185	3,633,222	1.6	3,633,255	384	3,633,316	42	3,634,056		CLASS 81	107	3,634,096
192	3,633,223	71.3	3,633,256	430	3,633,317	163	3,634,057	6	3,633,444	110	3,634,097
	CLASS 5	77	3,633,257	503	3,633,312	196	3,634,058	52.5	3,633,445	122M	3,634,100
18	3,633,224					273	3,634,059	57.46	3,633,446	140R	3,634,098
63	3,633,225	105	3,633,258	90	3,633,318	305	3,634,060		CLASS 82	171LP	3,634,099
263	3,633,226	148.4D	3,633,259	139	3,633,319			47	Re.27,268	174	3,634,102
343	3,633,227	156.6	3,633,260	161	3,633,320	148	3,633,385		CLASS 83	194	3,634,127
353	3,633,228	157R	3,633,261	163	3,633,321	149	3,633,386	8	3,633,447	199	3,634,103
	CLASS 7	194	3,634,047	323	3,633,322		3,633,387	62	3,633,448	204	3,634,104
14.55	3,633,229	196.6	3,634,048					105	3,633,449	205	3,634,128
	CLASS 8	202.5	3,633,262	34	3,633,323	80	3,633,388	201	3,633,450	207	3,634,105
11	3,634,013	412	3,633,263	66	3,633,324	120	3,633,389	205	3,633,451	229	3,634,108
18	3,634,014	421	3,633,264	73	3,633,325	240	3,633,390		CLASS 84	236CC	3,634,106
46	3,634,015	461	3,633,265	86	3,633,326	264	3,633,391	1.01	3,634,593	275	3,634,107
54	3,634,016	488	3,633,266	224	3,633,327	275	3,633,392	1.04	3,634,595	339	3,633,490
93	3,634,017	493	3,633,267	300	3,633,328	276	3,633,393	1.1	3,634,594	340	3,633,491
111	3,634,020	574	3,633,268			276	3,633,393	1.28	3,634,596	450.6	3,633,517
116	3,634,018	578	3,633,269	24	3,633,329	389	3,633,394		3,634,596	450.7	3,633,489
	3,634,021	590	3,633,271	51	3,633,330			263	3,633,452		CLASS 100
116.3	3,634,019	592R	3,633,270	125	3,633,332	66	3,634,061	403	3,633,453	3	3,633,492
127.51	3,634,022	602	3,633,272	182	3,633,333	93	3,634,062		CLASS 85	90	3,633,494
130.1	3,634,023	603	3,633,273	234	3,633,334			13	3,633,454	162B	3,633,493
138	3,634,024	90.3	3,633,275	380	3,633,335	22	3,633,395	46	3,633,455		CLASS 101
	CLASS 9	89	3,633,276	391	3,633,336	41	3,633,396		CLASS 89	1	3,633,495
345	3,633,230					79	3,633,397	1	3,633,456	79	3,633,498
	CLASS 13	14A	3,633,277	4	3,633,337	131	3,633,398	11A	3,633,457	93C	3,633,496
6	3,634,588	167	3,633,278	31	3,633,338	222	3,633,399	56R	3,633,458		3,633,499
16	3,634,589	205	3,633,280	37	3,633,339	410	3,633,400		CLASS 90	93	3,633,497
31	3,634,590			84	3,633,340				CLASS 91	111	3,633,500
	3,634,591	174R	3,633,279	186	3,633,341	3	3,633,401	401	3,633,459		3,633,501
33	3,634,592	228	3,633,281	316	3,633,343	4D	3,633,402	411R	3,633,460	150	3,633,502
	CLASS 15	349	3,633,344	316	3,633,343	15.6	3,633,403	436	3,633,461	218	3,633,503
21E	3,633,231			316	3,633,343	23.1	3,633,405	450	3,633,462	228	3,633,504
93	3,633,232	1	3,633,281	349	3,633,344	45.5	3,633,406	487	3,633,463	269	3,633,505
	3,633,233	73	3,633,282			67.5H	3,633,407	505	3,633,464	336	3,633,506
114	3,633,234	114	3,633,284	14.1	3,633,345	88E	3,633,408		CLASS 92		CLASS 102
159A	3,633,235			17.6	3,633,346	95.5	3,633,409	13.3	3,633,465	4	3,633,507
182	3,633,236			104	3,633,348	115	3,633,410	85	3,633,466	13	3,633,508
188	3,633,237			130	3,633,347	116	3,633,411	172	3,633,467	35.4	3,633,509
250.21	3,633,238	25	3,633,285	294	3,633,349	126	3,633,412	186	3,633,468	74	3,633,510
321	3,633,240	26	3,633,286	313	3,633,350	139	3,633,418		CLASS 93	80	3,633,511
327R	3,633,239	31R	3,633,288	329	3,633,351	141R	3,633,413	36.5	3,633,469	87	3,633,512
364	3,633,241	33	3,633,287			148	3,633,419	53R	3,633,470		CLASS 104
	CLASS 16	48R	3,633,289	22	3,633,352	152	3,633,414		CLASS 94	2	3,633,513
34	3,633,242			55.5	3,633,353	189	3,633,415	50PR	3,633,471		CLASS 105
128A	3,633,243	2R	3,633,290			199	3,633,416		CLASS 95	26R	3,633,514
178	3,633,244	2.5AL	3,633,291	43	3,633,354			1.1	3,633,472	240	3,633,515
	CLASS 17			91	3,633,355	209	3,633,421	4.5	Re.27,265	390	3,633,516
32	3,633,245	112	3,633,292	94	3,633,356	219	3,633,422		CLASS 96		CLASS 106
44.1	Re.27,274	127	3,633,293			231R	3,633,417	10CT	3,633,473	1	3,634,109
	CLASS 21			35	3,633,357	339A	3,633,423	11R	3,633,474	3	3,634,110
102	3,634,025	2R	3,633,294			356	3,633,424		3,633,475	40R	3,634,111
	CLASS 23	33	3,633,295	13	3,633,358	422GC	3,633,426		3,633,476	55	3,634,112
2	3,634,028	53	3,633,296	19	3,633,359			11	3,633,477		3,634,113
20	3,634,027	67	3,633,297	39.14	3,633,360	16	3,633,427	12	3,633,478	58	3,634,114
109	3,634,029	82	3,633,298	39.71	3,633,361	44	3,633,429	19	3,633,479	85	3,634,115
145	3,634,030	129C	3,633,299	39.72	3,633,362	230.11	3,633,432	31FL	3,633,480	171	3,634,118
160	3,634,031	152	3,633,300	51	3,633,363	230.8	3,633,431	42	3,633,481	291	3,634,119
182P	3,634,032	160	3,633,301	54	3,633,364	231R	3,633,432	44R	3,633,482		CLASS 107
201	3,634,033			54.5A	3,633,365	415	3,633,433		3,633,483	55R	3,633,518
205	3,634,034	62	3,633,302	54.6P	3,633,366	470	3,633,434	53R	3,633,484		CLASS 108
209.1	3,634,035	70F	3,633,303	54.6R	3,633,367		3,633,435	60	3,633,485	44	3,633,519
209.2	3,634,036			324	3,633,368	471XY	3,633,436	64D	3,633,486		CLASS 109
224	3,634,037	17	3,633,304			489	3,633,437	89R	3,633,487	82	3,633,520
253R	3,634,038	44.92	3,633,305	46.5	3,633,369		3,633,438	99	3,633,488		CLASS 110
259	3,634,039			69R	3,633,370	500	3,633,439		CLASS 96	104	3,633,521
277R	3,634,040	7D	3,634,050			690	3,633,440	1.4	3,634,077		CLASS 111
285	3,634,042	7	3,634,049	17	3,633,371	751	3,633,441	1.5	3,634,078	69	3,633,522
295R	3,634,043	51	3,634,051	49	3,633,372	753	3,633,442		3,634,079		CLASS 112
297	3,634,041	62	3,634,052	79	3,633,373	801	3,633,443	1.7	3,634,080	79A	3,633,523
301SP	3,634,045			156	3,633,374	822	3,633,444	22	3,634,081	113	3,633,524
301R	3,634,044	76	3,633,306	180	3,633,375			33	3,634,082	117	3,633,525
308S	3,634,046	135	Re.27,267	181	3,633,376	5AA	3,634,063	36.3	3,634,083	121.29	3,633,526
		201	3,633,307	192	3,633,377	46	3,634,065	46	3,634,084	159	3,633,527

CLASSIFICATION OF PATENTS

265	3,633,528	86R	3,634,139	CLASS 159	54R	3,634,613	49	3,634,210	CLASS 222				
CLASS 114	111	3,634,142	CLASS 160	6W	3,633,645	3,634,614	51	3,634,211	88	3,633,794			
16E	3,633,530	8	3,633,597	CLASS 161	168	3,633,646	56R	3,634,212	134	3,633,795			
16R	3,633,529	15	3,633,598	220	3,633,647	7.2	3,634,618	58	3,634,213	176	3,633,796		
145A	3,633,531	56	3,633,599	CLASS 162	7.3DC	3,634,620	83	3,634,215	194	3,633,797			
235R	3,633,532	68	3,633,600	2	3,634,177	7.8	3,634,621	146	3,634,216	402.22	3,633,798		
CLASS 116	114	3,633,533	77	3,633,601	69.5F	3,634,623	157.1R	3,634,217	2	3,633,799			
124	3,633,534	81	3,633,602	19	3,634,179	CLASS 179	159.17	3,634,218	28	3,633,800			
129R	3,633,535	81.5	3,633,603	24	3,634,180	1	3,634,220	164	3,634,221	45T	3,633,801		
36.1	3,634,120	113	3,633,604	27	3,634,181	2DP	3,634,221	180R	3,634,222	93	3,633,803		
36.2	3,634,121	183	3,633,605	42	3,634,182	15BA	3,634,222	196	3,634,223	11	3,633,804		
43	3,634,122	220	3,633,606	159	3,634,183	15BS	3,634,223	206	3,634,224	76	3,633,805		
47A	3,634,123	241	3,633,607	183	3,634,184	15BT	3,634,224	297R	3,634,225	90	3,633,806		
49	3,634,124	241	3,633,608	198	3,634,185	18FH	3,634,225	11	3,634,226	97	3,633,807		
68	3,634,125	351	3,633,609	342	3,634,186	18HA	3,634,226	31	3,634,227	183	3,633,808		
106C	3,634,126	398	3,633,610	CLASS 163	10	3,633,648	30CS	3,634,227	11	3,633,809			
119.6	3,634,129	498	3,633,611	60	3,633,649	CLASS 164	100.2C	3,634,228	20	3,633,810			
121	3,634,130	512.3	3,633,612	65	3,633,650	33K	3,633,651	21	3,633,811	27	3,633,812		
138.8F	3,634,131	543.19	3,633,613	76	3,633,651	CLASS 180	175.2	3,633,652	44	3,633,813			
161UC	3,634,132	554	3,633,614	267	3,633,652	10	3,633,698	73	3,633,740	105	3,633,866		
169R	3,634,133	596.12	3,633,615	274	3,633,653	53R	3,633,699	74M	3,633,741	210	3,633,867		
201	3,634,134	597	3,633,616	278	3,633,654	66R	3,633,700	80	3,633,742	20	3,633,810		
221	3,634,135	608	3,633,617	282	3,633,655	79.1	3,633,701	250	3,633,743	109	3,633,811		
224	3,634,136	613	3,633,618	348	3,633,656	79.2R	3,633,702	262	3,633,744	27	3,633,812		
235	3,634,137	625.11	3,633,619	382	3,633,657	82	3,633,697	310	3,633,745	44	3,633,813		
CLASS 118	6	3,633,536	625.44	3,633,622	26	3,633,657	CLASS 181	11	3,634,226	21	3,633,814		
48	3,633,537	625.46	3,633,623	39	3,633,658	31B	3,633,703	21	3,634,227	33	3,633,815		
76	3,633,538	625.64	3,633,624	69	3,633,659	33K	3,633,706	52	3,634,228	69	3,633,816		
208	3,633,539	630.22	3,633,625	70	3,633,660	CLASS 182	139	3,633,707	21	3,633,817			
502	3,633,540	637.3	3,633,626	89	3,633,661	150	3,633,708	63	3,634,229	35	3,633,817		
503	3,633,541	31	3,633,627	94	3,633,662	155	3,633,709	71	3,634,230	30A	3,633,818		
505	3,633,542	116	3,633,628	105	3,633,663	CLASS 188	155	3,633,710	61.11D	61.11D	3,634,657		
621	3,633,543	127	3,633,629	185	3,633,664	62	3,633,711	121	3,633,749	61.7B	3,634,658		
629	3,633,544	141	3,633,630	CLASS 165	65.1	3,633,712	130	3,633,750	62F	62F	3,633,819		
637	3,633,545	149	3,633,631	125	3,633,665	71.9	3,633,713	222	3,633,751	92LG	3,634,658		
CLASS 119	5	3,633,546	13	3,633,632	135	3,633,666	82.84	3,633,714	150.52	150.52	3,634,659		
16	3,633,547	93.2	3,633,633	147	3,633,634	170	3,633,715	356	3,633,753	151.1	3,634,660		
28	3,633,548	147	3,633,634	CLASS 122	235R	3,633,550	CLASS 123	33E	3,633,551	151.3	3,634,661		
92	3,633,549	33E	3,633,551	40	3,633,635	CLASS 141	284	3,633,636	151.31	151.31	3,634,662		
CLASS 123	48R	3,633,552	75B	3,633,553	90.17	3,633,554	90.22	3,633,555	156	3,634,663	152	3,634,667	
119B	3,633,557	139	3,633,637	CLASS 143	139	3,633,638	CLASS 144	3D	3,633,639	153	3,634,665		
139AQ	3,633,558	50E	3,633,639	CLASS 145	191R	3,633,577	CLASS 146	28R	3,633,641	156	3,634,666		
191R	3,633,577	28R	3,633,641	CLASS 147	11	3,633,560	CLASS 148	21R	3,633,561	158	3,634,668		
CLASS 124	21R	3,633,561	39J	3,633,562	190	3,633,564	343.5A	3,633,563	159	3,634,669	159	3,634,670	
CLASS 126	2R	3,633,565	2	3,633,566	2.05C	3,633,567	2.05M	3,633,568	159.5	3,634,671	160	3,634,672	
206A	41	3,633,570	44	3,633,571	66	3,633,572	79	3,633,573	161	3,634,673	162	3,634,674	
83.5	3,633,574	130	3,633,575	141R	3,633,576	145.8	3,633,577	214R	3,633,578	163	3,634,675		
214R	3,633,579	221	3,633,580	295	3,633,581	305	3,633,583	316	3,633,584	164	3,634,676		
334R	3,633,582	348	3,633,585	351	3,633,586	359	3,633,587	404	3,633,588	165	3,634,677		
CLASS 131	15	3,633,589	21B	3,633,590	7	3,633,591	48	3,633,592	64	3,633,593	166	3,634,678	
CLASS 132	48	3,633,592	64	3,633,593	119	3,633,594	CLASS 133	6	3,634,138	83	3,634,141		
CLASS 134	86B	3,634,140	580	3,634,176	CLASS 137	168	3,633,646	220	3,633,647	CLASS 161	2	3,634,177	
CLASS 160	168	3,633,646	220	3,633,647	CLASS 161	2	3,634,177	7	3,634,178	19	3,634,179		
CLASS 162	159	3,634,183	183	3,634,184	198	3,634,185	342	3,634,186	CLASS 162	60	3,633,648		
CLASS 164	60	3,633,649	65	3,633,650	76	3,633,651	267	3,633,652	274	3,633,653			
CLASS 165	26	3,633,657	39	3,633,658	69	3,633,659	70	3,633,660	89	3,633,661			
CLASS 166	94	3,633,664	105	3,633,665	185	3,633,666	CLASS 166	125	3,633,667				
CLASS 167	135	3,633,668	224	3,633,671	276	3,633,672	279	3,633,673	315	3,633,674			
CLASS 168	139	3,633,707	150	3,633,708	155	3,633,709	CLASS 168	62	3,633,710				
CLASS 169	62	3,633,711	130	3,633,712	222	3,633,713	232	3,633,714	356	3,633,715			
CLASS 170	439	3,633,755	443	3,633,756	457	3,633,757	CLASS 171	13	3,633,758				
CLASS 172	13	3,633,759	153	3,634,665	156	3,634,666	CLASS 173	152	3,633,772				
CLASS 174	152	3,633,772	229	3,633,826	284	3,633,827	412	3,633,828	428	3,633,829			
CLASS 175	428.5	3,633,824	CLASS 240	1	3,634,674	1.2	3,634,675	6.4W	3,634,676	7.1LJ	3,634,677		
CLASS 219	75	3,634,643	102	3,634,644	121EB	3,634,645	121L	3,634,646	125R	3,634,647			
CLASS 220	3.5	3,633,782	9G	3,633,783	13	3,633,784	20	3,633,785	23.2	3,633,786			
CLASS 221	167	3,633,791	267	3,633,792	311	3,633,793	CLASS 222	88	3,633,794				
CLASS 223	2	3,633,799	28	3,633,800	CLASS 224	45T	3,633,801	CLASS 225	93	3,633,803			
CLASS 226	11	3,633,804	76	3,633,805	90	3,633,806	97	3,633,807	183	3,633,808			
CLASS 227	20	3,633,810	109	3,633,811	CLASS 228	27	3,633,812	44	3,633,813	21	3,633,814		
CLASS 229	33	3,633,815	69	3,633,816	CLASS 234	35	3,633,817	CLASS 235	30A	3,633,818			
CLASS 236	46F	3,633,820	87	3,633,821	CLASS 239	17	3,633,822	94	3,633,823	135	3,633,825		
CLASS 241	18	3,633,830	61	3,633,831	70	3,633,832	101M	3,633,833	168	3,633,834			
CLASS 242	36	3,633,835	43	3,633,836	55.19A	3,633,837	55.53	3,633,838	56R	3,633,839			
CLASS 243	32	3,634,861	CLASS 244	3.27	3,633,846	12A	3,633,847	12B	3,633,848	CLASS 245	32	3,634,861	
CLASS 246	11	3,633,804	76	3,633,805	90	3,633,806	97	3,633,807	183	3,633,808	CLASS 247	11	3,633,804
CLASS 248	1	3,633,855	62	3,633,857	63	3,633,858	97	3,633,859	113	3,633,860	251	3,633,861	
CLASS 249	105	3,633,866	210	3,633,867	CLASS 250	41.9TF	3,634,683	43.5FC	3,634,684	49.5D	3,634,685		
CLASS 251	30	3,633,868	129	3,633,869	270	3,633,870	282	3,633,871	306	3,633,872	326	3,633,873	
CLASS 252	3	3,634,233	7	3,634,234	8.5M	3,634,235	8.5SR	3,634,236	26	3,634,237	32.7R	3,634,240	
CLASS 253	33	3,634,241	33	3,634,242	34.7	3,634,243	48.2	3,634,244	49.3	3,634,245	49.9	3,634,246	
CLASS 254	51.5A	3,634,247	51.5R	3,634,248	59	3,634,249	62	3,634,250	62.54	3,634,251	62.63	3,634,252	
CLASS 255	67	3,634,253	75	3,634,255	87	3,634,257	89	3,634,258	95	3,634,260	100	3,634,261	
CLASS 256	102	3,634,262	106	3,634,263	107	3,634,264	107	3,634,265	132	3,634,266	149	3,634,270	
CLASS 257	153	3,634,270	170	3,634,273	171	3,634,274	182	3,634,275	188	3,634,277	192	3,634,278	
CLASS 258	301.3R	3,634,280	301.4F	3,634,281	301.4P	3,634,282	305	3,634,283	312	3,634,284	313S	3,634,285	
CLASS 259	353	3,634,287	358	3,634,288	404	3,634,289	414	3,634,291	415	3,634,292	431N	3,634,328	
CLASS 260	431	3,634,329	441	3,634,330	455R	3,634,332	455Z	3,634,333	501	3,634,334	514	3,634,335	
CLASS 261	518	3,634,336	519	3,634,337	521	3,634,338	525	3,634,339	527	3,634,340	529	3,634,341	
CLASS 262	531	3,634,342	545	3,634,343	545	3,634,344	545	3,634,345	545	3,634,346	545	3,634,347	
CLASS 263	545	3,634,348	545	3,634,349	545	3,634,350	545	3,634,351					

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42	CLASS 325	31	3,634,786	17LC	3,634,807		3,634,882	347DD	3,634,855	161	3,633,995
65	3,634,765	72	3,634,787	21R	3,634,808		3,634,883	347NT	3,634,852		3,633,996
363	3,634,766	73	3,634,788	22B	3,634,810	173CH	3,634,834	347P	3,634,853	162SF	3,633,997
446	3,634,767	81	3,634,789	22R	3,634,809	173FF	3,634,833	373	3,634,857	171	3,633,998
	3,634,768	82B	3,634,790	47	3,634,811	174.1B	3,634,835			214	3,633,999
				64R	3,634,812	174.1C	3,634,831	CLASS 343		217	3,634,000
72	CLASS 328	7	CLASS 334	156R	3,634,813		3,634,836	5PC	3,634,887	218	3,634,001
75	3,634,741		3,634,791	176MP	3,634,814		3,634,837	5R	3,634,858	289	3,634,002
92	3,634,769			176M	3,634,814	174.1E	3,634,837	7.7	3,634,859		
115	3,634,876	78	CLASS 335	177E	3,634,815	196	3,634,838	9	3,634,860	17	CLASS 351
133	3,634,770	153	3,634,793	186M	3,634,816	228R	3,634,840	108	3,634,862	47	CLASS 352
138	3,634,771	170	3,634,794	213T	3,634,817	234	3,634,841	702	3,634,888		CLASS 353
	3,634,772	210	3,634,795	223R	3,634,818	237S	3,634,842	707	3,634,863	101	CLASS 354
		255	3,634,796	252P	3,634,819	244	3,634,843	713	3,634,864		CLASS 355
50	CLASS 329	302	3,634,797			258A	3,634,844			3	3,634,006
	3,634,773			CLASS 340	52	258D	3,634,845	1	3,634,865	56	3,634,007
4.6	CLASS 330	92	3,634,798		3,634,792	261	3,634,846	33R	3,634,866	93	3,634,008
29	3,634,774		3,634,799	60	3,634,820	274	3,634,847	74ES	3,634,867	97	3,634,009
	3,634,775	192	3,634,798	63	3,634,880		3,634,848				3,634,010
25	CLASS 331	206	3,634,800	146.1	3,634,821	279	3,634,849	CLASS 350			
94.5	3,634,776			146.3S	3,634,822	309.3	3,634,850	1	3,633,984	CLASS 356	
	3,634,777	41	3,634,801	146.3Y	3,634,823	324	3,634,851	2	3,633,985	5	3,634,011
	3,634,778	101	3,634,802	147R	3,634,824	343	3,634,852	3.5	3,633,986	71	3,634,012
107G	3,634,779	123	3,634,803	166FE	3,634,825	347AD	3,634,853		3,633,987	211	Re.27,270
108D	3,634,780	206	3,634,804	167R	3,634,826		3,634,854		3,633,988		
	3,634,781			172.5	3,634,827		3,634,855	80	3,633,989	3	CLASS 424
1	CLASS 333				3,634,828		3,634,856	91	3,633,990	14	3,634,581
22F	3,634,782	180	3,634,805		3,634,829		3,634,857	151	3,633,991	21	3,634,582
22R	3,634,783			CLASS 338	3,634,830		3,634,858	157	3,633,992	22	3,634,583
29	3,634,785	14R	3,634,806	CLASS 339	3,634,832	347DA	3,634,886	160	3,633,993	80	3,634,584
									3,633,994	89	3,634,587

CLASSIFICATION OF DESIGNS

D 5— 4	222,821		222,826	D15— 11	222,831	D33— 14	222,836	D49— 1	222,841	D61— 1	222,845
D 8—14.1	222,822		222,827		222,832	D34— 15	222,837	30	222,842	D65—	222,846
D 9— 56	222,823	190	222,828	D22— 30	222,833		222,838	D52— 1	222,844		222,847
	222,824	290	222,829	D23— 141	222,834	D40— 1	222,839	D54— 2	222,843	D87—	222,848
71	222,825	D13— 1	222,830	D29— 1	222,835	D42— 7	222,840				

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PATENTS

1	3,633,402	3,633,673	3,634,205	3,634,691	3,634,286	3,633,351
	3,633,636	3,633,677	3,634,209	3,634,708	3,634,303	3,633,395
	3,634,230	3,633,683	3,634,225	3,634,867	3,634,335	3,633,407
2	3,633,648	3,633,685	3,634,232	9	Re.27,270	3,634,356
4	3,633,249	3,633,688	3,634,241		3,633,221	3,633,418
	3,633,360	3,633,689	3,634,264		3,633,302	3,634,456
	3,633,534	3,633,717	3,634,269		3,633,322	3,633,455
	3,633,697	3,633,728	3,634,287		3,633,406	3,633,471
	3,633,816	3,633,729	3,634,348		3,633,574	3,633,503
	3,634,068	3,633,732	3,634,436		3,633,578	3,633,533
	3,634,746	3,633,733	3,634,464		3,633,648	3,633,548
6	3,633,222	3,633,736	3,634,501		3,633,693	3,633,558
	3,633,229	3,633,778	3,634,527		3,633,695	3,633,599
	3,633,236	3,633,791	3,634,534		3,633,738	3,633,611
	3,633,237	3,633,802	3,634,535		3,633,766	3,633,618
	3,633,244	3,633,807	3,634,538		3,633,779	3,633,624
	3,633,258	3,633,814	3,634,566		3,633,900	3,633,653
	3,633,263	3,633,822	3,634,596		3,633,928	3,633,653
	3,633,274	3,633,838	3,634,616		3,633,932	3,633,665
	3,633,275	3,633,877	3,634,622		3,633,975	3,633,680
	3,633,285	3,633,879	3,634,634		3,634,075	3,633,692
	3,633,286	3,633,905	3,634,656		3,634,085	3,633,708
	3,633,288	3,633,916	3,634,666		3,634,138	3,633,709
	3,633,310	3,633,918	3,634,675		3,634,139	3,633,713
	3,633,372	3,633,924	3,634,712		3,634,146	3,633,724
	3,633,384	3,633,925	3,634,712		3,634,200	3,633,739
	3,633,405	3,633,939	3,634,745		3,634,262	3,633,742
	3,633,412	3,633,940	3,634,751		3,634,275	3,633,749
	3,633,434	3,633,950	3,634,752		3,634,280	3,633,763
	3,633,435	3,633,951	3,634,756		3,634,325	3,633,786
	3,633,442	3,633,955	3,634,758		3,634,332	3,633,792
	3,633,452	3,633,969	3,634,772		3,634,368	3,633,795
	3,633,453	3,633,973	3,634,773		3,634,379	3,633,831
	3,633,456	3,633,987	3,634,776		3,634,399	3,633,856
	3,633,472	3,634,006	3,634,783		3,634,478	3,633,867
	3,633,475	3,634,025	3,634,792		3,634,494	3,633,873
	3,633,497	3,634,027	3,634,794		3,634,505	3,633,878
	3,633,506	3,634,040	3,634,803		3,634,549	3,633,895
	3,633,507	3,634,047	3,634,808		3,634,569	3,633,899
	3,633,542	3,634,063	3,634,833		3,634,623	3,633,937
	3,633,545	3,634,079	3,634,834		3,634,665	3,633,981
	3,633,553	3,634,099	3,634,835		3,634,795	3,633,997
	3,633,565	3,634,103	3,634,836		3,634,812	3,634,037
	3,633,576	3,634,132	3,634,840		3,634,828	3,634,039
	3,633,581	3,634,133	3,634,843		3,634,843	3,634,053
	3,633,583	3,634,136	3,634,855		3,634,854	3,634,127
	3,633,596	3,634,143	3,634,874		3,634,870	3,634,231
	3,633,631	3,634,154	3,634,884		3,634,888	3,634,245
	3,633,640	3,634,170	3,634,885		Re.27,269	3,634,317
	3,633,657	3,634,172	3,634,887	7	3,633,358	3,633,345
	3,633,667	3,634,189	3,634,894	8	3,633,358	3,633,348
					3,634,247	3,634,288
					3,634,342	3,634,292

3,634,305	3,634,768	3,634,116	3,634,119	3,633,815	3,633,375
3,634,314	3,634,859	3,634,122	3,634,162	3,633,824	3,633,413
3,634,318	3,634,860	3,634,165	3,634,163	3,633,842	3,633,416
3,634,373	3,634,862	3,634,211	3,634,174	3,633,850	3,633,432
3,634,469	3,634,871	3,634,212	3,634,184	3,633,852	3,633,450
3,634,473	3,634,886	3,634,217	3,634,194	3,633,863	3,633,451
3,634,475	3,634,887	3,634,246	3,634,198	3,633,880	3,633,540
3,634,483	3,633,215	3,634,254	3,634,222	3,633,909	3,633,561
3,634,513	3,633,352	3,634,272	3,634,238	3,633,913	3,633,562
3,634,515	3,633,424	3,634,290	3,634,240	3,633,942	3,633,617
3,634,529	3,633,425	3,634,294	3,634,242	3,633,947	3,633,643
3,634,581	3,633,445	3,634,297	3,634,248	3,633,994	3,633,666
3,634,604	3,633,474	3,634,347	3,634,255	3,633,995	3,633,694
3,634,607	3,633,492	3,634,365	3,634,260	3,634,060	3,633,746
3,634,613	3,633,496	3,634,369	3,634,261	3,634,077	3,633,754
3,634,633	3,633,500	3,634,385	3,634,268	3,634,084	3,633,758
3,634,642	3,633,501	3,634,419	3,634,284	3,634,087	3,633,783
3,634,678	3,633,543	3,634,440	3,634,309	3,634,088	3,633,794
3,634,680	3,633,573	3,634,455	3,634,313	3,634,089	3,633,809
3,634,701	3,633,637	3,634,460	3,634,317	3,634,104	3,633,819
3,634,732	3,633,664	3,634,479	3,634,323	3,634,109	3,633,857
3,634,741	3,633,703	3,634,485	3,634,328	3,634,111	3,633,886
3,634,813	3,633,722	3,634,504	3,634,363	3,634,112	3,633,891
3,634,818	3,633,740	3,634,526	3,634,364	3,634,120	3,633,943
3,634,842	3,633,798	3,634,536	3,634,393	3,634,134	3,633,948
3,634,844	3,633,804	3,634,560	3,634,413	3,634,150	3,633,956
3,634,878	3,633,885	3,634,639	3,634,415	3,634,171	3,633,970
3,633,225	3,633,977	3,634,697	3,634,420	3,634,173	3,634,007
3,633,333	3,633,984	Re.27,264	3,634,425	3,634,176	3,634,010
3,633,363	3,633,989	3,633,241	3,634,426	3,634,178	3,634,020
3,633,366	3,633,990	3,633,305	3,634,429	3,634,183	3,634,054
3,633,378	3,633,991	3,633,343	3,634,432	3,634,185	3,634,056
3,633,421	3,634,003	3,633,346	3,634,438	3,634,186	3,634,059
3,633,462	3,634,082	3,633,429	3,634,446	3,634,204	3,634,064
3,633,515	3,634,083	3,633,510	3,634,447	3,634,221	3,634,073
3,633,537	3,634,097	3,633,602	3,634,450	3,634,271	3,634,113
3,633,566	3,634,207	3,633,705	3,634,463	3,634,274	3,634,114
3,633,593	3,634,228	3,633,748	3,634,465	3,634,306	3,634,121
3,633,605	3,634,263	3,633,806	3,634,476	3,634,307	3,634,142
3,633,613	3,634,265	3,633,826	3,634,480	3,634,311	3,634,181
3,633,620	3,634,296	3,633,828	3,634,491	3,634,331	3,634,182
3,633,621	3,634,301	3,633,851	3,634,493	3,634,336	3,634,210
3,633,715	3,634,424	3,633,961	3,634,523	3,634,346	3,634,243
3,633,772	3,634,591	3,634,061	3,634,543	3,634,361	3,634,244
3,633,827	3,634,624	3,634,107	3,634,551	3,634,405	3,634,266
3,633,861	3,634,659	3,634,118	3,634,552	3,634,418	3,634,285
3,634,048	3,634,660	3,634,486	3,634,553	3,634,430	3,634,321
3,634,057	3,634,668	3,634,516	3,634,555	3,634,442	3,634,338
3,634,195	3,634,682	3,634,599	3,634,567	3,634,444	3,634,339
3,634,277	3,634,688	3,634,658	3,634,573	3,634,448	3,634,352
3,634,312	3,634,698	3,634,714	3,634,575	3,634,492	3,634,358
3,634,370	3,634,722	3,634,744	3,634,585	3,634,500	3,634,374
3,634,431	3,634,725	3,633,777	3,634,600	3,634,520	3,634,392
3,634,510	3,634,738	3,634,093	3,634,614	3,634,558	3,634,397
3,634,644	3,634,755	3,633,227	3,634,620	3,634,562	3,634,477
3,634,706	3,634,761	3,633,379	3,634,636	3,634,586	3,634,490
3,634,815	3,634,774	3,633,469	3,634,643	3,634,621	3,634,497
3,633,306	3,634,778	3,633,734	3,634,651	3,634,626	3,634,502
3,633,436	3,634,857	3,633,818	3,634,669	3,634,662	3,634,540
3,633,719	3,634,869	3,633,829	3,634,670	3,634,687	3,634,579
3,633,864	3,634,883	3,634,258	3,634,704	3,634,696	3,634,588
3,633,968	3,633,239	3,634,267	3,634,718	3,634,700	3,634,590
3,633,971	3,633,260	3,634,521	3,634,720	3,634,713	3,634,608
3,634,023	3,633,262	3,634,572	3,634,727	3,634,743	3,634,631
3,633,347	3,633,270	3,634,653	3,634,742	3,634,789	3,634,711
3,633,519	3,633,315	3,634,673	3,634,763	3,634,804	3,634,719
3,633,759	3,633,321	3,634,801	3,634,765	3,634,821	3,634,724
3,634,457	3,633,341	3,633,549	3,634,782	3,634,822	3,634,736
3,634,548	3,633,382	3,634,070	3,634,829	3,634,824	3,634,740
3,634,587	3,633,390	3,634,145	3,634,848	3,634,825	3,634,784
3,634,647	3,633,427	3,634,216	3,634,880	3,634,827	3,634,802
3,633,491	3,633,431	3,634,081	3,634,882	3,634,830	3,634,831
3,633,622	3,633,439	Re.27,273	3,633,304	3,634,839	3,633,338
3,633,906	3,633,440	3,633,246	3,633,408	3,634,845	3,633,371
3,634,180	3,633,454	3,633,296	3,634,226	3,634,846	3,633,404
3,634,298	3,633,489	3,633,307	3,634,731	3,634,851	3,633,414
3,634,570	3,633,505	3,633,334	Re.27,267	3,634,858	3,633,426
3,634,800	3,633,557	3,633,337	3,633,226	3,634,864	3,633,447
3,633,339	3,633,563	3,633,340	3,633,247	3,634,868	3,633,536
3,633,679	3,633,587	3,633,392	3,633,253	3,633,274	3,633,616
3,633,774	3,633,609	3,633,443	3,633,287	3,633,255	3,633,672
3,633,866	3,633,628	3,633,502	3,633,328	3,633,256	3,633,771
3,634,018	3,633,630	3,633,517	3,633,329	3,633,325	3,633,812
3,634,156	3,633,651	3,633,538	3,633,365	3,633,403	3,633,813
3,634,157	3,633,761	3,633,580	3,633,381	3,633,572	3,634,125
3,634,179	3,633,782	3,633,626	3,633,417	3,633,619	3,634,270
3,634,481	3,633,841	3,633,675	3,633,449	3,633,632	3,634,537
3,634,482	3,633,875	3,633,747	3,633,466	3,634,019	3,633,627
3,633,216	3,633,892	3,633,750	3,633,488	3,634,295	3,633,793
3,633,277	3,633,917	3,633,789	3,633,490	3,634,663	Re.27,274
3,633,290	3,633,981	3,633,881	3,633,531	Re.27,268	3,633,217
3,633,415	3,633,927	3,633,945	3,633,544	3,633,224	3,633,327
3,633,498	3,633,929	3,633,946	3,633,547	3,633,238	3,633,368
3,633,546	3,633,935	3,633,953	3,633,579	3,633,252	3,633,389
3,633,567	3,633,936	3,633,957	3,633,582	3,633,264	3,633,398
3,633,575	3,633,941	3,633,982	3,633,585	3,633,272	3,633,400
3,633,682	3,633,944	3,633,983	3,633,586	3,633,279	3,633,509
3,633,684	3,633,954	3,634,009	3,633,589	3,633,282	3,633,512
3,634,014	3,633,958	3,634,022	3,633,612	3,633,283	3,633,524
3,634,036	3,633,966	3,634,024	3,633,633	3,633,289	3,633,634
3,634,158	3,633,967	3,634,035	3,633,644	3,633,295	3,633,654
3,634,234	3,633,988	3,634,046	3,633,647	3,633,312	3,633,655
3,634,283	3,634,002	3,634,050	3,633,681	3,633,316	3,633,656
3,634,462	3,634,049	3,634,051	3,633,775	3,633,326	3,633,658
3,634,625	3,634,066	3,634,052	3,633,787	3,633,336	3,633,676
3,634,694	3,634,076	3,634,094	3,633,810	3,633,374	3,633,696

3,633,704	3,634,233	3,634,863	3,633,370	3,634,372	53 :	3,633,230
3,633,707	3,634,281	3,634,875	3,633,430	3,634,396		3,633,267
3,633,760	3,634,299	3,634,879	3,633,516	3,634,503		3,633,333
3,633,784	3,634,334	43 :	3,633,860	3,634,542		3,633,584
3,633,799	3,634,333	44 :	3,633,214	3,634,546		3,633,752
3,633,833	3,634,357		3,633,592	3,634,610		3,633,797
3,633,839	3,634,367		3,633,817	3,633,670		3,634,276
3,633,840	3,634,434		3,633,881	3,633,671	54 :	3,633,801
3,633,844	3,634,468	45 :	3,633,298	3,633,674		3,634,038
3,633,859	3,634,474		3,633,706	3,633,686		3,634,058
3,633,868	3,634,499		3,633,959	3,633,687		3,634,236
3,633,876	3,634,517		3,634,021	3,633,690		3,634,406
3,633,894	3,634,533		3,634,126	3,633,691	55 :	3,634,685
3,633,903	3,634,554		3,634,131	3,633,691		3,633,234
3,633,914	3,634,577		3,634,387	3,633,701		3,633,245
3,633,952	3,634,584	46 :	3,634,877	3,633,767	49 :	3,633,276
3,633,960	3,634,601	47 :	3,633,465	3,633,872		3,633,376
3,633,980	3,634,612		3,633,523	3,633,883		3,633,493
3,633,993	3,634,640		3,633,535	3,633,907		3,633,520
3,634,026	3,634,645		3,633,835	3,634,044		3,633,606
3,634,030	3,634,705		3,633,865	3,634,098	50 :	3,633,607
3,634,043	3,634,729		3,634,015	3,634,101		3,633,623
3,634,072	3,634,730		3,634,016	3,634,203		3,633,660
3,634,115	3,634,734		3,634,033	3,634,227	51 :	3,633,699
3,634,129	3,634,747		3,634,199	3,634,229		3,633,773
3,634,144	3,634,750		3,634,391	3,634,235		3,633,785
3,634,147	3,634,787		3,634,563	3,634,237		3,634,005
3,634,148	3,634,798		3,634,699	3,634,289		3,634,102
3,634,153	3,634,806	48 :	Re.27,271	3,634,302		3,634,259
3,634,177	3,634,814		Re.27,272	3,634,310		3,634,308
3,634,190	3,634,816		3,633,280	3,634,321		3,634,598
3,634,192	3,634,817		3,633,342	3,634,341		3,634,661
3,634,223	3,634,819		3,633,369			3,634,664
						3,634,679
						3,633,514

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

January 18, 1972

Volume 894

Number 3

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PATENT OFFICE NOTICES

Certificates of Correction for the Week of Jan. 18, 1972

3,506,602	3,578,034	3,589,303	3,596,774
3,512,733	3,578,398	3,589,401	3,597,125
3,515,748	3,578,665	3,589,512	3,598,773
3,532,162	3,579,148	3,589,530	3,598,827
3,536,173	3,579,339	3,589,672	3,599,147
3,540,388	3,580,134	3,589,997	3,599,305
3,542,731	3,580,154	3,590,278	3,600,064
3,548,642	3,581,458	3,591,094	3,600,308
3,548,643	3,582,106	3,591,432	3,600,394
3,554,439	3,582,309	3,591,509	3,600,666
3,557,142	3,582,638	3,591,921	3,600,720
3,557,184	3,582,702	3,592,396	3,600,732
3,557,609	3,582,876	3,592,664	3,601,144
3,558,066	3,583,581	3,592,670	3,601,344
3,558,864	3,583,761	3,592,850	3,601,798
3,560,346	3,585,319	3,592,931	3,601,807
3,561,380	3,585,791	3,593,105	3,602,245
3,562,044	3,585,891	3,593,688	3,602,526
3,562,192	3,585,917	3,594,170	3,602,550
3,562,208	3,586,071	3,594,335	3,602,570
3,565,760	3,586,101	3,594,357	3,602,625
3,566,125	3,586,501	3,594,741	3,602,941
3,569,802	3,587,318	3,594,896	3,602,982
3,572,736	3,587,726	3,595,047	3,603,129
3,574,811	3,588,325	3,595,183	3,603,582
3,575,219	3,588,351	3,595,386	3,603,697
3,576,242	3,588,443	3,595,408	3,603,704
3,576,800	3,588,473	3,595,673	3,605,117
3,576,841	3,588,574	3,595,761	3,605,227
3,577,402	3,588,636	3,596,107	3,605,254

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PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 28, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-13-70
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-02-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	10-13-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	10-12-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-06-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	4-28-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	6-01-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-11-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-11-71
PHYSICS, GROUP 260—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	10-19-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	10-26-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-29-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastic Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	12-01-70
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	11-06-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	12-28-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	11-02-70

Expiration of patents: The patents within the range of numbers indicated below expire during January 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 696, 79th Congress, approved August 8, 1946 (60 Stat. 946) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

Patents..... Numbers 2,606,434 to 2,700,763, inclusive
Plant Patents..... Numbers 1,339 to 1,344, inclusive

863

REISSUES

JANUARY 18, 1972

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,275

WATER CLARIFICATION PROCESS

Mahmoud T. Dajani, by Nalco Chemical Co., assignee, Chicago, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

No Drawing. Original No. 3,409,547, dated Nov. 5, 1968, Ser. No. 508,159, Nov. 16, 1965. Application for reissue Oct. 30, 1970, Ser. No. 85,832

Int. Cl. B01d 21/01

U.S. Cl. 210-54

5 Claims

1. A process for clarifying water which has solid materials suspended therein and which has at least 0.1 p.p.m. of residual chlorine comprising the steps of adding a minor amount of a condensation polymer of ammonia and ethylene dichloride which contains a plurality of basic nitrogen sites in form of quaternary groups to said water to coagulate said suspended solids, and thereafter separating said solids from said water.

27,276

APPLIANCE LATCH

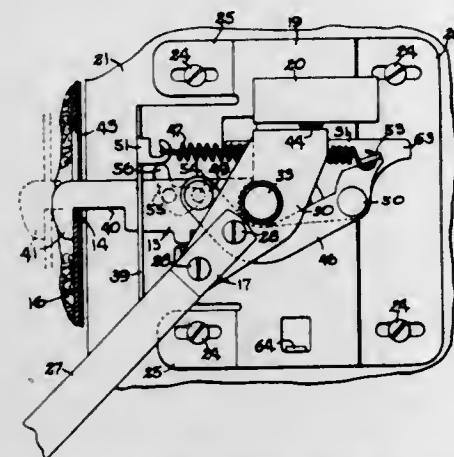
Karl H. Erickson, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.

Original No. 3,476,424, dated Nov. 4, 1969, Ser. No. 622,142, Mar. 10, 1967. Application for reissue Mar. 13, 1970, Ser. No. 19,518

Int. Cl. E05c 5/03, 19/10

U.S. Cl. 292-113

8 Claims



A latch for a self-cleaning oven and comprising a lever operable to move a bolt first along an angular path into engagement with a strike on the oven door and then inwardly along a straight path to a latched position to draw the door in tightly against the oven cabinet. The motion of the lever is transmitted to the bolt by a pivoted driving link which, with the aid of a spring, prevents the bolt from moving inwardly to its latched position unless the door is closed and the bolt actually engages the strike when the bolt is moved along the angular path.

27,277

MANUFACTURE OF HOLLOW ARTICLES

David T. N. Williamson, London, England, assignor to Molins Limited, London, England

Original No. 3,266,295, dated Aug. 16, 1966, Ser. No. 291,905, July 1, 1963. Application for reissue Apr. 7, 1970, Ser. No. 26,447

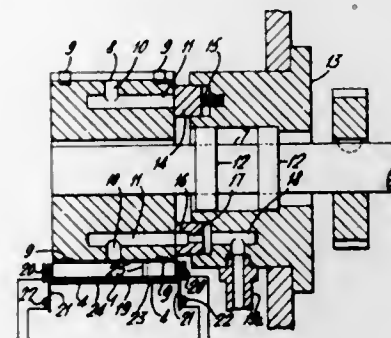
Int. Cl. G01n 15/08; G01m 3/02

U.S. Cl. 73-38

29 Claims

Apparatus for testing cigarettes, rod-like articles and in particular cigarette wrappers for leaks. The wrappers are

tested while traveling sideways on a conveyor past a rotary drum testing station. A pressure differential is created radially across the wrapper, preferably by applying suction



to a chamber around the wrapper. The arrangement is such that the presence of a leak is indicated by an increase in the air flow through the wrapper.

27,278

WATCH CALENDAR MECHANISM

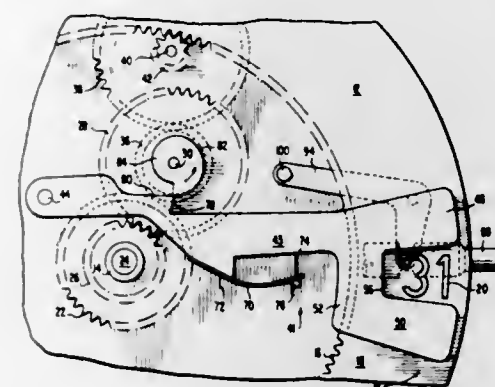
Donald W. Brasher, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Original No. 3,353,348, dated Nov. 21, 1967, Ser. No. 505,658, Oct. 29, 1965. Application for reissue Oct. 23, 1969, Ser. No. 869,977

Int. Cl. G04b 19/24

U.S. Cl. 58-58

19 Claims



The calendar timepiece has a calendar ring continuously driven from a dial train as to advance $\frac{1}{31}$ of a revolution during each 24 hour period of watch operation. A shutter mechanism is continuously driven by a cam wheel in the dial train such that the shutter continuously follows advancing indicia on the calendar ring for twenty-four hours, whereupon a cam follower portion on the spring-biased shutter mechanism moves so that the shutter snaps back to the next following date and immediately begins to follow movement of the next date on the calendar ring. A two-position stem is provided which declutches the shutter mechanism from the dial train upon longitudinal movement of the stem from one position to another so that the calendar ring can be set in either direction by rotation of the stem.

PATENTS

GRANTED JANUARY 18, 1972

GENERAL AND MECHANICAL

3,634,889

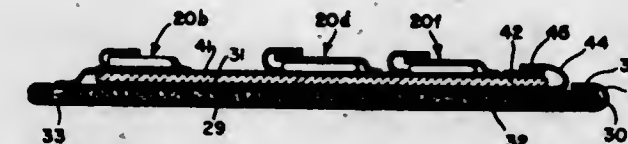
SURVIVAL ARMOR UNIT

Robert F. Rolsten, 1436 Adirondack Trail, Dayton, Ohio
Filed Dec. 29, 1969, Ser. No. 888,462

Int. Cl. F41h 1/02

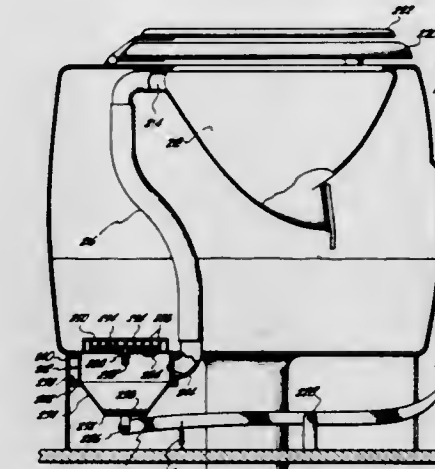
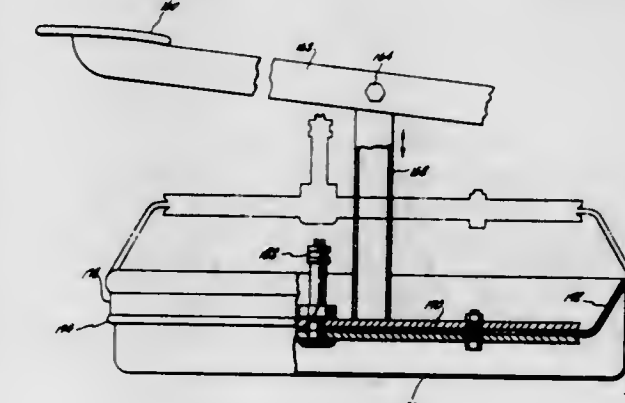
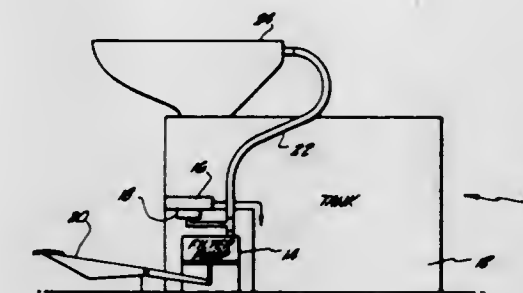
U.S. Cl. 2-2.5

3 Claims



A garment suitable for military and/or police personnel comprises a jacket member constructed of fire retardant cloth, having front and back sections joined along shoulder covering parts, and at least one open side for donning the jacket with a flap extending from the back section partly around and securable to the front section. The jacket member has a plurality of integral external compartments receiving and retaining individual items such as survival kits of food, flares, radio, etc. A ballistic fragmentation protective member, preferably a removable fragmentation protective cloth, has a cover of waterproof material such as vinyl chloride, and is positioned within a pocket formed on the jacket member to cover a major portion of the front, or the front and back of the torso of the wearer. A removable antiballistic armor unit, as of ceramic, is held in a separate pocket means on the jacket member which positions the armor unit across the front of the torso of the wearer, and a separate such unit across the back of the wearer where rear protection is needed. The pockets may include individual fasteners through which the fragmentation protective cloth and/or the armor units can be removed by the wearer when they are not needed.

flushing liquid. A linkage permits pedal or manual actuation of a diaphragm pump which, when driven, supplies the flush-



3,634,890

METAL COINS WHICH CAN BE DISTINGUISHED AND SEPARATED FROM ONE ANOTHER BY PHYSICAL METHODS RESPONDING TO MAGNETIC PROPERTIES

Hans Conradt, and Hugo Zoebe, both of Altona, Westphalia, Germany, assignors to Vereinigte Deutsche Metallwerke AG

Filed May 17, 1968, Ser. No. 729,904

Claims priority, application Germany, May 20, 1967, P 15 58 703.8

Int. Cl. B32b 15/00

U.S. Cl. 29-199

4 Claims

In order to make metal disks, especially coins, distinguishable and separable from one another and from disks consisting of other materials on the basis of their magnetic properties, they are made according to the invention of one or more nonmagnetic layers, which consist preferably of a copper-nickel alloy containing 5 to 60 percent nickel, and of one or more layers of magnetic metal, especially nickel, in special, very specific thickness ratios between the magnetic layers and the overall thickness of the metal disks in question.

ing liquid to a bowl. A portion of the flushing liquid is diverted to drive a special pump which injects a deodorizing chemical into the storage tank.

3,634,892

SWIMMING POOL WALL COPING

John K. Raines, 1600 Seabreeze Blvd., Ft. Lauderdale, Fla.
Filed Dec. 19, 1969, Ser. No. 886,673

Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172.21

12 Claims

A coping for the top of a swimming pool wall. The coping consists of successive cap segments, each having a rigid grooved outer flange and an inner resilient flange having a locking groove facing the groove of the rigid flange. The segments are snapped on spaced elongated anchor plates secured transversely on the top wall of the pool enclosure. The segments are provided with locking recesses to lockingly

3,634,891

SELF-CONTAINED RECIRCULATING SANITARY SYSTEM

James M. Kemper, Los Angeles, Calif., assignor to Monogram Industries, Inc., Los Angeles, Calif.

Filed Aug. 19, 1970, Ser. No. 65,095

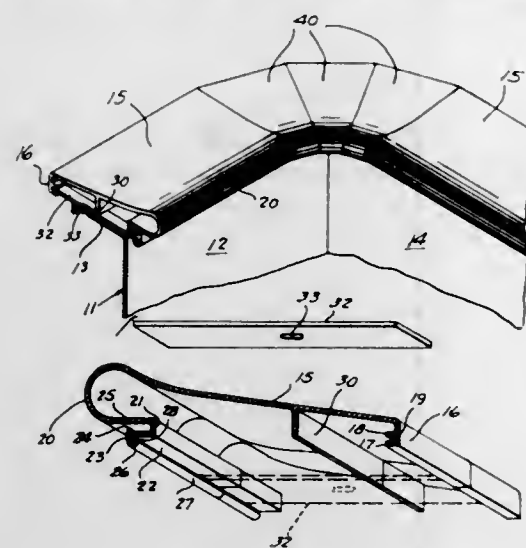
Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

11 Claims

A recirculating sanitary system is described which includes an improved filter and pump assembly to provide a source of

receive the enlarged marginal bead of a waterproof pool liner, or alternatively, the liner may be clampingly secured



between the anchor plates and the top wall of the pool enclosure.

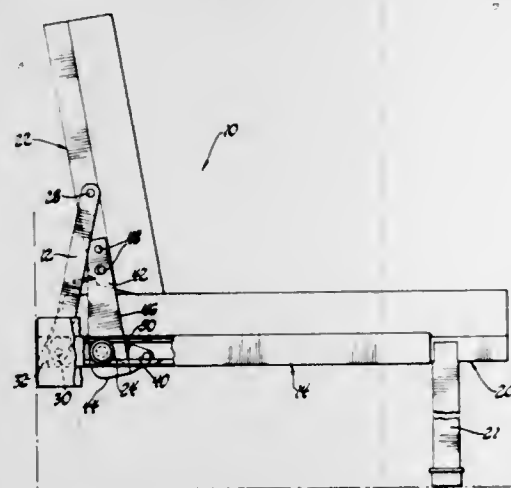
3,634,893

SOFA BED ASSEMBLY

John F. Hara, Orchard Lake; Zygmunt M. Sarietta, Detroit, and Bob D. Michalek, Redford Township, all of Mich., assignors to Lear Siegler, Inc., Detroit, Mich.
Filed Nov. 25, 1969, Ser. No. 879,719
Int. Cl. A47c 17/14, 17/22

U.S. Cl. 5-37 R

13 Claims



A sofa bed assembly including a support means, a seat frame, a back frame, and connection means supporting the frames on the support means for pivotal movement relative to one another and movement between an upright seat position and a lowered bed position. A pair of reaction plates extend from the back frame and a pair of cam members are rotatably connected to the seat frame in a pendulum manner and include lower cam surfaces which engage the top surfaces of the reaction plates upon upward pivotal movement of the seat frame when the bed position so that upon downward movement thereafter the back frame is moved to the upright seat position. Upon slight upward pivotal movement of the seat frame when in the seat position, the cams will fall under the force of gravity to a release position whereby the frames may be moved to the bed position. There is also included a latch means comprising a flange extending from the support means to coact with a slot in a rear member of the seat frame. The slot is disposed in an overlapping position above and rearwardly of the flange when the assembly is in the seat position whereby the flange may be moved

through the slot to the overlapping position as the frames are moved to the seat position to prevent movement of the frames by coaction of the flange and the rear member of the seat frame until the seat frame is pivoted upward slightly to align the slot with the flange whereby it may be moved forwardly to move the rear member forwardly of the flange.

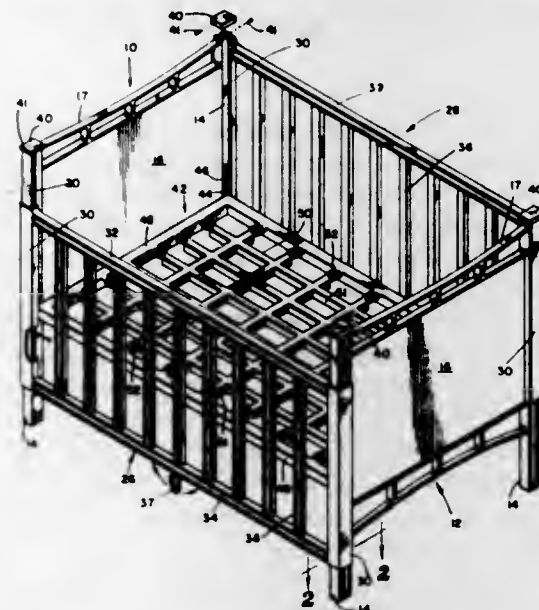
3,634,894

CRIB CONSTRUCTION

Richard L. Harrison, Crawfordville, Ind., assignor to Ingress Manufacturing Corp., Crawfordville, Ind.
Filed Dec. 12, 1969, Ser. No. 884,411
Int. Cl. E03d 11/10

U.S. Cl. 5-100

10 Claims



A child's crib having floor-supported ends interconnected by sides at least one of which is vertically adjustable. The sides and at least the major parts of the ends are unitary plastic moldings, and are formed with integral tongue and groove portions through which the ends are operatively connected to the sides. A one-piece mattress support vertically adjustable on the crib-ends is a one-piece plastic molding providing a rigid border frame, a gridlike center portion, and spaced elastic connections between the center portion and the ends and sides of the border frame.

3,634,895

JOGGING BOARD

Frank M. Childers, 314 Turgate Drive, Bethel Park Borough, Pa.
Filed Apr. 10, 1969, Ser. No. 814,921
Int. Cl. A47c 23/00

U.S. Cl. 5-345

10 Claims



A jogging board is provided of laminated construction utilizing a lower cushioned base member secured to a rigid

upper platform member. Desirably, a top nonskid layer is provided so that a jogger will not slip upon the jogging board.

Preferably, the bottom-cushioned layer is of the order of 1 to 2 inches of foam rubber, or other suitable elastomeric material, for example. The rigid platform member may, for example, be of 1/2 to 3/4-inch plywood, and the nonskid upper or top layer may be of carpeting, or other nonskid material.

The jogging board of the present invention is portable, and may be placed in an upright position behind a door, or easily stored when not in use. A particularly advantageous and convenient size has been found to be approximately 24 inches by 24 inches and of rectangular configuration.

3,634,896

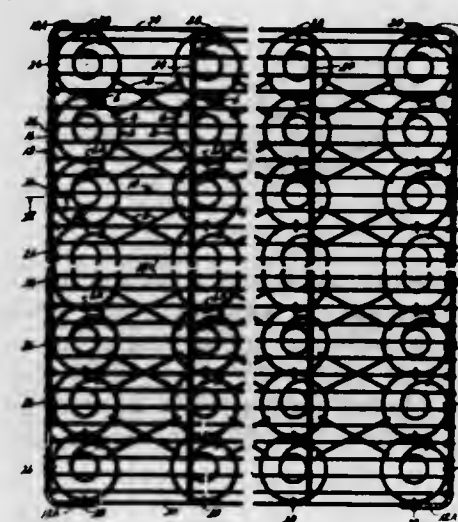
MATTRESS SPRING ASSEMBLY

Thomas W. Platt, and Robert D. MacMorran, both of Carthage, Mo., assignors to Flex-O-Lators, Inc., Carthage, Mo.

Filed Jan. 12, 1970, Ser. No. 2,278
Int. Cl. A47c 23/04

U.S. Cl. 5-354

6 Claims



A mattress spring assembly consisting of a spring base including relatively widely spaced spring members defining a generally planar load-supporting surface, and a padding insulator sheet reinforced by relatively closely spaced wires overlying said spring base, said spring base and insulator sheet being so interrelated that the latter substitutes for and performs the functions of certain elements of the former, such as the border wires and interspring ties normally forming elements of the spring base, thereby permitting a simpler, more economical overall combination.

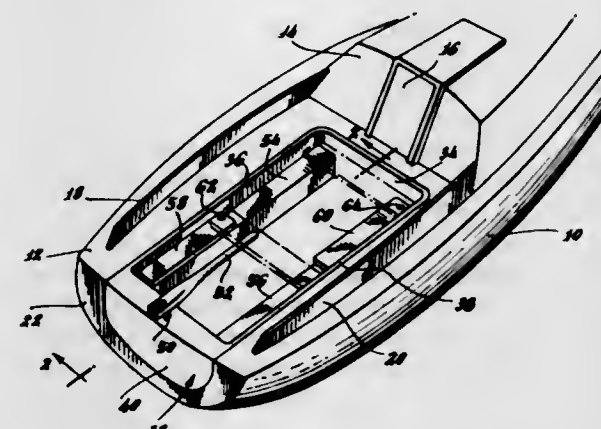
3,634,897

BOAT WITH INTEGRAL PRAM

John Cuccio, 19 Woods Grove Road, Westport, Conn.
Filed Sept. 15, 1969, Ser. No. 857,910
Int. Cl. B63b 35/00

U.S. Cl. 9-1 R

9 Claims



There is disclosed a boat wherein the cockpit is detachable and forms a pram.

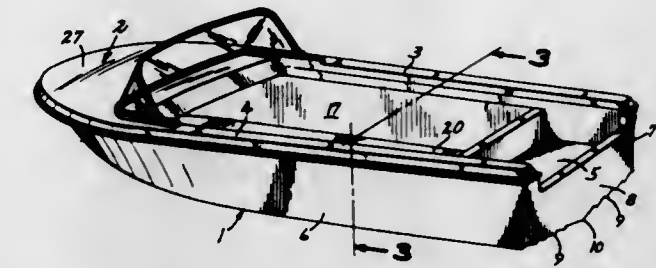
3,634,898

PLASTIC BOAT CONSTRUCTION

Earl E. Geiger, Edina, Minn., assignor to Larson Industries, Inc., Edina, Minn.
Filed Apr. 23, 1970, Ser. No. 31,265
Int. Cl. B63b 5/24

U.S. Cl. 9-6

7 Claims



Boats constructed of reinforced plastic which are self-buoyant. Fiberglass boats (e.g., runabouts) which will float in an upright position when filled with water have their hulls constructed in part at least as foamed-core sandwich panels or laminates. They are characterized by the absence of flotation chambers in the bilge area below the floor and by the presence of more foamed plastic in the laminates above the waterline than below the waterline.

3,634,899

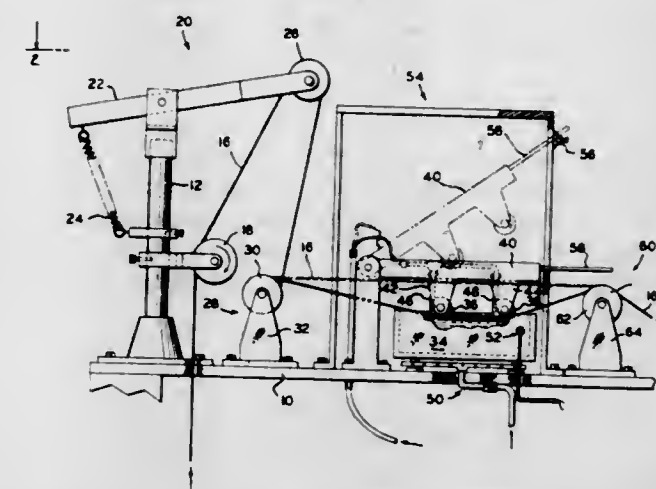
WIRE-CLEANING MACHINE

Leon E. Brennan; Frederick J. Mower; Fred A. Place, all of Towanda; David A. Shanks, Granville Summit; Neville H. Simpson, North Towanda, and William L. Zamer, Sr., Wyandoming, all of Pa., assignors to Sylvania Electric Products, Inc.

Filed Feb. 27, 1970, Ser. No. 15,010
Int. Cl. B21f 21/00

U.S. Cl. 15-4

7 Claims



An apparatus for continuously cleaning refractory metal wire is described which comprises a base, an upright standard for a wire supply, a plurality of containers, a tension control device, means for guiding wire into and out of the containers, and a means for collecting wire.

3,634,900

STREETSWEEPER CONSTRUCTION AND LIFT MECHANISM

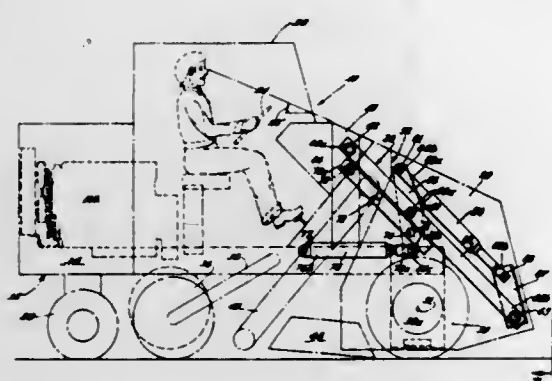
Ernest F. Prescott, and Donald R. Palmeter, both of Elgin, Ill., assignors to Elgin Sweeper Company, Elgin, Ill.
Filed Aug. 11, 1969, Ser. No. 849,017
Int. Cl. E01g 1/02

U.S. Cl. 15-84

11 Claims

Efficient and easily controlled vertical swinging movement of a refuse receptacle for a streetsweeper apparatus is made

possible by a sweeper frame construction cooperating with a pair of efficient lifting linkage mechanisms each of which comprise only five linkage elements arranged to form two interacting parallelograms that allow a first power-actuated one



of said linkage members to lift the refuse receptacle while maintaining it at a constant attitude and a second power-actuated one of said links to tilt the refuse receptacle to dump it.

3,634,901

COMBINATION SPONGE AND SCOURING DEVICE AND METHOD OF MAKING THE SAME

Fred L. Landsberg, 600 Hylan Blvd., Gramere, N.Y.
Filed Feb. 26, 1970, Ser. No. 14,438
Int. Cl. A47i 13/16, 17/08

U.S. Cl. 15-118

4 Claims



The invention comprises a flexible and resilient absorbent pad or body capable of retaining and releasing liquid from its surfaces, said body having a plurality of abrading filaments in crinkled or wave formation projecting from said surface and frictionally secured to the body as by threading through a portion of said body on at least one side. The pad on said side provides an abrading action and on the other side a wiping action. The invention further encompasses the method of securing said filaments to the pad or body by frictionally anchoring said filaments in wave formation by a sewing operation.

3,634,902

WINDSCREEN WIPER BLADES

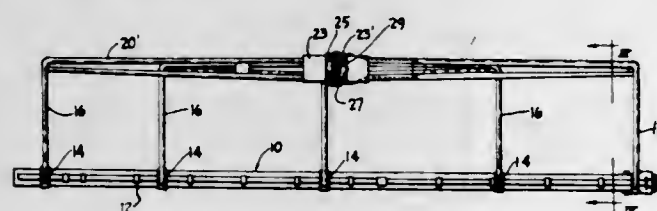
Philip G. K. Smithers, Osterley, and Peter Mower, Whitton, Twickenham, both of England, assignors to Trico-Folberth Limited, Brentford, England

Filed June 4, 1970, Ser. No. 43,454
Claims priority, application Great Britain, June 10, 1969, 29,296/69

Int. Cl. B60s 1/40; A47i 1/02

U.S. Cl. 15-250.42

5 Claims



A wiper blade assembly includes a pressure distributing superstructure consisting of articulated levers, an arm attaching

clip pivotally secured centrally of the blade to the uppermost levers and a wiping unit. The wiping unit includes an elongate flexible backing strip supporting a rubber or rubberlike wiping element. The wiping unit is offset laterally from the superstructure and inwardly toward the windshield and is secured to the superstructure by laterally extending connecting arms which also serve to distribute the applied arm pressure to longitudinally spaced points along the length of the wiper unit.

3,634,903

ROAD SWEEPER SUCTION HOOD DRAFT CONNECTION

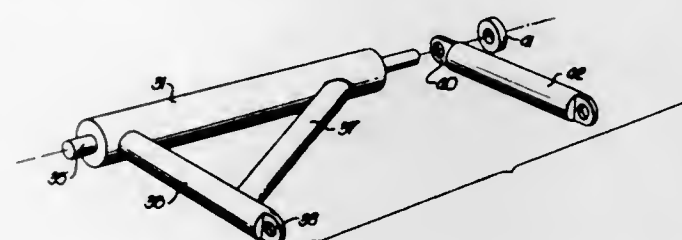
Gregory J. Larsen, Claremont, Calif., assignor to Wayne Manufacturing Company, Pomona, Calif.

Filed Nov. 13, 1969, Ser. No. 876,440

Int. Cl. E01h 1/08

U.S. Cl. 15-340

7 Claims



In a road sweeper employing a suction hood carried by caster wheels beneath the sweeper frame, the hood has a draft connection with the frame employing a suspended transverse shaft so connected to the hood structure as to maintain it in centered position while allowing the hood vertical displacements and limited lateral oscillations.

3,634,904

ROAD SWEEPER SUCTION AND DIRT CHAMBER CONNECTION

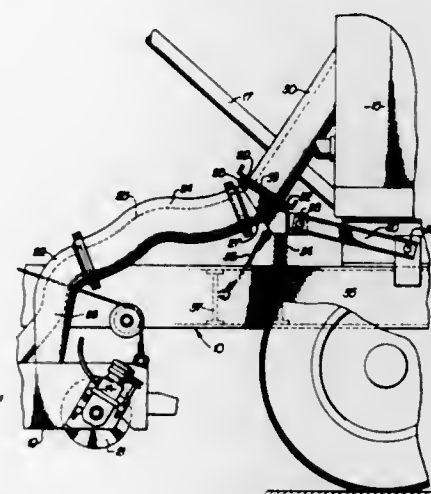
Gregory J. Larsen, Claremont, Calif., assignor to Wayne Manufacturing Company, Pomona, Calif.

Filed Nov. 20, 1969, Ser. No. 878,326

Int. Cl. E01h 1/08

U.S. Cl. 15-340

14 Claims



In a road sweeper of the type employing an open bottom suction hood exposed to the road surface and connected by jointed conduits to a debris hopper carried by the sweeper frame for tilting dumping movements in response to which the conduit joints open and close, maintenance of the joints in closed condition during sweeping is assured by spring urging of the lower movable joint sections upwardly against the upper sections while maintaining the sections in axial alignment.

3,634,905

ELECTRIC VACUUM CLEANER CONSTRUCTION

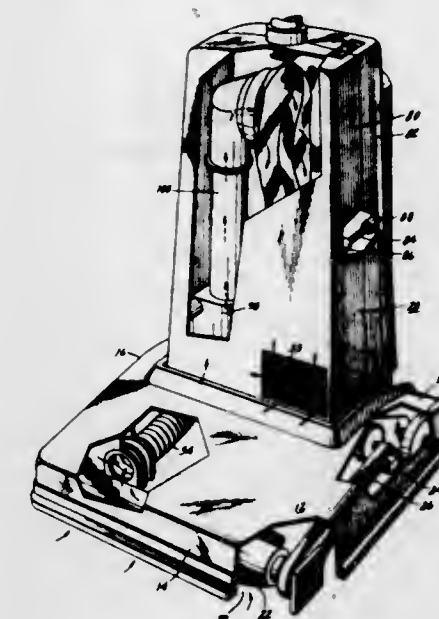
Wilton E. Boyd, Mayfield Heights, Ohio, assignor to General Electric Company

Filed Oct. 27, 1969, Ser. No. 869,707

Int. Cl. A47i 9/22

U.S. Cl. 15-350

8 Claims



An electric vacuum cleaner construction wherein an electric motor, a suction fan, and a filter bag are positioned within an upper housing and a unique arrangement is provided for pivoting the upper housing to a generally U-shaped vacuum cleaner base.

3,634,906

TYPIST'S OR DRAFTSMAN'S ERASER

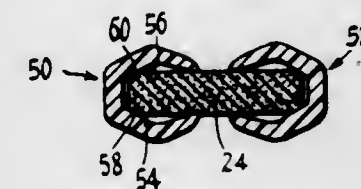
Herbert G. Lehmann, 5 Kent Road, Easton, Conn.

Filed Mar. 10, 1970, Ser. No. 18,082

Int. Cl. B43i 19/00

U.S. Cl. 15-434

1 Claim



A typist's and draftsman's eraser comprising an elongate slab of rubberlike erasing material and a semirigid holder structure therefor, the latter having channelled sections which grip the slab in such a manner as to frictionally seize the same and prevent slippage. The slab is of substantially rectangular transverse cross section, providing a thin elongate erasing surface. The holder structure provides a stiff body in which to house and grip the slab, by virtue of its oppositely disposed channel sections. Additionally, the holder structure provides a means for comfortably grasping the erasing device in the hand. As the slab end is worn in use, it can be easily and quickly advanced any number of times to maintain the desired degree of protrusion, all without disassembling the holder or releasing any clamps. Removal of an exhausted erasing slab and subsequent replacement with a new one is similarly easily accomplished. Two separate slabs may be employed in place of a single slab, in which case two functional erasing ends are provided.

3,634,907

NONVIBRATING PULL FOR DOORS, DRAWERS, AND THE LIKE

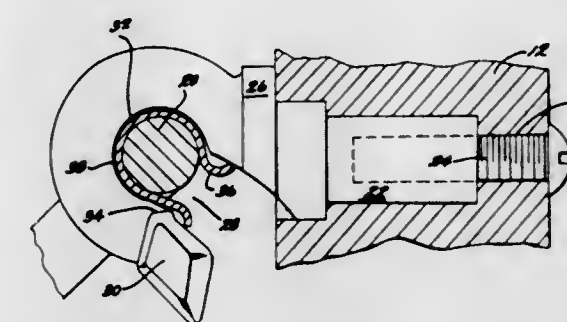
W. Doyle Watt, Jr., Grand Rapids, Mich., assignor to Keller Brass Company, Grand Rapids, Mich.

Filed Feb. 17, 1969, Ser. No. 799,860

Int. Cl. A47b 95/02

U.S. Cl. 16-123

5 Claims



This disclosure relates to nonvibrating pulls for cabinets doors and drawers, the pulls having a stud member adapted to be attached to a support, a head member on the stud, and a handle. A socket is formed in one of the head members and the handle, and a journal is formed in the other of the head member and the handle wherein the journal is positioned within the socket so that the handle is rotatable supported by the stud. A resilient lining means is positioned within the socket and at least partially surrounding the journal so as to permit rotation of the journal within the socket but to prevent rattling or vibration of the journal within the socket.

3,634,908

VENT-CUTTING TOOL

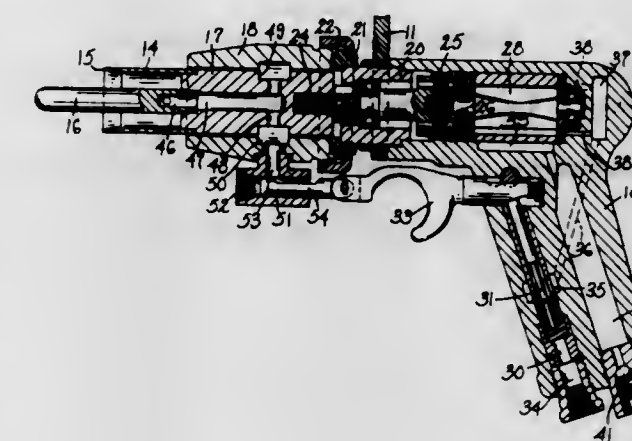
Harold F. Chamberlain, New Haven, Conn., assignor to Jarvis Corporation, Hartford, Conn.

Continuation-in-part of application Ser. No. 715,245, Mar. 22, 1968, now abandoned. This application Feb. 11, 1970, Ser. No. 18,375

Int. Cl. A22c 21/06

U.S. Cl. 17-11

8 Claims



A cutter apparatus suitable for use in processing poultry or the like, comprising a hollow cylindrical cutter having a cutting surface at one end thereof, a guide shaft having a portion thereof positioned within the confines of said cutter and another portion thereof extending beyond the cutting surface of said cutter, and means for rotating said cutter.

3,634,909

SHRIMP-PEELING MACHINE

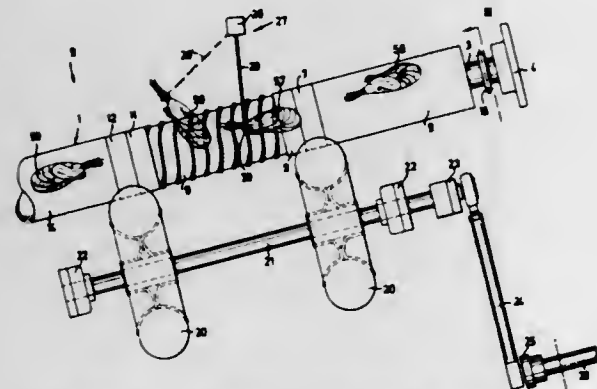
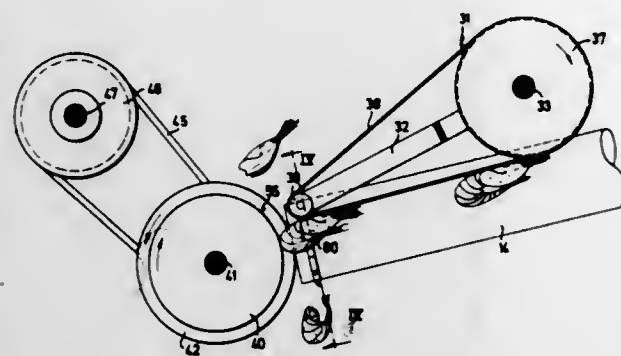
Erik Hedegaer Matthiesen, Langemosevej 26, 2880 Bag-svaerd, Denmark

Filed July 22, 1969, Ser. No. 843,705

Claims priority, application Denmark, Aug. 6, 1968, 3790/68; Feb. 19, 1969, 929/69

U.S. Cl. 17-73

32 Claims



A machine for peeling shrimps, in which shrimps are advanced in a channel formed by two counterrotating rollers. A shrimp is aligned so that its ventral side faces downwards in the channel, and while the shrimp is pressed down into the channel its dorsal shell is loosened from the meat by means of knives rotating with the rollers. After that, a longitudinal pull is exerted on the shrimp to separate its head from the edible meat. The shrimp may also be aligned in the head-to-tail direction. The aligning means may be mechanical or comprise liquid jets.

3,634,910

FASTENER FOR CLOTHING

Charlotte Keskari, Kelkheim, Taunus, Germany, assignor to L. Keskari & Co., Hamburg, Germany

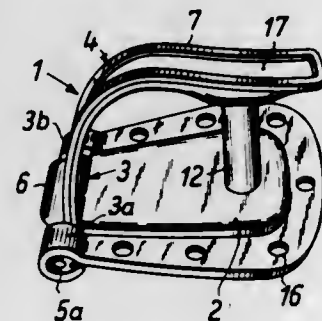
Filed May 18, 1970, Ser. No. 38,320

Claims priority, application Germany, June 3, 1969, P 19 28 317.1

Int. Cl. A44b 13/00; A43c 11/00

U.S. Cl. 24-69 SK

5 Claims



The fastener comprises a baseplate, a pin fixed on the baseplate and projecting therefrom, a spring mounted at the

baseplate and a two-armed lever pivoted at the baseplate. The lever is forced by the spring with its long arm into engagement with the pinhead. A recess and a groove are formed on the underside of the long lever arm, the recess being eccentrically arranged with respect to the pin. The pin-head engages the groove under action of the spring and snaps into the recess with additional closing pressure exerted on the long lever arm. The fastener allows a secure closure of fur coats and avoids damage of the fur.

3,634,911

CUFF LINK GUARD

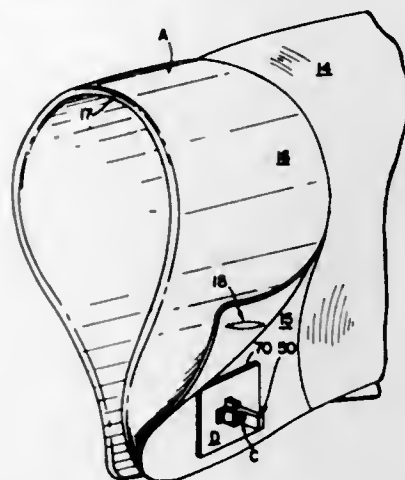
Sidney F. Mobell, 330 Bridge Road, Hillsborough, Calif.

Filed Aug. 7, 1970, Ser. No. 61,880

Int. Cl. A44b 11/18

U.S. Cl. 24-90.5

10 Claims



A semirigid plate for securing cuff links is provided with an aperture in the shape of a Greek cross. The plate is adaptable for keying the backs of conventional cuff links through the said aperture. When the plate is either pocketed in or placed between the folds of a shirt cuff and keys the cuff link's back, the securing of a cuff link is improved.

3,634,912

QUICK OPENING AND CLOSING LINE CLAMP

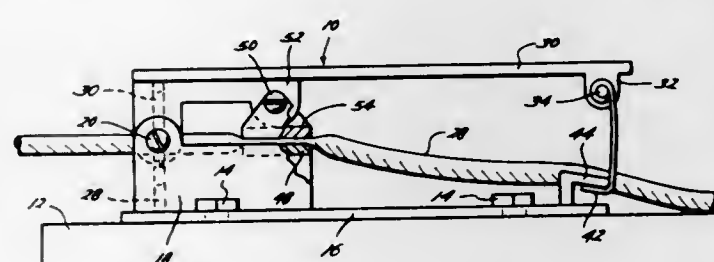
Lovick A. Peters, Jr., Box 150, Sargent Star Road, Bay City, Tex.

Filed Oct. 15, 1970, Ser. No. 81,070

Int. Cl. F16g 11/00

U.S. Cl. 24-132 WL

3 Claims



A line clamp which quickly and readily grips and releases a line, cable, rope and the like including a base arranged to be secured to a dock, boat or other object, a lever pivotally mounted on the base adjacent one end, a pair of coaxing jaws shaped to permit the line, cable or rope to be drawn between them when released and to securely grip the line, cable or rope between them when in gripping position, one jaw extending from the base toward the lever, the other jaw being pivotally secured to the lever and extending toward the base and the other jaw, and a spring latch releasably and resiliently latching the lever to the base at the other end. Guide means are provided for guiding the line, rope or cable

between the jaws. These may take the form of openings in the pivot means pivotally securing the lever to the one end and the spring latch at the other linearly aligned with the jaws to permit the line, cable or rope to extend through these openings and between the jaws. With the spring latch released and the lever extended, a line, cable or rope can be drawn through the line clamp and between the jaws and clamped where desired, by simply pressing the lever toward the base and latching the spring latch. To release the line, cable or rope, the lever is pressed toward the base, the spring latch released and the lever extended. The line, cable or rope may be withdrawn from the line clamp.

3,634,913

HINGED FLEXIBLE STRIP CLOSURE

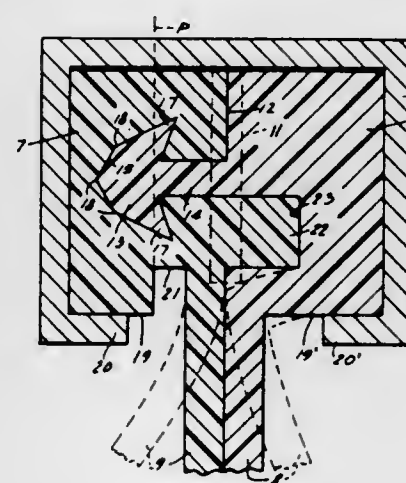
Steven Ausmit, 124 East 61st St., New York, N.Y.

Filed Apr. 1, 1970, Ser. No. 24,645

Int. Cl. A44b 19/00

U.S. Cl. 24-201

10 Claims



A hinged flexible strip closure having complementary fastener strips and wall webs connected thereto, with the strips and webs meeting along a common parting plane, and interlock hook structure extending across the plane from one of the strips into a complementary interlock recess in the other strip, a closing and separating slider being engageable with the strips and having retainer flanges engaging with shoulders adjacent to the webs, there being hinge grooves in said strips along juncture of the webs with the strips but avoiding thinning of the webs and the retainer flanges having inner edges which are so spaced from the web as to avoid interference with efficient hinging of the webs at the grooves.

3,634,914

GIRT BAR

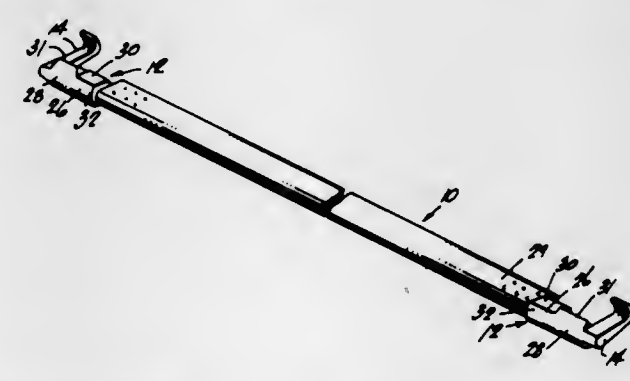
Leonard Schroedter, La Palma, Calif., assignor to McDonnell Douglas Corporation

Filed Nov. 28, 1969, Ser. No. 880,532

Int. Cl. A44b 17/00; E05d 1/06; B64c 1/22

U.S. Cl. 24-201

3 Claims



A mounting and latching device for use with an emergency evacuation slide carried by an aircraft. The device includes a

mounting bar having locking members at each end thereof and a positioning mechanism for placing the locking members in a secured position within a fitting which is secured to a door of the aircraft, or a locked position within a fitting which is secured to the floor of the aircraft.

3,634,915

ZIPPER TOOTH

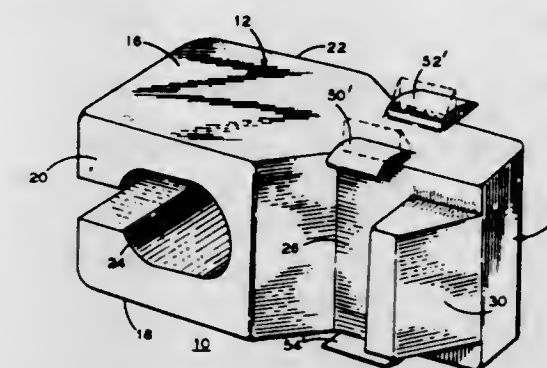
Herbert Alberts, Rua Capitao Luis Ramos, 312 Sao Paulo, Brazil

Filed Apr. 14, 1970, Ser. No. 28,410

Int. Cl. A44b 19/04

U.S. Cl. 24-205.13

4 Claims



A zipper tooth has a body portion with an opening at one end for connection to a tape to form a zipper stringer of a slide fastener. At the other end of the body portion is an engaging head. Just behind the engaging head are a pair of grooves, one on each side of the body portion. The grooves are contoured to accommodate portions of the engaging heads of other similar zipper teeth. At each end of each of the grooves are outwardly extending tapered projections. The projections are rolled over to provide endwalls for the grooves so that a cavity is formed for locking accepting portions of engaging heads of other zipper teeth.

3,634,916

CUTTING HEAD FOR PRODUCTION OF CERAMIC PARTS

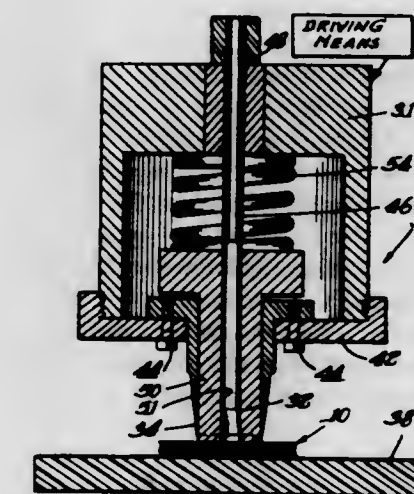
Frens C. Kinney, Edison, N.J., assignor to Gulton Industries, Metuchen, N.J.

Filed Dec. 30, 1968, Ser. No. 787,858

Int. Cl. B26d 1/26

U.S. Cl. 83/124

4 Claims



A tool for cutting soft pliable materials which have thixotropic properties like that of clay or raw ceramic materials. The tool includes a cutting member which has a cutting edge and a side which has an extremely short material-engaging side portion facing the severed surface of the body of the

material which is to form the finished article involved (as distinguished from the shavings or pieces of waste material). The short material-engaging side portion of the tool is most advantageously formed by machining the cutting edge at an angle so the side thereof referred to slopes away from the severed surface of the material being cut. Thus, an insignificant portion of the cutting edge contacts the useful severed surface of the material being cut which avoids smearing, flowing and/or deforming of the material being cut. Most advantageously a resilient support surface is provided for receiving the material to be cut and to provide a flexible contact surface for the cutting edge of the cutting tool.

3,634,917

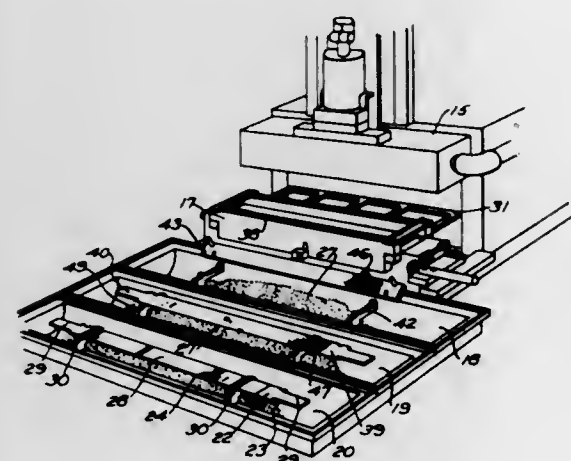
METHOD AND APPARATUS FOR MANUFACTURING RHINESTONE MESH

Morris Kortick, Cranston, R.I., assignor to Jewel Mfg. Co., Providence, R.I.

Filed May 21, 1970, Ser. No. 39,253
Int. Cl. B23p 5/00

U.S. Cl. 29-10

17 Claims



The device of the present invention utilizes a basic scoop designed to hold a plurality of rhinestone settings with the prongs in vertical position ready to receive the stones. The scoop is provided with a rectangular bank of prepared openings into which the rhinestone settings will fall right side up automatically when the scoop is passed through a reservoir of settings. The scoop and rhinestones are now positioned on a base member having a vertically movable frame. A gauze mesh is now positioned across the top of the frame and vertically lowered so that the vertical prongs on the rhinestone settings will pass through the mesh at the corner intersections. A second scoop is now passed through the reservoir of rhinestones and picks up a bank of rhinestones equivalent to the number of settings on the previous scoop. These are held in the upper part of the machine by suction in accordance with the conventional type of rhinestone-setting machines. The machine then lowers the rhinestones into the prongs and clinches the prongs over the rhinestone in a conventional manner. The mesh is imprisoned between the prongs and the rhinestone effectively locking the rhinestone, the setting, and the mesh together.

3,634,918

WEDGE LOCK FASTENER FOR CUTTING TOOLS

Oliver T. Waisanen, 1003 Hickory, Royal Oak, Mich.

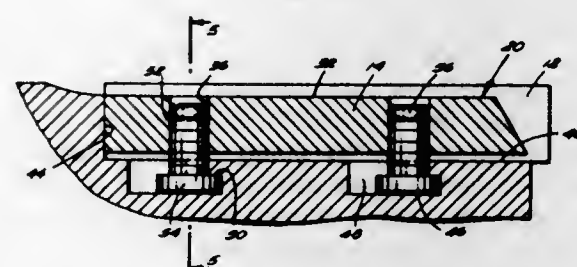
Filed Oct. 10, 1969, Ser. No. 865,413
Int. Cl. B26d 1/12

U.S. Cl. 29-105

8 Claims

Means for retaining and actuating a wedge-locking member in a cutting tool, to hold a throwaway cutting insert

blade, and which includes a T-slot under the wedge for an in-



verted fastener that has threaded engagement with the wedges and allows self-alignment of the wedge as applied.

3,634,919

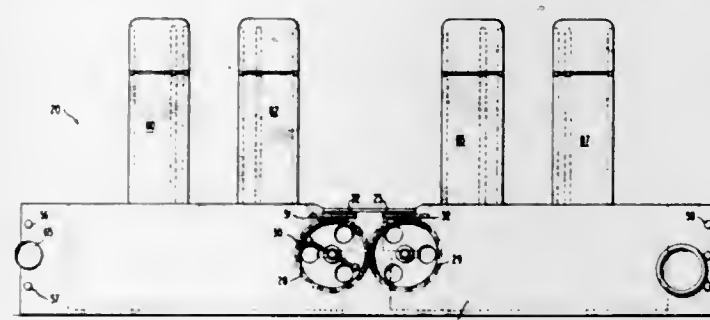
APPARATUS FOR ASSEMBLING LAMINATIONS

Berthold L. Nieder, 85 Manchester St., Concord, N.H.
Filed Nov. 7, 1969, Ser. No. 874,823

Int. Cl. H05k 13/00; B23p 19/04

U.S. Cl. 29-203 L

13 Claims



Apparatus for producing magnetic cores of predetermined dimensions by assembling laminations of selected size and configuration in a predetermined order wherein laminations to be assembled into cores are received and stored in lamination magazine means adaptable to various sizes of laminations and individual laminations are removed from the magazine means and moved into stacked relation by conveyor means preferably including a plurality of endless flexible members driven in coordinated movement for carrying lamination pushing members adjacent the lamination magazine means.

3,634,920

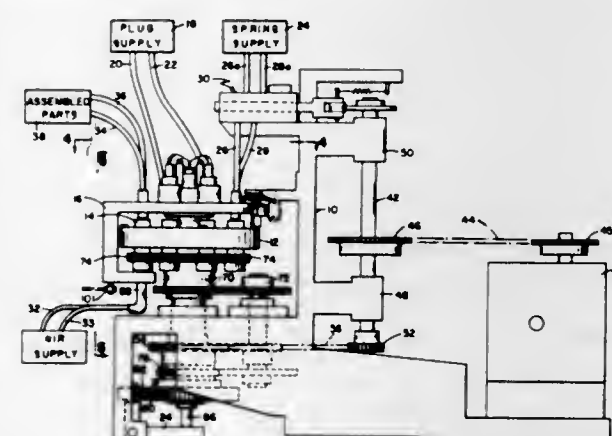
ASSEMBLY APPARATUS

Richard J. Maguire, Scituate, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Oct. 31, 1969, Ser. No. 872,839
Int. Cl. B23p 19/04; B23q 7/10

U.S. Cl. 29-208 F

11 Claims



Apparatus for assembling component pairs comprising a nest structure for receiving first and second components in

aligned relation, a rotary drive for the nest, a clamp structure for securing the first component in the nest to prevent rotation relative thereto comprising a pair of cooperating pincher elements which are pivotally mounted within a slot in the nest structure and which have finger portions to engage the component to be clamped and foot portions against which a member bears to cause rotation of the pincher elements and clamping of the first components, and an axial drive for causing movement of the second component against the first component. Also apparatus for the automatic high-rate assembly of such pairs of components which includes a turret having a plurality of such nest structures rotatably mounted thereupon, rotary drives for rotating the turret and for rotating the nests relative thereto, delivery systems for delivering first and second components in aligned relation sequentially to said nest structures, a system to remove the pair from said nest structure after assembly, a shuttle mounted adjacent the turret including the axial drive, and means for causing the shuttle to rotate such that the axial drive is aligned with a nest structure for a portion of each complete revolution of the turret and for actuating the axial drive when so aligned.

3,634,921

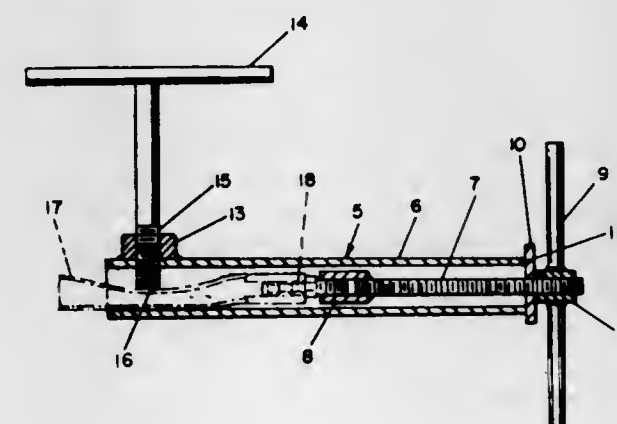
HOSE NIPPLE EXTRACTOR

Rosaire P. Gagnon, P.O. Box 515, Upper Frenchville, Maine
Filed Aug. 14, 1969, Ser. No. 850,024

Int. Cl. B23p 19/04

U.S. Cl. 29-237

3 Claims



This invention consists of a short piece of metal tubing in which is located a threaded rod that projects out one end of the metal tube through a washer to terminate in the hub of a handle that is at right-angle to the aforesaid rod. That end of the threaded rod that is in the metal tube is provided with a chuck adapted to securement to any nipple that one wishes to remove from a piece of ruptured hose having the nipple on one end thereof. A T-shaped handle, having a threaded stem, is screwed down through a hub that is suitably secured to the outside of the aforesaid metal tubing. The lower end of the aforesaid threaded stem is screwed down onto any piece of ruptured hose that is placed in the open end of this invention. The aforesaid stem firmly holds the hose while the threaded rod and its chuck pulls out the nipple from the end of the hose, as will be thoroughly understood by those experienced in the art when one examines FIG. 2 of the accompanying drawing.

3,634,922

APPARATUS AND METHOD FOR FORMING COIL FOR PLASTIC SLIDE FASTENER

John Emerson Burbank, Middlebury, Conn.; William Henry Lautenberger, Staten Island, N.Y., and Patrick John Fasciano, Jersey City, N.J., assignors to Scovill Manufacturing Company, Waterbury, Conn.

Filed Aug. 26, 1970, Ser. No. 67,066

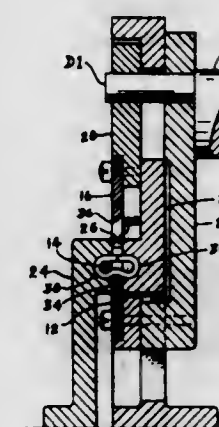
Int. Cl. B21f 45/18; B29d 5/00

U.S. Cl. 29-410

3 Claims

In a zipper coil former employing a pair of comb members

moving the coil along a mandrel, the idea is to indent the



sides of the coil by engaging them with a thickened portion of the spine of the combs.

3,634,923

METHOD OF RECLAIMING TUNGSTEN CARBIDE TOOL BITS

Charles Korpak, Union Lake, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 22, 1969, Ser. No. 852,489

Int. Cl. B23p 19/00

U.S. Cl. 29-426

2 Claims

A method of separating a used tungsten carbide tool bit from a steel tool holder wherein the bit is bonded to the holder by means of a copper-silver alloy by dissolving out the alloy in an acid-water solution consisting preferably of about 47 volume percent nitric acid at room temperature.

3,634,924

METHOD OF MAKING MULTILUMEN BALLOON CATHETER

Lawrence W. Blake, Huntington Beach; Bruce D. Bett, Dana Point, and Clement E. Lieber, Yorba Linda, all of Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Apr. 20, 1970, Ser. No. 29,889

Int. Cl. B23p 11/02

U.S. Cl. 29-447

8 Claims



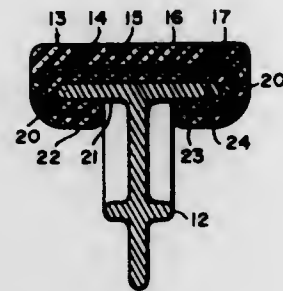
A multilumen tube is extruded from a thermoplastic material having a memory characteristic. An end portion of the tube is heated sufficiently to soften the plastic and permit the end portion to be drawn out to a reduced diameter. A pair of metal ferrules is placed on the reduced end portion in predetermined positions spaced a short distance apart. Then the reduced portion is heated in relaxed condition causing it to reexpand and lock the ferrules in place. Balloon inflation openings are formed communicating with one of the lumens. A sleeve of balloon material is secured by bindings over the ferrules. In one embodiment the tube is limp and the balloon is utilized as a sail to flow carry the catheter through a vein into and through the heart and into the pulmonary artery.

3,634,925

METHOD OF ASSEMBLING PADDED ARMREST
William R. Van Lee, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.
Filed Dec. 5, 1969, Ser. No. 882,592
Int. Cl. B23p 3/00, 25/00

U.S. Cl. 29—458

2 Claims



A resilient padded arm rest is formed on a chair arm by molding a bendable shape-retaining metal channel in the lower portion of a resilient plastic body with an integral plastic coating over the bottom of the channel and the side portions of the channel, the channel being placed over the arm and the side portions being bent inwardly to compress the plastic against the arm top and plastic on the side portions against the arm bottom for anchoring the cushion pad in place.

3,634,926

METHOD OF FORMING A COMPOSITE METAL BY ROLLING AND RECRYSTALLIZATION
Joseph Winter, New Haven, Conn., assignor to Olin Mathieson Chemical Corporation
Continuation of application Ser. No. 538,697, Mar. 30, 1966, now abandoned, Continuation-in-part of application Ser. No. 520,404, Jan. 13, 1966, now abandoned, Continuation-in-part of application Ser. No. 229,262, Oct. 2, 1962, now abandoned. This application May 19, 1969, Ser. No. 828,089
Int. Cl. B23k 31/02

U.S. Cl. 29—497.5

10 Claims



The disclosure teaches a process for obtaining composite metal articles and the article obtained thereby wherein a first metal component has a recrystallization temperature under 500° F. and a second metal component has a recrystallization temperature at least 100° F. higher than the first metal component, with the components being rolled together in direct, face-to-face contact at a speed of at least 20 feet per minute in one pass at a reduction between 40 and 90 percent, with the first component only being recrystallized, thereby forming an integrated composite article.

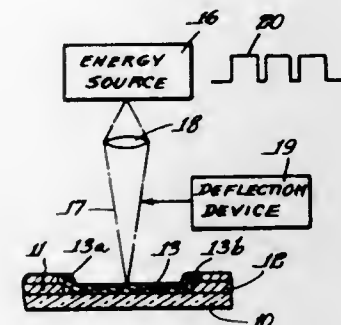
3,634,927

METHOD OF SELECTIVE WIRING OF INTEGRATED ELECTRONIC CIRCUITS AND THE ARTICLE FORMED THEREBY

Ronald G. Neale, Birmingham, and Stanford R. Ovshinsky, Bloomfield Hills, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.
Filed Nov. 29, 1968, Ser. No. 779,674
Int. Cl. B01j 17/00; H01l 7/00

U.S. Cl. 29—576

17 Claims



A method, and the article formed thereby, of selective wiring of integrated electronic circuits. A substrate is provided for receiving the plurality of electronic components. A layer of semiconductor material is applied over the substrate and electronic components, and the semiconductor material is preferably of a substantially disordered and generally amorphous type capable of selective alternate conditions between high-resistance blocking condition and a low-resistance conducting condition. Discrete continuous portions of the semiconductor material are energized to alter the material from the state of high resistance to the state of low resistance to form conductive paths within the semiconductor material to interconnect the several components on the substrate.

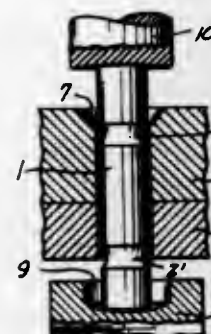
3,634,928

METHOD OF RIVET JOINING

Joseph G. Falconi, Tacoma, Wash., assignor to The Boeing Company, Seattle, Wash.
Continuation-in-part of application Ser. No. 417,661, Dec. 11, 1964, now Patent No. 3,405,594. This application Sept. 9, 1968, Ser. No. 758,220
Int. Cl. B21d 39/00; B23p 11/02

U.S. Cl. 29—509

3 Claims



The shank or preformed head of a rivet to be driven cold and having a shank which is cylindrical over the major portion of its length has a portion reduced in size adjacent to an end to be headed in driving, such as by being stepped or necked or the underside of a preformed head on such shank is grooved adjacent to such shank. The reduced portion is located at the end of a hole in which the rivet shank is inserted so that mushrooming of the rivet into engagement with the hole end is deterred and delayed to enable the portion of the rivet shank within the central portion of the hole to be shortened during setting of the rivet and to swell to press sub-

stantially uniformly against the hole wall throughout its length.

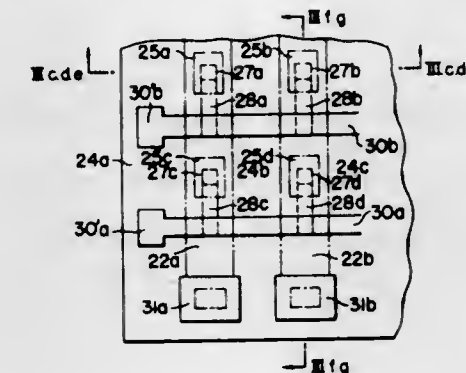
3,634,929

METHOD OF MANUFACTURING SEMICONDUCTOR INTEGRATED CIRCUITS

Kenji Yoshida, Yokohama-shi, and Osamu Ichikawa, Kawasaki-shi, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Oct. 29, 1969, Ser. No. 872,223
Claims priority, application Japan, Nov. 2, 1968, 43/79754
Int. Cl. B01j 17/00; H01l 1/16

U.S. Cl. 29—577

6 Claims



A semiconductor integrated circuit is manufactured by forming a plurality of circuit elements in a semiconductor substrate, covering the circuit elements with an insulating film except exposed portions thereof, forming a first conductive path on the insulating film, at least a portion of the first conductive path overlaying predetermined portions of the circuit elements and electrically connected therewith, applying a second insulating film on the first conductive path, forming a second conductive path to overlay the first conductive path and applying a breakdown voltage across the first and second conductive paths to breakdown the second insulating film interposed therebetween via a circuit element, thus electrically interconnecting the first and second conductive paths.

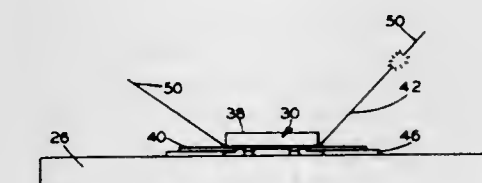
3,634,930

METHODS FOR BONDING LEADS AND TESTING BOND STRENGTH

Benjamin H. Cranston, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed June 12, 1969, Ser. No. 832,630
Int. Cl. B01j 17/00; H01l 7/00

U.S. Cl. 29—574

8 Claims



Bond strengths between bonded leads of electrical devices and conductive elements of circuit patterns are evaluated by preengaging a flexible member such as a wire or strip of metal with the electrical device prior to the making of the bond to be evaluated. The flexible member is engaged with the electrical device with a predetermined releasability so that, when the flexible member is pulled, the member releases from the device if the bonds are of satisfactory strength but the bonds rupture if they are of unsatisfactory strength and, in this instance, the flexible member remains intact. Particular utility resides in employing this system to

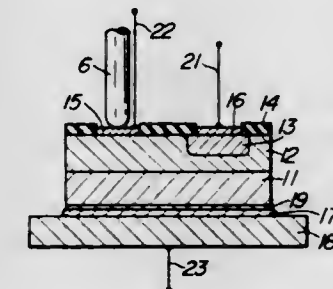
3,634,931

METHOD FOR MANUFACTURING PRESSURE SENSITIVE SEMICONDUCTOR DEVICE

Gota Kane, Kyoto; Masami Yokozawa, Osaka; Tatsuo Kawasaki; Shobei Fujiwara, and Hiromasa Hasegawa, all of Takatsuki-shi, all of Japan, assignors to Matsushita Electronics Corporation, Kadoma-shi, Osaka, Japan
Filed Dec. 9, 1969, Ser. No. 883,372
Claims priority, application Japan, Dec. 10, 1968, 43/92173
Int. Cl. B01j 17/00; H01l 7/02

U.S. Cl. 29—589

5 Claims



In a semiconductor device with a four-layer structure having the so-called thyristor characteristic, when the control electrode for controlling its breakover voltage is constructed by the Schottky barrier and a means to apply a stress to the barrier, the breakover voltage of the said semiconductor device can be controlled by the stress. If this device is assembled in a circuit system, the circuit system can be set to either the "off" or "on" state, corresponding to the applied stress.

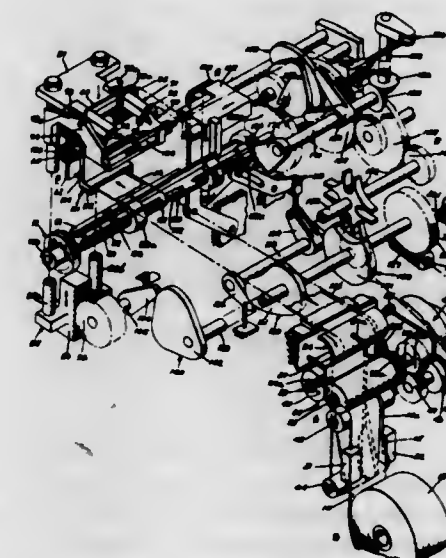
3,634,932

METHOD FOR PRODUCING INSULATION IN THE SLOTS OF MAGNETIC CORES

Lowell M. Mason, Fort Wayne, Ind., assignor to General Electric Company
Original application July 17, 1967, Ser. No. 653,983, now Patent No. 3,514,836, dated June 2, 1970. Divided and this application July 30, 1969, Ser. No. 845,996
Int. Cl. H02k 15/00

U.S. Cl. 29—596

16 Claims



A method for producing electrical insulators, for example, slot liners from an elongated continuous strip of dielectric material in the slots of a magnetic core including feeding a predetermined quantity of the dielectric strip material from a

supply station to a strip accumulator. A first portion of the predetermined quantity is urged by the accumulator into engagement with a stop in a sizing and forming station where individual pieces of dielectric strip material having different preselected sizes are formed. Strip pieces having desired configurations are then produced by placing the pieces into engagement with preselected forming tools supported generally adjacent the sizing and forming station. The individual strip pieces are then transferred into predetermined slots of the magnetic core by inserting a given forming tool with a strip piece positioned thereon into a predetermined core slot. When the insulators are slot liners, they may have laterally extending portions and an intermediate axially extending bight portion at one end thereby permitting shorter coils to be used in the magnetic core while also allowing the coils to take a gradual bend adjacent the core, next to the bight portion, which tends to prevent damage to the coils.

3,634,933

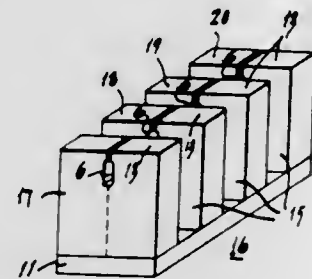
MAGNETIC HEAD METHOD

Joseph John Hanak, Trenton, N.J., assignor to RCA Corporation

Original application May 1, 1968, Ser. No. 725,811, now Patent No. 3,544,982. Divided and this application Dec. 23, 1969, Ser. No. 889,771
Int. Cl. H01f 7/06

U.S. Cl. 29—603

6 Claims



An integral multihead magnetic transducer and method of manufacturing the same which is for example suitable for use in contact or noncontact disc recording. The transducer is comprised of blocks of preferred magnetic material having desired grooved shape and surface smoothness which are united and gap-filled by stipulated nonmagnetic materials to form a loaf. In one embodiment a nonmagnetic base is affixed to the loaf from which selected portions are removed to form an integral head assembly having a series of recording heads at spaced intervals. For certain applications the nonmagnetic base may be dispensed with, in which case selected pieces of the loaf are removed at spaced intervals with the remaining portions providing the backing and structural support for the resultant series of magnetic heads. In either case a multiple transducer is provided with accurately located heads and perfectly aligned recording gaps.

3,634,934

MANUFACTURE OF COMPOSITE MATERIALS

William M. B. Fitzgerald, Toronto, Ontario, Canada, assignor to Johnson Matthey and Mallory, Ltd., Toronto, Canada
Continuation-in-part of application Ser. No. 507,173, Nov. 10, 1965, now abandoned. This application Dec. 26, 1968, Ser. No. 786,971

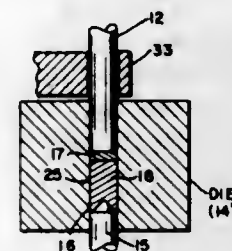
Int. Cl. H01f 9/00

U.S. Cl. 29—630 C

6 Claims

A welded composite formed by cutting and heating continuous lengths of wire and immediately transferring the

lengths to a die where the lengths are joined by pressing at high pressure and the joined lengths are then forced at least a



portion of the way out of the die where heading operations are performed.

3,634,935

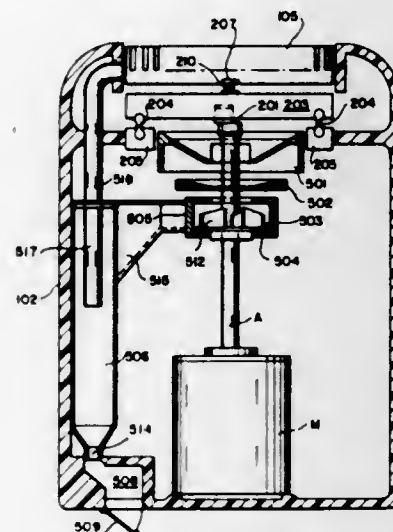
DEVICE FOR REMOVING SHAVED BEARD AND COOLING SHAVER

Giancarlo Battigalli, Milan, Italy, assignor to Mistrolettrica S.R.L., Milan, Italy

Filed Mar. 7, 1969, Ser. No. 805,171
Claims priority, application Italy, Mar. 8, 1968, 13697 A/68
Int. Cl. B26b 19/44

U.S. Cl. 30—41.5

16 Claims



A suction device for collecting and removing shaved beard and for cooling the shaving elements of an electric shaver, comprising in combination a trough for cut hair under the shaving elements, a hair suction fan, a diffuser, a centrifugal separator for said cut hair, a hair collecting chamber provided with a discharge door, and an ejection duct extending from the separator and terminating at a point adjacent to the shaving elements for directing air driven into the separator by the suction fan to the shaving elements to cool the elements and the skin of a person using the shaver.

3,634,936

SHAVING UNIT FOR ELECTRIC SHAVER

Giancarlo Battigalli, Milan, Italy, assignor to Mistrolettrica S. R. L., Milan, Italy

Filed Mar. 7, 1969, Ser. No. 805,170
Claims priority, application Italy, Mar. 8, 1968, 13693
Int. Cl. B26b 19/02

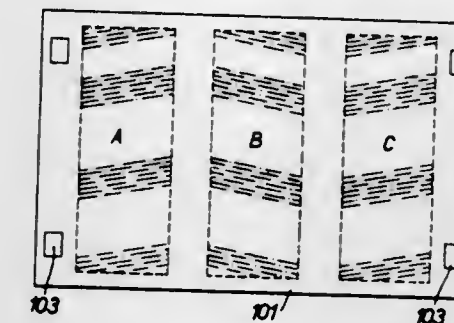
U.S. Cl. 30—43.92

16 Claims

A shaving unit for electric shaver comprising a comb provided with a plurality of perforations of rectangular shape, said perforations being spaced from one another and being arranged along sloping parallel rows forming an angle of about 10° with the longitudinal axis of the comb, the perforations of two adjacent rows being staggered between each

other, and the comb having the form of a continuous curve consisting of three waves, and three shaving elements of

work area, and including a light source for the fiber optics incorporated into the dental handpiece. The air and water



semitubular shape for engaging the comb at the waves to cut hair received in the perforations of the comb.

3,634,937

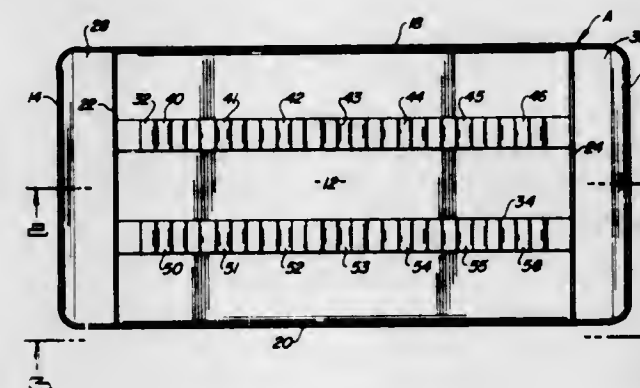
APPARATUS AND METHOD FOR DENTAL OPERATIONS

Edward J. Green, 11900 Shaker Blvd., Shaker Heights, Ohio
Filed May 22, 1970, Ser. No. 39,632

Int. Cl. A61c 19/00

U.S. Cl. 32—1

13 Claims



An apparatus and method for performing dental operations includes provided, kit defined by a sterilizable metal tool tray, an accessory tray for holding accessories to be used in performing a predetermined dental operation and a set of tools for use in performing the predetermined dental operation. Each tool in the set and each tray is provided with a common color identification symbol. A plurality of such kits may be provided with each kit containing tools and accessories for performing a different dental operation. Each kit then has a different color identification. An untrained assistant can readily locate and position the proper kit for performing a particular dental operation by means of the common color identification. Tools are easily returned to a proper tray after washing and sterilization by means of the common color identification.

3,634,938

DENTAL HANDPIECE

Seymour M. Hutchinson, 7 Jody Lane, Plainview, N.Y., assignor to Seymour M. Hutchinson, Plainview; Adrian N. Spitz, Massapequa and I. Jordan Kamin, New York, N.Y., part interest to each

Filed Aug. 19, 1970, Ser. No. 65,031

Int. Cl. A61c 19/02

U.S. Cl. 32—27

17 Claims

A dental handpiece having an air turbine drive for the drill bit and a water jet stream for cooling the operating area, including fiber optics means for directing light upon the dental



systems are utilized to absorb heat generated in the handpiece by the light source.

3,634,939

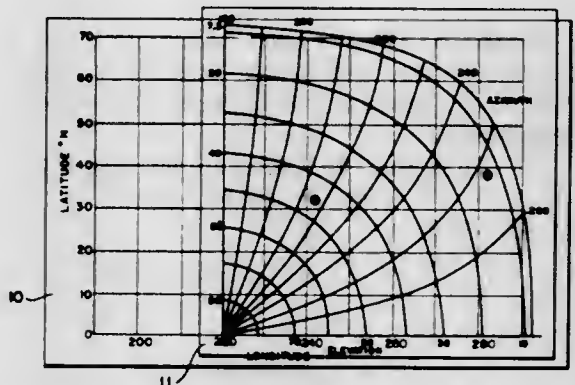
SIGHTING ANGLE CALCULATOR

Herman Soren, 5749 Dolphin Pl., La Jolla, Calif.
Filed July 23, 1970, Ser. No. 57,609

Int. Cl. G01c 21/00

U.S. Cl. 33—1 SC

9 Claims



The spatial disposition of an object in orbit at a known height above the earth's surface is determined in terms of elevational and azimuthal angles relative to a known position on the earth's surface. A scalar representation of longitudinal versus latitudinal positions on the earth's surface relative to a great circle above which said object will be located is employed together with an overlay of a transparent graphical representation defining a plurality of first continuously linear loci each of the first loci representing the positions relative to said scalar representation and the disposition of said object above the great circle from which the object will have the same elevational angle. A plurality of second continuously linear loci is included on the transparent representation each of the second loci representing the position relative to the scalar representation and the disposition of the object above the great circle from which the object will have the same azimuthal angle.

3,634,940

SIGHTING DEVICE, IN PARTICULAR A SIGHTING TELESCOPE

Karl Vockenhuber, Petzelsiedlerstrasse 118, Vienna 18, Austria

Filed Sept. 18, 1969, Ser. No. 859,086

Claims priority, application Austria, Sept. 25, 1968, A 9370/68

Int. Cl. F41g 3/08

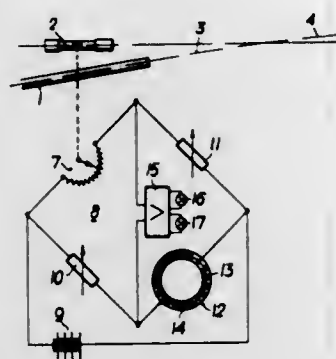
U.S. Cl. 33—49 B

25 Claims

A sighting device is adapted for use with firearms and defining a sighting line, an axis of bore of the firearm and the sighting line forming an acute angle. Means adapted to vary said angle, electric means responsive to the value of the angle and defining a variable output in dependence on the value of said angle are provided. Electric control means define a second variable output in dependence on at least one value causing deviations of the point of impact from the target.

Computing means receive the two outputs and generate electric output signals upon divergences between the actual value

and including outermost graduations representing the ratio 1:1, and a series of ratios of reduction including an outermost graduation also representing the ratio 1:1. In order to enlarge, for example, a selected distance at a selected ratio, the



of the angle and the nominal value of the angle with respect to the at least one value causing a deviation and control means receiving said signals.

3,634,941

TARGET SYSTEM FOR LAYING SEWER PIPES

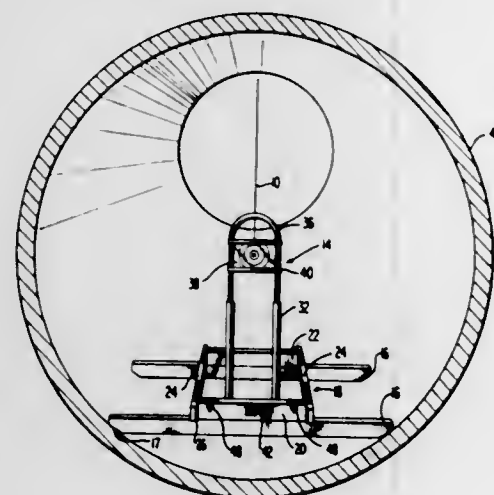
Roger J. Roodvoets, and James Stapert, Jr., both of Grand Rapids, Mich., assignors to Alignment Systems, Inc., Grand Rapids, Mich.

Filed Mar. 5, 1969, Ser. No. 804,487

Int. Cl. G01c 15/06

U.S. Cl. 33—74 D

3 Claims



This disclosure relates to an adjustable target for use in aligning pipes with a laser beam or other similar collimated light beam which is projected axially with the pipe. The target has a base member, a level carried by the base member, an upright target carried by and vertically adjusted relative to the base. Extension means for the base member are also disclosed for extending the base laterally to permit the target to be employed in larger pipes.

3,634,942

PROPORTION SCALER

Raymond Nicypor, Birch Hill, Weston, Conn.

Filed Mar. 20, 1969, Ser. No. 809,490

Int. Cl. B43i 9/08

U.S. Cl. 33—150

11 Claims

Two pivotally connected arms of a proportion scaler have on opposite sides reduction scales and enlargement scales with graduations and indicia representing a series of ratios of enlargement decreasing toward the outer ends of the arms

graduations whose indicia indicate the selected ratio, are spaced a selected distance by turning the arms relative to each other, and the outermost graduations are then separated by a distance which is greater than the selected distance in proportion with the selected ratio of enlargement.

3,634,943

MICROMETER SPINDLE LOCKING DEVICE

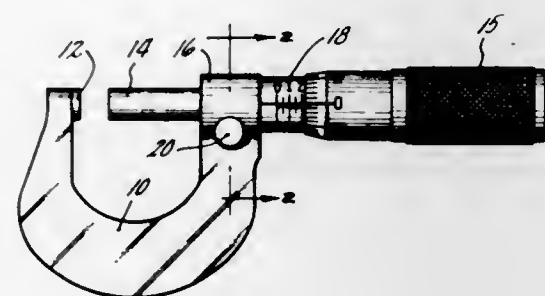
Anthony D. Parone, West Hartford, Conn., assignor to Pratt & Whitney Inc., Hartford, Conn.

Filed Dec. 2, 1969, Ser. No. 881,478

Int. Cl. G01b 5/00

U.S. Cl. 33—164 R

1 Claim



The spindle of a micrometer caliper is locked in place relative to the micrometer frame by a simple, linear motion operated locking slide. The slide has a cam surface which directly engages the spindle, thus restraining it from both linear and rotative motion.

3,634,944

DRYING OF STICKY THERMOSENSITIVE HYDROUS GELS

Meyer Louis Zonis, Livingston; Girish Chandulal Shah, Wayne, both of N.J.; Kenneth Worden Saunders, Darien, and Michael Niall Desmond O'Connor, Norwalk, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed June 1, 1970, Ser. No. 41,807

Int. Cl. F26b 7/00

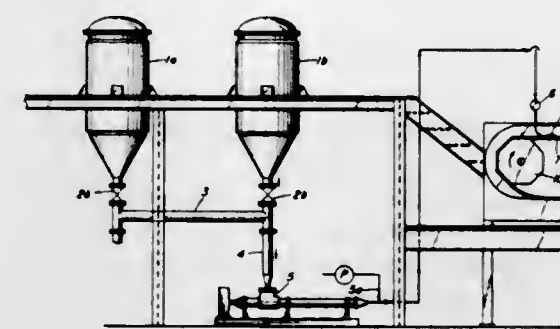
U.S. Cl. 34—12

12 Claims

A sticky water-soluble high-viscosity polyacrylamide hydrous gel is dried without significant decrease to its water-

solubility by extruding the gel as paralleled cords upon a fast-travelling belt having a nonadherent surface and heating the cords with high-temperature gas until the surface of the cords

sensing device, producing a first signal when the device is aligned in a reference direction, and producing a second signal when the sensing device is aligned in a predetermined



is nontacky, and then discharging the cords upon a slowly travelling belt and completing the drying with low-temperature gas.

3,634,945

AIRCRAFT ARTIFICIAL HORIZON

Werner Hantusch, Überlingen (Bodensee), and Bernhard Strittmatter, Nussdorf (Bodensee), both of Germany, assignors to Fluggeratewerk Bodensee GmbH, Überlingen (Bodensee), Germany

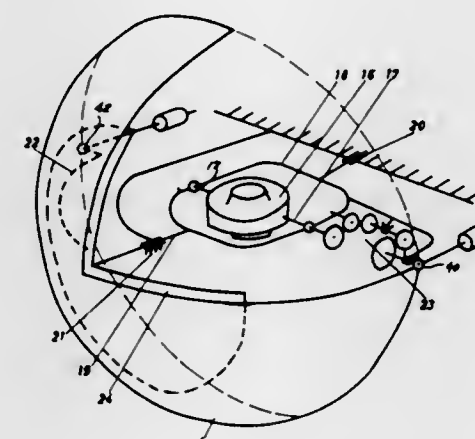
Filed May 20, 1969, Ser. No. 826,213

Claims priority, application Germany, June 8, 1968, P 17 73 590.9

Int. Cl. G01c 19/44

U.S. Cl. 33—204

3 Claims



An artificial horizon instrument for an aircraft is described which indicates horizon movements as they would naturally appear to the pilot. The instrument includes a particular support arrangement for the roll ring and pitch ring that permits movements through relatively large angles.

3,634,946

DIGITAL COMPASS

Joseph Star, Roslyn Heights, N.Y., assignor to Lundy Electronics & Systems, Inc., Glen Head, N.Y.

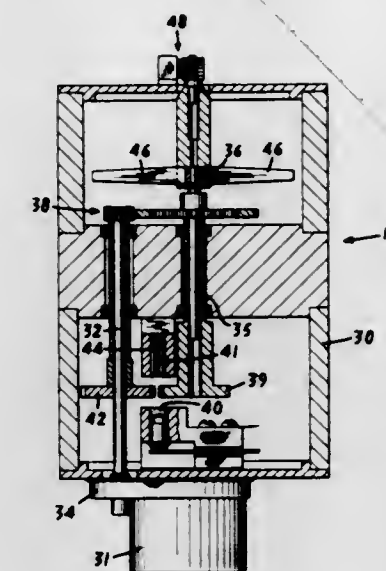
Filed Feb. 10, 1969, Ser. No. 797,843

Int. Cl. G01c 17/30, 17/38

U.S. Cl. 33—224

17 Claims

A digital compass system is provided by continuously and repetitively scanning a magnetic field with a field direction-



manner with the total magnetic field at the point of exposure. Spatially related pulses occurring between the two signals are counted to provide a digital output representative of heading.

ERRATUM

For Class 34—12 see:
Patent No. 3,634,944

3,634,947

COATING APPARATUS

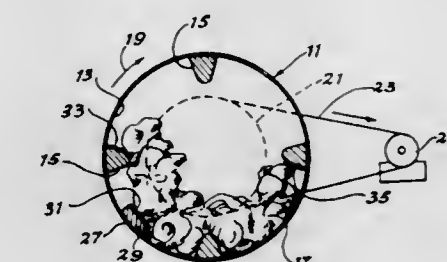
Henry P. Furgal, Bernardsville, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Oct. 20, 1970, Ser. No. 82,314

Int. Cl. E01b 29/04

U.S. Cl. 34—60

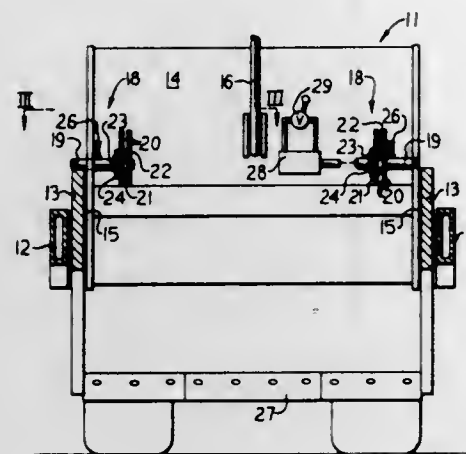
5 Claims



An apparatus for conditioning fibrous materials includes a rotatable drum in which the fibrous material may be tumbled, as in an automatic laundry dryer, and held, to the interior wall of the drum, so as to be in form-retaining relationship therewith, a base which has on an exterior surface thereof a conditioning agent for the fibrous materials. On contact with the tumbling fibrous materials, the conditioning agent is removed from the base and is deposited on the materials in sufficient quantity to condition them. Usually, the conditioning agent is a fabric softener and/or antistatic agent of the synthetic organic surface active type, the base is a thin flexible sheet or strip of material, such as paper or suitable plastic, the conditioning takes place in an automatic laundry dryer and the base is held to the dryer interior wall by an adhesive, such as a pressure sensitive adhesive.

retracted position during scraper operation. The apron may be raised and the member extended over a sidewall of the

drycleaning industry, a porous spacer plate is provided for insertion between the block of the press and the rubber pad,



scraper bowl to positively maintain the apron in such raised position.

3,634,956

LAUNDRY, DRYING AND IRONING METHOD

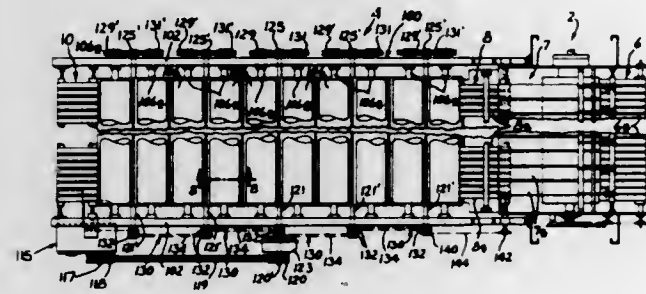
Sheldon P. Behn, Highland Park, Ill., assignor to Super Laundry Machinery Company, Inc., Chicago, Ill.

Filed Apr. 13, 1970, Ser. No. 27,855

Int. Cl. D06f 61/00, 63/00, 65/00, 69/00

U.S. Cl. 38-1 R

2 Claims



A drum-type ironer unit normally operative to iron laundry at a given speed of movement of the laundry therethrough is combined most advantageously with a chest-type ironer unit normally operative to iron laundry at a much higher speed. The two ironer units are mounted in tandem so the laundry discharged by the drum-type ironer unit is automatically fed to the inlet of the chest-type ironer unit. Both ironer units are operated at the much higher linear speed for which the chest-type ironer unit is designed to operate. The laundry normally fed to the drum-type ironer unit in a dried condition is fed thereto in an undried condition.

3,634,957

METAL SPACE PLATE ESPECIALLY FOR DRYCLEANING PRESSES

Harold O. Zeidler, 10 Brevoort Lane, Rye, N.Y.

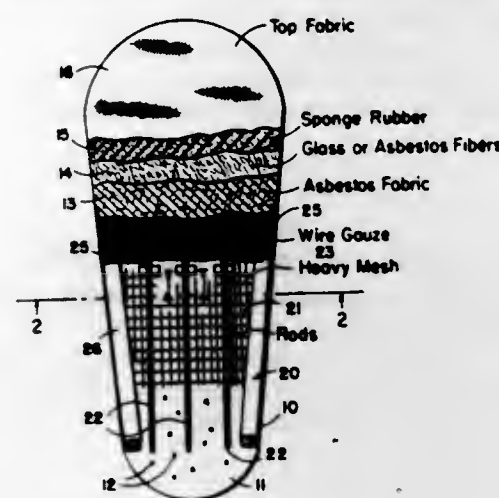
Filed Feb. 16, 1970, Ser. No. 11,519

Int. Cl. D06f 71/36

U.S. Cl. 38-66

6 Claims

In order to prevent deterioration of the rubber pads of the steam presses of the type which are especially useful in the



the spacer plate being constructed so as to be undistorted by the pressures transmitted through the rubber pad.

3,634,958

MULTIPLE MENU SELECTOR

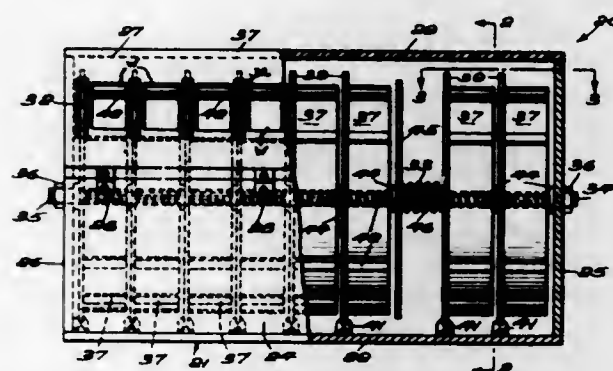
Ronald G. Drown, Sheraton-Daytona, Apt. 237, Box 3235, Daytona, Fla.

Filed June 25, 1969, Ser. No. 836,319

Int. Cl. G09f 11/02

U.S. Cl. 40-68

4 Claims



An apparatus for displaying menu indicia cards, containing segments of a meal, in aligned relation so that the relationship of courses and prices may be easily determined. A plurality of drums are mounted for rotation on a single shaft with each of the drums being releasably restrained in adjusted position. The drums may be moved axially on the shaft to permit the changing of menu indicia bearing cards secured to the surface of the drums. A modified form of the invention utilizes a plurality of superposed discs arranged so that an element on one disc maintains the indicia-bearing cards in their holders on the face of the superposed disc. The discs are releasably secured in adjusted position so that an aligned group of menu segments may be provided. Another modified form of the invention utilizes a plurality of sliding bars having a mechanism for securing the bars in an adjusted position with an aligned arrangement of meal segments visible.

3,634,959

MOTION DISPLAY UTILIZING MOIRE PATTERNS

Gordon W. Goodrich, Grand Rapids, Mich., assignor to Lear Siegler, Inc.

Filed Nov. 17, 1969, Ser. No. 877,385

Int. Cl. G09f 13/36

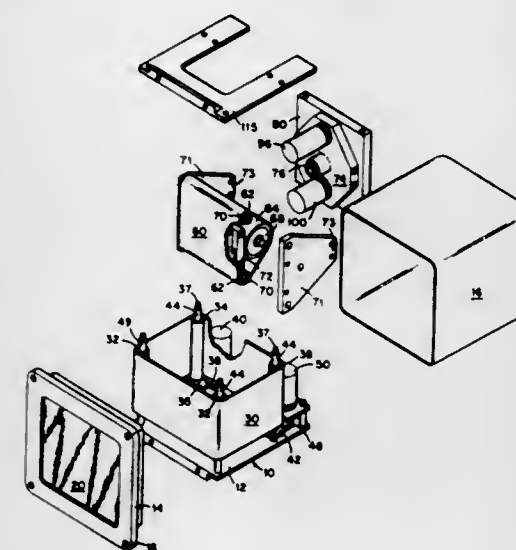
U.S. Cl. 40-106.53

11 Claims

A motion indicator utilizing light interference patterns developed by two overlapping, movable transparent endless belts each having a pattern thereon. One belt is entirely

mounted within the other for angular as well as translational movement with respect to the other belt, a driven rotation plate mounting the inner belt. The angular rotation of the two belts alters the size and spacing of the resulting interference moire squares, creating the illusion of an approach to

deformable rubber in the shape of a unitary triangular block having an open rectangular bottom, parallel triangular sidewalls and oppositely inclined end walls; all the walls being of substantially the same thickness and integrally joined together to provide a hollow triangular block that is deformable on impact. Provided on each end face of the hollow triangular block are like numbers formed on the end



or a retreat from the surface "marked" by the interference squares.

To accurately control the translational angular movement of the belts, a conventional feedback system utilizing followup potentiometers is included with all three of the drive motors. The potentiometer and the motor controlling the inner belt are mounted on a single shaft.

3,634,960

ADVERTISING SIGN

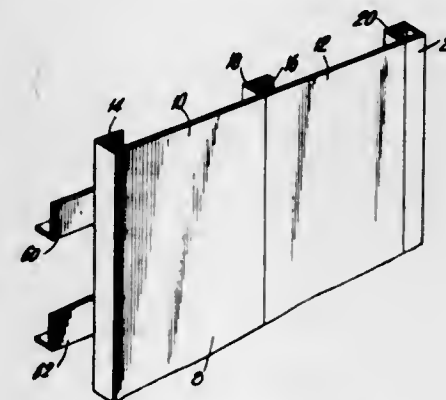
Tex Don Carlos, 518 S. Willow, Nowata, Okla.

Filed Mar. 20, 1970, Ser. No. 21,291

Int. Cl. G09f 7/00

U.S. Cl. 40-125 K

7 Claims



An advertising sign comprising a plurality of substantially identical interlocking panels hooked on a plurality of horizontal angle iron supports. Each panel has a U-shaped end and an L-shaped end which mate with each other. One end of each panel has a plurality of tabs and the other end thereof has slots whereby one edge of a slot rests on a tab of an adjacent panel and the tabs in turn are hooked on the horizontal angle iron thereby to support said panels on the horizontal angle iron in interlocking relationship.

3,634,961

YARD LINE MARKER FOR FOOTBALL FIELD

George Nawalaniec, 1733 Walnut Drive, Woodstock, Ill.

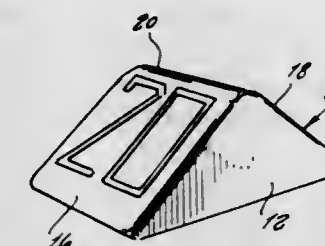
Filed Mar. 2, 1970, Ser. No. 15,359

Int. Cl. G09f 7/18

U.S. Cl. 40-125 J

3 Claims

A yard line marker for placement on the ground surface at the yard lines of a football field, the marker being formed of



faces of the block in any desired manner, each number being clearly visible in the direction in which it faces when the marker is positioned on the yard line it is to designate. As designed the marker is symmetrical both along its medial vertical longitudinal and transverse planes and may also include an anchoring unit to which it may be readily attached and separated.

3,634,962

INTEGRAL INTERLOCKING WEATHER STRIPPING FOR DOORS, DOORJAMBS AND THRESHOLDS

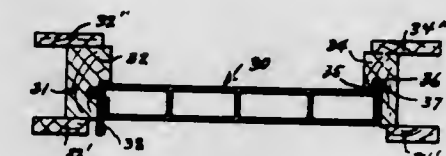
Martin E. Peterson, Adams Road, F.R.D., Haydenville, Mass.

Filed July 3, 1969, Ser. No. 838,898

Int. Cl. E06b 7/16

U.S. Cl. 49-383

1 Claim



An integral interlocking weather stripping for doors, doorjams and thresholds is provided for an assembly which can be made and fitted at a factory and ready for complete installation within a building wall without need of later effecting weather stripping. There is no frictional engagement of the integral weather stripping flanges within the assemblage to cause wear or dislocation of the weather stripping. The weather stripping has outwardly projecting flanges of less thickness than the width of grooves in cooperating frame members which receive them. For weather stripping a threshold, a reversible extruded member with two weather-stripping flanges is mounted in a large groove at the bottom of the door to provide a further weather-stripping flange when one flange has become worn.

3,634,963

FIREARM LOCK

Robert Hermann, P.O. Box 114, Stronghurst, Ill.

Filed Nov. 4, 1970, Ser. No. 86,909

Int. Cl. E05b 73/00; F41c 11/02

U.S. Cl. 42-1 N

2 Claims



A locking mechanism for placement into the ejection port of a gun. The device when placed into the port of the gun is

key-operated to prevent the removal of the device and will not allow the gun to be fired until it is removed therefrom.

The device is also of such structure so that it cannot be forced out of the port. The core of the mechanism is also removable by the owner in order to provide quick key changes.

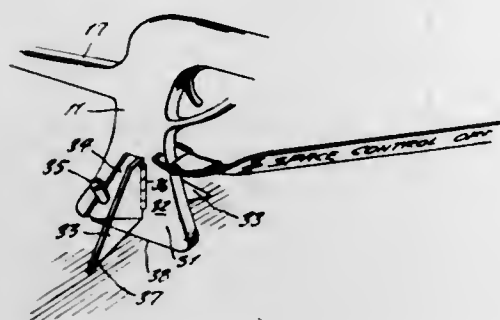
3,634,964

SPACE CONTROL RIFLE TOY

Geary L. Nail, 518 East Seymour, Shawnee, Okla.
Filed May 26, 1970, Ser. No. 40,547
Int. Cl. A63h 33/00

U.S. Cl. 46-1 E

1 Claim



A toy rifle that is designed so to appeal to youngsters who are fascinated by the space age, the device comprising a gun including a barrel with a telescopic sight mounted thereupon, the rear end of the barrel being integral with a downwardly extending stock having a base incorporated at the lower end thereof so that the rifle may be supported on a level support surface, the rifle incorporating also a rearwardly extending shoulder rest for selectively positioning against the youngsters shoulder and the rifle including a shoulder strap so that the device can be carried conveniently.

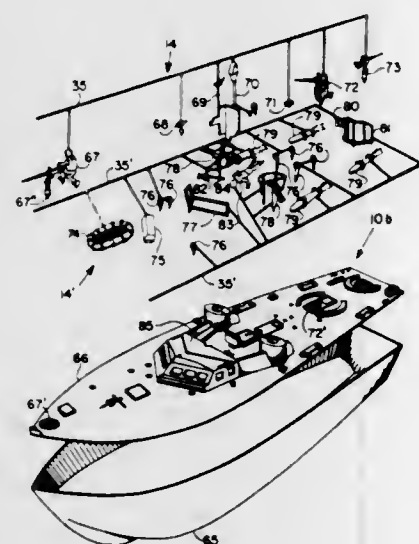
3,634,965

ARTICLE ASSEMBLY EMPLOYING INTEGRATED, PREORIENTED DETAIL-DEFINING MEMBERS

Edward G. McAuley, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed July 1, 1970, Ser. No. 51,433
Int. Cl. A63h 23/02

U.S. Cl. 46-93

6 Claims



Articles to be assembled such as plastic model toys which have a plurality of detail-defining members adapted to be secured in predetermined locations and attitudes to a struc-

ture-defining body are disclosed wherein assembly is simplified by integrally molding the detail-defining members on a runner in locations and attitudes matching the intermember spatial relationships of members of an assembled article. Thus, a plurality of preoriented detail-defining members can be simultaneously assembled to a structure-defining body without individually orienting or otherwise manipulating discrete members.

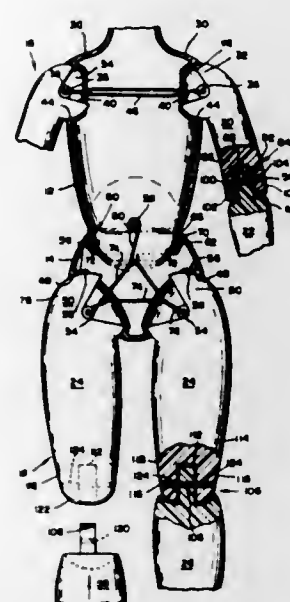
3,634,966

JOINTED DOLL

Robert K. Ostrander, 497 Prospect St., Maplewood, N.J.
Filed Mar. 27, 1970, Ser. No. 23,271
Int. Cl. A63h 3/20

U.S. Cl. 46-161

26 Claims



The invention resides in a jointed doll which employs an enlarged V-shaped aperture at the ball socket of the upper arm as it joins the torso or shoulder of the doll. A one-piece molded eyelet at the center of the V-shaped channel engages a hook which in turn is connected to an elastic joiner which runs between the eyelets of opposed arm joints. The arm is adapted to twist inwardly toward the body in the socket, and additionally is permitted a normal movement in all directions. Similarly, the ball joint at which the leg joins the torso of the doll is provided with an enlarged V-channel arrangement at the upper portion of the leg, having an eyelet integrally molded at the center of the channel. Here again, twisting of the leg inwardly may be accomplished because of the enlarged V-channel permitting a twisting of the leg without interference, with the walls of the V-channel opening or the elastic joiner holding the leg in position. The forearm of the doll is joined to the upper arm by an upwardly extending protrusion having a hole therethrough. The upwardly extending protrusion is adapted to fit into a mating slot arrangement in the upper arm and a pin is insertable through the walls of the slot and through the hole in the protrusion. The pin provides an axis around which the forearm is pivoted. The elastic joiners which hold the arms and legs in position on the doll are directed radially from the eyelets in the V-aperture of the arms and legs which permits the movement of a limb to a position in which it will remain until changed by an outside force. The knee joint of the doll employs a pivot pin as the elbow joint which extends through an upwardly directed member and the sidewalls of the joint, on the upper leg portion. The hand and wrist joint takes the form of a segmentized ball, connected at the wrist of the forearm, which is adapted to engage a spherical hole in the back of the hand. The segmentized ball is a semispherical member having flat surface at its rear portion. The spherical hole in the upper portion of the hand is also provided with a

flat abutment surface at the inner portion of the entrance which provides mating surfaces to prevent the removal of the hand from the wrist joint, but allows movement of hand in all directions.

3,634,967

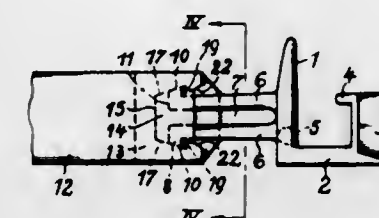
MOUNTING OF A CLUTCH MEMBER AT THE END OF TOY AND MODEL VEHICLES

Max Ernst, Lohengrinstr. 14, Nurnberg, Germany
Filed Dec. 22, 1969, Ser. No. 887,117
Claims priority, application Germany, Dec. 21, 1968, P 18 16 388.7

U.S. Cl. 46-216

Int. Cl. A63h 19/00

7 Claims



A coupling arrangement for toy or model railroad cars in which one coupling part comprises a pair of resilient legs with projections on the outer sides thereof, while the second coupling part has an aperture to receive the ends of said legs and a chamber with which the aperture communicates. The second coupling part has inclined surfaces leading to the aperture at the sides and top and a flat wall at the bottom of the aperture whereby the first coupling part can tilt laterally or upwardly on said second coupling part but is inhibited from tilting downwardly. The sidewalls of said chamber and the outer surfaces of said projections on the legs converge in a direction toward the side of the chamber disposed opposite the aperture.

3,634,968

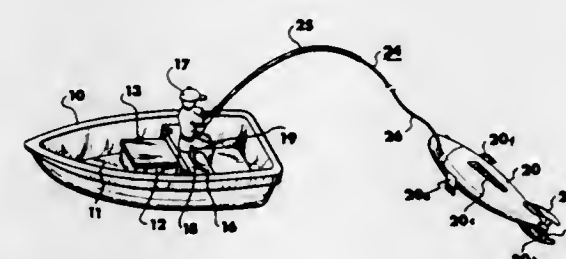
WATER TOY

Hidehiko Muto, Tokyo, Japan, assignor to Gakken Co., Ltd., Tokyo, Japan

Filed Sept. 28, 1970, Ser. No. 75,806
Claims priority, application Japan, Mar. 2, 1970, 45/20299
Int. Cl. A63h 33/26, 23/00

U.S. Cl. 46-243 MV

10 Claims



A water toy including a fish model attached to a boat model by means of an electrical cord having the configuration of a fishing pole and a fishing line. The boat model includes a battery and switch for transmitting electrical energy through the fishing pole and line to a motor disposed within the fish model for rotating a propeller arranged near the tail fin of the fish model. The motion imparted to the fish model by the rotating propeller flexes the fishing rod and line so that it appears that the fish is struggling to get off the fishing line, and at the same time the motion is transmitted to the boat for propelling the boat through the water.

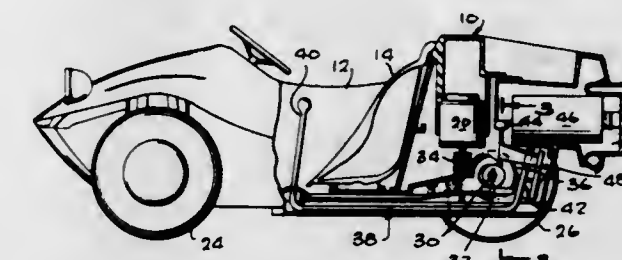
3,634,969

DUNE BUGGY TOY

Donald C. Harting, Garden Grove; Berne E. Danielson, Pacific Palisades, and Elfred Nagus, Los Angeles, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Mar. 19, 1971, Ser. No. 125,998
Int. Cl. A63h 29/22

U.S. Cl. 45-243 LV

8 Claims



A toy vehicle resembling a dune buggy and designed to give the appearance of movement over rough terrain when the vehicle is either motor driven or free wheeled along the ground. The vehicle has an open passenger compartment containing a pair of seat that can receive dolls, a mechanism coupled to the rear axle that simultaneously pivots both seats from one side to the other as the vehicle rolls along the ground so that the vehicle appears to be tilting from side to side in the opposite direction. A gearshift lever in the passenger compartment can be operated to slide a switch member. When the switch member is slid to one side, it turns off an electric motor and also slides a worm gear out of engagement with a screw on the motor shaft, so that the vehicle is free wheeling when the motor is turned off.

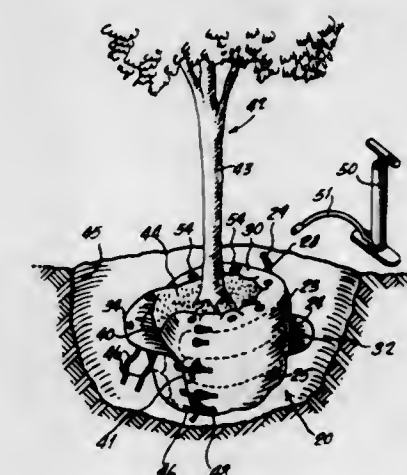
3,634,970

WRAPPING FOR TREE ROOT BALLS

Nicholas Williams, 508 Central Ave., Scarsdale, N.Y.
Filed Feb. 2, 1970, Ser. No. 7,472
Int. Cl. A01g 23/04

U.S. Cl. 47-37

15 Claims



A wrapping for the earth ball of a tree to be moved consists of a circumferential belt inflated against the ball for tight compressive engagement, to prevent loosening of the earth or the contained tree root structure. The inflatable belt, made in sections if desired, has means for tying it in place and preferably means for holding or encasing at least parts of the upper and lower ball surfaces. A supplemental, inflated collar, secured to the main, wrapped belt, aids in maintaining the integrity of the trunk and roots with the ball.

ERRATUM

For Class 49—383 see:
Patent No. 3,634,962

3,634,971

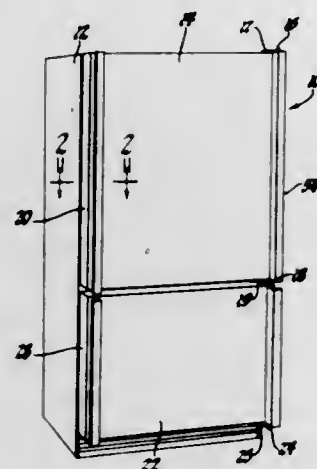
ALL PLASTIC REFRIGERATOR DOOR WITH
INTEGRAL BUMP STOP HANDLE

Keith K. Kesling, Vandalia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 1, 1969, Ser. No. 881,074
Int. Cl. E05b 1/00; E06b 3/00

U.S. Cl. 49—460

1 Claim



In preferred form, an all plastic refrigerator door including an outer panel and an inside panel having the sides thereof interconnected with one another to form side corners on the door. Rigid foamed-in-place insulation material fills a space between the outside and inner panels and reinforces a front planar extent of the door and the corners thereof against deflection. An integrally formed flange on the front panel extends outwardly and forwardly thereof to define a resiliently yieldable flaplike bumper for absorbing shock.

3,634,972

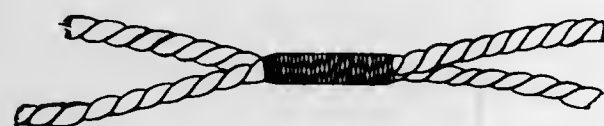
SPLICE AND METHOD OF FORMING A SPLICE

Walter F. Ilman, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Mar. 31, 1970, Ser. No. 24,067
Int. Cl. D02g 3/22; B65h 69/06, 69/04

U.S. Cl. 57—142

29 Claims



A method for splicing together the ends of glass yarns, especially tire cords composed of fiberglass, that have been previously coated with a synthetic polymer latex to render them compatible with synthetic rubber, consisting of helically wrapping together the respective ends to be spliced with a wrapping material compatible with both the synthetic polymer latex and synthetic rubber, compressing and holding the yarns or cords to be spliced or joined. The wrapping material may be a heat stable substance, an elastomeric polymer, or a thermosensitive nylon or polyester fiber.

3,634,973

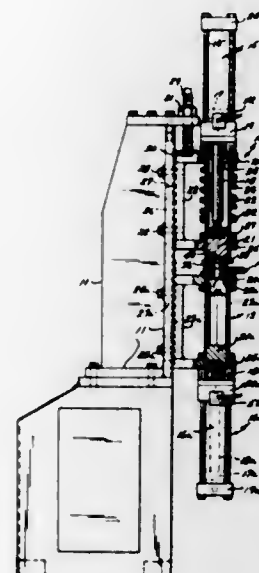
APPARATUS FOR ABRADING BY EXTRUSION AND
ABRADING MEDIUM

Ralph W. McCarty, Mooreville, Pa., assignor to Extrude Home Corporation, Irwin, Pa.

Continuation-in-part of application Ser. No. 720,913, Apr. 12, 1968, now Patent No. 3,521,412, dated July 21, 1970, which is a continuation-in-part of application Ser. No. 506,472, Nov. 5, 1965, now abandoned. This application Aug. 27, 1969, Ser. No. 853,430
Int. Cl. B24b 27/00

U.S. Cl. 51—2 R

7 Claims



An abrasive medium is described consisting of finely divided abrasive particles uniformly distributed in a semifluid, difficulty flowable rubberlike plastic material of the consistency of putty and which forms a substantially solid matrix in carrying out the method of this invention which comprises forcing the medium over an internal surface in abrading contact therewith. Representatives of such plastic material are silicone putty or silicone rubber and a nonvulcanized plastic rubberlike putty. Two forms of apparatus for carrying out the method are disclosed. The workpiece is held between two cylinders with an opening through the workpiece in communication with the adjacent cylinder chambers in which reciprocating pistons move the medium alternately from one cylinder through the workpiece opening into the other cylinder.

3,634,974

AUTOMATIC CONTROL DEVICE FOR A GRINDING
MACHINE

Makoto Kikuchi, and Kunio Hayashi, both of Kariya, Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya City, Aichi Prefecture, Japan

Filed Dec. 19, 1969, Ser. No. 886,643

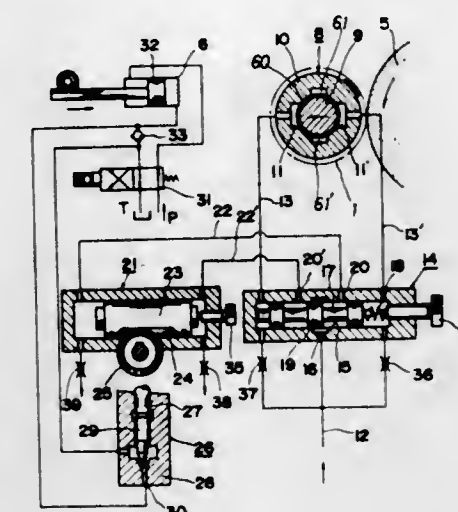
Claims priority, application Japan, Dec. 25, 1968, 43/94865
Int. Cl. B24b 49/08

U.S. Cl. 51—5

13 Claims

An automatic control device for a grinding machine comprising detecting means for detecting the grinding resistance of a grinding wheel, first control means actuated in response to the grinding resistance, and second control means for controlling the feed rate of the grinding wheel support to keep the grinding resistance constant in accordance with the actuation of the first control means. The automatic control device further comprises a timer set for a longer time period

than the predetermined grinding cycle time period and energized at the same time as the start of the grinding operation, tion by the abrasive process, wherein the feed is regulated to



and embodies a relay energized to actuate a wheel dressing device after the timer is timed out and the wheel support is returned to its initial position.

3,634,975

SAWING APPARATUS

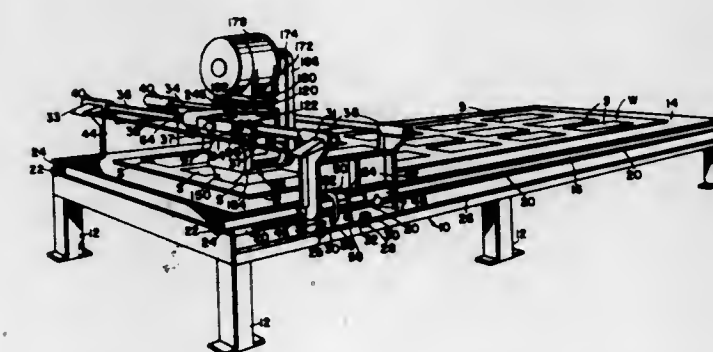
James L. Hensley, Knoxville, Tenn., assignor to The Carborundum Company, Niagara Falls, N.Y.

Original application May 28, 1968, Ser. No. 732,723, now Patent No. 3,538,967. Divided and this application Jan. 9, 1970, Ser. No. 4,494

Int. Cl. B24b 7/00

U.S. Cl. 51—35

9 Claims



Method and apparatus for cutting door openings and similar panel structures having angular corners. The sides of the panel opening are plunge cut by a circular saw blade or wheel from the front side of the panel leaving a connecting portion at the corners. Hinges or other hardware may then be installed and the panel is turned over. The corners are cut by the saw wheel from the back to remove the connecting portion and thereby severing the panel section that is encircled by the saw cut. The severed panel section serves as a door to conserve panel material.

3,634,976

GRINDING MACHINE

Robert S. Hahn, Northboro, and Richard P. Lindsey, Marlboro, both of Mass., assignors to The Heald Machine Company, Worcester, Mass.

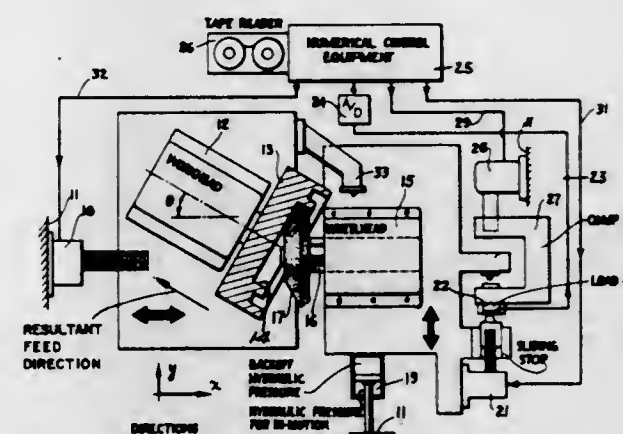
Filed Oct. 29, 1969, Ser. No. 872,038

Int. Cl. B24b 49/00

U.S. Cl. 51—165.71

4 Claims

This invention relates to a grinding machine and, more particularly, to apparatus for generating a surface of revolu-



maintain the force between the abrasive wheel and the workpiece at a predetermined value.

3,634,977

APPARATUS FOR DRESSING ABRASIVE WHEELS

Thomas A. Bunting, Exhall, Coventry, England, assignor to Lear Siegler, Inc., Santa Monica, Calif.

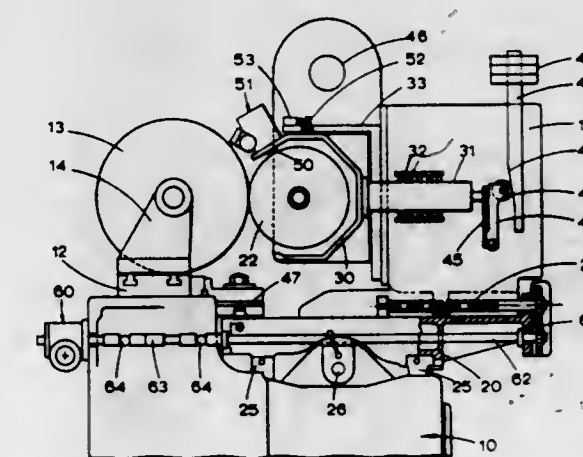
Filed Feb. 14, 1969, Ser. No. 799,220

Claims priority, application Great Britain, Feb. 16, 1968, 7,856/68

Int. Cl. B24b 49/00

U.S. Cl. 51—165.87

11 Claims



An automatically operated trimming device fed radially of a rotating abrasive wheel in response to a predetermined dimension change of the wheel to reduce its outside diameter. The wheel is movably mounted in a head and the head is moved forwardly by the amount of reduction in the wheel diameter. The trimming operation is initiated by movement of the wheel relative to the head toward a workpiece.

3,634,978

GRINDING MACHINE

Herbert R. Uhtenwoldt, Worcester; Frederick A. Hohler, Holden, and Edward G. Robillard, Cherry Valley, all of Mass., assignors to The Heald Machine Company, Worcester, Mass.

Filed June 25, 1969, Ser. No. 836,549

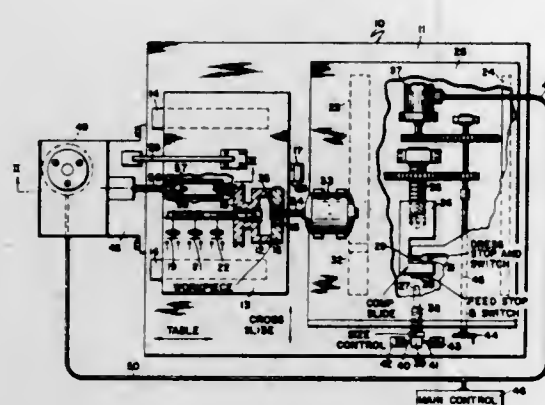
Int. Cl. B24b 49/08

U.S. Cl. 51—165.92

5 Claims

This invention relates to a grinding machine and, more particularly, to apparatus for simultaneously finishing by the

abrasive process surfaces which lie at substantial angles to one another in a workpiece.



3,634,979

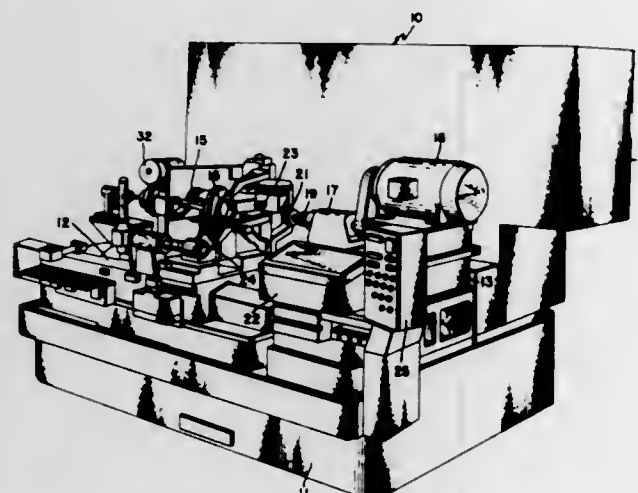
GRINDING MACHINE

Edward G. Robillard, Cherry Valley; Robert H. Lisotte, Leominster, and Herbert R. Uhtenwoldt, Worcester, all of Mass., assignors to The Heald Machine Company, Worcester, Mass.

Filed Nov. 25, 1969, Ser. No. 879,785
Int. Cl. B24b 49/00

U.S. Cl. 51-165.8

9 Claims



This invention relates to a grinding machine and, more particularly, to apparatus for generating a surface of revolution by the abrasive process, substantial portions of the grinding cycle being controlled by digital means.

3,634,980

GRINDING MACHINE WITH ADJUSTABLE WORKPIECE FEED

Duran Deranian, Holden; Norman S. Hume, and Herbert R. Uhtenwoldt, both of Worcester, all of Mass., assignors to The Heald Machine Company, Worcester, Mass.

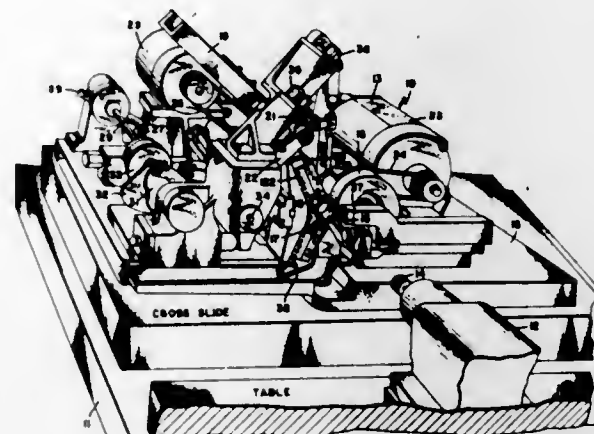
Filed Nov. 25, 1969, Ser. No. 879,695
Int. Cl. B24b 41/04

U.S. Cl. 51-215 CP

10 Claims

A grinding machine having a rotary workholder and a chute adjacent the workholder with an adjustable escape-

ment to release workpieces one at a time to a transfer arm mounted for pivotal movement and having adjustable holding



pins. Various adjustments can be made for different size workpieces.

3,634,981

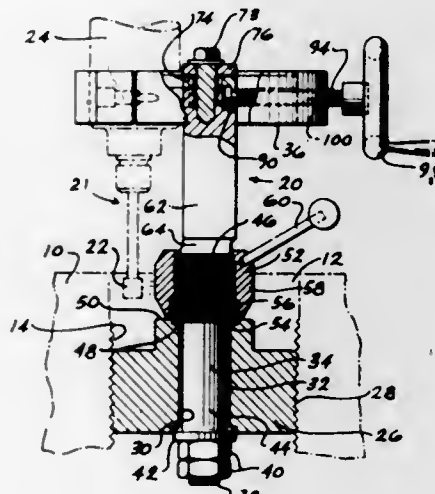
IMPERFECT THREAD REMOVAL TOOL

James M. Conner, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed July 23, 1970, Ser. No. 57,659
Int. Cl. B24b 19/00

U.S. Cl. 51-241 B

4 Claims



Disclosed herein is an apparatus for removing the imperfect, runout threads in large diameter, internally threaded stud holes. The apparatus comprises a tool-holder assembly provided for automatically locating the thread-grinding tool with respect to the thread to be operated on and means for accurately guiding the tool along a helical path corresponding to that of that thread upon rotation of the tool holder.

3,634,982

ABRASIVE HANDTOOL

Robert W. Martin, 1057 Pennington Road, Trenton, N.J.

Continuation-in-part of application Ser. No. 858,408, Sept. 16, 1969, now abandoned. This application Sept. 3, 1970, Ser. No. 69,339

Int. Cl. B24d 11/00

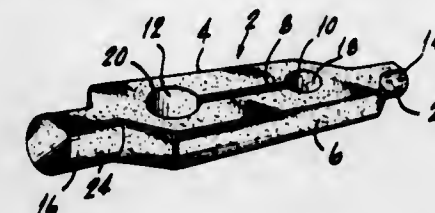
U.S. Cl. 51-394

12 Claims

An abrasive handtool for removing rust or similar films from pipes, rods and the like in which the tool is provided with a molded body of plastic or other yieldable material and

has one or more openings therein presenting abrasive surfaces for receiving the pipe or rod, the body being compressible manually to urge the abrasive sides of the opening into

The clip is hung over the upper end of a metal wall section and has configurations therein by which the bird guard is carried thereon. The clip also engages and positions the coping in the final assembly.



contact with the pipe to polish the surface thereof. One or both ends of the body may present cylindrical surfaces for polishing the inner surface of a pipe.

3,634,983

BOOTH CONSTRUCTION

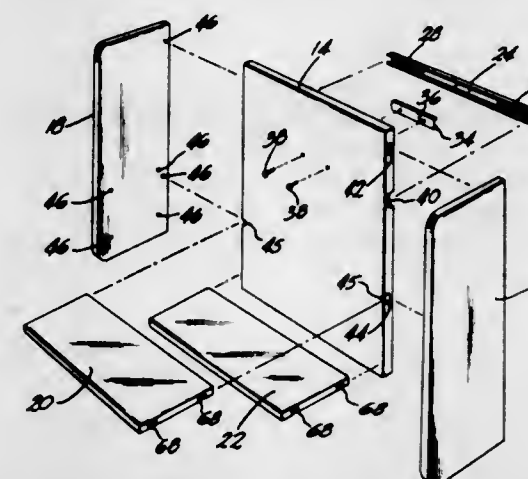
Philip Craig Welch, Grand Rapids, Mich., assignor to Modular Systems, Inc., Fruitport, Mich.

Filed June 19, 1969, Ser. No. 834,833

Int. Cl. A47b 3/06; F16b 12/22

U.S. Cl. 52-36

9 Claims



This disclosure relates to a booth for telephones and the like having a back panel, side panels and shelf panels, all of which are secured together through recessed fastening means to hide the method of construction. The recessed fastening means are so arranged that the side panels are first secured to the edges of the back panels, and then the shelf panels are fixed to the side panels. For this purpose, pockets opening into the bottom of the shelf panels are formed in the side edges of the shelf panels. Shoulder screws projecting from the side panels pass into the pockets through the bottom openings and engage slotted clips in the pockets. At least one clip in every shelf panel has a locking flange to lock the shelf panels in place when secured to the side panels.

3,634,984

METAL WALL AND COPING CONSTRUCTION WITH BIRD GUARD

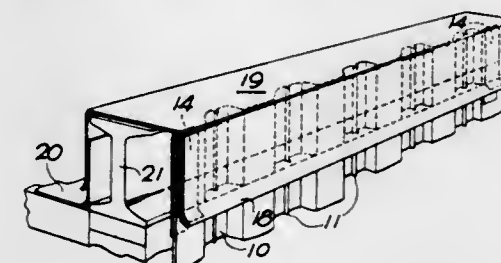
Martin J. Murphy, 471 West Hylda Ave., Youngstown, Ohio

Filed Feb. 12, 1970, Ser. No. 10,718

Int. Cl. E04h 9/16

U.S. Cl. 52-101

5 Claims



A metal wall and coping construction incorporating a bird guard and a clip for securing the several parts in assembly.

3,634,985
ADJUSTABLE ELEVATION BUILDING

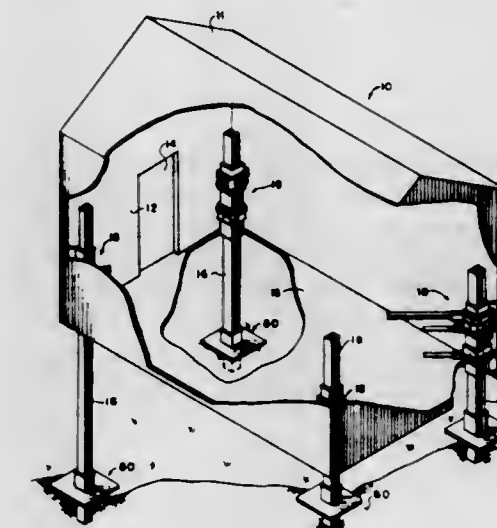
Robert R. Tipton, 249 El Camunito, Livermore, Calif.

Filed Nov. 12, 1969, Ser. No. 876,015

Int. Cl. E04b 5/58, 7/16; B66f 11/04

U.S. Cl. 52-126

2 Claims



A building is provided with supporting legs which are individually adjustable by means of jacks which are operable from inside the building to change its elevation.

3,634,986

DOOR PANEL WITH PLASTIC INSERT

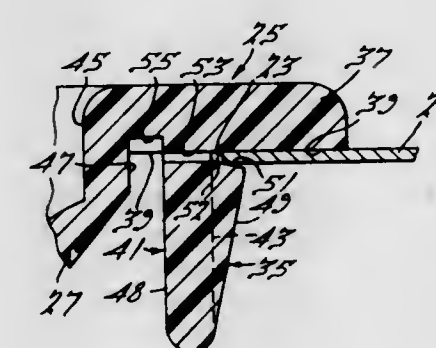
Ralph E. Ford, Harper Woods, and Donald J. Ternes, Grosse Pointe Woods, both of Mich., assignors to Evans Products Company, Portland, Oreg.

Continuation of application Ser. No. 681,739, Nov. 9, 1967, now abandoned. This application Sept. 22, 1969, Ser. No. 860,106

Int. Cl. E06b 3/78

U.S. Cl. 52-316

9 Claims



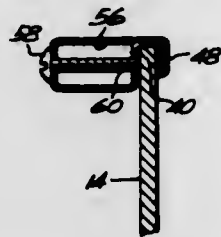
A molded, decorative, polystyrene insert has flexible locking tabs formed in a guide flange that locks behind the backface of a door panel when the insert is pressed home in an aperture in the panel.

3,634,987

ROLL FORMED ALUMINUM BOX FRAME CONSTRUCTION AND PANEL

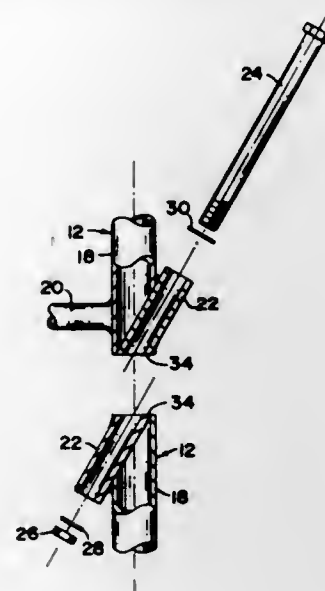
Rafael R. Huguet, 3101 N.W. 18th St., Miami, Fla.
 Filed June 23, 1969, Ser. No. 835,574
 Int. Cl. E04b 5/55; E04c 2/38
 U.S. Cl. 52-476

2 Claims



A roll formed, aluminum, box frame strut for use in making a panel which includes such struts, which struts are made of roll formed sheet aluminum material of a uniform thickness of between 0.025 inch and 0.032 inch. The struts comprise a hollow body with an elongate socket extending from one edge to receive the marginal edge of a pane with the struts being circumposed about the pane to define a building panel. The struts are of a closed or box frame configuration.

adjacent module by an integral angularly disposed connector



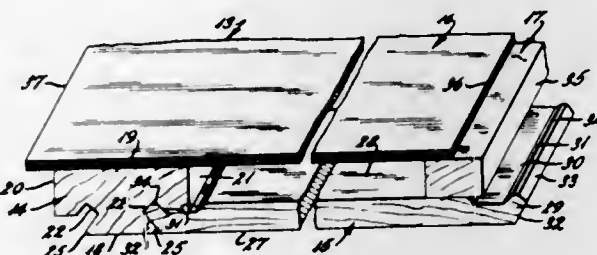
tube adapted to receive two bolts.

3,634,990

DOUBLE WALL INTERLOCKING PANEL CONSTRUCTION

Thomas F. Pugh, 938 Noe Ave., Eureka, Calif.
 Filed Mar. 13, 1970, Ser. No. 19,185
 Int. Cl. E04b 2/32; E04c 2/36, 2/46
 U.S. Cl. 52-595

3 Claims



Apparatus for constructing a double wall panel of interlocking parts and providing means for connecting one panel to an adjacent panel in interlocking relationship, the double wall panel providing both inner and outer walls for a building with an insulating space therebetween.

3,634,991

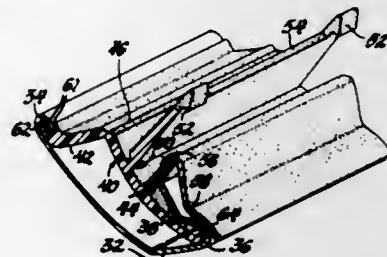
MOLDING RETAINER

James F. Barton, Jr., and William G. Crary, both of Utica, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 13, 1969, Ser. No. 876,403
 Int. Cl. F04f 19/02; A44b 21/00

U.S. Cl. 52-718

5 Claims



A retainer for securing molding, such as a window garnish molding or side body trim molding to an apertured support panel of a vehicle body, the retainer including a pair of integrally hinged members adapted to engage the inner curved edges of a channel-shaped molding and a lateral tongue hav-

3,634,989

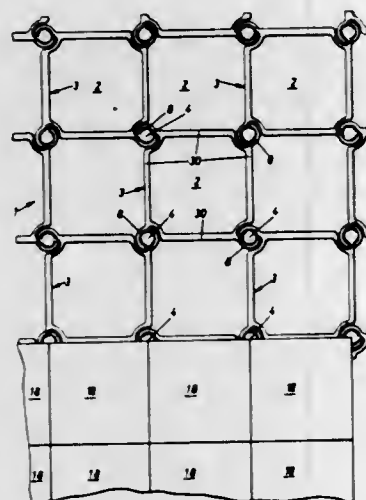
MODULAR TOWER

Cyril B. Rogers, 3940 Doral Drive, Tampa, Fla.
 Filed Jan. 19, 1970, Ser. No. 3,764
 Int. Cl. E04b 12/10

U.S. Cl. 52-584

4 Claims

A prefabricated modular tower structure in which the ends of each of the legs of one module are joined to the legs of an



A frame of individual rectangular elements meeting at their corners to form opening mounts rectangular panels by means of bolts held in the openings and having at their heads spring members that enter, and releasably lock in, recesses provided in the corners of each panel.

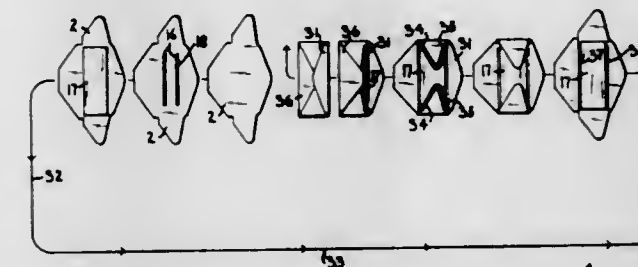
3,634,994

METHOD OF MANUFACTURING ENVELOPES CONTAINING FREE INSERTS

Edward A. Dunne, Dublin, Ireland, assignor to Wiggins Teaper (Ireland) Limited, Dublin, Ireland
 Filed Mar. 26, 1968, Ser. No. 716,101
 Claims priority, application Ireland, Apr. 3, 1967, 354/67
 Int. Cl. B65d 27/02, 27/04

U.S. Cl. 53-31

1 Claim



Envelopes containing free or substantially free inserts are manufactured on conventional envelope machines by applying a disintegrating adhesive between the blank and insert to hold the insert in position on the blank while the blank is driven through the machine and envelope forming flaps are folded therearound. The envelope containing the insert may be manufactured with the seal flap either open or sealed and with or without a window opening to expose the insert.

3,634,995

METHOD AND APPARATUS FOR LIDDING CARTONS

Arthur E. Curtis, Ticonderoga, N.Y., assignor to International Paper Company, New York, N.Y.

Filed July 15, 1970, Ser. No. 55,106
 Int. Cl. B65b 7/28, 51/02

U.S. Cl. 53-38

18 Claims

3,634,993

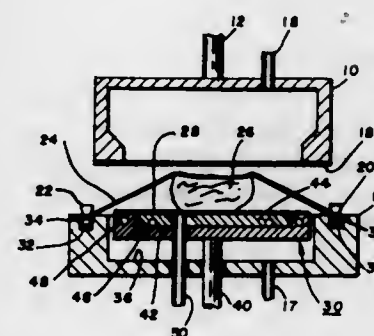
BOTTOM PLATEN APPARATUS FOR FORMING SKIN PACKAGING

William R. Pasco, Milton Township, Morris County, and Robert O. Wolfelberger, Fairfield, both of N.J., assignors to William E. Young, Stamford, Conn.

Filed May 6, 1970, Ser. No. 35,085
 Int. Cl. B65b 31/02

U.S. Cl. 53-22 A

9 Claims



Apparatus for forming a skin package is adapted to press both upper and lower film members tightly around a product usually or often irregular in shape and often having voids therein. In the forming of such a package, it is desirable that during the forming the bottom film be urged away from the bottom platen and formed snugly or tightly around the product and into a sealed condition with the upper film. To form the bottom film of this package in this manner the bottom platen of this invention is made with means for both supporting and heating the bottom film. Adjacent to the product supporting portion of this lower platen there is provided a conductor for pressurized air and the like, said conductor having its discharge end disposed to impinge the underside of the heated lower film so that the flow of air will lift the lower film which forms the other portion of the package.

3,634,996

BOTTLE-PACKAGING MACHINE

Donald G. Reichert, Tarpon Springs, and John A. Pasteris, Clearwater, both of Fla., assignors to ABC Packaging Machine Corporation, Largo, Fla.

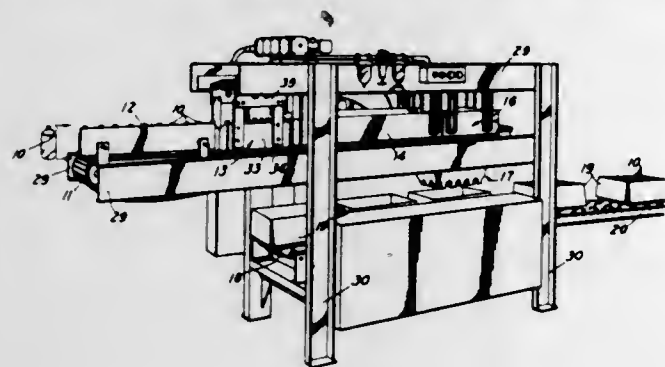
Filed Nov. 24, 1969, Ser. No. 879,163
 Int. Cl. B65b 57/10, 21/16, 35/30

U.S. Cl. 53-61

5 Claims

A bottle-packaging machine for assembling a charge of bottles having an equal number of bottles in each of a given

number of rows on a supporting grid structure and for shifting the charge sideways to allow the bottles to drop between the empty spaces in the grid into an empty case. The cases are conveyed into position below the bottle assembly station



and are in turn elevated to fit snugly over the grid for receiving the bottles when they are dropped. The operation of the machine is entirely automatic through certain electrically controlled, air-actuated piston moving elements and motor-driven conveyors for both the bottles and cases.

3,634,997

METHOD AND APPARATUS FOR PRODUCING ASEPTICALLY PACKAGED STERILE ARTICLES
Thomas Theodore Tait, 9-11, The Quadrant, Richmond upon Thames, Surrey, England

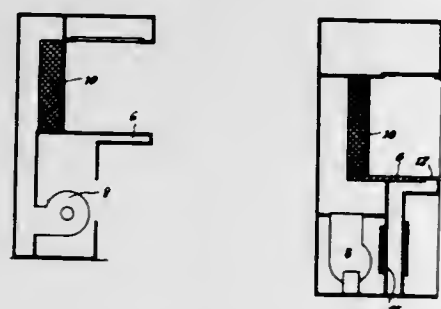
Filed Oct. 22, 1968, Ser. No. 769,557

Claims priority, application Great Britain, Oct. 27, 1967, 49,052/67

Int. Cl. B65b 55/14, 63/08, 67/10

U.S. Cl. 53-127

6 Claims



Aseptically packaged articles made of a plastics material are made by forming them in a moulding machine at a sterilizing temperature, introducing them while sterile from the machine into a stream of sterile air and packing them in a sterile wrapping in that stream of sterile air.

3,634,998

METHODS OF PRODUCING A PLURALITY OF WELL STREAMS

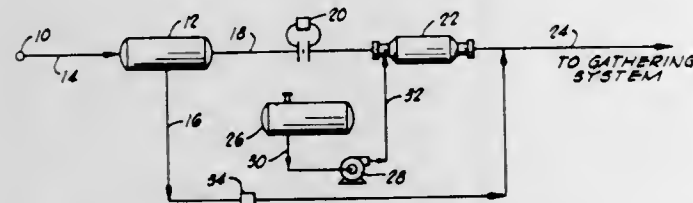
Edwin B. Patterson, 8517 Arlington Drive, Oklahoma City, Okla.

Filed Dec. 29, 1969, Ser. No. 888,496

Int. Cl. B01d 53/14

U.S. Cl. 55-32

9 Claims



The present invention relates to methods of producing a plurality of predominantly gaseous well streams from wells at different locations which are conducted by a gathering

system to a central processing location. By the present invention, liquid desiccant is continuously intimately mixed with the well streams at each well location so that portions of the water contained therein are removed thereby preventing the subsequent formation of hydrates. The well stream-liquid desiccant mixtures are conducted by the gathering system to the central location and combined. The combined liquid desiccant is separated from the combined well streams at the central location and regenerated by removing the absorbed water therefrom. Portions of the regenerated liquid desiccant are then returned to each of the well locations for remixing with the well streams.

3,634,999

METHOD FOR RECOVERING DUST PRODUCED IN SODIUM CARBONATE MANUFACTURE

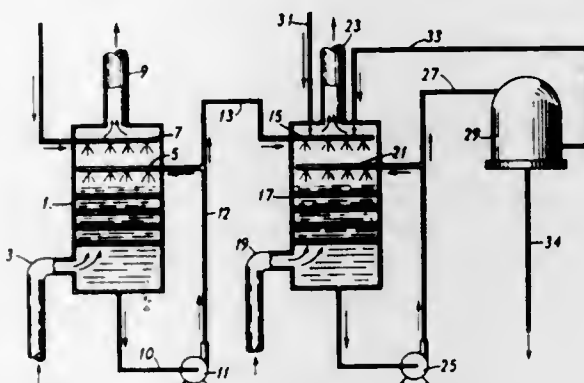
Carlton J. Howard, Salina, and Eugene B. Fort, Solway, both of N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Apr. 8, 1970, Ser. No. 26,544

Int. Cl. B01d 47/06; C01d 1/30

U.S. Cl. 55-72

12 Claims



Dust and fines issuing from trona processing systems in the manufacture of sodium carbonate are removed by scrubbing the dust laden gases with an aqueous scrubbing solution under conditions sufficient to remove the fines from the gases and preferably effect particle growth of said dust and fines in the scrubbing solution and separating the solids of larger particle size and returning them to the trona processing system.

3,635,000

COMBUSTION GAS SCRUBBING SYSTEM

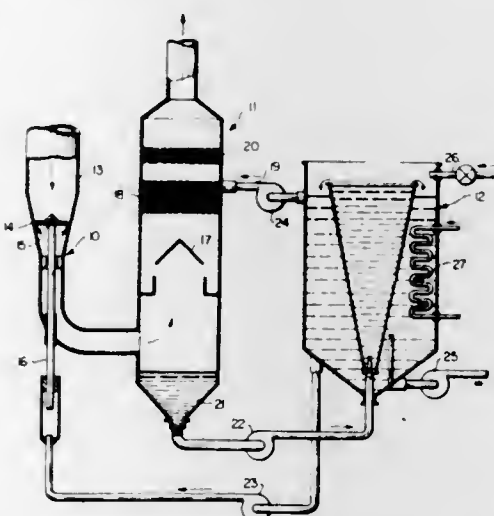
Robert F. Brown, Piscataway Township, N.J., assignor to Research-Cottrell, Inc., Bridgewater, N.J.

Filed Mar. 13, 1970, Ser. No. 19,386

Int. Cl. B01d 47/00

U.S. Cl. 55-89

5 Claims



Suspended particulate matter, including sulfur-containing compounds of calcium and magnesium, and sulfur oxides are

removed from combustion gases by passing the gases successively through a high-velocity venturi-type scrubber and a wetted film-packed bed scrubber. Scrubbing liquid from the venturi scrubber and from the packed bed scrubber may, after being clarified, be recirculated to the two scrubbing stages.

3,635,001

FILTER INDICATOR

Paul Komroff, Union, N.J., and Harper Landell, Fort Washington, Pa., assignors to National Union Electric Corporation, Jersey City, N.J.

Filed Aug. 5, 1969, Ser. No. 847,672

Int. Cl. B01d 27/00

U.S. Cl. 55-274

2 Claims



An air conditioner filter indicator located behind and in contact with the filter causes indication of the need for cleaning the filter as the filter becomes dirt laden. A legend such as the words "WASH ME" formed as part of the indicator is transferred to the filter since no dirt will collect on the filter portion in contact with the legend, and contrast increases between that portion and the dirt-collecting portion of the filter. In another embodiment, the indicator including a legend such as "WASH ME" is placed on the front surface of the filter and originally is of the same color as the filter. Increasing contrast between filter and indicator as the filter becomes dirt laden causes the legend to become visually prominent. The words "WASH ME" in both embodiments serve to remind the operator to clean or change the filter.

3,635,002

GARBAGE DISPOSAL UNIT

Adolf Ries, Schnabel-Hennig-Str. 30, Bruchsal/Baden, Germany

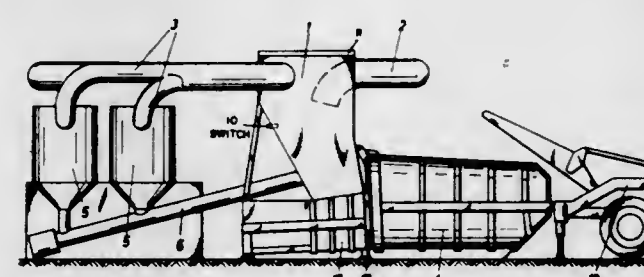
Filed Dec. 17, 1969, Ser. No. 885,924

Claims priority, application Germany, Dec. 20, 1968, G 68 12 485.6

Int. Cl. B01d 50/00

U.S. Cl. 55-315

2 Claims



A garbage main delivers garbage to a hopper from which dust and fines are evacuated to a cyclone by compressors which deliver the air from the cyclone to a filtered flue. The garbage is intermittently rammed from the hopper into an adjacent receptacle where the garbage is compressed.

3,635,003

CENTRIFUGAL DUST COLLECTOR FOR THE WASTE GASES OF A SINTER MACHINE FOR ORES, BUILDING MATERIALS AND THE LIKE

Josef Schindling, Frankfurt am Main-Unterliederbach; and Hermann Muller, Frankfurt am Main, both of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

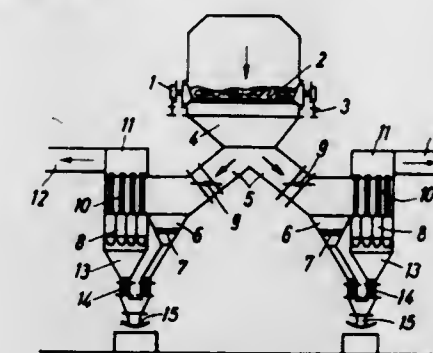
Filed Aug. 18, 1969, Ser. No. 850,839

Claims priority, application Germany, Sept. 6, 1968, G 67 52 541

Int. Cl. B01d 45/12

U.S. Cl. 55-344

3 Claims



Dust-laden gases are drawn into a series of hoppers beneath the grate of a sintering machine and then passed into a centrifugal dust collector which extends along at least one side of the sintering machine.

3,635,004

ORCHARD MACHINE

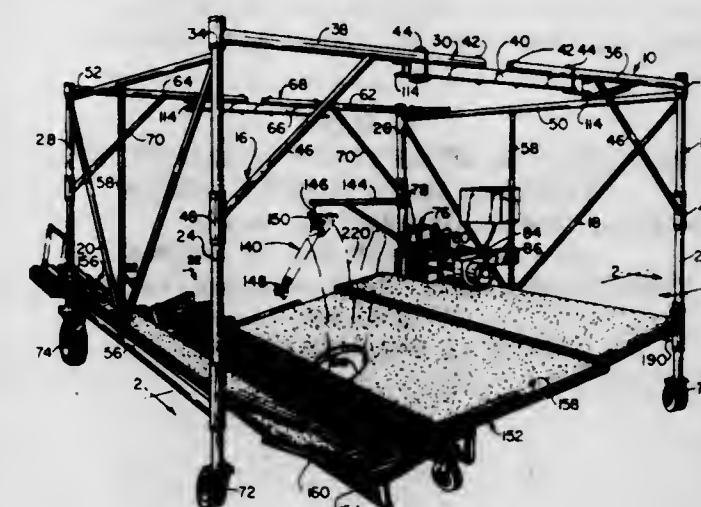
Byron K. Webb, and Clarence E. Hood, both of Clemson, S.C., assignors to Research Corporation, New York, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,585

Int. Cl. A01d 55/18; A01g 19/06

U.S. Cl. 56-235

12 Claims



A general purpose, self-propelled, orchard machine has a rectangular vertical frame mounted on driven and steerable wheels with the machine straddling fruit trees and supporting an operator who, through a single hydraulic system, controls the movements of the machine and the operation of the arrangements carried thereby. The frame has collapsible front and rear sections whereby the width thereof is reduced for travel on public roadways and also has opposing side sections that support laterally inwardly and outwardly movable fruit catching sections disposed adjacent the bottom of the machine which carries an overlying tree shaker. Such catching sections have caster wheels and are moved apart as the machine straddles a tree and brought together to encircle the tree and catch the falling fruit which is transported rearwardly and then laterally of the machine by conveyors associated with the catching sections. In spraying, trimming or

otherwise treating fruit trees, the catching sections are removed and the frame sections carry appropriate spraying, cutting and other arrangements.

3,635,005

MUSHROOM HARVESTER

Sverker P. E. Persson, University Park, Pa., assignor to Research Corporation, New York, N.Y.

Filed June 18, 1970, Ser. No. 47,330

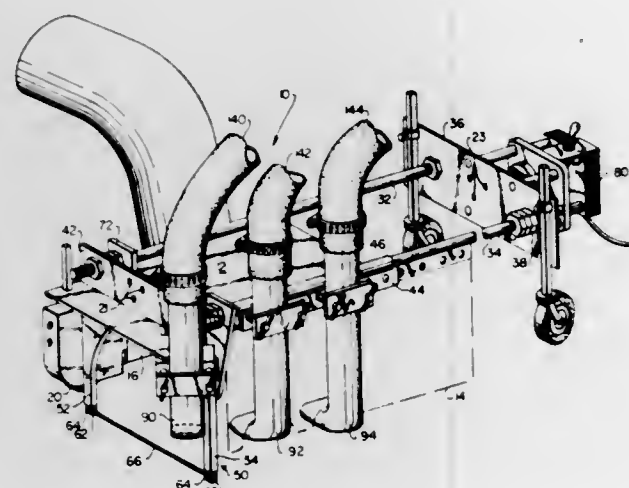
Int. Cl. A01d 45/00

U.S. Cl. 56—327 R

4 Claims

U.S. Cl. 57—58.52

11 Claims



A harvester for mushrooms having an open-ended, generally tunnel-like housing within which is provided a cutter blade for severing the mushrooms stalks close to the surface of the ground is provided. Means are also provided for directing at least one stream of air adjacent the base of the mushroom being severed and further suction means are mounted in association with the housing for conveying the severed product to collection means as relative motion between the housing and the product is brought about.

3,635,006

PROCESS AND APPARATUS FOR MAKING SPUN THREADS FROM TEXTILE FIBERS

Ernst Fehrer, Auf der Gugl 28, Linz, Austria

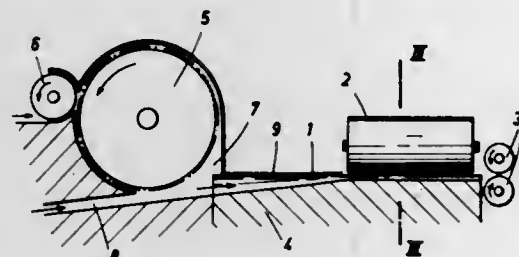
Filed Aug. 14, 1969, Ser. No. 849,968

Claims priority, application Austria, Sept. 16, 1968, A 8984/68

Int. Cl. D01g 15/68, 15/58

U.S. Cl. 57—50

10 Claims



A strand of loose fibers is moved in the longitudinal direction of said strand, which is frictionally contacted on two opposite sides with two surfaces, which are moved relative to each other in contact with said strand transversely to the longitudinal direction of the strand to twist the latter so as to form a thread, which is withdrawn while being held against rotation.

3,635,007 METHOD AND AN APPARATUS FOR MAKING A STRAND OF WIRES AND FEEDING THE SAME AT HIGH SPEED

Zenzo Yoshida, Mito-shi, Japan; Hiroshi Miyazaki; Tokuji Yoshida, and Hiroaki Kobayashi, all of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation and Yoshida Engineering Company, Ltd., Tokyo, Japan

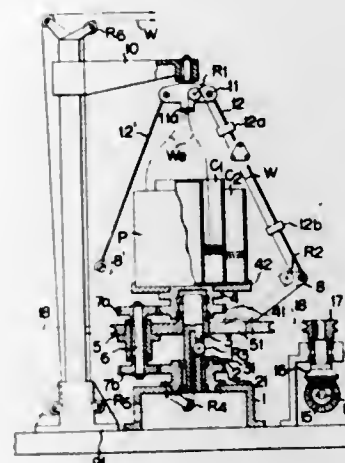
Filed Jan. 26, 1970, Ser. No. 5,597

Int. Cl. D07b 3/00, 3/12

4 Claims

U.S. Cl. 57—58.52

11 Claims



A method for making a strand of wires and feeding the same at high speed and an apparatus therefor comprising: collecting together, by a collecting die provided above a wire supply source a plurality of wires delivered from said source resting on a tray which is not rotated at a great speed, passing the collected group of wires through a guide roller carried on a flyer located below and radially outwardly of said collecting die and circling around said tray, then passing the group of wires downwardly in the position of the rotational axis of said flyer, thereby twisting said group of wires at said die and also at said rotational axis, and then feeding the resulting strand outside the system.

3,635,008

YARN TREATING APPARATUS

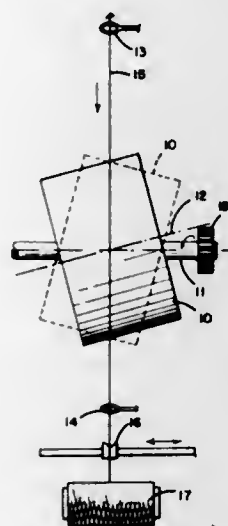
Warren H. Guy, Glen Mills, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Apr. 14, 1970, Ser. No. 28,362

Int. Cl. D02g 1/08

U.S. Cl. 57—77.4

8 Claims



Apparatus for producing a filament interlaced yarn comprises a cylindrical roller mounted for rotation on an axis extending at an angle to its longitudinal central axis. The yarn is pulled over the roller at right angles to the axis of rotation and rotation of the roller causes the yarn to roll back and forth across the face of the roller. The rolling of the yarn

produces alternately S and Z twist which causes the filaments to become interlaced or tangled to a degree that the yarn can be used in ordinary textile operations without further twisting.

3,635,009

APPARATUS FOR FALSE TWISTING YARN

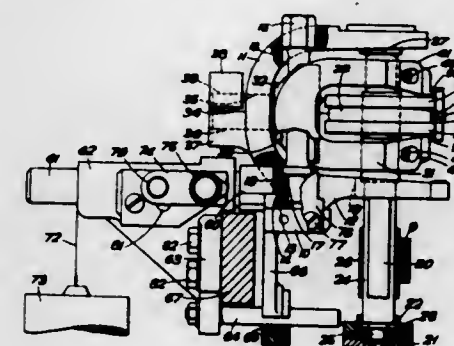
Denis Albert Edward Mattingly, Macclesfield, England, assignor to Ernest Scragg & Sons Limited, Macclesfield, England

Filed Apr. 3, 1970, Ser. No. 25,533

Int. Cl. D01h 7/92, 7/46

U.S. Cl. 57—77.45

6 Claims



A false twisting head having a rotatable drive shaft which head is slidably mounted on a fixed support in a direction transverse to the drive shaft axis. Means are provided for urging the head in one or the opposite direction with respect to the support to engage the drive shaft with one or the opposite sides of an endless moving drive belt.

3,635,010

ENDS DOWN DETECTOR

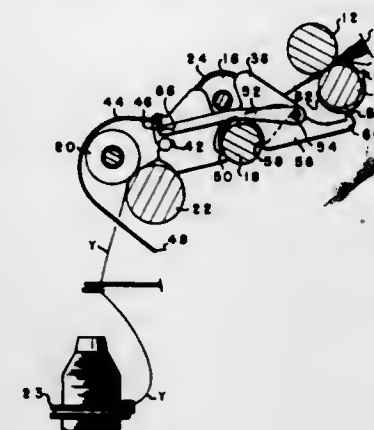
Grady H. Sanders, Spartanburg, S.C., assignor to Deering Milliken Corporation, Spartanburg, S.C.

Filed Oct. 2, 1969, Ser. No. 863,286

Int. Cl. D01h 13/18

U.S. Cl. 57—84

10 Claims



Method and apparatus to detect the breakage of a yarn end, commonly called an ends down, and in response to the detection actuate, a roving stop to rotate the roving stop into the path of travel of the roving being supplied into the fiber handling system.

3,635,011

ELAPSED-TIME INDICATOR

Stuart M. Pindell, Jr.; Donald J. Johnson; Robert E. Fickes, all of Lancaster, Pa.; Malcolm R. Perry, Mooresville, N.C., and Wayne K. Radcliffe, Lancaster, Pa., assignors to Detcon Instrument Company, Lancaster, Pa.

Filed Jan. 14, 1970, Ser. No. 2,899

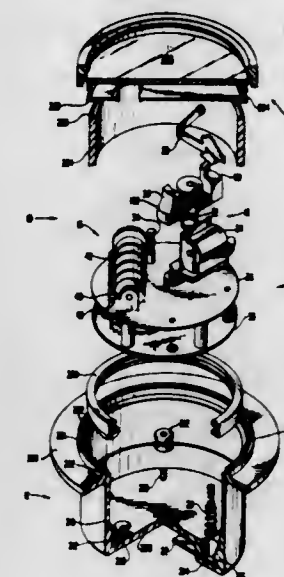
Int. Cl. G04c 1/04; G04b 5/04

U.S. Cl. 58—41 A

27 Claims

The indicator has a casing carrying two plates mounting the gear train, motor assembly, escapement, and counter.

The motor assembly includes a solenoid which impulses a flywheel to wind a mainspring which advances the counter through the gear train at a rate determined by the escapement. The plates and gearing are formed of plastic and this assembly is shock mounted in the plastic casing. Features hereof include a helical mainspring having opposite ends en-



gaging between the baseplate and the flywheel respectively, direct pivotal mounting of the movement shafts in the plates without jewel bearings, a dynamically balanced armature for the motor assembly, coil spring leads from the motor assembly to the terminals on the plastic casing, and the application of ultrasonic welding techniques to the assembly.

3,635,012

SET STEM MECHANISM FOR WATCHES

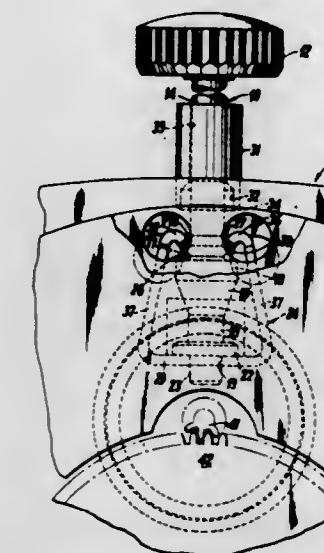
Raymond J. Grohski, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed Apr. 13, 1970, Ser. No. 27,523

Int. Cl. G04b 37/06

U.S. Cl. 58—99

5 Claims



A set stem mechanism for watches comprising a set stem having a set pinion integral therewith and a shaped body portion which is designed for engagement with a stem bracket in either a set or an idle position. A stem release sleeve is slidably mounted about the set stem to contact the bracket disengaging it from the stem in order to facilitate removal of the crown and stem assembly.

3,635,013

BIASED OSCILLATOR ARRANGEMENT

Hanns F. Bertsch, Kronenstrasse 30; Ottmar Schlachberger, Auf Rindlen 2, and Horst Graf, Kornerstrasse 24, all of Schwenningen, Germany

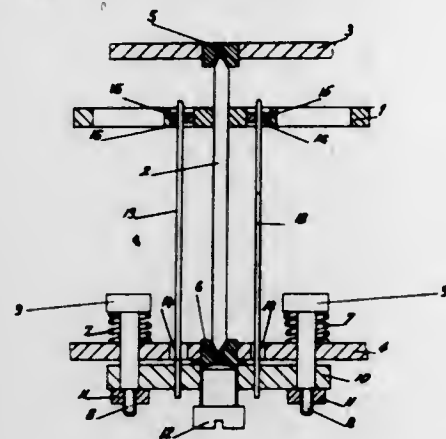
Filed Dec. 17, 1969, Ser. No. 889,849

Claims priority, application Germany, Dec. 17, 1968, P 18 15 099.7

Int. Cl. G04b 17/00; G04c 3/04

U.S. Cl. 58-107

18 Claims



The balance wheel of a watch or clock is continuously biased during oscillations of the balance wheel, by a single resilient rod concentric with the axis of the balance wheel, or by a pair of diametrically arranged resilient rods parallel to the axis, to move toward a central position so that the balance wheel oscillates at an inaudible frequency between 10 and 50 Hz.

3,635,014

METHOD AND DEVICE FOR CONTROLLING THE PISTON MOVEMENT OF HYDROSTATIC PRIME MOVERS

Herwig Kress, Klocken 5, 7981 Oberzell, Germany

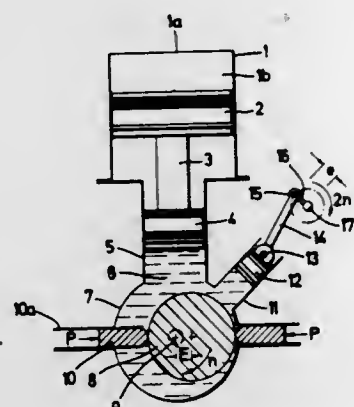
Filed Jan. 26, 1970, Ser. No. 5,675

Claims priority, application Germany, Jan. 27, 1969, P 19 03 851.8

Int. Cl. F02b 41/00

U.S. Cl. 60-19

11 Claims



A method of and apparatus for affecting the chronological course of movement of the working pistons of internal combustion operated prime movers, in which for purposes of converting the reciprocatory movement of the pistons into a rotary movement the transfer of power is effected through the intervention of hydraulic fluid in at least one hydraulic chamber, and according to which the quantity of hydraulic fluid in said hydraulic chamber is periodically changed whereupon following each change after a time period necessary for the working piston to carry out and/or two and/or four strokes, the quantity of hydraulic fluid prior to said change is restored in said hydraulic chamber.

3,635,015

RADIANT-ENERGY-DRIVEN ORIENTATION SYSTEM

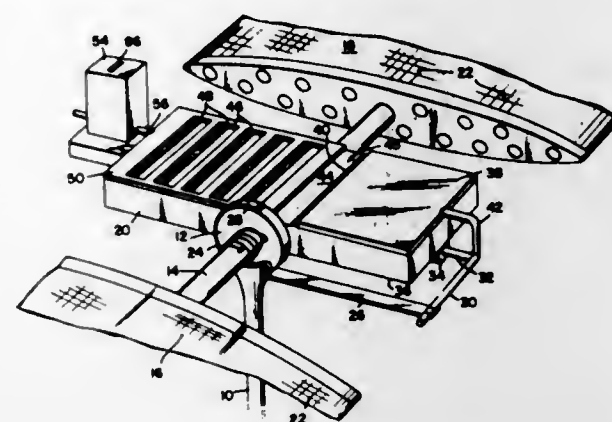
Ronald L. Samuels, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Original application Dec. 21, 1967, Ser. No. 692,400, now Patent No. 3,515,594, dated June 2, 1970. Divided and this application Sept. 19, 1969, Ser. No. 859,541

Int. Cl. F03g 7/06, 7/02

U.S. Cl. 60-23

6 Claims



Radiant energy apparatus which automatically orients itself relative to the radiation source. A sensing panel having an absorbing surface to be exposed generally toward the source and a radiating surface shielded from the source but thermally connected to the absorbing surface is variably covered by a sensor shutter which is controlled by passive, bimetallic, radiation-direction-sensitive means. A power drive unit including a thermally expansive fluid-filled cylinder and piston connected therewith is mounted on the panel and drives an orienting mechanism in response to the temperature of the sensing panel as determined by its angle of exposure toward the source, the degree of its shielding therefrom as by the sensing shutter, and the rate of thermal radiation from the sensing panel. The power drive element may also drive the second shutter for variable shielding of the panel for additional feedback control of the system.

3,635,016

ELECTROMECHANICAL ACTUATOR HAVING AN ACTIVE ELEMENT OF ELECTROEXPANSIVE MATERIAL

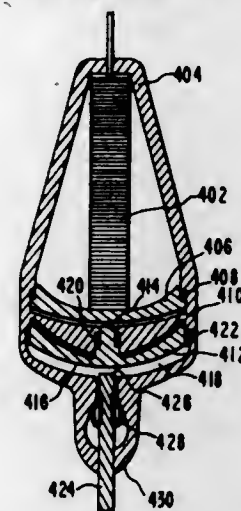
Glendon M. Benson, Danville, Calif., assignor to Physics International Company, San Leandro, Calif.

Original application Sept. 27, 1967, Ser. No. 671,065, now Patent No. 3,501,099. Divided and this application July 16, 1969, Ser. No. 870,715

Int. Cl. F01k 25/00

U.S. Cl. 60-23

2 Claims



An electromechanical transducer having an active module of electroexpansive material, such as piezoelectric material. A chamber filled with noncompressible fluid that is bounded by first and second plungers or diaphragms, the first plunger

being operatively connected to the module. The area of the second plunger is established at a size smaller than the first plunger so as to provide for motion amplification of the relatively small mechanical displacement of the electroexpansive module. An improved electroexpansive module and a method for making the same are also disclosed.

3,635,017

COMPOSITE THERMAL TRANSFER SYSTEM FOR CLOSED CYCLE ENGINES

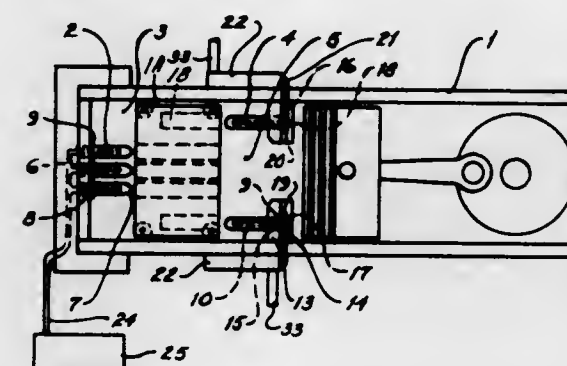
Donald A. Kelly, 58-06 69th Pl., Maspeth, New York, N.Y.

Filed Apr. 23, 1970, Ser. No. 31,269

Int. Cl. F03g 7/06

U.S. Cl. 60-24

7 Claims



The composite thermal transfer system consists of both internal and external means for rapidly transferring heat into the hot side, and removing heat from the "cold," heat sink side of C.C.E.'s.

The external transfer arrangement consists of both conventional heating and cooling means along with hot and freezing cold air flow from series air temperature splitters.

The internal transfer arrangement consists of multiple conduction rods within the hot and cold sides of the C.C.E. The cooling conduction rods carry liquid coolant into and out of each rod and are independently connected to a liquid coolant manifold reservoir. The hot conduction rods are hollow so that tiny burner tubes provide heating all along the length of the rod bore, and thereby into the engine hot gas volume.

The combined external and internal thermal transfer system provides a means of overcoming the usual heat transfer difficulties, particularly in the Stirling and Brayton cycle machines, but is also adaptable to Rankine cycle machines.

3,635,018

FLAME DETECTOR

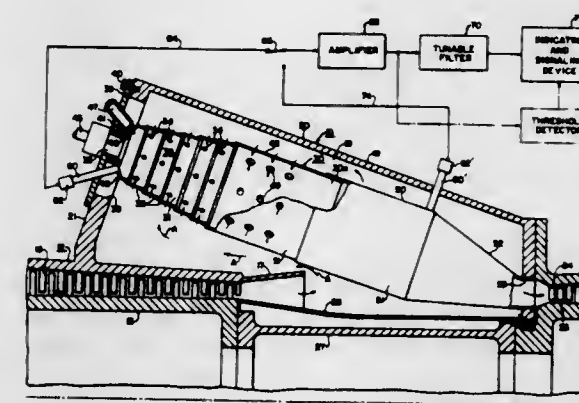
Serafino M. De Corso, Media, Pa., and Mitchell I. Meyer, Merrick, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 31, 1969, Ser. No. 889,413

Int. Cl. F02c 7/00; G08b 21/00; H04r 17/02

U.S. Cl. 60-39.09 R

4 Claims



Apparatus for detecting the existence of a flame in a combustion chamber by means including an electroacoustic

device for converting audible sounds which occur only when the flame is present into an electrical signal having a frequency component corresponding to the frequency of the audible sound. If necessary, a filter may be incorporated into the converting means for eliminating frequencies which occur due to the introduction of fuel and/or a gas containing oxygen into the combustion chamber without the existence of a flame.

Alternatively, a threshold detector can be incorporated into the system for detecting audible sounds above a predetermined sound level only, which sounds are those due to the existence of a flame.

3,635,019

GAS TURBINE POWER PLANT

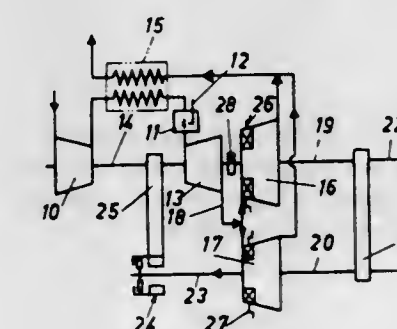
Sven-Olof Kronogard, and Clas-Olof Kronogard, both of Lomma, Sweden, assignors to Turbokonsult AB, Malmö, Sweden

Continuation-in-part of application Ser. No. 672,869, Oct. 4, 1967. This application Jan. 20, 1970, Ser. No. 4,275

Int. Cl. F02c 3/10

U.S. Cl. 60-39.16

9 Claims



A gas turbine power plant may consist of a gas producer, a main power turbine utilized for driving a load, as well as an auxiliary turbine fed by the same gas producer as the main power turbine and utilized for some auxiliary purpose. In many installations the required output from the main power turbine, as well as from the auxiliary turbine may vary considerably from time to time. These varying working conditions will of course influence the requirements of output from the gas producer.

In order to meet these varying conditions, power transfer means are arranged between the two turbines, as well as between any or both of said turbines, and the gas producer in such a manner that the output from the power-producing components may be utilized in the best way depending on the occasional load imposed on the plant. To facilitate the governing of the plant the main power turbine and the auxiliary turbine each have a rotor arranged in parallel gas passages from the gas producer, and at least one of said turbines is provided with means for governing the gas supply therefrom.

3,635,020

DRIVING SYSTEM FOR MOVING RAILS OF TEXTILE MACHINES

Werner Mahlmann, Rechberghausen, Germany, assignor to Zinser-Testmaschinen Gesellschaft mit beschränkter Haftung, Ebersbach, Germany

Filed Oct. 28, 1970, Ser. No. 84,850

Claims priority, application Germany, Oct. 28, 1969, P 19 54 194.7

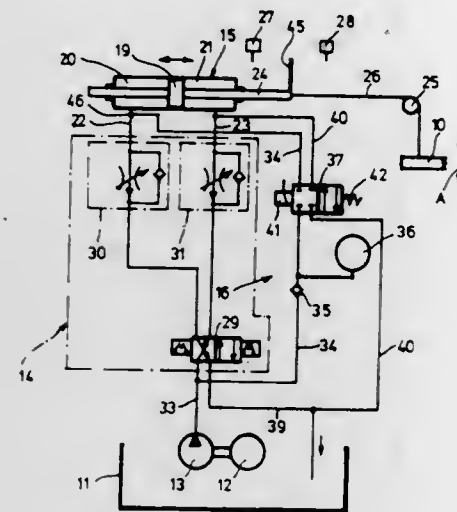
Int. Cl. F15b 1/02

U.S. Cl. 60-51

7 Claims

In a yarn winding textile machine, with a main hydraulic control circuit that causes reciprocation of a ring rail, there is associated a hydraulic emergency resetting circuit which in-

cludes a solenoid valve also forming part of the main circuit and a hydraulic pressure accumulator. The resetting circuit is connected in such a manner to the hydraulic motor of the main control circuit that upon electric power failure the sole-



noid valve is automatically switched, causing the hydraulic pressure from the pressure accumulator to rapidly move said hydraulic motor and thus said rail into a position where no normal yarn winding may take place.

3,635,021

HYDRAULIC SYSTEM

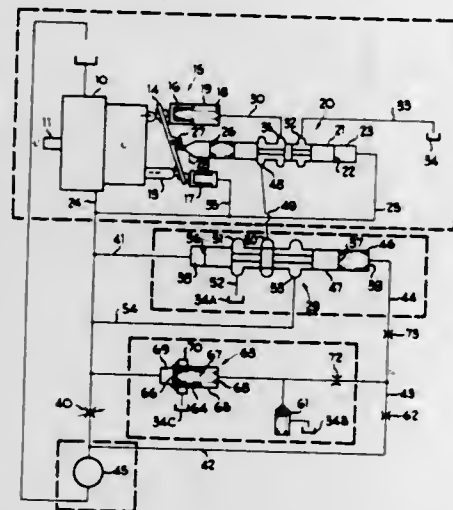
Kenneth G. McMillen, Wolcottville, and Wendell E. Miller, Warsaw, both of Ind., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 16, 1969, Ser. No. 867,021

Int. Cl. F15b 1/00; F04b 49/00, 1/26

U.S. Cl. 60—52 US

33 Claims



Pump controls having a sensor valve that operates between two positions to control the displacement of a pump in response to pressure differentials caused by flow through a variable orifice. Override of the sensor valve is provided by a pressure and displacement sensitive valve thereby limiting the input torque of the pump.

3,635,022
CONTROLLABLE CONDITION ROTARY DRIVE SYSTEM

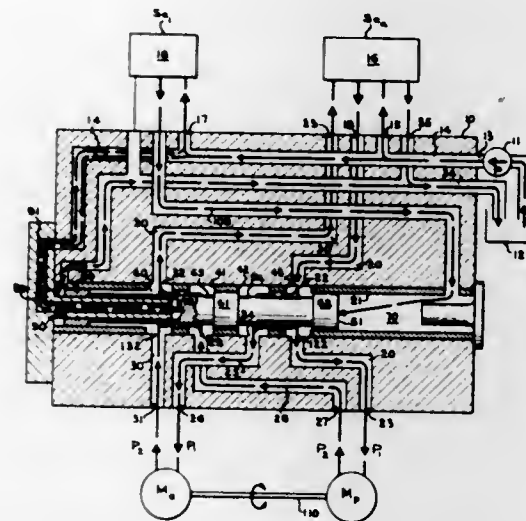
Richard J. Lewis, New Hartford, N.Y., assignor to The Bendix Corporation

Filed Sept. 18, 1970, Ser. No. 73,474

Int. Cl. F15b 11/16

U.S. Cl. 60—53 R

9 Claims



A system comprising a pair of reversible hydraulic motors driving a common rotary output shaft such as a machine tool drive lead screw or the like. A control system consisting of a hydraulic transfer valve for selectively coupling the hydraulic motors in either a series or parallel drive arrangement to selectively obtain high-torque low-speed or low-torque, high-speed mode of operation during either forward or reverse drive conditions. An actuator for the transfer valve and a flow-reversing valve both adapted to be separately responsive to electrical digital-type signals of the type generated by numerical machine tool computer control systems.

3,635,023

HYDRAULIC TRANSMISSION

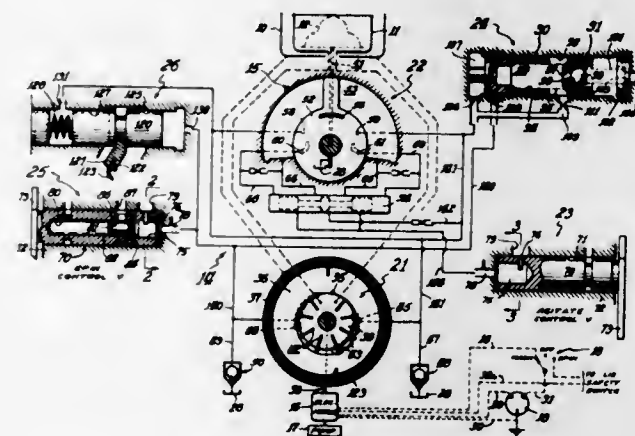
Robert W. Wayman, Bloomfield Hills, Mich., and Howard C. Wiemer, Muncie, Ind., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 31, 1968, Ser. No. 772,298

Int. Cl. F16d 31/06; D06f 23/04

U.S. Cl. 60—53 R

7 Claims



A hydraulic transmission for independently driving an agitator motor and a spin mechanism of an automatic washing machine with control mechanism for independently controlling the speed of each by using a manually adjustable rotary valve to establish the size of a variable-size orifice in the fluid exhaust line from the agitator motor and the spin

mechanism to control the speed of same. The rotary valves are positioned in a stationary portion of the transmission to provide for connection to the manual adjustment means.

dently thereof. Brake pedal means are provided for concurrently actuating the primary and secondary portions of the master cylinder.

3,635,024

MASTER CYLINDER ASSEMBLY

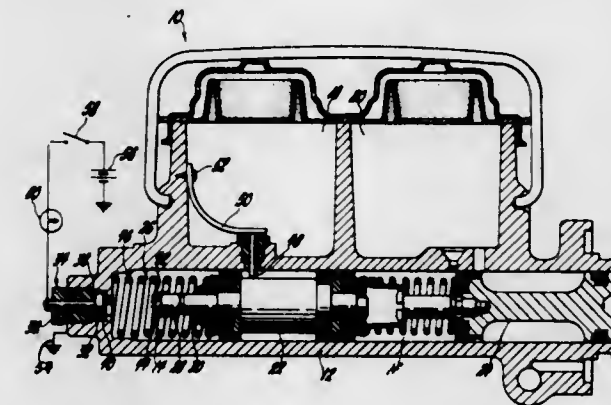
Robert W. Graham, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 7, 1970, Ser. No. 1,126

Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 E

13 Claims



A master cylinder assembly including a switch operative in accordance with the position of a hydraulic fluid pressurizing piston and an indicator device energized in accordance with the switch operation so as to indicate when the piston is positioned outside of predetermined limits. An insulating member is provided for preventing electrolysis of the hydraulic fluid between the switch contacts.

3,635,025

HYDRAULIC BRAKE SYSTEM

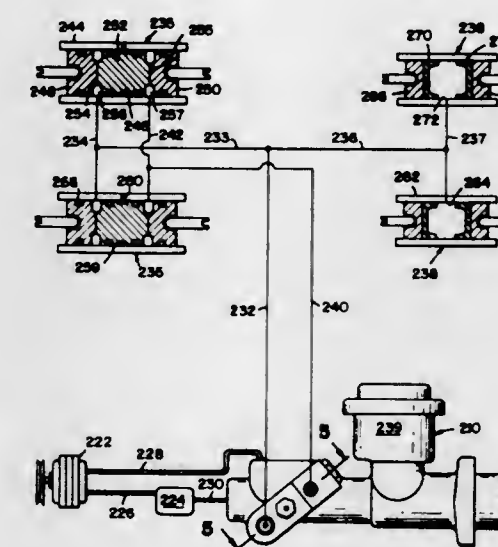
Herman M. Huffman, Owosso, Mich., assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Feb. 19, 1969, Ser. No. 800,589

Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 E

4 Claims



A dual power and manual hydraulic brake system for a motor vehicle including a fluid pressure operated mechanism for actuating wheel brake shoes or the like, a master cylinder containing a power or primary fluid pressure generating portion and a manual or secondary fluid pressure generating portion, and separate hydraulic circuits associated with the primary and secondary portions so as to provide separate power and manual brake systems. In the event of failure of one of the systems, the other system can operate indepen-

3,635,026

MOTOR VEHICLE DRIVE WITH A HYDRODYNAMIC TORQUE CONVERTER AND HYDRAULICALLY OPERABLE CLUTCHES

Wilhelm Hahn, Bergisch-Gladbach, and Helmuth Hoffmann, Refrath-Lustheide, both of Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany

Filed Dec. 4, 1969, Ser. No. 882,162

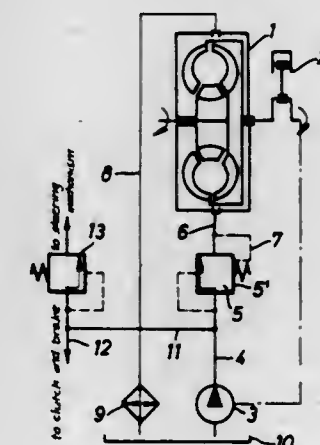
Claims priority, application Germany, Dec. 5, 1968, P 18 12

840.0

Int. Cl. F16d 31/06

U.S. Cl. 60—54

5 Claims



A vehicle drive with a hydrodynamic torque converter and hydraulically controlled clutches and brakes, in which the control pressure fluid conveyed to the means for actuating said clutches and brakes is controlled automatically in conformity with the respective torque exerted by the hydrodynamic torque converter.

3,635,027

ROTOR PRESTARTER AND BRAKE

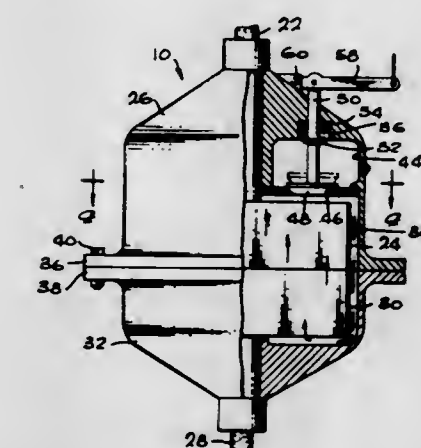
Max W. Moldenhauer, 241 Rennie Avenue, Venice, Calif.

Filed Dec. 22, 1969, Ser. No. 886,969

Int. Cl. F16d 31/06, 33/00

U.S. Cl. 60—54

6 Claims



An apparatus for transmitting rotational torque from a power shaft to a load shaft employing a pair of facing impellers, the impellers operating within a fluid chamber with each impeller being capable of forcing fluid into contact with the other impeller and effecting rotation thereof, a valve con-

trolled fluid relief chamber which when open to the fluid chamber causes nontransmission of rotational torque from one impeller to the other.

3,635,028

FLUID PRESSURE PRODUCING ASSEMBLY

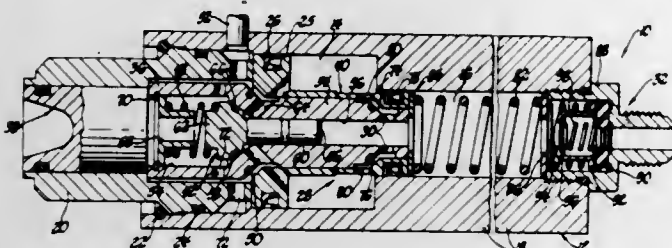
Clarence A. Sherman, Birmingham, Mich., assignor to Benton Corporation, Troy, Mich.

Filed Nov. 19, 1969, Ser. No. 878,100

Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 A

6 Claims



A fluid pressure producing assembly including a housing with a first piston member movably disposed in a first chamber and an elongated member extending through the first piston with a nose portion thereof which is disposed in a second chamber for defining a second piston. The elongated member has an enlarged intermediate portion which seats with the first piston member and a cavity therein with a relief valve means including a plunger movably disposed in a bore in the nose portion and a conical head section for engaging a female conical seat. A check valve in the form of a sleeve is disposed about a reduced end of the nose portion for blocking fluid communication between the first chamber and the outlet in the second chamber in response to a predetermined pressure in the second chamber or the outlet with the relief valve means thereafter decreasing the pressure in the first chamber in proportion to the increase in pressure in the second chamber.

3,635,029

COMPOSITE GAS TURBINE RAMJET ENGINE

Claude Charles Felix Menloux, Boulogne-sur-Seine, France, assignor to Societe Nationale D'Etude Et De Construction De Moteurs D'Aviation, Paris, France

Filed Sept. 5, 1969, Ser. No. 855,608

Claims priority, application France, Sept. 6, 1968, 165337

Int. Cl. F02k 3/02, 3/08

U.S. Cl. 60—224

7 Claims



A composite turbo-ramjet engine comprising, in combination:

two ducts separated from each other by a wall and supplied with air from a common air intake, the two ducts consisting of, firstly, a primary turbojet duct which includes a gas-turbine-type gas generator of hot gases, a primary discharge nozzle, and adjustable means to block off the said primary nozzle, and secondly, a secondary duct including a secondary combustion chamber for ramjet operation and a secondary discharge nozzle;

at least one connecting passage between the primary and the secondary ducts, the said passage being formed through the said wall downstream of the turbine and upstream of the secondary combustion chamber;

adjustable obturation means for the said connecting passage, and
adjustable obturation means for the secondary ramjet duct upstream of the secondary combustion chamber.

3,635,030

DEVICE FOR PRODUCING BURNABLE GASES FOR THRUST ENGINES

Johannes Schubert, Unterhaching, and Rolf Fuchs, Pöing, both of Germany, assignors to Bolkow Gesellschaft mit beschränkter Haftung, Ottobrunn bei München, Germany
Original application Sept. 29, 1967, Ser. No. 671,658, now abandoned. Divided and this application Nov. 5, 1969, Ser. No. 871,012

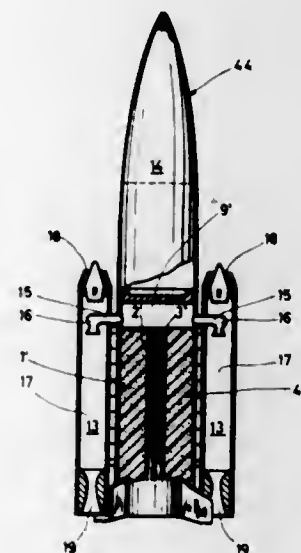
Claims priority, application Germany, Oct. 18, 1966,

P 15 71 248.8

Int. Cl. F02k 7/10, 9/06

U.S. Cl. 60—251

17 Claims



Burnable gases under pressure for operating engines such as thrust engines and particular rocket and ramjet engines are produced by arranging together two solid propellant charges, one of which comprises an auxiliary propellant charge having a high thermal efficiency and the other constituting a main propellant charge comprising a material of low heat of fusion and evaporation. The auxiliary charge is ignited by a fuse device and will burn off adjacent the main charge but shielded therefrom by a burn-off insulation. The burnable gases which are produced are directed by their own pressure through a gas duct into a combustion chamber where they are admixed with an oxidizer which may be supplied under the pressure force of the gases themselves.

3,635,031

EXHAUST MANIFOLD REACTOR

Mitchell J. Haddad, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 9, 1970, Ser. No. 70,753

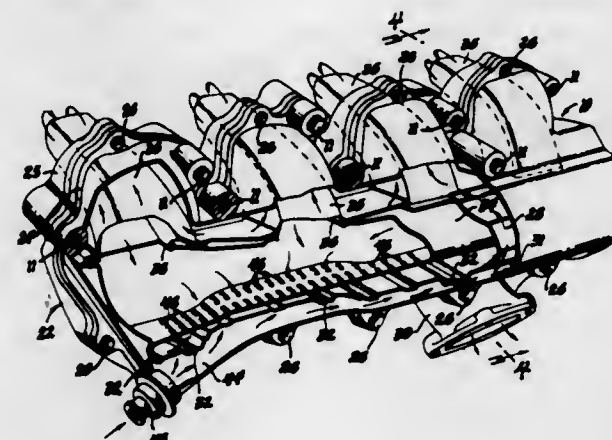
Int. Cl. F01n 3/10

U.S. Cl. 60—30 R

7 Claims

In preferred form, a sheet metal casing is divided by wall means into interior and exterior reaction chamber portions which receive a mixture of air and exhaust gases through a plurality of exhaust port liners connected with one portion and discharge the reaction products through outlet means connected with the other portion. A jacket surrounds the casing defining an air chamber through which fresh air is circulated, where it is preheated and acts as an insulator. Jacket outlets surrounding the inlet port liners deliver the preheated

air into the inlet ports, where it mixes with the engine exhaust gases at the ends of the port liners for subsequent reaction in the reaction chamber. Air distribution means provide



for proper distribution of the air throughout the jacket air chamber including circumferential movement of the air from a longitudinal distribution passage to the jacket outlets.

3,635,032

BOOM FOR OIL SPILT ON WATER

Denis Henry Desty, Weybridge; Leslie Bretherick, Ascot, and Michael Guthrie Webb, Isle of Wight, all of England, assignors to The British Petroleum Company Limited, London, England

Filed Aug. 26, 1969, Ser. No. 853,116

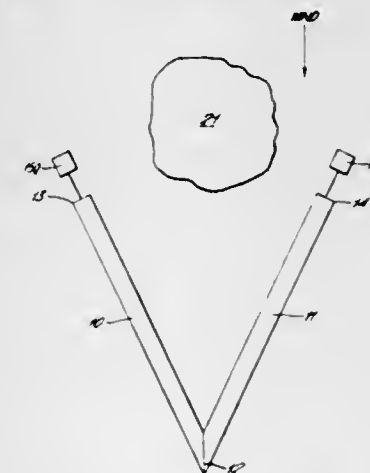
Claims priority, application Great Britain, Sept. 13, 1968,

43,697/68

Int. Cl. E02b 15/04

U.S. Cl. 61—1 F

4 Claims



A floatable oil spillage boom which comprises two arms so as to give a V-configuration. The boom is deployed downwind of a slick which drifts into the apex so that it is concentrated to facilitate collection or destruction. Inflatable booms, e.g. air- and water-inflated are particularly suitable.

3,635,033

BITUMINOUS COMPOSITIONS IN HYDRAULIC CONSTRUCTIONS

Hylco J. Th. Span, De Bilt, and Albert J. Woestenenk, Hintham, both of Netherlands, assignors to Bitumarin N.V., Zaltbommel, Netherlands

Filed Dec. 2, 1969, Ser. No. 881,607

Claims priority, application Great Britain, Dec. 16, 1968,

59,690/68

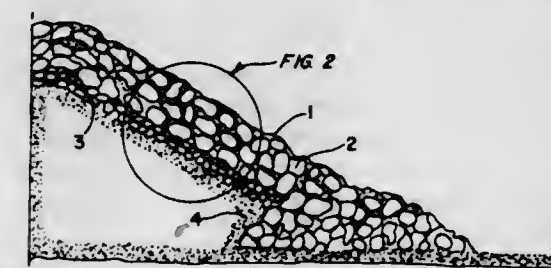
Int. Cl. E02b 3/06

U.S. Cl. 61—4

8 Claims

A method is provided for the stabilization of a water permeable breakwater construction composed of open layers

of stone or block. This method includes the steps of applying a viscous bituminous composition in discrete patches on the lining surface of the stone or block layers to form a discontinuous layer of the bituminous composition on the lining surface and then flowing the bituminous patches downwardly



through the lining surface to thereby extend the discontinuous layer of the bituminous composition beneath the lining surface. The finished breakwater construction has openings which extend completely through the bituminous layer and all the layers of stone or block.

3,635,034

METHOD OF PLUGGING MINE PASSAGES HAVING WATER EMANATING THEREFROM

Tommy R. Gardner, and John A. Knox, both of Duncan, Okla., assignors to The United States of America as represented by the Secretary of the Interior

Filed July 9, 1969, Ser. No. 840,494

Int. Cl. E01g 5/10; E21f 15/00

U.S. Cl. 61—35

4 Claims

The present invention relates to a method of plugging a mine passage and the like, having water emanating therefrom wherein a particulated solid material is deposited in the passage to form an initially permeable plug therein. The particulated solid material is of a type which will react with the water as it flows through the plug thereby neutralizing the water and forming a water-insoluble precipitate therein. As the flow of water continues through the plug, the permeability of the plug is progressively reduced by the precipitate and the flow of water subsequently shut off.

3,635,035

HYDROPLANE TRANSPORT SYSTEM

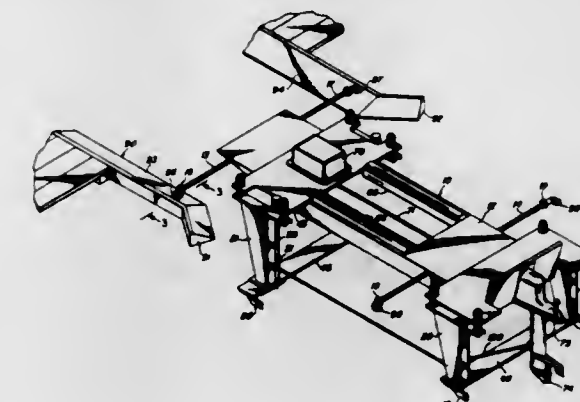
Richard R. Greer, 6122 E. Indian School Rd., Scottsdale, Ariz.

Filed Mar. 23, 1970, Ser. No. 21,817

Int. Cl. B63b 35/52

U.S. Cl. 61—67

6 Claims



A hydroplane system including a hydroplane having a plurality of vertically depending struts for supporting planing members extending therebetween. The struts are divided into forward and return pairs and are interconnected by braces pivotally secured to the struts near the bottom thereof. Each of the struts includes a plurality of auxiliary planing members secured thereto for effectively increasing the lift as the hydroplane craft settles into the water; further, an adjustable planing member is secured to the forward planing member

including mechanism for increasing the angle of attack thereof. An outdrive is utilized having a substantially vertical drive shaft connected to a propeller positioned below the rear planing member. The hydroplane system includes a docking arrangement having supporting wheels mounted on extensions extending transversely outwardly on the sides of the craft, the function in combination with a dock having a supporting surface positioned beneath the supporting wheels when the hydroplane is in a planing position and come in contact with the supporting wheels as the hydroplane settles into its settled position. Guide wheels are secured on the extensions adjacent the supporting wheels and engage a guiding surface on the dock to direct the craft into proper alignment with the dock.

3,635,036

METHOD AND APPARATUS FOR CONNECTING A PIPELINE ACROSS AN OBSTRUCTION

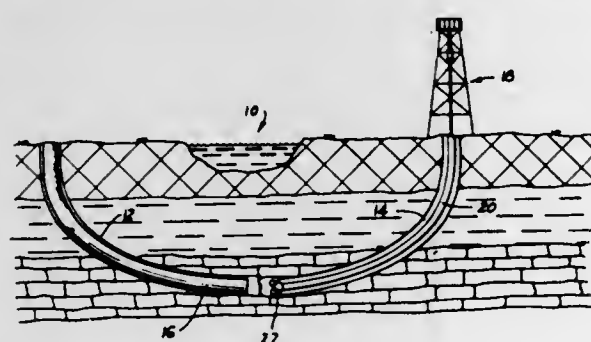
William Coggins Hooper, Jr., Wichita Falls, Tex., assignor to Trunkline Gas Company, Houston, Tex.

Filed Mar. 16, 1970, Ser. No. 19,959

Int. Cl. F161 1/00; E02g 3/00

U.S. Cl. 61—72.1

14 Claims



A first well bore is drilled from one side of an obstruction, such as a river. A second well bore is drilled from the other side until it intersects the first well bore. Casing is run into both well bores and connected together at the intersection of the well bores to provide a conduit for connecting the pipeline sections on opposite sides of the obstruction.

3,635,037

PELTIER-EFFECT HEAT PUMP

Helmut Hubert, Erda, Germany, assignor to Buderus'sche Eisenwerke, Wetzlar, Germany

Filed Aug. 31, 1970, Ser. No. 68,189

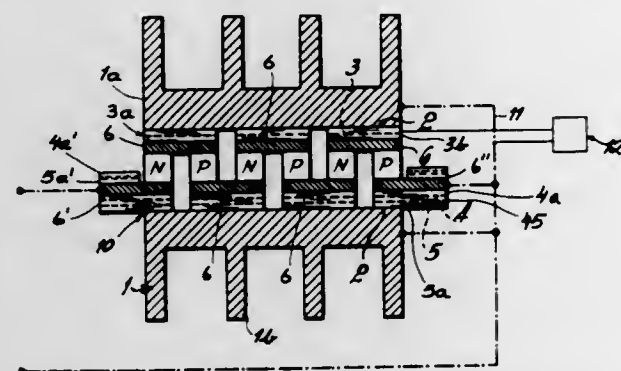
Claims priority, application Germany, Sept. 2, 1969, P 19 44

453.2

Int. Cl. F25b 21/02

U.S. Cl. 62—3

6 Claims



A Peltier-effect pile is mounted in a heat exchanger or heat sink with semiconductive barrier layers insulating the Peltier electrodes from the metal of the heat sink. The semiconductive layers are poled electrically or biased to minimize electrical conductivity thereacross but permit maximum heat flow between the Peltier pile and the heat exchange jacket.

JOINT SEPARATION OF ACETYLENE AND ETHYLENE FROM CRACKED GASES

Otto Nagel, Hambach; Rolf Platz, Mannheim; Kurt Taglieber; Kurt Weinfurter, and Dieter Wolf, all of Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhein, Germany

Filed May 16, 1969, Ser. No. 825,323

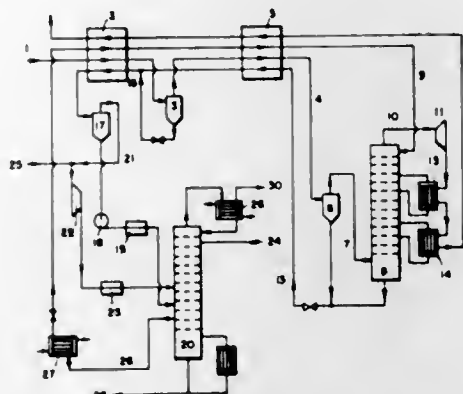
Claims priority, application Germany, May 16, 1968, P 17 68

460.5

Int. Cl. F25j 1/00, 3/00, 3/02

U.S. Cl. 62—17

6 Claims



A gas mixture (obtained by thermal cracking of hydrocarbons followed by quenching of the cracked gas and freed from carbon dioxide and water) is separated into a gas mixture containing hydrogen, carbon monoxide and methane and another gas mixture containing ethylene, acetylene and higher hydrocarbons by (a) cooling the gas mixture which is at superatmospheric pressure in at least one condensation stage to a temperature which is above the solidification temperature of acetylene mixed with the other condensed constituents, (b) separating the condensate thus obtained and subdividing it in a rectifying column into a first mixture containing C₂ hydrocarbons and a second mixture containing C₃ and higher hydrocarbons, and (c) freeing the residual gas remaining from (a) from residual acetylene and ethylene in a scrubber by treatment with some of the mixture consisting of C₃ and higher hydrocarbons from (b).

3,635,039
VAPOR TRAPS

Basil D. Power, Horsham, and Roger D. Oswald, Crawley, both of England, assignors to The British Oxygen Company Limited, Crawley, England

Filed Apr. 27, 1970, Ser. No. 32,452

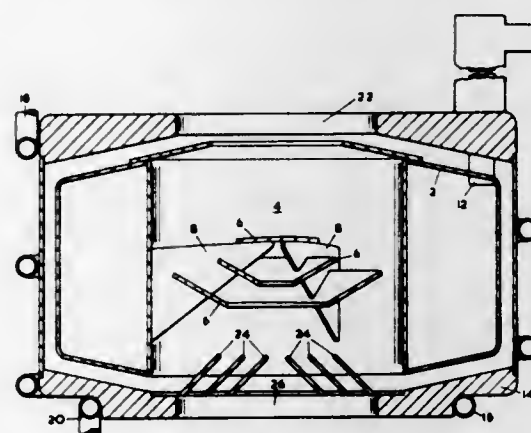
Claims priority, application Great Britain, Apr. 28, 1969,

21602

Int. Cl. B01d 5/00

U.S. Cl. 62—55.5

11 Claims



In a refrigerated vapor trap for a vapor vacuum pump, the refrigerated trapping surfaces are arranged to be screened

from external heat sources by additional water-cooled surfaces so that should the supply fail of the refrigerating liquid (such as liquid nitrogen) then the trapping surfaces reach a temperature which is still below ambient.

3,635,040

INGREDIENT WATER CHILLER APPARATUS

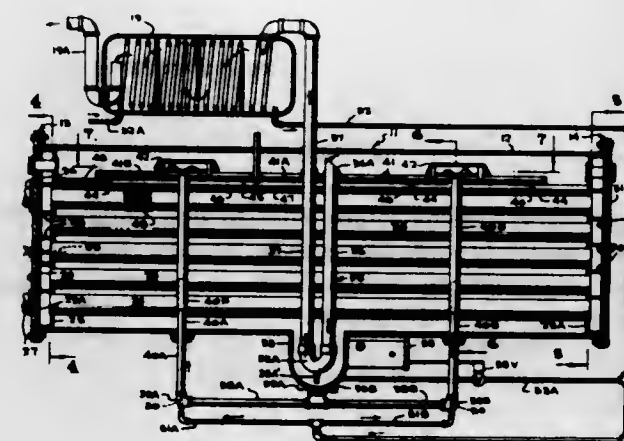
William F. Morris, Jr., 801 Fayetteville St., Raleigh, N.C.

Filed Mar. 13, 1970, Ser. No. 19,416

Int. Cl. F25b 41/04

U.S. Cl. 62—219

8 Claims



A cooler unit for cooling ingredient water or other liquids, wherein the liquid may be used in processing foods by direct contact with the foods or edible liquids may be cooled. The cooler unit includes a generally cylindrical tank of shell-and-tube construction having an array of 3-inch diameter stainless steel tubes and end chambers partitioned by baffles connecting the tubes in series circuit relation, all surfaces exposed to the ingredient liquid being stainless steel. Liquid refrigerant is supplied to the interior of the shell above the tube array to discharge in droplets over the outer tubes surfaces along their whole length.

3,635,041

HEATING AND COOLING REFRIGERATION APPARATUS

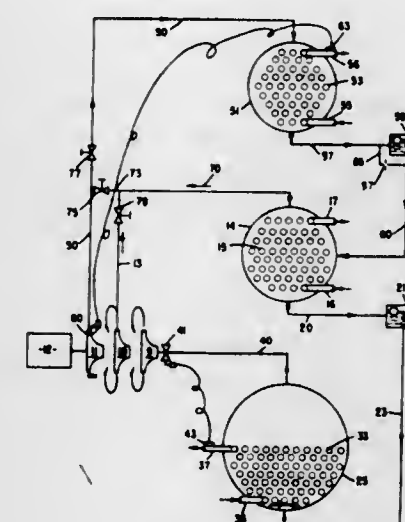
James W. Endress, and Carl M. Anderson, both of Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed July 13, 1970, Ser. No. 54,175

Int. Cl. F25b 41/00

U.S. Cl. 62—117

7 Claims



Refrigerant vapor is passed from a stage, other than the last stage, of a multistage compressor to a condenser. Liquid refrigerant is metered from the condenser to an evaporator

or cooler. Refrigerant vapor flow from the cooler to the inlet of the compressor is regulated by control means according to the cooling load. The output of the last stage of the compressor is passed to a second separate condenser containing a tube bundle connected to a heating line. The volume of refrigerant flow to the second condenser is regulated in accordance with the heating demand. Liquid refrigerant is metered from the second condenser to the first condenser. With low-cooling demand and high-heating demand, said first condenser serves as a flash economizer to supply refrigerant vapor to the intake of the last stage of the compressor.

3,635,042

METHOD AND APPARATUS FOR WITHDRAWING HEAT FROM INDUSTRIAL PLANTS, ESPECIALLY POWER PLANTS

Kurt Spangemacher, Bochum, Germany, assignor to Maschinenbau-Aktiengesellschaft Balcke, Bochum, Germany

Filed Oct. 29, 1969, Ser. No. 872,161

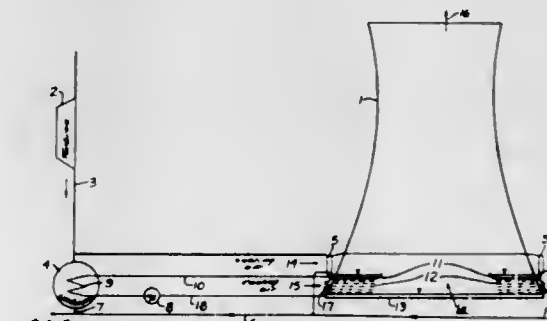
Claims priority, application Germany, Nov. 2, 1968, P 18 06

656.3

Int. Cl. F28c 1/00

U.S. Cl. 62—121

9 Claims



A method of and apparatus for withdrawing waste heat from industrial plants, especially power plants, preferably for condensing turbine steam, by cooling the steam or water by wet and dry cooling tower means, according to which the waste heat is conveyed to the cooling air of a cooling tower structure having a wet cooling tower component, preferably of annular shape and to a dry cooling tower component above and in close relationship to said dry cooling tower component and preferably likewise of annular shape, the cooling air for said two cooling tower components being respectively supplied thereto separately from each other, whereas the heated up cooling air is withdrawn in common from said two cooling tower components.

3,635,043

HOUSEHOLD REFRIGERATOR INCLUDING AUTOMATIC ICEMAKER AND DOOR MOUNTED ICE STORAGE RECEPTACLE

John E. Sterling, Louisville, Ky., assignor to General Electric Company

Continuation of application Ser. No. 826,541, May 21, 1969, now abandoned. This application Mar. 16, 1970, Ser. No.

20,077

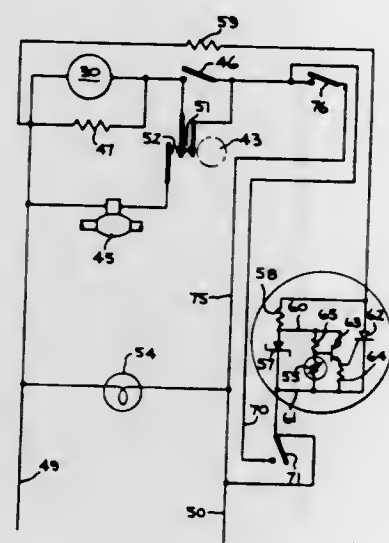
Int. Cl. F25c 1/10

U.S. Cl. 62—137

4 Claims

A refrigerator comprising a compartment having an access opening, a door for closing the opening, an ice storage receptacle mounted on the door for storing ice pieces and an automatic ice maker supported within the compartment. The ice maker is controlled for periodic operation through a harvesting cycle during which ice pieces are discharged to the receptacle and a fresh charge of water is thereafter supplied to the ice maker. The power supply for the ice maker comprises a

first supply circuit including means for interrupting the power supply when the receptacle is not positioned to receive ice pieces discharged by the icemaker and a second



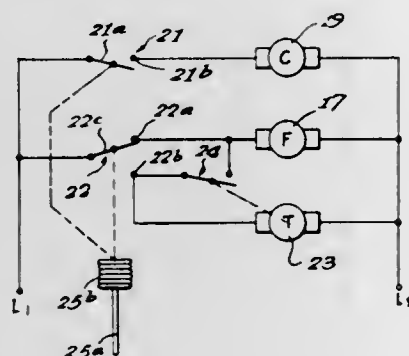
supply circuit for assuring the supply of power to the ice maker in the event that the rod is supply circuit is opened during the water supply portion of the harvesting cycle.

3,635,044
AUTOMATIC CONTROL WITH ROOM AIR SAMPLING MEANS FOR WINDOW AIR CONDITIONER
Gene A. Heth, St. Joseph, Mich., assignor to Whirlpool Corporation

Filed Nov. 3, 1969, Ser. No. 873,450
Int. Cl. F25d 17/00

U.S. Cl. 62-157

12 Claims



An air conditioner control circuit having a thermostat for automatically causing the air conditioner to be deenergized at predetermined low temperatures and including a timing device causing the room air to be periodically delivered to the thermostat of the air conditioner for providing improved automatic thermostatic control of the air conditioner. The means for bringing the air to the thermostat may comprise an automatic timer for periodically energizing the fan of the air conditioner at temperatures below the predetermined low.

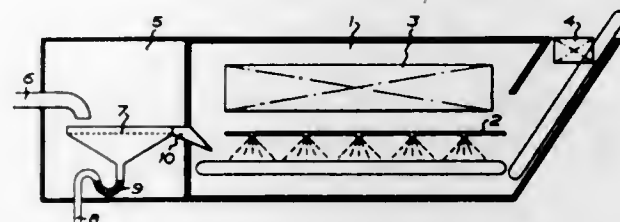
3,635,045
FEED DEVICES
Per Sture Astrom, Helsingborg, Sweden, assignor to Frigoscandia Contracting AB, Helsingborg, Sweden
Filed Feb. 16, 1970, Ser. No. 11,590
Claims priority, application Sweden, Feb. 27, 1969, 2670/69
Int. Cl. F25d 25/00

U.S. Cl. 62-266

4 Claims

A feed device for products consisting of solid particles serves to feed said products without inclusion of air to a

space, in which they are frozen, via a prechamber constituting an air lock for the products fed to the freezing space.

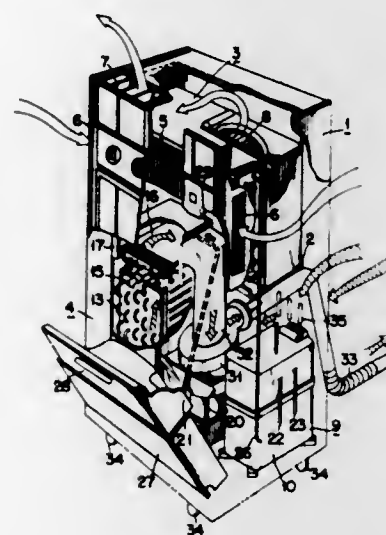


3,635,046
AIR-CONDITIONING APPARATUS
Yoshinari Sato, Yokohama-shi; Hiroshi Itoh, Fuji-shi; Hideki Sano, Fujinomiya-shi, and Masao Tanaka, Fuji-shi, all of Japan, assignors to Tokyo Shibaura Electric Company Limited, Kawasaki-shi, Japan

Filed Dec. 23, 1969, Ser. No. 887,793
Claims priority, application Japan, Mar. 13, 1969, 44/22057; 44/22058; 44/22059
Int. Cl. F28d 5/00

U.S. Cl. 62-305

7 Claims



A cabinet-type air-conditioning apparatus including a compressor, a condenser which contains a cooling air circulation system and an evaporator, characterized in that water is sprayed onto the condenser to cool it by the heat of evaporation, and the circulating cooling air entraining evaporated water is passed over the condenser before it is discharged to the outdoor to cool high-temperature gaseous refrigerant compressed by the compressor.

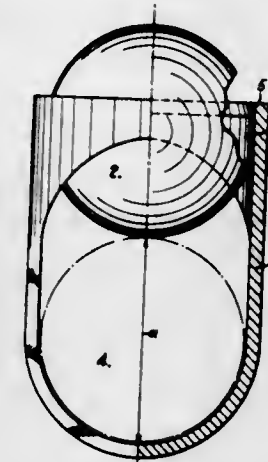
3,635,047
FINGER RING WITH READILY REMOVABLE PIECE DISPLAYED THEREBY
Albert Gilbert, 7, rue du Simplon, 1207 Geneva, Switzerland
Filed Feb. 16, 1970, Ser. No. 11,798
Claims priority, application Switzerland, Mar. 5, 1969, 3307/69
Int. Cl. A44c 17/00

U.S. Cl. 63-29

4 Claims

The invention concerns a finger ring having a mounting provided with at least one mounted piece or stone. The mounted piece is slidably engaged in a housing of the mount-

ing and located in service position, against an abutment of the housing, by the fringes when the ring is worn. When the

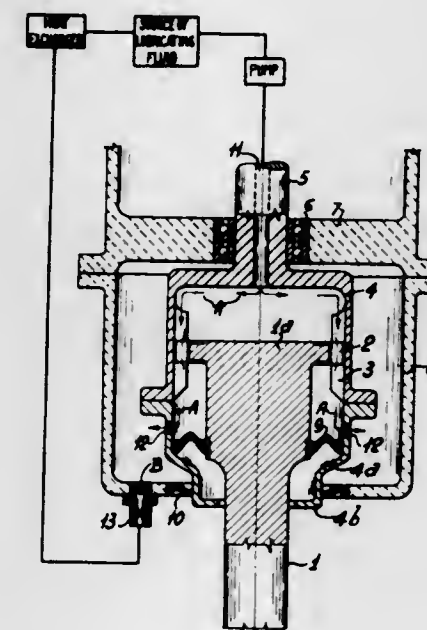


ring is taken off the finger the owner may take the stone out of the housing to replace it by another stone.

3,635,048
UNIVERSAL GEAR COUPLING
Giancarlo Monti, Varese, Italy, assignor to Stal-Marchetti S.p.A., Varese, Italy
Filed Dec. 23, 1969, Ser. No. 887,796
Claims priority, application Italy, Dec. 24, 1968, 25560 A/68
Int. Cl. F16d 3/18

U.S. Cl. 64-9 R

3 Claims



A universal gear coupling including a driving and driven shaft, a housing surrounding the gears and rotatable at least with one of the shafts, a casing surrounding the housing and conduit means for circulating a lubricating fluid through the housing, the gears and the casing.

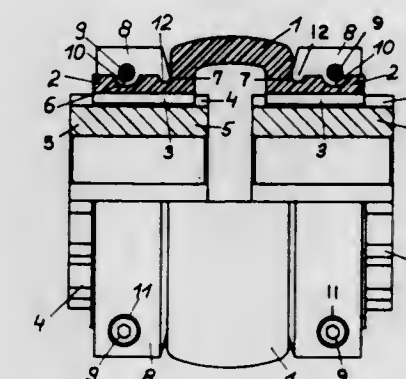
3,635,049
RESILIENT SHAFT COUPLING
Karl Schlotmann, Jaegerweg 13; Heinz-Dieter Bohm, Peukinger Weg 18, both of 475 Unna, and Werner Rugger, Lessingstrasse 7, 4757 Holzwickede, all of Germany
Filed Apr. 8, 1970, Ser. No. 31,044
Claims priority, application Germany, Apr. 4, 1969, P 19 18 621.1
Int. Cl. F16d 3/18

U.S. Cl. 64-11 R

10 Claims

A resilient shaft coupling wherein a pair of hub members is tied together for torque transmission by a flexible coupling

member U-shaped in cross section and having generally the configuration of an automotive tire. Each hub member is provided with a torque-transmitting gear in mating engagement with a cooperating torque-transmitting gear on each of a pair of flange portions of the coupling member. The coupling is further provided with additional means for

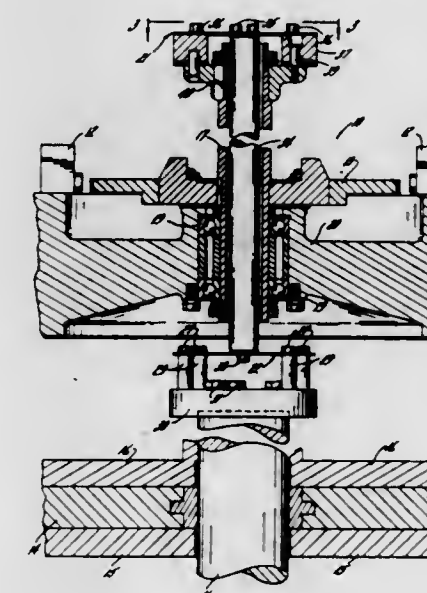


precluding disengagement of the mating torque-transmitting gears, and any undesired relative movement thereof. For these reasons the coupling allows transmission of relatively larger blocks of power than possible with comparable prior art resilient couplings, and transmission of blocks of power at higher numbers of revolution per unit of time than possible with comparable prior art resilient couplings.

3,635,050
DRIVE TRANSMISSION WITH UNIVERSAL COUPLINGS
Alan C. Plummer, Rockford, Ill., assignor to Woodward Governor Company, Rockford, Ill.
Filed Nov. 25, 1969, Ser. No. 879,658
Int. Cl. F16d 3/78

U.S. Cl. 64-13

6 Claims



A generator shaft is connected to the toothed wheel of a speed sensor by torsionally rigid but axially deflectable flat coupling plates which enable driving of the wheel in a precisely fixed plane while accommodating misalignment between the wheel and the shaft in all planes.

3,635,051

KNITTING METHOD

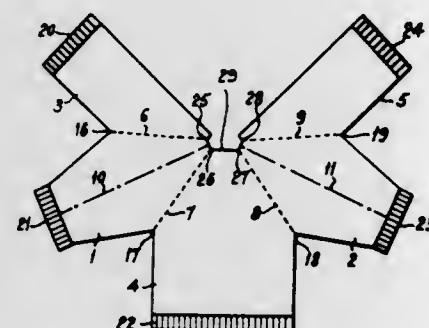
Max William Betts, Coventry, and Frank Robinson, Boro-
rowash, both of England, assignors to Courtaulds Limited,
London, England

Filed Nov. 12, 1968, Ser. No. 774,623

Int. Cl. D04b 1/24

U.S. Cl. 66-128

1 Claim



A method of machine knitting a one-piece blank for mak-
ing up into a garment; sleeve-ports of the blank are joined
at their ends to at least one body portion and the joined parts
are knitted with the same yarn whereas the parts of the
sleeve and body portions which are separated from one
another are knitted independently.

3,635,052

DEVICE FOR TENSIONING THE THREAD ON A
TEXTILE MACHINE

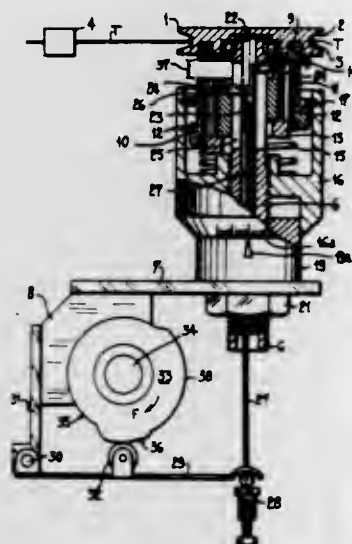
Michel Monney, Geneva, Switzerland, assignor to Plasmeca,
Jean Piemontesi & Cie, Carouge, Switzerland

Filed Apr. 6, 1970, Ser. No. 25,686

Claims priority, application Switzerland, Apr. 19, 1969,
6025/69

Int. Cl. D04b 15/44

U.S. Cl. 66-146



A device for tensioning the thread on a textile machine,
which comprises a retaining pulley rotatable by a pulled
thread, and a brake for braking rotation of the pulley to give
a preliminary tension to the thread downstream of the pulley.
The brake comprises control means adapted automatically to
modify the opposing force exerted on the pulley for modify-
ing the preliminary tension of the thread during specific
stages of the process of working the thread on the machine.

3,635,053
SYSTEM FOR CONVERTING LARGE DYE BECKS INTO
A PLURALITY OF SMALL DYE BECKS

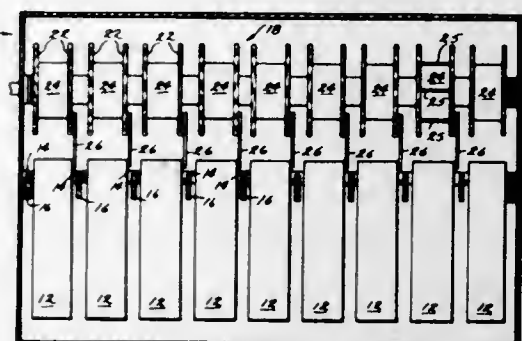
Winfield C. Daniel, Clarksville, Va., assignor to Burlington
Industries, Inc., Greensboro, N.C.

Filed Nov. 24, 1969, Ser. No. 879,443

Int. Cl. B05c 3/103

1 Claim U.S. Cl. 68-4

9 Claims



A conversion system for dye becks provides a plurality of
relatively small vessels which can be fitted within a large dye
beck when it is desired to convert the large beck into a
number of smaller treating vessels which can carry out
separate dyeing or treating operations on separate samples.
The small vessels are generally in the form of individual dye
becks having their own fluid inlets and drains for receiving
treating fluids therein. The individual vessels are provided
with hanging devices for supporting a series of such vessels
within a relatively large dye beck. The large dye beck is pro-
vided with a drive reel mounted in a position above the
operational positions of the plurality of smaller vessels car-
ried therein, and the drive reel functions to handle yardage
samples for the individual vessels.

3,635,054

APPARATUS FOR WASHING FABRIC WEB

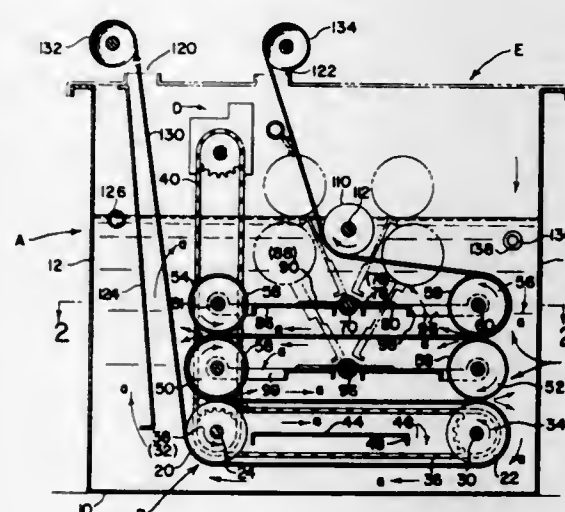
Charles H. Amidon, Jr., Warminster, Pa., assignor to Gulf &
Western Systems Company, New York, N.Y.

Filed Aug. 31, 1970, Ser. No. 68,167

Int. Cl. B05c 3/152, 3/176

U.S. Cl. 68-43

15 Claims



An apparatus for processing fabric web or like materials in
a liquid wherein a pair of elongated rolls are generally
horizontally mounted parallel to each other for rotation in a
liquid holding tank below a selected liquid level. Both of the
rolls in the pair are rotated in the same direction by outside
drive means. One or more pressure rolls are also rotatably
mounted below the liquid level parallel to the pair of rolls

and biased into rolling engagement with one of the rolls in
the pair. The biased mounting of each pressure roll com-
prises pivotal mounting and provides means whereby the
pressure rolls may arcuately move from the engaged position
to a position spaced therefrom in order to facilitate ease of
fabric web threading into the apparatus.

3,635,055

TWIN AGITATOR WASHING MACHINE

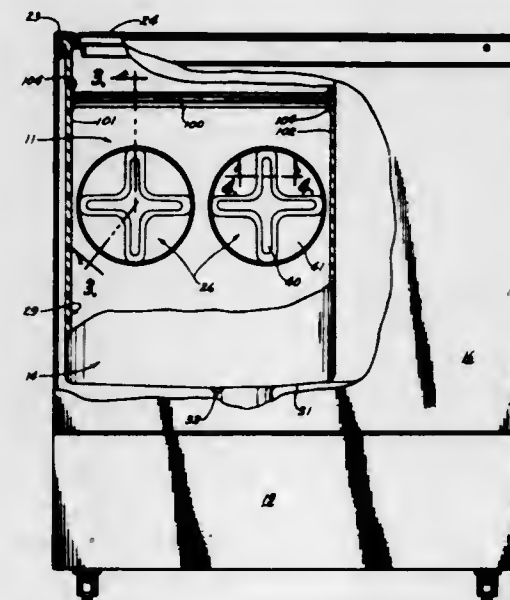
Thomas R. Smith, Newton, Iowa, assignor to The Maytag
Company, Newton, Iowa

Filed Dec. 18, 1969, Ser. No. 886,118

Int. Cl. D06d 17/08

U.S. Cl. 68-131

11 Claims



A washing apparatus includes a substantially rectangular
washing container having a pair of agitators mounted side by
side on one generally vertical sidewall. The agitators are ro-
tatively driven by a motor alternately in a first common
direction and a second common direction. A substantially
horizontally extending fluid deflector is attached to the
sidewall above the agitator for directing fluid from the agita-
tor back into the container.

3,635,056

LIQUOR-CIRCULATING DEVICE IN A HIGH-
TEMPERATURE AND HIGH-PRESSURE DYEING
MACHINE

Mikio Sato; Yoshiki Hohrai, both of Nagoya, and Koji
Fuziyoshi, Hekikai-gun, all of Japan, assignors to Nihon
Senboku Kikai Kabushiki Kaisha, Kanbe-cho, Ama-gun,
Aichi Prefecture, Japan

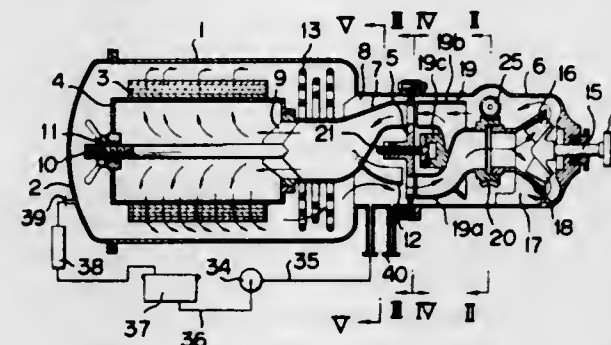
Filed Mar. 10, 1969, Ser. No. 805,649

Claims priority, application Japan, Apr. 4, 1968, 43/22343

Int. Cl. B05c 8/02

U.S. Cl. 68-189

6 Claims



A liquor-circulating device in a high-temperature and high-
pressure dyeing machine is disclosed, which comprises a

pump casing, a pressured vat connected to said casing, a per-
forated cylindrical support provided within said vat and hav-
ing fabrics to be treated wound around its outer periphery, a
fixed partition mounted between said pump casing and said
pressured vat and having a pair of liquor flowing holes com-
municated respectively with the inside and outside of said
cylindrical support, a switching valve provided within said
pump casing and having a liquor delivery section and a liquor
suction section, each of said sections including a liquor-com-
municating aperture shaped similarly and opposed to each of
said liquor flowing holes, and a driving member for said
switching valve, whereby said driving member may cause said
switching valve to rotate to change the relative position
between each said liquor communicating aperture and each
said liquor flowing hole in said fixed partition and thus ac-
complish an adjustment in the direction of flow and the flow
rate of the liquor fed by means of a pump.

3,635,057

AUXILIARY LOCK ASSEMBLY

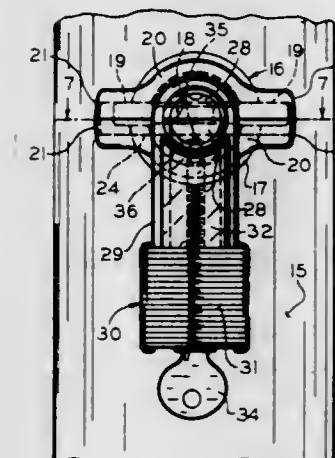
Daniel J. Foote, Wauwatosa, and Samuel M. Soref, Milwau-
kee, both of Wis., assignors to Master Lock Company, Inc.

Filed Aug. 18, 1970, Ser. No. 64,691

Int. Cl. E05b 17/14

U.S. Cl. 70-424

10 Claims



To prevent unauthorized access to the steering-ignition
system lock in the steering column of a motor vehicle, or the
like, a lockable, sectional enclosure is provided to enclose
the steering-ignition system lock. Connected to the sections
of the enclosure to permit relative opening and closing move-
ments of the latter in a rectilinear path is the shackle of a
padlock which may be locked or released to respectively
hold the sections in their closed protecting condition,
wherein access to the steering-ignition lock is precluded, or
in their open, separated position for authorized key access to
said steering-ignition lock or complete removal of the auxilia-
ry lock assembly therefrom.

3,635,058

KEYRING CONSTRUCTION

Emil S. Polk, 6 North Street, Mount Vernon, N.Y.

Filed May 27, 1970, Ser. No. 40,764

Int. Cl. A44b 15/00

U.S. Cl. 70-459

3 Claims

A keyring construction including a discontinuous annular
ring defining an interstice for the selective engagement of
keys, a casing element having a pair of openings therein
through which said ring passes, and resilient locking means
disposed within said casing element projectable into said in-
terstice, to prevent movement of said ring relative to said

casing element, whereby removal of keys is prevented, said resilient means being disengaged by translational movement



of said ring relative to said casing element, followed by rotational movement thereof.

3,635,059

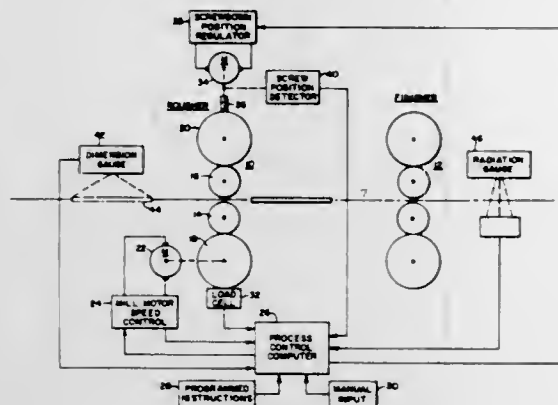
CALIBRATION OF ROLLING MILL SCREWDOWN POSITION REGULATOR

Andrew W. Smith, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 18, 1969, Ser. No. 859,084

Int. Cl. B21b 37/00

U.S. Cl. 72-8

12 Claims



The screwdown position regulator of a rolling mill stand is usually calibrated in relation to a measured loaded roll opening or product thickness. Certain rolling mill arrangements, such as a two-stand reversing plate mill, include a length gage rather than a thickness gage at the stand, so some other method of maintaining screwdown calibration is required. The length measurements along with screwdown position and roll force measurements from two selected passes can be used in a constant volume relationship to determine the calibration of the screwdown system.

3,635,060

THRUSTING ARRANGEMENT FOR A ROLLING MILL

Akira Hosoji, Saeki-gun, and Toshiharu Takatsu, Hiroshima, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 2, 1969, Ser. No. 854,617

Claims priority, application Japan, Sept. 3, 1968, 43/62735

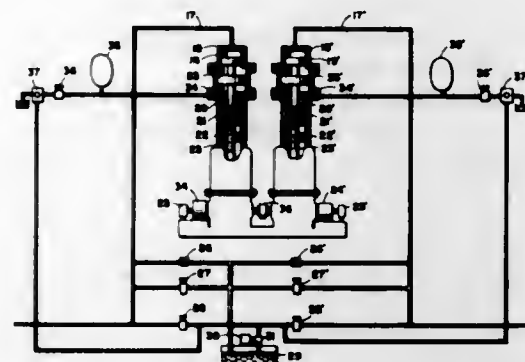
Int. Cl. B21b 37/08

U.S. Cl. 72-20

4 Claims

A thrusting arrangement for a rolling mill which has a large diameter hydraulic piston maintaining pressure on the working rolls to maintain the roll gap includes a hydraulic device

hydraulically coupled to the large diameter piston and including relatively small diameter piston means displaceable in cylinder means and connected to piston rod means. The arrangement includes means operable to apply, to the small diameter piston means, a back pressure opposing the pres-



sure thereon resulting from the hydraulic coupling to the large diameter piston and due to the rolling force exerted by the work on the working rolls. Mechanical means are connected to the piston rod means to displace the small diameter piston means, and may comprise a screw and nut arrangement driven by either an electric motor or a hydraulic motor.

3,635,061

FORMING APPARATUS FOR HYDRAULIC PRESS

Nils Folke Rydell, Trollhattan, Sweden, assignor to Saab Aktiebolag, Linköping, Sweden

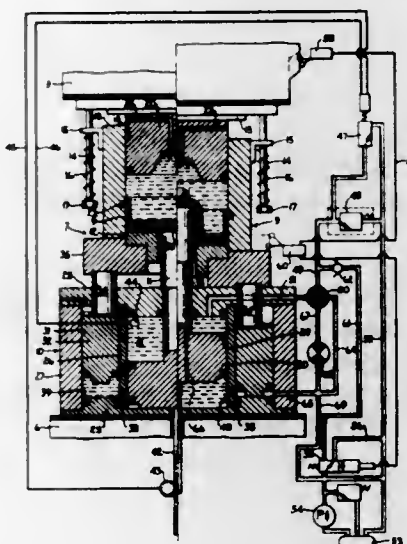
Filed Dec. 5, 1969, Ser. No. 882,652

Claims priority, application Sweden, Dec. 9, 1968, 16777/68

Int. Cl. B21d 22/12

U.S. Cl. 72-63

11 Claims



In a hydraulic forming tool of the diaphragm type, the punch and the work holder or die member are rigidly mounted on separate pistons that move in communicated cylinders, so that downward movement of one effects upward movement of the other by reason of displacement of fluid from the bottom of one of said cylinders to the bottom of the other. Adequate forming force is assured by metering outflow of fluid from the upper portion of the cylinder having the upgoing piston.

3,635,062

MACHINE FOR ROLLING TAPERED GEARS

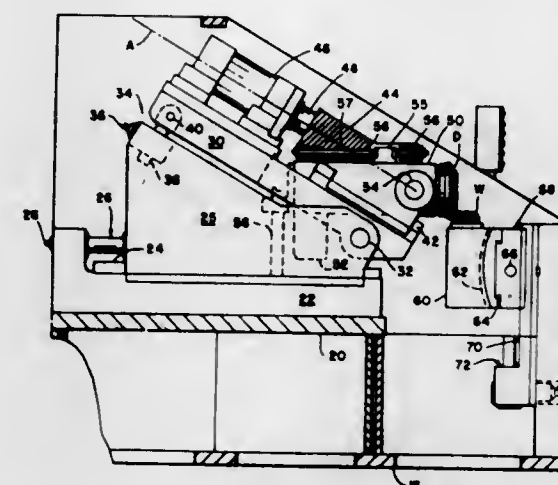
Benjamin F. Bregl, and Richard W. Tersch, both of Grease Pointe Shores, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed May 13, 1970, Ser. No. 36,932

Int. Cl. B21h 5/04

U.S. Cl. 72-102

9 Claims



Apparatus for rolling a tapered gear such as a bevel or hypoid gear by rolling the gear with a conjugate tapered gear. The machine includes means for applying pressure by effecting relative movement between the meshing gears along a line generally perpendicular to the pitch cone.

3,635,063

MANUFACTURE OF RING GEAR AND OTHER RING BLANKS

Lionel Stern, Kew, and Bernard Milton Hadaway, Highett, both of Australia, assignors to A. T. Richardson & Sons Proprietary Limited, Melbourne, Victoria, Australia

Filed Sept. 12, 1969, Ser. No. 857,332

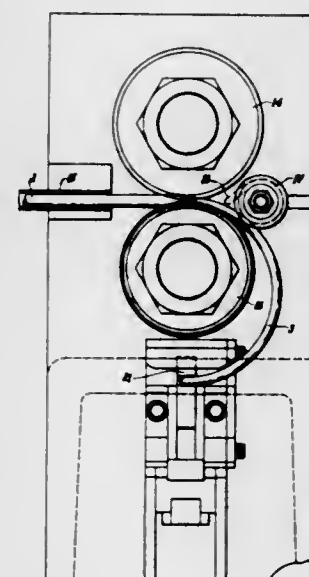
Claims priority, application Australia, Sept. 26, 1968,

43,915/68

Int. Cl. B21f 11/00; B23p 13/00

U.S. Cl. 72-130

11 Claims



Method of an apparatus for cold pressing metal ring blanks for ring gears, piston rings and other products from stock of circular form in cross section, so as to change its cross-sectional shape into substantially barrel-like formation and to also form the stock into a ring, subsequently subjecting the ring blank to a second cold pressing operation in a circular

chamber of channel or rectangular shape in cross section, whereby molecular flow of the metal is facilitated until it has passed its yield point without the pressed blank filling said chamber.

3,635,064

PIPE MILL

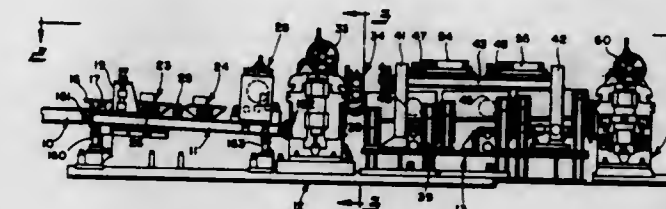
William J. H. Chang, Rocky River, Ohio, assignor to The Yoder Company, Cleveland, Ohio

Filed Nov. 10, 1969, Ser. No. 875,251

Int. Cl. B21d 5/08

U.S. Cl. 72-178

13 Claims



A pipe or tube mill of the cage-type having improvements in the breakdown, preforming and edge forming of the strip reducing the cost of tooling and enhancing the convertibility of the mill to produce tubes or pipe of different sizes and yet which can readily handle heavy gauge strip.

3,635,065

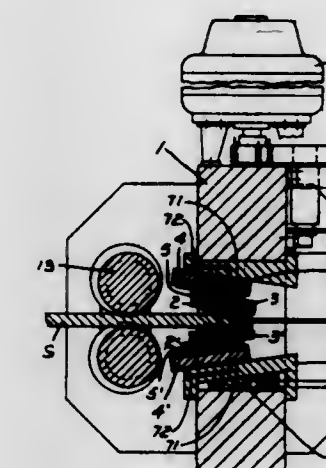
BACKING-PLATE-DRIVEN CYCLIC ROLLING MILL
Tadeusz Sendzimir, c/o T. Sendzimir, Inc. P.O. Box 1350, Waterbury, Conn.

Filed Sept. 18, 1969, Ser. No. 859,154

Int. Cl. B21b 13/18, 35/00

U.S. Cl. 72-214

10 Claims



A cyclic operating rolling mill wherein one or more working rolls of small diameter, operating on one or both sides of the workpiece, are disposed between the workpiece and rigid housing beams, and are reciprocated along an inclined path by means of a drive plate to produce the reduction. The drive plate drives the work rolls by frictional contact along the same generator which transmits the roll-separating force to said rigid housing beams. The workpiece is independently fed into the mill, and means are provided to obviate a scalloped condition of the finished workpiece. With a plurality of work rolls a rotation thereof of less than 180° creates an overlap in the rolling paths of the work rolls so that the portions of the work rolls which never contact the driving plate may be given a desired configuration other than cylindrical.

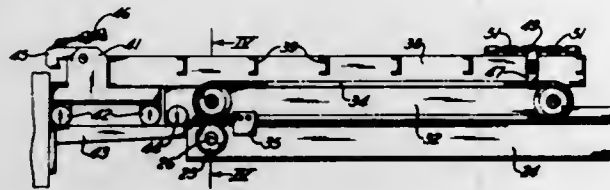
3,635,066

ROLL ASSEMBLY EXTRACTOR FOR A ROLLING MILL
 Winfried F. Schmiedberg, Pittsburgh, Pa., assignor to United Engineering and Foundry Company, Pittsburgh, Pa.
 Filed Nov. 13, 1969, Ser. No. 876,418
 Claims priority, application Great Britain, Nov. 25, 1968, 55,767/68

Int. Cl. B21b 31/10

U.S. Cl. 72-239

7 Claims



The present disclosure relates to a roll assembly extractor for a rolling mill which includes three superimposed rams, the upper one being supported by a middle one and caused to move relative to the roll assembly and the middle ram supported by a lower ram and movable relative thereto towards the roll assembly. The upper ram includes a hook for connecting the ram to the roll assembly. The middle arm is advanced by a rack and pinion and carries a chain which is connected to the upper ram for advancing this ram.

3,635,067

APPARATUS AND METHOD FOR FINE BLANKING OF PARTS

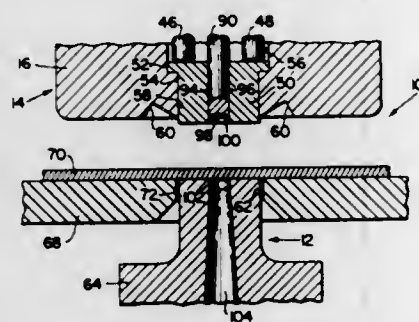
Walter E. Hanas, Roslyn, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 24, 1969, Ser. No. 860,761

Int. Cl. B21d 31/02, 28/00, 7/06

U.S. Cl. 72-329

13 Claims



A fine-blanking die for mounting on a conventional punch press actuating device to punch out characterized shaped precisely finished parts e.g., gear blanks and gear blank segments from a sheet or strip material, so that these parts will have machine-finished edges and be of uniform thickness by providing an annular recessed wall surface in a portion of the die that is immediately adjacent and which extend outwardly of its cutting edge so that the scrapped metal in the sheet that surrounds the part being punched out can flow outwardly into the recessed portion of the die and thereby eliminate the undesired fractures rounded edges, burrs and other irregularly shaped surfaces that have heretofore been experienced from being formed in the outer periphery of the punched out part.

3,635,068

HOT FORMING OF TITANIUM AND TITANIUM ALLOYS
 Thomas Watnough, Dolton, and John A. Schey, Hinsdale, both of Ill., assignors to IIT Research Institute, Chicago, Ill.
 Filed May 7, 1969, Ser. No. 822,453
 Int. Cl. B21J 1/06

U.S. Cl. 72-342

11 Claims

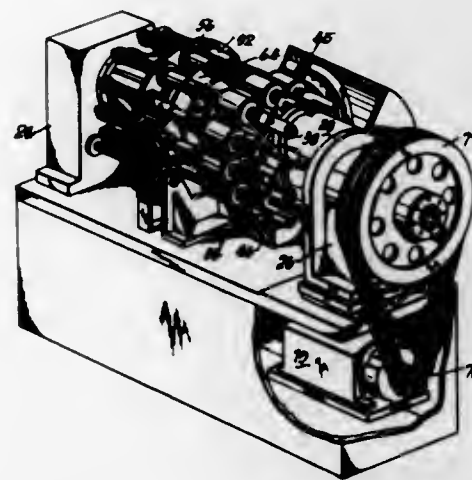
A method for bulk deformation of titanium and titanium alloys employing elevated temperatures for the billet and the dies. The method permits single step forging from a billet or preform to a final shape without the necessity of further machining.

3,635,069

DRIVE MECHANISM FOR MULTIPLE PLUNGERS
 Franklin C. Eickenhorst, Mason, Ohio, assignor to Dayton Reliable Tool & Mfg. Company, Dayton, Ohio
 Filed Nov. 5, 1969, Ser. No. 874,242
 Int. Cl. B21d 51/26

U.S. Cl. 72-349

13 Claims



A massive power-driven rotary structure has a plurality of circumferentially spaced pairs of dies to process a corresponding plurality of workpieces on each of its revolutions. One die of each pair is mounted on a longitudinally extending plunger and all of the plungers are reciprocated in sequence by a fixed circumferential cam track adjacent one end of the structure.

3,635,070

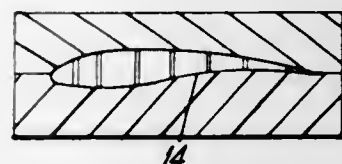
METHOD OF WORKING CELLULAR MATERIAL
 John Hoyle, and Derek Aspdon, both of Citheroe, England, assignors to Rolls Royce Limited, Derby, England
 Filed Jan. 16, 1970, Ser. No. 3,343

Claims priority, application Great Britain, Feb. 22, 1969, 9666/69

Int. Cl. B21d 31/00; B21k 3/04

U.S. Cl. 72-376

2 Claims



A blade for a gas turbine engine has its core made from a honeycomb structure which is shaped externally to suit the internal blade profile. The honeycomb portion is cut to the developed shape of the blade internal profile and then its edges are bent so as to facilitate crushing to final shape, the

prebending enabling the honeycomb to be crushed without blocking of the honeycomb pockets with crushed material.

3,635,071

DRAIN VALVE FOR A HYDRAULIC SHOCK ABSORBER
 Albert Herti, Duisburg, Germany, assignor to Hydraulik G.m.b.H., Duisburg, Germany
 Filed July 8, 1969, Ser. No. 839,814

Claims priority, application Germany, Sept. 21, 1968, P 17

77 196.9

Int. Cl. B21J 9/20

U.S. Cl. 72-453

7 Claims



A drain valve for a hydraulic shock absorber particularly for use on a large hydraulic press, includes a drain passage carried on a plunger member which is moved downwardly with the movable machine element such as a guide plunger of a press crosshead. The passage defines a valve seat which is closed by a valve disc of relatively great mass under the action of a preset biasing spring. The mass of the valve disc is such that, during a shock movement of the crosshead and the supporting plunger therefor causing a fast movement of the plunger, the seat will move away from the valve disc mass because of the large mass movement of inertia of the disc, and permit flow through the drain valve passage. The plunger will gradually absorb the shock as the fluid in its associated cylinder is displaced out of the drain passage.

3,635,072

SHAFT AND CUP DENT PULLER

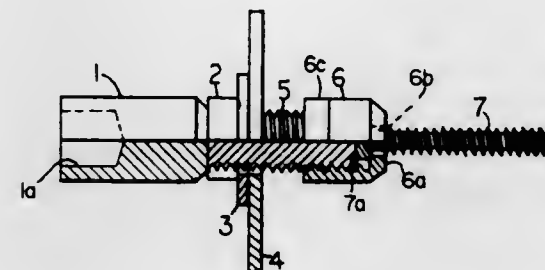
Eugene B. Steinmann, Jr., 13110 N.W. 19th Ave., Miami, Fla.

Filed Oct. 28, 1969, Ser. No. 870,048

Int. Cl. B21d 1/12

U.S. Cl. 72-457

7 Claims



A power-driven dent puller device for the repair of dented sheet metal is described. The device comprises a screw-threaded shaft assembly having a removable self-tapping screw at one end and a drive socket at the other end adapted

for driving interconnection with an ordinary air wrench drive mechanism. Cooperative with the screw-threaded shaft assembly is a cylindrical abutment member having an apertured wall at one end for substantially coaxially receiving the screw-threaded shaft assembly and against which a loosely retained washer circumjacent an inner end portion of the screw-threaded shaft assembly abuts in the use of the device. In use, the self-tapping screw is power driven in self-tapping relation through an opening punched in the dented area to be repaired, whereupon the outer end of the cylindrical abutment member will be moved into abutting engagement with the sheet metal being repaired in surrounding relation with respect to the punched opening to pull the dented sheet metal outwardly in the direction of the abutment member.

3,635,073

MECHANICAL TUBE EXPANDER

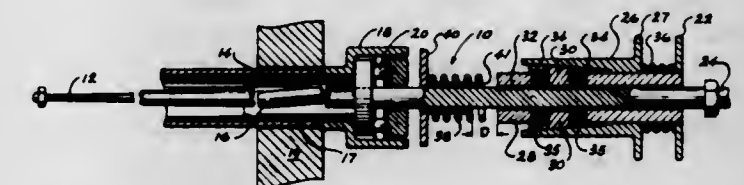
Richard M. Oliver, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 29, 1969, Ser. No. 888,785

Int. Cl. B21d 41/02

U.S. Cl. 72-393

4 Claims



A mechanical tube expander including a cage having rollers mounted therein and a tapered mandrel to coact therewith for expanding the tube. A locking member permits movement of the mandrel a predetermined distance after the rollers make initial contact with the inner surface of the tube, thereby causing a predetermined expansion of the tube.

3,635,074

COMPENSATING SYSTEM FOR PRESSES

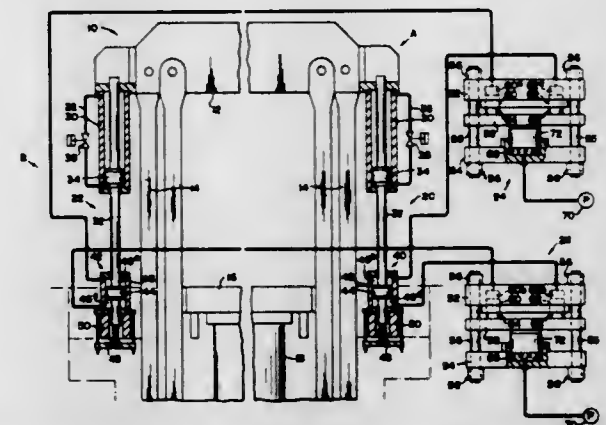
Alois J. Moos, Queens, and Alexander Zeitlin, Westchester, both of N.Y., assignors to Barogenesis, Inc., Pelham Manor, N.Y.

Filed Oct. 20, 1969, Ser. No. 867,808

Int. Cl. B21J 9/20

U.S. Cl. 72-453

2 Claims



Apparatus for compensating for eccentric loads in forging presses and the like. The apparatus includes a plurality of hydraulic cylinders positioned about the press and connected between the platens. The cylinders are interconnected through a hydraulic integrating device so that if there are eccentric forces acting on the platens the forces within the hydraulic cylinders are automatically shifted to counteract the eccentric forces.

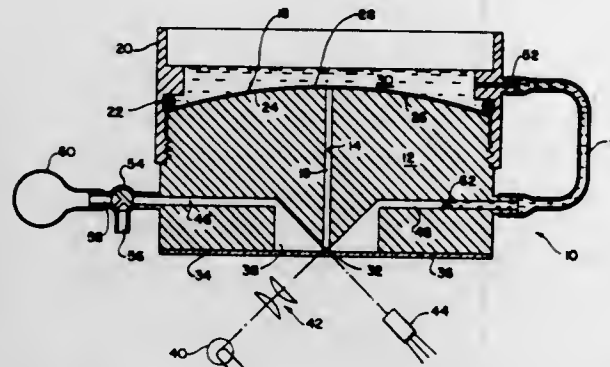
3,635,075 OSMOMETER

Paul T. Gilbert, Los Altos Hills, Calif., assignor to Beckman Instruments, Inc.

Filed June 29, 1970, Ser. No. 50,460
Int. Cl. G01n 11/00

U.S. Cl. 73-64.3

11 Claims



An osmometer of the type having an osmotic membrane rigidly fitted to a cell having an inner space filled with a reference solvent is disclosed. The outer surface of the membrane is adapted to be in contact with the liquid solution whose osmotic pressure is to be measured. The inner surface of the membrane is in contact with the solvent. A pressure transducer membrane having two sides is positioned with one side in contact with the solvent so as to respond to the osmotic pressure developed across the osmotic membrane. Means are provided for transmitting to each side of the transducer membrane any change of mechanical and hydraulic pressure that may occur at the osmotic membrane whereby the transducer membrane responds only to the osmotic pressure. In one embodiment means are also provided for balancing the osmotic pressure with a hydraulic pressure.

3,635,076

STRAIN-SENSING DEVICE

Ivor Selwyn Sacks, Chevy Chase, Md., and Dale Evertson, Austin, Tex., assignors to Carnegie Institution of Washington

Filed July 29, 1969, Ser. No. 845,790
Int. Cl. G01b 7/16; G01n 3/00

U.S. Cl. 73-88.5

9 Claims



A device for detecting deformation in solids having a housing insertable in the solid and a closed container in the housing. A strain-sensing device communicates with the interior of the housing and liquid filling the housing couples the walls

thereof to the sensing device. Expandable cement couples the walls of the housing to the surrounding solid to transmit deformations therebetween.

3,635,077

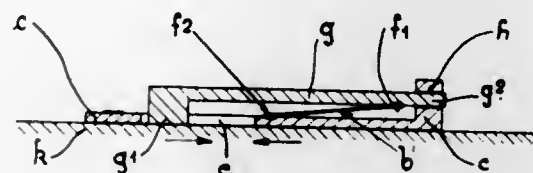
METHOD FOR MEASURING DEFORMATION AND GAUGE THEREFOR

Joseph Rauch, 8, impasse Truillet, 94 Ivry-sur-Seine, France

Filed July 30, 1969, Ser. No. 846,084
Claims priority, application France, Aug. 5, 1968, 161849
Int. Cl. G01l 1/22

U.S. Cl. 73-88.5 R

4 Claims



A method of measuring deformation and an electrical resistance extensometer gauge therefor, wherein the gauge comprises a frame member having a surface adapted to be affixed to the surface of an article to be tested, at least one strand of wire which has an elastic memory, and means for affixing the strand to the frame member, whereby deformation of the article to be tested causes elongation of the strand thereby causing a change in the electrical resistance of said strand in proportion to the degree of deformation of the article to be tested.

3,635,078

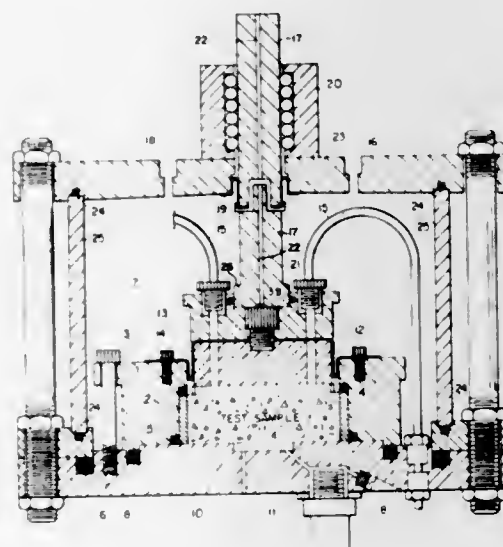
SOIL CONSOLIDOMETER

Anwar E. Z. Wissa, Marblehead, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 25, 1970, Ser. No. 40,022
Int. Cl. G01a 3/08

U.S. Cl. 73-89

5 Claims



A consolidometer and method for measuring the one-dimensional stress-strain and time rate of consolidation properties of compressible soils. A thin-walled sample ring containing a test specimen is placed in a thick-walled outer ring. The rings, in turn, are placed on the base of a cell chamber thereby forming a test chamber. A piston head containing a coarse porous stone is placed against the top of the sample and a diaphragm between the piston head and test chamber isolates the specimen from the cell chamber. The test specimen can be loaded axially by applying pressure to the cell chamber and/or externally through a piston shaft which

is placed against the piston head and extends through an aperture in the top plate of the cell chamber. The one-dimensional stress-strain and time rate of consolidation properties of the specimen can be determined from measurements as a function of time of the applied stress and the excess pore water pressures developed within the test specimen when it is deformed at a constant rate of strain while it is kept saturated under a water back pressure applied through the coarse stone in the piston head. The consolidometer is also to be used to measure the residual pore water pressure of the test specimen prior to loading, and its swell pressure during saturation at constant volume.

3,635,079

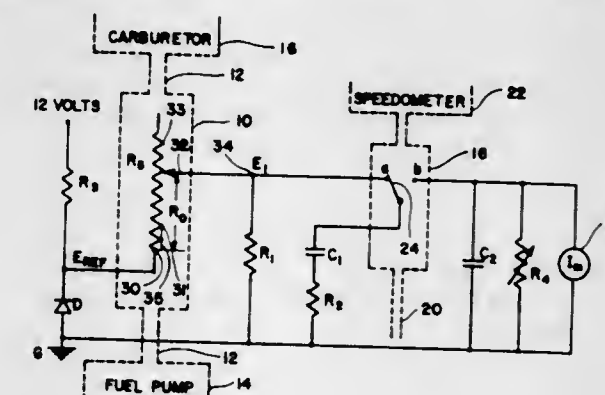
MILES PER GALLON METER

Norvin P. Tomlinson, 3162 Sherbrook Drive, Uniontown, Ohio

Filed Feb. 25, 1970, Ser. No. 14,013
Int. Cl. G01m 15/00

U.S. Cl. 73-114

6 Claims



This invention relates to an indicating instrument assembly for installation on a vehicle to provide engine performance data to an operator in terms of miles traveled per gallon of fuel utilized. A unique electrical circuit cooperates with means to indicate fuel flow and means to indicate vehicle speed to instantaneously compute and display a miles per gallon information.

3,635,080

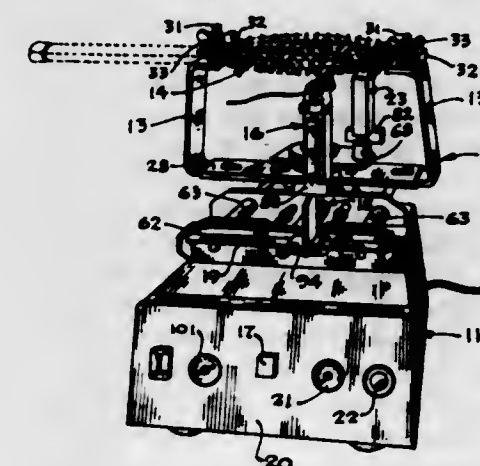
RACKET-STRINGING MACHINE WITH AUTOMATIC LOCKING

Harvey R. Krueger, Carpentersville, and Dean R. Armstrong, Park Ridge, both of Ill., assignors to Court and Slope, Inc.

Filed May 31, 1968, Ser. No. 733,601
Int. Cl. G01l 5/00, 7/00

U.S. Cl. 73-145

19 Claims



A turntable having an upright U-shaped yoke, provided with clamps for holding a horizontally disposed racket frame

at its top, is automatically locked during successive power-actuated pulls of the string in stringing. The string is pulled by a hydraulic cylinder to accurate tension determined by the hydraulic pressure for which there is an adjustable relief valve and gauge. The piston of the cylinder operates a pull bar along which the pulling clamp may be shifted laterally so as to pull in the most advantageous direction. The cylinder is slightly shiftable. The return stroke of the pull bar is limited before the piston seats. Reaction to the retracting pressure releases a spring-set brake to make the yoke free to turn; and reaction to the pulling pressure reinforces the braking force of the spring. A holding clamp can be manually shifted to an advantageous position within the frame when fully released, and the manual closing stroke on its operating lever first raises it to string height, then completes the clamp closing operation and locks the clamp to the turntable, so that it swings with the racket between successive pulls. The parts are so positioned and dimensioned that a racket frame may be strung in both directions without releasing it from the swingable yoke.

3,635,081

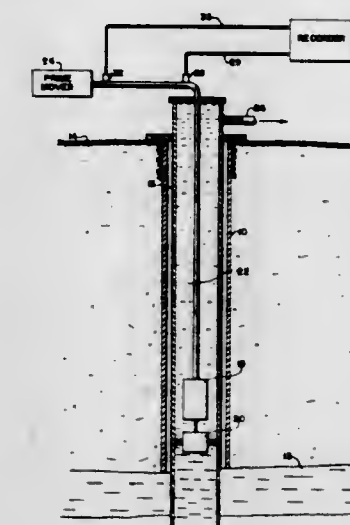
DIAGNOSTIC METHOD FOR SUBSURFACE HYDRAULIC PUMPING SYSTEMS

Sam G. Gibbs, Midland, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Mar. 5, 1970, Ser. No. 16,797
Int. Cl. E21b 47/00

U.S. Cl. 73-151

4 Claims



A method is described for determining the downhole operating conditions of a hydraulic pumping system from measurements taken at the surface. Measurements of the surface flow rate and dynamic pressure of power oil used to drive a subsurface pump are made along with determinations of the friction factor of the conduit used to transport the power oil to the pump. This information is then combined to form a boundary value problem based on the wave equation that describes the acoustic waves in the power oil. Solutions to the wave equation may then be used to determine the downhole conditions.

3,635,082

APPARATUS FOR MEASURING MASS FLOW OF FLUIDBORNE SOLIDS

Samuel B. Prellwitz, Pittsburgh, and Joseph Fynalk, Monroeville, both of Pa., assignors to United States Steel Corporation

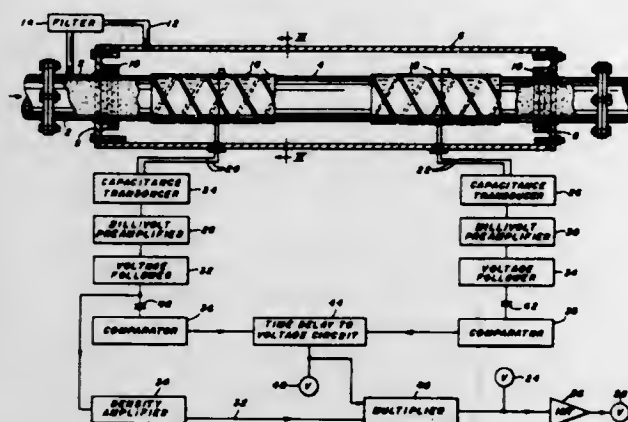
Filed Apr. 23, 1969, Ser. No. 818,527
Int. Cl. G01g 11/06

U.S. Cl. 73-194 M

8 Claims

Finely divided particles in a fluid stream transported in a conduit comprise the dielectric of two spaced-apart capacitors at electrically insulated inserts in the conduit. Circuitry

determines the time span between correlated variations in capacitance of the two capacitors as a measure of stream velocity. Additional circuitry determines stream density by



measuring the capacitance. The velocity and density circuit outputs are multiplied to provide a mass flow rate. An integrator provides total flow.

3,635,083

FLUID PRESSURE TIME INTEGRATOR

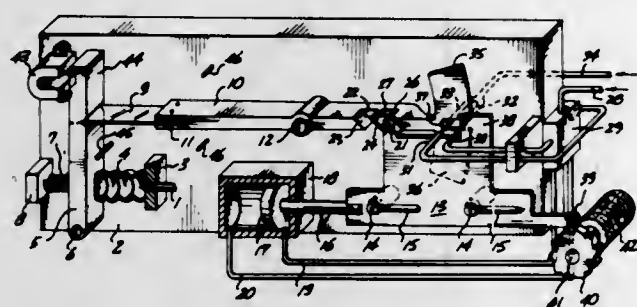
Thomas R. Vaughn, 2333 South Patton St., San Pedro, Calif.

Filed Sept. 26, 1969, Ser. No. 861,348

Int. Cl. G01F 1/02; G06C 27/00

U.S. Cl. 73-206

9 Claims



A controller applies restoring stress to an oscillator for regulating the frequency of the oscillator in response to a pressure dependent on the flow of fluid to be measured such that the oscillator frequency is proportional to flow rate. The oscillator is connected to drive an indicator actuator. The pressure-responsive controller includes a lever subject to a force produced by the pressure dependent on the fluid flow and such lever tensions a tie connected to a lever of the oscillator. Tensioning the tie urges the oscillating arm towards its centered position. A governor for the oscillating arm has interfering means including a slide carrying ramp surfaces cooperating with ramp surfaces carried by the oscillating arm. The slide is driven to reciprocate lengthwise of the arm. The slide and arm carry valve leaves cooperatively controlling flow of fluid to energize slide-reciprocating mechanism for effecting coaction of the slide and arm ramp surfaces to retard or accelerate movement of the oscillating arm through the central portion of its stroke to prevent over-travel and to sustain oscillation of the arm.

3,635,084

MASS FUEL FLOW MEASUREMENT SYSTEM

David A. Lamphere, Chittenden, and Douglas E. Stuart, Middlebury, both of Vt., assignors to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed Aug. 28, 1969, Ser. No. 853,757

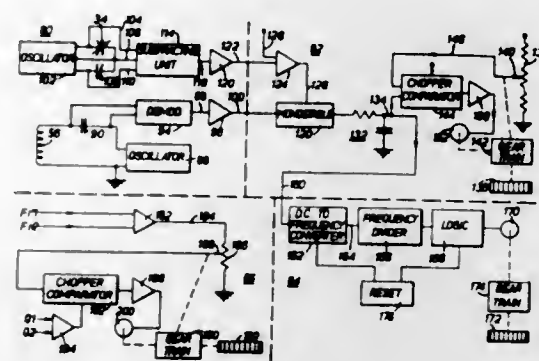
Int. Cl. F16G 1/00

U.S. Cl. 73-231 M

6 Claims

The system measures the mass flow rate of a liquid. It comprises a turbine impeller located in the flow stream which

rotates at a rate proportional to the volume flow rate of the liquid and produces a corresponding electrical signal. This electrical signal is electrically multiplied with a further signal proportional to the liquid density so as to give the required



liquid mass flow rate. The density signal is obtained from a capacitive sensor positioned in the liquid whereby the liquid constitutes the dielectric of the capacitor so that the capacitance of the sensor varies with density.

3,635,085

SYSTEM FOR DETECTING THE TEMPERATURE DISTRIBUTION OF A HEATED BODY

Tetsuo Shimotsuma; Toshihiro Mori; Kazuo Sano, all of Yokohama-shi, and Seigo Ando, Kawasaki-shi, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

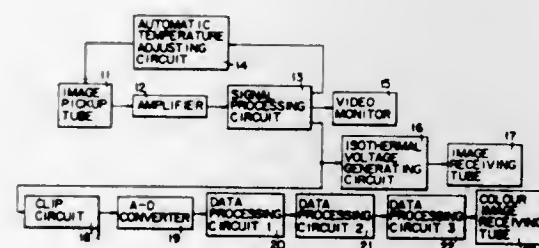
Filed June 11, 1969, Ser. No. 832,264

Claims priority, application Japan, June 15, 1968, 43/41010

Int. Cl. G01d 5/40; G01J 5/32

U.S. Cl. 73-340

5 Claims



A system for detecting the temperature distribution of a heated body which consists in receiving heat rays radiated from predetermined parts of heated body by an image pickup tube through an optical lens to focus a charged temperature distribution pattern image corresponding to the heat rays on the photoelectric plane of said tube, taking out an image signal pattern corresponding to the resultant charged temperature distribution pattern of the heated body at predetermined parts from output terminals of said tube dividing the image signal pattern into a plurality of portions in corresponding relationship to the desired number of divisions of an image screen, following up momentary temperature information as the displayed variable in the temperature distribution pattern for each such division, integrating the values of these momentary temperature information on the basis of a given time of determination to obtain a converted average value determined on a time basis and displaying on an image-receiving tube the resultant time-averaged temperature distribution pattern images corresponding to the temperature distribution pattern of the heated body at the predetermined parts.

3,635,086

TEMPERATURE MEASURING AND INDICATING DEVICE

Andrew J. Beruck, 615 Pear St., Dover, Del.

Filed Nov. 13, 1969, Ser. No. 876,473

Int. Cl. G01k 1/14

U.S. Cl. 73-343 R

3 Claims

MEASURE OF THE TEMPERATURE OF HOT ENERGY-RADIATING BODIES

Pierre Poncet, 12 bis, Rue Trarieux, Lyon (Rhône), France

Filed Sept. 23, 1969, Ser. No. 860,279

Int. Cl. G01J 5/54, 5/60

U.S. Cl. 73-355 R

4 Claims



Device for measuring and indicating temperature of liquid stream comprises thin-walled nonconductive case with inlet and outlet openings at opposite ends of case. Temperature-sensing unit inside case is immediately adjacent outlet opening thereof. Line connects sensing unit to temperature scale and indicating pointer assembly on exterior of case. Imperforate baffle plate inside case immediately adjacent inlet opening thereof disperses and mixes incoming liquid.

3,635,087

APPARATUS FOR RECORDING A TEMPERATURE PROFILE

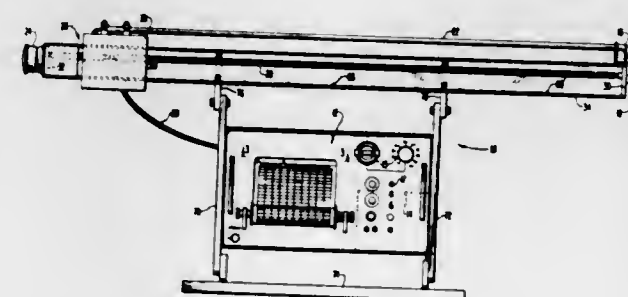
Charles E. Conklin, Pleasant Valley, N.Y., assignor to Conklin Instrument Corp., Pleasant Valley, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,640

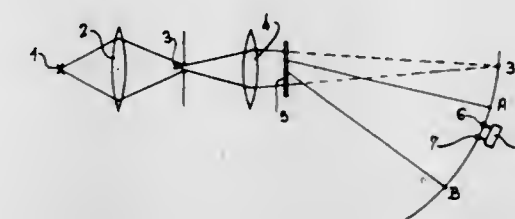
Int. Cl. G01k 3/06

U.S. Cl. 73-343.5

10 Claims



A highly accurate temperature-profiling package assembly includes a strip chart recorder and refrigerated ice water reference junction connected to a movable thermocouple junction which is reversibly motor driven through a disengageable screw and nut transmission, and position indicating buttons which control a switch for actuating a marking relay in the recorder which has a floating marking pen.



Apparatus for determining the wavelength which corresponds to the maximum of the curve intensity of radiated energy versus wavelength of the emission received from a radiating body. For this purpose photosensitive means detect a difference in the intensities of the energy received at two points disposed close to each other along the length of a spectrum of the emission of the body and these two points are displaced relatively to the length of the spectrum until this difference disappears. The maximum is then situated about midway between the points. The photosensitive means may be in the form of a pair of photoelectric cells or of a single cell receiving the radiation alternately from one and the other point. The invention may be used in association with a standardized emitter to determine the importance of absorption phenomena or of the more or less "black" character of the body whose temperature is being measured.

3,635,089

APPARATUS AND PROCESS FOR THE MEASUREMENT OF THE PRESSURE OF CORROSIVE MATERIAL

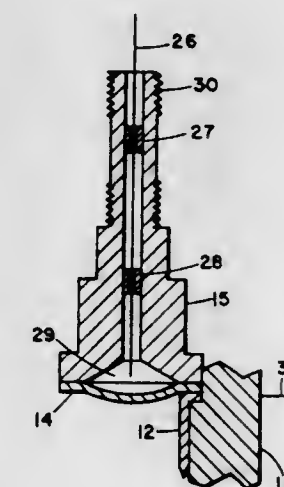
William R. Harding, State College, Pa., and Vincent G. Hill, Kingston, Jamaica, assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed Dec. 2, 1969, Ser. No. 881,527

Int. Cl. G011 7/08

U.S. Cl. 73-395

3 Claims



Apparatus for subjecting a corrosive material to a controlled pressure comprises a pressure vessel and a pressure measurement chamber, separated by a flexible diaphragm, which keeps the corrosive material within the pressure vessel, yet allows pressure to be transmitted to the pressure measurement chamber for measurement. Two methods of maintaining the flexible diaphragm in a pressure-transmissive position are described.

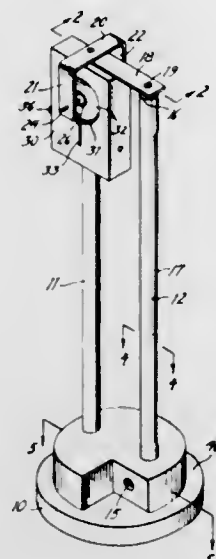
3,635,090

PRESSURE TRANSDUCER

William D. MacGeorge, Doylestown, Pa., assignor to Testing Technology Corporation, Langhorne, Pa.
Filed Dec. 8, 1969, Ser. No. 883,174
Int. Cl. G011 9/10

U.S. Cl. 73-398 R

6 Claims



A pressure transducer is provided suitable for high-pressure fluids which includes a relatively straight tube to which pressure is supplied internally, the tube being of unsymmetrical cross section and reduced in size along one side thereof for deflection upon increase of pressure applied therein, a linear variable differential transformer preferably being provided for takeoff of displacement in response to pressure change.

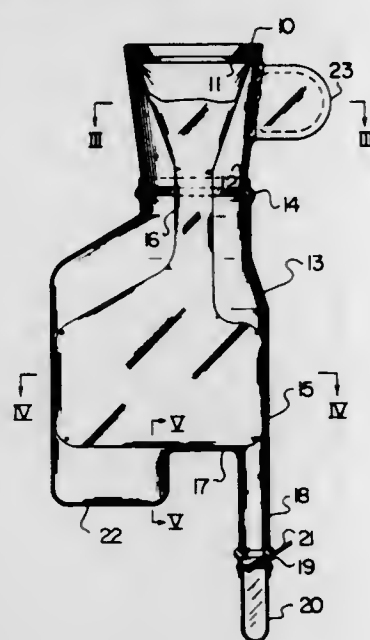
3,635,091

MIDSTREAM URINE SPECIMEN AND FRACTIONAL FLUID COLLECTORS

Frederick D. Linzer, 1373 Foxwood Drive, and Harold M. Price, 112 Moonlight Drive, both of Monroeville, Pa.
Filed Aug. 31, 1970, Ser. No. 68,434
Int. Cl. G01n 1/10

U.S. Cl. 73-421 R

18 Claims



A disposable urine specimen and fractional liquid collector having an inlet member with an inner connector and an outer connector, and a preferably flexible outer enclosure having a

neck portion connected to the outer connector. A flexible inner bag is contained in the outer enclosure, and has a neck portion connected to the inner connector. The inner bag disconnects from the inner connector after the inner bag contains a given quantity of liquid, to thereafter trap the liquid in the inner bag, and to thereafter allow the outer enclosure to receive liquid through the inlet member. The outer enclosure and/or inner bag may be adapted so at least some liquid collected therein can be deposited in independent sterile containers.

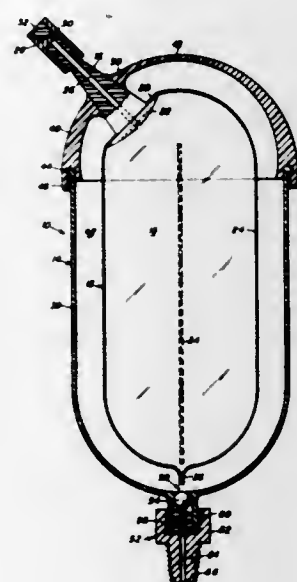
3,635,092

MANUALLY OPERATED GAS SAMPLER

Ralph E. Maughan, Arvada, and Fred C. Ryan, Golden, both of Colo., assignors to The United States of America as represented by the Secretary of the Interior
Filed Nov. 12, 1969, Ser. No. 875,654
Int. Cl. G01n 1/24

U.S. Cl. 73-421.5 R

10 Claims



A pliant sample container housed within a resilient pump is filled with gas by manually compressing and releasing the pump.

3,635,093

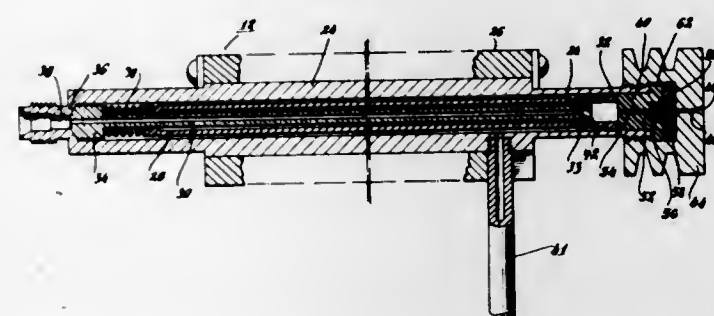
SAMPLE INJECTION ARRANGEMENT FOR AN ANALYTICAL INSTRUMENT

Horace Dean Downs, North Haven, and John E. Purcell, Old Greenwich, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed May 29, 1969, Ser. No. 829,004
Int. Cl. G01n 1/22, 31/08

U.S. Cl. 73-422 GC

1 Claim



A sample injector arrangement for an analytical instrument includes a septum body which is shielded from the environment of a sample injection chamber by a shielding means

positioned between the septum and the chamber and having a channel extending therethrough along its length between the septum at one end and a gas flow path at an opposite end. The channel is adapted for receiving a sample injection probe and provides a means of minimizing the surface area of the septum which is exposed to the sample chamber. An injector arrangement adapted for further reducing ghost peaks includes a plurality of channel members adapted for extending the diffusion path between dead volume and the injector and the septum.

3,635,094

AUTOMATIC TRANSFER PIPETTE MEANS

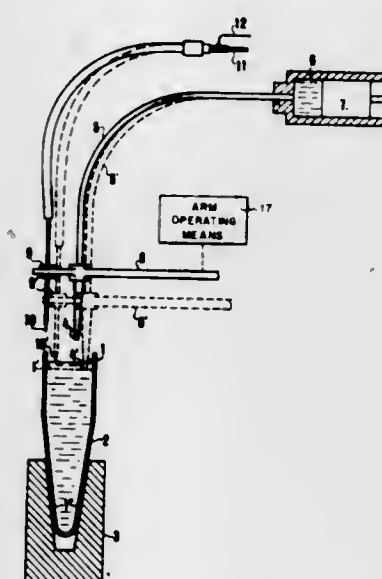
Rudolf Oberli, Langenthal, Switzerland, assignor to Greiner Electronic AG, Langenthal, Switzerland
Filed Aug. 27, 1970, Ser. No. 67,400
Claims priority, application Switzerland, Sept. 6, 1969, 13478/69

Int. Cl. G01n 1/14

U.S. Cl. 73-423 A

10 Claims

U.S. Cl. 74-2



Automatic transfer pipette means for withdrawing a given quantity of a liquid specimen from an open-topped container, characterized by the provision of means for automatically submerging a downwardly depending pipette a given distance beneath the level of the liquid. The pipette is displaced vertically relative to the container by an operating arm that also carries liquid level sensing means which are operable to position the arm a given distance above the liquid level, thereby submerging the pipette to the desired depth.

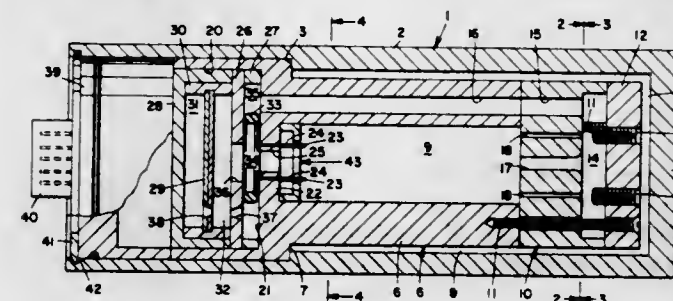
3,635,095

GRAVITY-COMPENSATING MEANS FOR FLUID JET DEFLECTION-TYPE INSTRUMENT

Wilfred C. Schuermann, Rawlings Heights, Rawlings, Md., assignor to Hercules Incorporated, Wilmington, Del.
Filed June 5, 1969, Ser. No. 830,829
Int. Cl. G01p 15/00

U.S. Cl. 73-505

5 Claims



An instrument wherein the deflection of a fluid jet, induced for example by the angular movement of the instru-

ment, produces a signal proportional to the deflection, and particularly means in such an instrument for compensating for unequal deflection of the jet in the different angular positions of the jet about its longitudinal axis, which deflection is induced by local conditions at the sensing means such as convection currents caused by the heating of the jet fluid by the sensing means; the compensating means comprising a flow constrictor located concentrically of the jet downstream from the sensing means and acting to align the fluid flow axially relative to the unit as it passes over the sensing means whereby the thermal deflection of the jet caused by heating as it passes over the sensing elements is substantially eliminated.

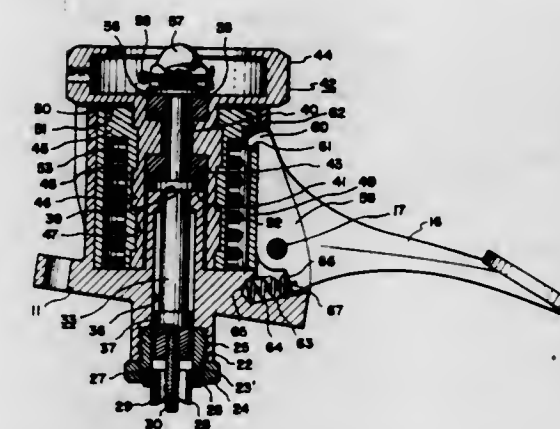
3,635,096

RELEASE MECHANISM

Edward C. Caulfield, 9682 So. 258 East, Sandy, Utah
Filed July 8, 1970, Ser. No. 53,180
Int. Cl. G05g 17/00

Int. Cl. G05g 17/00

11 Claims



A pull-cable-type of release mechanism incorporating a latch and a spring release, whereby the actuating pressure applied to the mechanism can be multiplied many times in terms of thrust or pull directed to a release cable. The release mechanism includes many safety features including a cocking member lock, safety pin incorporation, and other structural advantages inducing an operator to follow a given procedure to insure that load release will occur when desired.

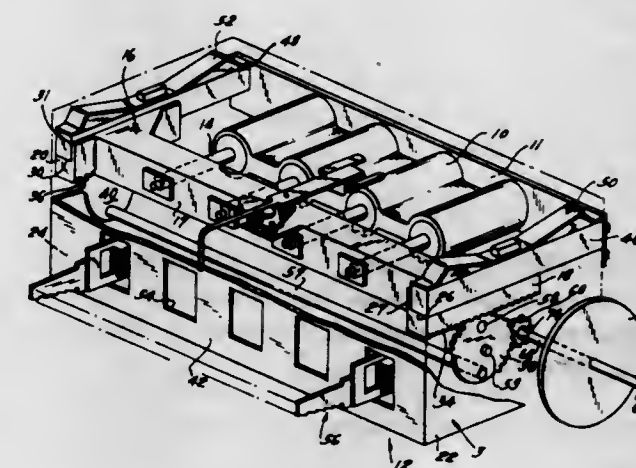
3,635,097

PUSHBUTTON TUNER WITH SLIDING BLOCK AND RACK

Donald B. Mears, Jr., Thompsonville, Conn., assignor to General Instrument Corporation, Newark, N.J.
Filed Oct. 23, 1970, Ser. No. 83,277
Int. Cl. F16h 35/18

U.S. Cl. 74-10.33

18 Claims



A tuner, capable of pushbutton or manual operation, is provided with structure to inhibit lost motion in both tuning

modes. The same structure also serves as guide means which restricts the direction of motion of an adjustable tuning member. A body or chassis, movable in a housing, has a first part connected to the adjustable tuning member and a second part having a rack formed on its undersurface. A guide block, atop and contiguous the second part, is acted upon by a resilient member which urges the rack into constant engagement with an adjacent driving or tuning gear, thereby to minimize lost motion. The first and second parts of the body move as a unit and rotation of the gear is converted into translation of the tuning member. The manual tuning means comprises a shaft rotatably mounted in the housing with a second gear thereon, adjacent and in driving relation to the first gear. The shaft end adjacent the second gear is received in a wedge-shaped opening and has a tapered section which passes through that opening and bears against the walls thereof. A spring active on the other end of the shaft, in conjunction with the opening a tapered shaft section and the tapered opening walls bearing thereagainst, causes the second gear to be urged into constant engagement with the first gear, thereby to minimize backlash at that point.

3,635,098

SHAFT POSITIONING APPARATUS

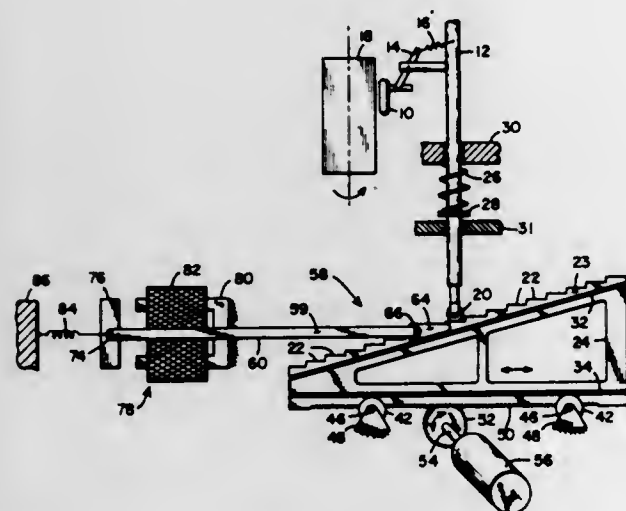
Andrew B. Pataki, Lansdale, Pa., and Richard F. Perry, North Andover, Mass., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Dec. 24, 1969, Ser. No. 887,871

Int. Cl. F16h 21/44

U.S. Cl. 74-110

11 Claims



Shaft positioning apparatus including a ramp member in supporting relation to an interposer cam which, by moving from its original position in a direction substantially transverse to the axis of the shaft, lifts the shaft from contact with a step of a shaft-supporting and positioning stepped surface of the ramp member thereby allowing the ramp member to move so that a different step of the stepped surface supports and positions the shaft when the interposer cam is returned to its original position. The ramp member is moved by a pinion drive which engages a gear rack formed on a surface of the ramp member.

3,635,099

HANDWHEEL ASSEMBLY FOR SEWING MACHINES

William Alexander Watson, Dunthorpe, and Malcolm Mack, Glasgow, both of Scotland, assignors to The Singer Company, Elizabethport F., N.J.

Filed June 9, 1970, Ser. No. 44,824

Claims priority, application Great Britain, Oct. 28, 1969, 52,704

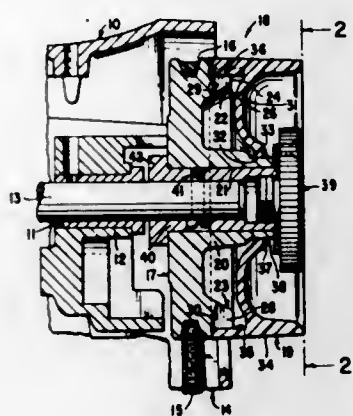
Int. Cl. F16h 55/46

U.S. Cl. 74-230.7

2 Claims

A handwheel assembly comprising a plastic outer shroud formed with a radial lug disposed for register with a radial

channel or slot formed in a driven pulley to prevent relative rotary movement therebetween. The shroud is concentric with the pulley, which includes a hub that extends through



and partly beyond a central opening formed in the shroud for receiving a push-on retainer having prongs that engage the pulley hub thereby to secure it axially relative to the shroud.

3,635,100

MOTOR DRIVE ASSEMBLY FOR WINDOW REGULATORS

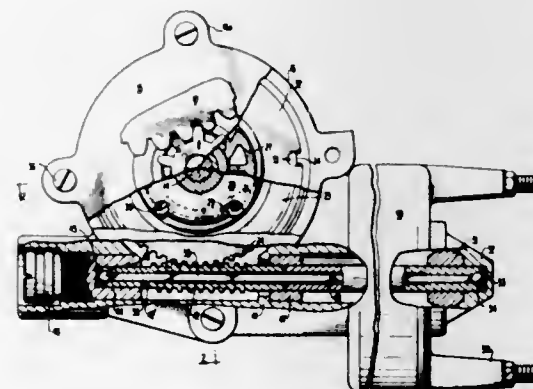
Joseph C. Littmann, Temperance, Mich., assignor to Dura Corporation, Toledo, Ohio

Filed Apr. 15, 1970, Ser. No. 28,669

Int. Cl. F16h 57/00, 1/18

U.S. Cl. 74-411

6 Claims



A window regulator for vehicles having a reversible motor provided with a sectional drive shaft, one section having a worm meshing with a worm gear which forms a part of a spring clutch. The clutch has a regulator pinion for connection to the usual gear sector of a window regulator. One section of the drive shaft is connected to the armature of the electric motor and the sections are connected by a torsion bar, rectangular in cross section and which extends freely through the shaft sections but extends into sockets at the outer ends of these sections, the sockets being rectangular in cross section.

3,635,101

AUTOMOBILE SPEED LIMITERS

Chun-Chih Hsian, 2 Lane, 60, Tai-shun Street, Taipei, Taiwan

Continuation-in-part of application Ser. No. 541,909, Mar. 22, 1966, now abandoned. This application Feb. 6, 1969, Ser. No. 798,271

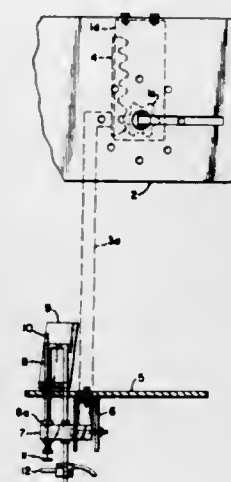
Int. Cl. B60k 31/00

U.S. Cl. 74-526

1 Claim

A speed-limiting device in which an accelerator stoppage is connected to a rack. The rack can move a pinion an amount

that is adjustable by a lever in order to provide speed the pitch circle thereof and the planet wheel is supported



settings.

3,635,102

MICROMETER ADJUSTMENT FOR A STOCK FEEDING DEVICE

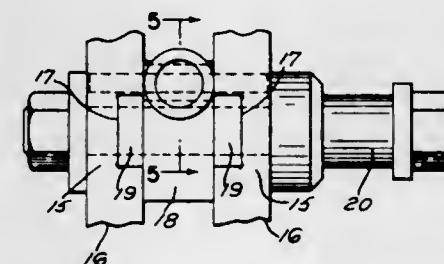
Gary R. Skeen, 111 Pennsylvania Avenue, Warwick, R.I.

Filed Oct. 13, 1969, Ser. No. 865,782

Int. Cl. G05g 1/00; F16h 21/22

U.S. Cl. 74-600

6 Claims



The device comprises a micrometer adjustment which is built into a ratchet-type stock feeding device for a power operated press. The ratchet-type feed is provided with spaced plates and the spaced plates are provided with parallel extensions to which normally the dragging arm is attached. In accordance with the present invention, the dragging arm is attached to a short shaft extending through a movable block which slides between the two plates. A micrometer adjustment slidably moves the block in any desired position. This provides for a fine adjustment of the drive stroke of the drive shaft.

3,635,103

PLANETARY REDUCTION GEARING

Giancarlo Monti, Varese, Italy, assignor to Sial-Marchetti S.p.A., Varese, Italy

Filed Dec. 23, 1969, Ser. No. 887,797

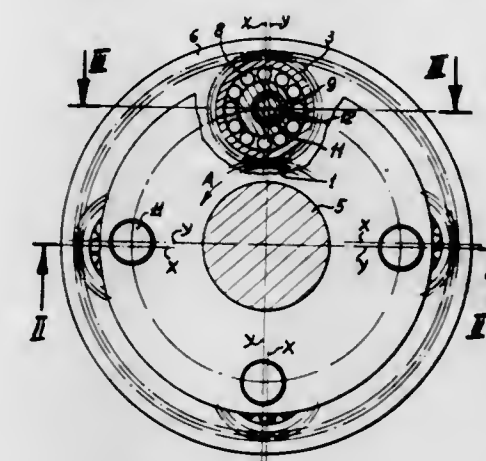
Claims priority, application Italy, Dec. 24, 1968, 25562A68

Int. Cl. F16h 1/28; F16c 23/10

U.S. Cl. 74-801

3 Claims

System for mounting a planet wheel on a planet carrier wherein the axis of rotation of said wheel is concentric with



about an axis eccentric thereto.

3,635,104

APPARATUS FOR ROTATING VALVES ON GAS CYLINDERS

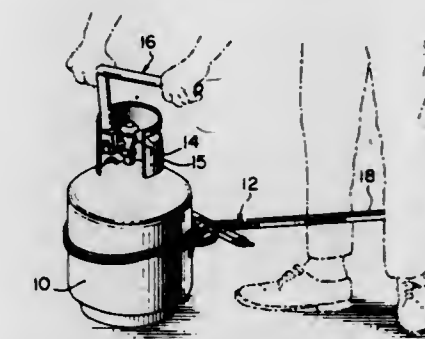
Eugene D. Taylor, P.O. Box 2030, Harlingen, Tex., and Willie R. Swisher, Harlingen, Tex., assignors to said Taylor, by said Swisher

Filed June 18, 1969, Ser. No. 834,940

Int. Cl. B26b 13/52

U.S. Cl. 81-3

4 Claims



A cylinder wrench for inserting and removing cylinder valves from pressurized cylinders, and a vise assembly for firmly gripping cumbersome objects such as pressurized cylinders and large diameter pipes. The long-handled vise assembly includes a chain which is wrapped about the pipe or cylinder and then tightened to provide a firm grip. The wrench assembly mates with the cylinder valve and includes a gripping bar that permits high torque to be applied to the valve. Counteracting torque can be applied to the cylinder by gripping it with the vise assembly and bracing the vise assembly handle.

ERRATUM

For Class 81-63 see:
Patent No. 3,635,654

3,635,105

POWER TONG HEAD AND ASSEMBLY

John L. Dickmann, Whittier, and Howard S. Flick, Long Beach, both of Calif., assignors to Byron Jackson Inc., Long Beach, Calif.

Original application Oct. 17, 1967, Ser. No. 675,843, now

Patent No. 3,483,774. Divided and this application July 22,

1969, Ser. No. 862,111

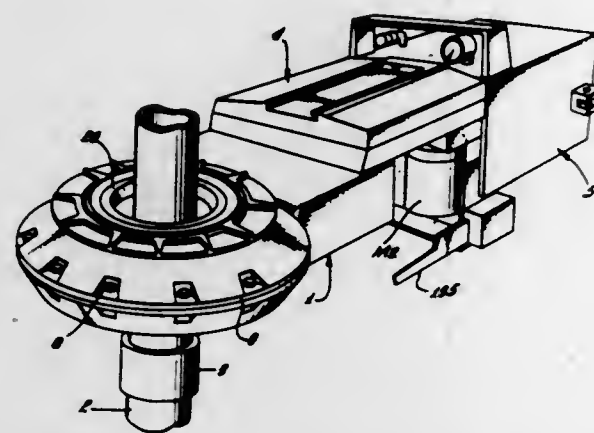
Int. Cl. B25b 17/00

U.S. Cl. 81-57.18

4 Claims

A power tong in which the rotary head has opposed jaws slidably mounted in jaw guides and shiftable radially outwardly by springs and radially inwardly by cam surfaces and

cam followers, the cam surfaces being compound so as to



3,635,106

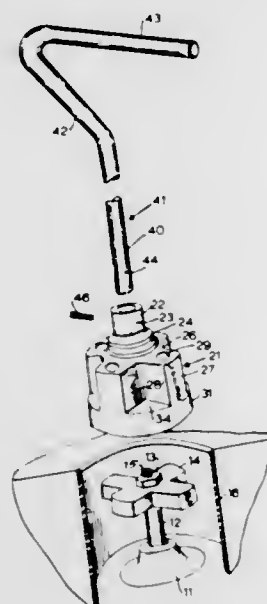
KEY FOR SPRINKLER VALVE

Douglas M. Homs, 1538 Industrial Way, Belmont, Calif.
Continuation-in-part of application Ser. No. 772,751, Nov. 1, 1968. This application Dec. 17, 1969, Ser. No. 885,916

Int. Cl. B25b 13/06

U.S. Cl. 81-121 R

2 Claims



A key or wrench for turning sprinkler valve handles has a body formed at the top with a socket in the shape of a hollow Greek cross complementary to the conventional valve handle. Below the socket is a thin-walled annular skirt dimensioned to fit within the tube usually surrounding the valve. Internal, rounded protuberances in the skirt guide the valve handle into the socket. The key has an elongated handle twisted to facilitate turning the key and the valve handle seated in the socket thereof.

3,635,107

TOGGLE-TYPE HAND TOOL

Charles C. Schmidt, Topeka, Kans., assignor to Mara, Inc., Topeka, Kans.

Original application Mar. 31, 1967, Ser. No. 627,496, now Patent No. 3,496,808. Divided and this application Feb. 24, 1970, Ser. No. 19,132

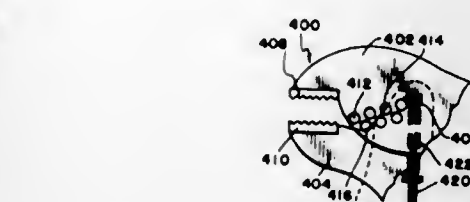
Int. Cl. B25b 7/12

U.S. Cl. 81-367

10 Claims

A hand tool of the toggle link or vice grip type provided with structure operative to oppose opening movement of the

handles when the latter are oriented relative to the toggle linkage in locking condition in the absence of any reactive force from a workpiece. Such structure takes two basic forms, namely, (a) the compression member of the toggle linkage being swivelly connected at its opposite ends to the handles to hold its swivel connections spaced a substantially constant amount at all times, with coacting detent means carried by one of the handles and the compression member for yieldingly resisting relative movement of such elements from their locking positions, and (b) the provision of structure for limiting closing movement of the members that carry the work engaging elements, whereby such limiting action will result in reactive forces equivalent to the work engaging elements being loaded against a workpiece by closing movement of the handles. Such structure for limiting closing movement of the members can be such as to be subjected to compression, shear or tensile stresses in the performance of its movement limiting function.



sive, shear or tensile stresses in the performance of its movement limiting function.

In addition to the foregoing, the invention extends to the provision of special work engaging elements that move apart during closing movement of the handles, as well as to various forms of work engaging elements that are detachably mounted, adjustably mounted and pivotally mounted upon the members that are directly attached to the handles.

The invention in its various forms involves the centers which are directly connected to the handles being either directly connected about a single pivotal axis as is customary, or being connected by a link, such link having its opposite ends pivotally connected to the members whereby the members are afforded a degree of angular freedom with respect to each other. A pair of such links can optionally be employed to prevent angular movement of members.

3,635,108

LASER-GUIDED BORING TOOL FOR DEEP HOLE BORING

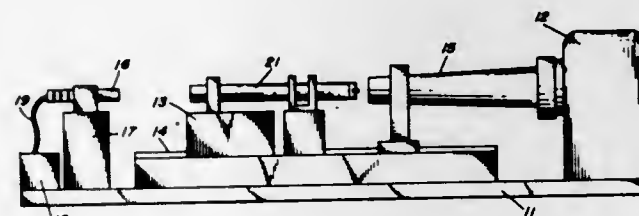
Thomas E. Prince, Louisville, Ky., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 9, 1970, Ser. No. 17,834

Int. Cl. B23b 39/00

U.S. Cl. 82-1

3 Claims



A boring tool is provided with a centering detector onto which a laser beam is directed. Deviation of the boring tool is detected and fed to a control unit and servo device which operates a pair of pusher pads to direct the boring tool back onto center. The boring tool is particularly adaptable for boring deep holes such as in large gun barrels.

3,635,109

MACHINE TOOL

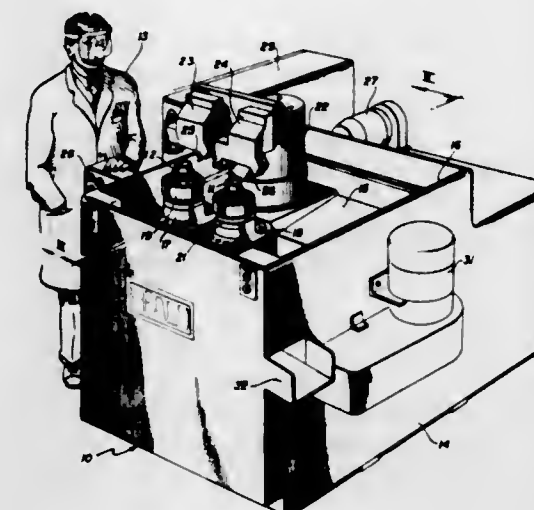
Alden H. Jacobson, Princeton, Mass., assignor to The Heald Machine Company, Worcester, Mass.

Continuation of application Ser. No. 710,389, Apr. 4, 1968, now abandoned. This application June 29, 1970, Ser. No. 56,091

Int. Cl. B23b 3/06

U.S. Cl. 82-2 D

13 Claims



This invention relates to a machine tool and, more particularly, to apparatus having a workhead operative for rotation and a tool carrying column which is slidable along and rotatable about an axis spaced from and parallel to the axis of the workhead.

3,635,110

TAPE-CUTTING AND CONTACT FEED MECHANISM

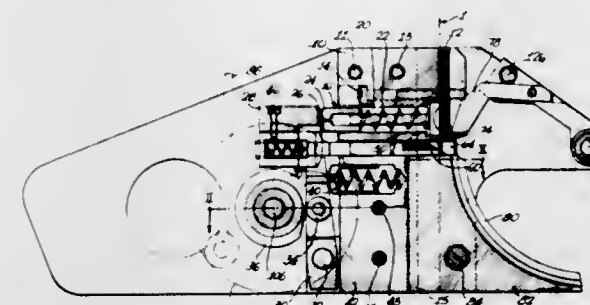
Andre Keusch, Montreal, Quebec, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Apr. 22, 1970, Ser. No. 30,737

Int. Cl. B26d 5/20

U.S. Cl. 83-149

19 Claims



A cutting and feeding device for severing very small segments of predetermined length from a strip of feed material with a minimum of burring and feeding the small segments to a subsequent processing operation in a desired orientation. A reciprocating knife edge cooperates with a fixed knife edge to cut the small pieces from a strip fed into the cutter, and to advance the small pieces into a curved guide which guides the pieces through 90°. A reciprocating finger, synchronized with the cutters, pushes the pieces around the curved guide for delivery to the next operation. The device is particularly suitable for cutting precious metal electrical contacts for subsequent welding to a conductor strip.

3,635,111

APPARATUS FOR MAKING PERFORATIONS IN CORRUGATED TUBES

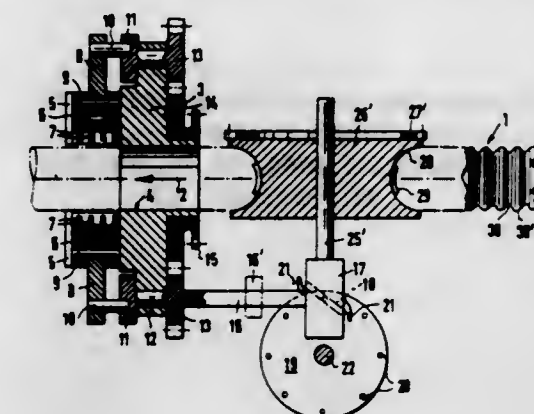
Wilhelm Zieg, Alleestrasse; Georg Schmidt, Am Lauerbach; Edgar Hauck, Heumarkt, 234; Ingo Mammel, Thomas-Kling-Stiege 199e, all of Konigsberg, and Gustav Greubel, Alterhausen, all of Germany

Original application Dec. 31, 1968, Ser. No. 788,277. Divided and this application Nov. 19, 1970, Ser. No. 91,048

Claims priority, application Germany, Mar. 28, 1968, 17 78 094 Int. Cl. B23d 21/00; B26f 1/02

U.S. Cl. 83-183

10 Claims



Apparatus for making perforations in helically or circumferentially corrugated plastic tubes has flat platelike perforating tools which are movable radially toward and away from the tube, a feeding mechanism which advances the tube, either intermittently or continuously, and driven carriers which support the tools and are movable radially of the tube or in planes which include the axis of the tube. Each tool has a cutting edge which is formed with pronounced teeth having tips located at the same level or at different levels. The tube is internally supported at the perforating station and is guided by a channel on its way toward the perforating station.

3,635,112

DECAMBER MACHINE

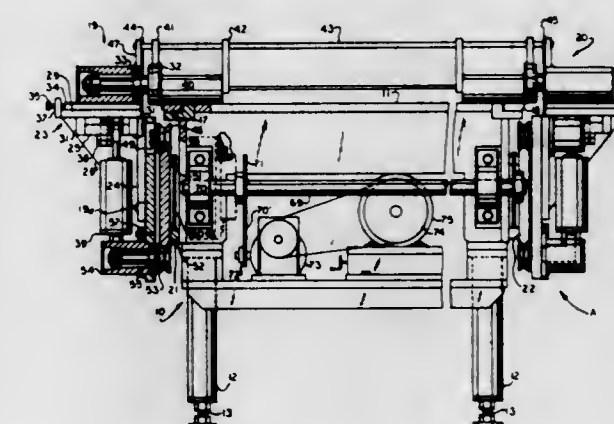
Norman D. Johnson, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed May 25, 1970, Ser. No. 40,104

Int. Cl. B23d 15/06, 19/02

U.S. Cl. 83-402

13 Claims



A table with a flat bed of substantial length, for example, 50 feet, has a shear blade fixedly mounted along each edge thereof, the cutting edges of the shear blades being parallel and spaced apart by a distance equal to the desired trimmed width of a worksheet to be trimmed thereon. Centering means centers a worksheet placed on the bed, and vacuum chucking means anchors such worksheet to the bed with marginal portions of the sheet overlying the shear blades.

Compressed air may be introduced into the vacuum chucking means when centering a worksheet or moving such sheet along the bed to provide air bearing support for such sheet. The carriage drive means also may be used to draw a worksheet onto, and remove it from the bed.

A pair of power-driven cutter carriages are mounted for synchronized guided movement, one along each side of the machine. Each carriage has a cutter wheel mounted for shearing engagement with one of the shear blades for simultaneously trimming both lateral edges of a worksheet to a condition of straightness and parallelism with each other.

A presser roller moving ahead of each cutter wheel tends to flatten the worksheet and remove wrinkles.

3,635,113

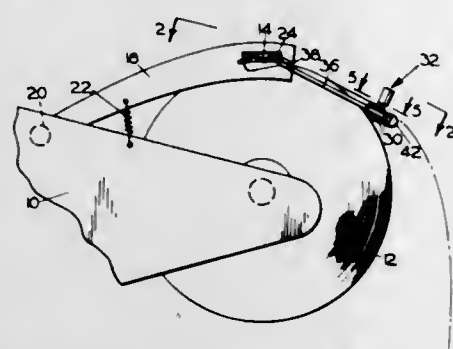
CUTTER ASSEMBLY FOR SHEET MATERIAL

Terence R. Kramer, 1226 S.E. 35th Avenue, Portland, Oreg.
Filed Oct. 2, 1969, Ser. No. 863,219

Int. Cl. B26d 7/00

U.S. Cl. 83—578

1 Claim



The cutter assembly includes a hollow guide track having a slot on an upper side thereof in which a cutting element operates. The cutting element has a handle, a tongue on the handle projecting through the slot, and an enlargement operating within the track of a larger lateral dimension than the slot to lock the cutting element slidably on the track. The cutting element has a blade on each leading edge, such blade being offset to one side whereby to ride along one side edge of the slot and accomplish a shearing engagement against such edge. The invention has a pair of end arms for mounting it on a paper roll holder.

3,635,114

PROTECTIVE AND DECORATIVE EDGING

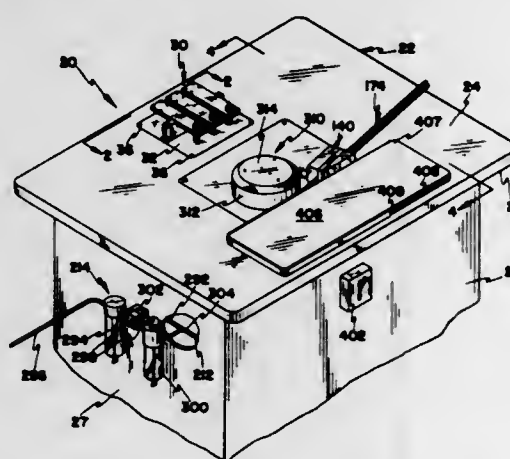
Alton L. Fritz, Phoenix, Ariz., assignor to Royal Industries, Pasadena, Calif.

Original application Mar. 3, 1969, Ser. No. 803,864, now Patent No. 3,513,521. Divided and this application Mar. 2, 1970, Ser. No. 15,550

Int. Cl. B26d 9/00

U.S. Cl. 83—406

7 Claims



Method and apparatus for preparing a workpiece and affixing protective and decorative edging, preferably T-edging, to

the peripheral edge of the workpiece, the apparatus providing (a) a slotting head for guiding the workpiece in a predetermined orientation and a moving slotting blade for cutting a groove in the peripheral edge of the workpiece; (b) a cutting tool for guiding the displacement of the T-edging, for maintaining the leading end portion of a T-edging in the proper orientation and for selectively, at the election of the operator, notching out a length of the tongue of the T-edging at a well-defined position and/or completely severing the T-edging at a precise location; and (c) a hammer for forcing the tongue of the T-edging into the slot formed in the workpiece, the hammer operating only when displaced from the at rest position by force applied to the workpiece. An indicator provides reference marks which, when aligned with a corner of the workpiece, indicates to an operator when to notch the tongue of the T-edging so that the notch will be properly located at the corner of the workpiece. Similarly, the location of the severed end of the T-edging can be predetermined to eliminate any gap between or overlap of the free ends of the T-edging disposed around the entire periphery of the workpiece.

3,635,115

PUNCHING DEVICE WITH ELECTROMECHANICALLY ADJUSTABLE PUNCH KNIVES

Walter Rickenbacher, Gartenstrasse 10, Gossau/Saint Gall, Switzerland

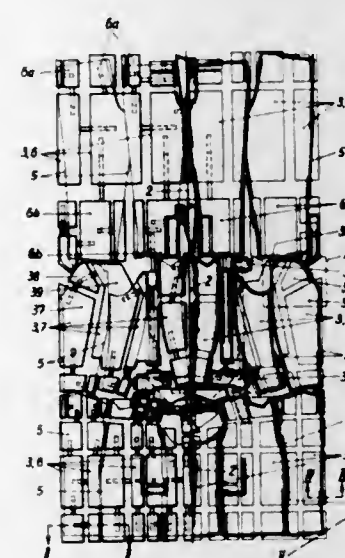
Filed May 4, 1970, Ser. No. 34,374

Claims priority, application Switzerland, May 8, 1969, 7071/69

Int. Cl. B26f 1/44

U.S. Cl. 83—696

9 Claims



The present punching device is for cutting sheet-type layer pieces and has mutually adjustable knife plates and means for adjusting said knife plates to cut pieces from said sheet of desired sizes.

3,635,116

FRETTED UKRAINIAN BANDURA

Walter J. Pelensky, 19C Mannheim Gardens, Philadelphia, Pa.

Filed Aug. 31, 1970, Ser. No. 68,240

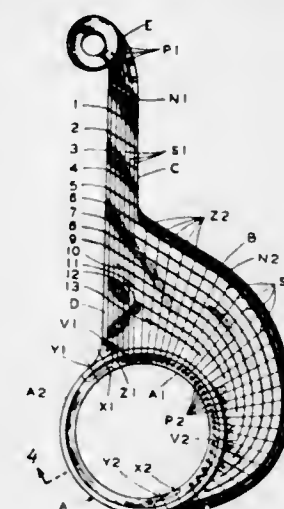
Int. Cl. G10d 3/00, 3/06

U.S. Cl. 84—291

8 Claims

A Ukrainian bandura-type musical instrument with bass strings on a neck and multiple treble strings on a resonator or sounding box body, all strings having frets, most of them multiple frets preferably inclined to the strings on the neck and part of the body; and the body having a loop or ring tail portion, a complementary portion of which may be arranged to be movable from a first or extended position in alignment

with the sounding box body and fixed part of the ring to a second position at an angle to the sounding box body and the



3,635,119

SNARE DRUM HAVING TAPERED AND FLANGED CAST METAL SHELL, AND CAST STRAINER-MOUNTING MEANS

Josephus B. Thompson, deceased, late of Covington, Ohio (by K. E. Stade, administrator), assignor to Columbia Broadcasting Systems, Inc., New York, N.Y.

Filed June 19, 1969, Ser. No. 834,913

Int. Cl. G10d 13/02

U.S. Cl. 84—411

5 Claims

fixed part of the ring to provide selective body or lap rest holding positions for the instrument.

3,635,117

RING FIXING STRUCTURE FOR WOODWIND MUSICAL INSTRUMENT AND METHOD OF OBTAINING THE SAME

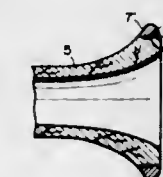
Akira Nagao, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Oct. 28, 1970, Ser. No. 84,808

Claims priority, application Japan, Oct. 31, 1969, 44/103322
Int. Cl. B23b 31/00; B29c 19/00; G10d 7/00

U.S. Cl. 84—380

6 Claims



In order to fix rings firmly around the elongated hollow bodies of a woodwind musical instrument, such as their joints and bell edge for reinforcing and ornamental purposes, grooves are formed, respectively, in opposite portions of the elongated hollow bodies and rings, and an adhesive of hot-melt-type is inserted and disposed in the grooves.

After fitting the ring to the elongated hollow body with both grooves facing each other, the adhesive is heated into a melted state and solidified, the ring and the elongated hollow body being firmly adhered to each other.

3,635,118

VALVE TRAY FOR A MUSICAL INSTRUMENT

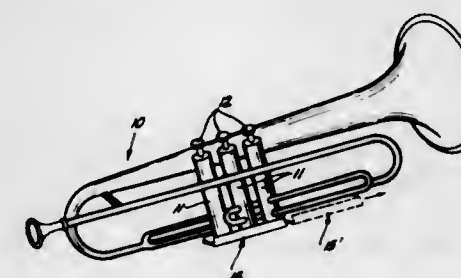
Alois T. Slovacek, Jr., 961 North Cypress Street, La Habra, Calif.

Filed Feb. 24, 1970, Ser. No. 887,010

Int. Cl. G10d 7/10

U.S. Cl. 84—397

7 Claims



A tray for catching oil, saliva or other fluid dripping from the valves of a valved musical instrument. The tray comprises

a unitary, flexible plastic member having a bottom, sides and one closed end. The sides are either inclined toward each other or of facing, concave cross section, with the minimum spacing therebetween being less than the diameter of the valves. This permits the tray to be clip-attached by means of the sides to the bottom of the valves. The tray may contain an absorbent pad; a lip across the open end retains the pad in the tray, but permits sliding disengagement of the tray from the valves.



3,635,120

TAMBOURINE

Yoshiyuki Kotahikawa, 2365, Kawanada-cho, Yokkaichi, Japan

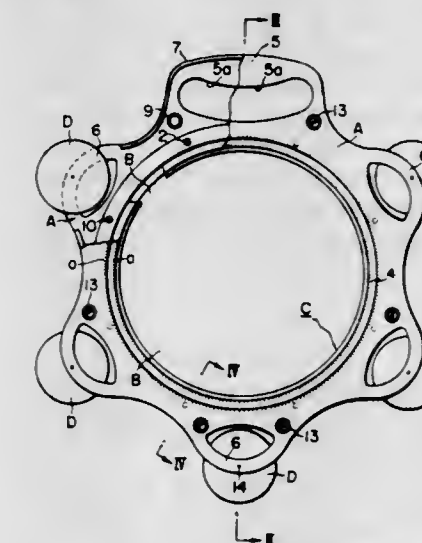
Filed July 13, 1970, Ser. No. 54,233

Claims priority, application Japan, Dec. 4, 1969, 44/14676;
June 9, 1970, 45/056268

Int. Cl. G10d 13/02

U.S. Cl. 84—418

17 Claims



A tambourine made of a pair of synthetic resin annular frames constituting a front and back to be overlapped and af-

fixed to one another so as to form an annularly stepped or channel shape in cross section central area for clamping the skin with the help of a similar material skin-tensioning ring interposed between the internal peripheral edges of the respective frame pieces. The frame pieces are each preferably provided on their respective outer faces along the inner periphery of the respective annular stepped portions with roughened surface portions in the form of small radial slots or grooves which contribute to the resinous frames producing a better triller sound when rubbed by the player thereof. The frame pieces are also each provided with generally peripherally spaced projections and recesses respectively to be complementally engaged with those on the other opposed frame piece and are also provided with a handgrip portion. The frames also have recessed portions for fitting bells within the outer peripheral edges of said annular pieces. The skin or a sheet is provided with circumferentially spaced peripheral attaching holes to receive the aforementioned projections of the annular frame, and the skin is adapted to be tightly held between the respective annular pieces of said two frames. As a part of the tambourine assembly, the annular tightening piece has a stepped cross section with an offset portion to tension the sheet while cooperating with the corresponding stepped portion or recessed channel between the frames, and further includes a suitable handgrip and fastener means for tightly interconnecting the pair of frames.

3,635,121

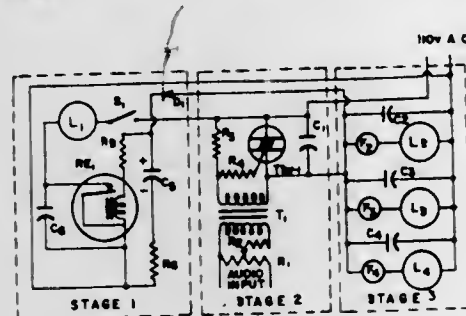
COLOR ORGAN AND ELECTRICAL CONTROL CIRCUIT THEREFOR

Robert J. Knauff, 1003 North Seventh Street, Superior, Wis.
Filed Sept. 14, 1970, Ser. No. 72,006

Int. Cl. A63j 17/00

U.S. Cl. 84-464

14 Claims



A color organ in which a plurality of colored lights flash in response to a signal from an audio source is provided with a control circuit which includes a white room light. When a signal is not being received from the audio source, the white light is on and serves as an ordinary room lamp. When the audio source is turned on, the circuit turns off the white light and activates the colored lights, which may either flash at random with the audio source or flash with low, medium, and high frequencies of the audio source. The control circuit includes a time delay circuit to delay for a discrete period the turning on of the white light after the audio source is shut off so that the white light does not switch on during regular intervals in the audio signal caused by record changing and the like.

3,635,122

LINEAR OR ROTARY MUSICAL INDICATOR

Michel B. Perrault, 4200 Sherbrooke West Apt. 20, Montreal 215, Quebec, Canada

Filed Sept. 15, 1969, Ser. No. 857,904

Claims priority, application Canada, Aug. 8, 1969, 59,045

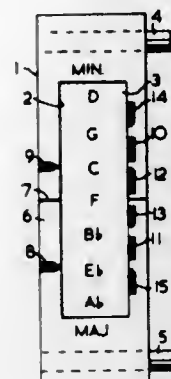
Int. Cl. G09b 15/02

U.S. Cl. 84-477 R

10 Claims

A musical indicator which is adjustable to give information concerning the chords and/or notes which are related to each

other in a given manner in a selected key, includes an information-bearing member and a note-bearing member, movable relatively to each other, the note-bearing member having notes indicated thereon in such a sequence that each pair of adjacent notes has a musical interval of a perfect fifth, that is to say the musical distance between the first and fifth notes of a diatonic scale. The arrangement of notes in perfect fifths enables information to be provided on the information-bearing



ing member in a relatively simple manner. It also enables a musical indicator to be provided with a set of interchangeable information-bearing members, each giving different information. For example, one information-bearing member may provide relatively simple information suitable for very young students, and subsequent information-bearing members in the set may provide successively more complex information for more advanced students.

3,635,123

BOLT ACCELERATOR

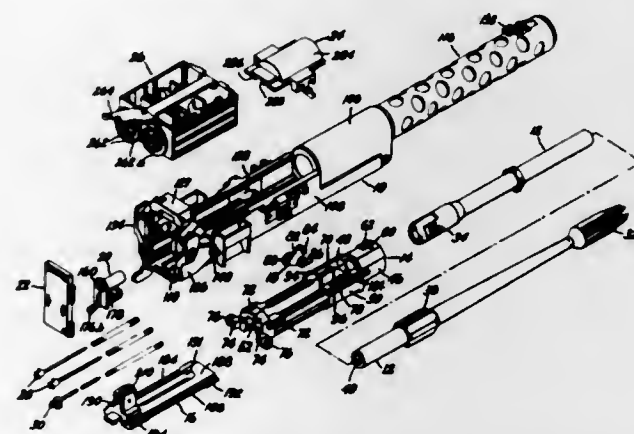
Richard H. Colby, Hamden, Mass., assignor to General Electric Company

Filed Apr. 7, 1969, Ser. No. 814,084

Int. Cl. F41d 1/02, 5/02, 11/12

U.S. Cl. 89-169

9 Claims



A machine gun is disclosed having a receiver with a cam slot in the wall thereof, a barrel extension riding in said receiver, a bolt riding in said receiver and projecting into said barrel extension and having a control surface, and a bolt accelerator having a pivot element journaled to said barrel extension, a first roller traveling in said receiver cam slot, and a second roller riding on said bolt control surface.

3,635,124

USE OF TAPE-CONTROLLED MILLING MACHINES TO CARVE COMBUSTIBLE CASTING PATTERNS

John T. Parsons, 205 Wellington, Traverse City, Mich.

Filed Oct. 20, 1969, Ser. No. 867,980

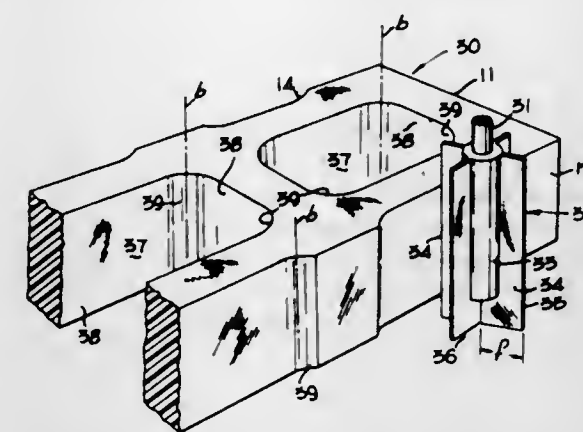
Int. Cl. B23c 1/16

U.S. Cl. 90-11 C

5 Claims

A tape-controlled milling machine, adjusted for material removal at a rate at least 100 times as great as for steel, is

used to carve casting patterns from expanded polystyrene. Billets of the polystyrene material are carved without repetitive passes. Each rotatable cutter utilized is directed by the program of the tape to bring its edge through the excess



material of the billet all the way to the final surface to be carved, and then to proceed along the final contour to be cut by it. Cost savings, material even where a single combustible pattern is to be produced, are multiplied when the tape is reused.

3,635,125

DOUBLE-ACTING HYDRAULIC PUMP AND AIR MOTOR THEREFOR

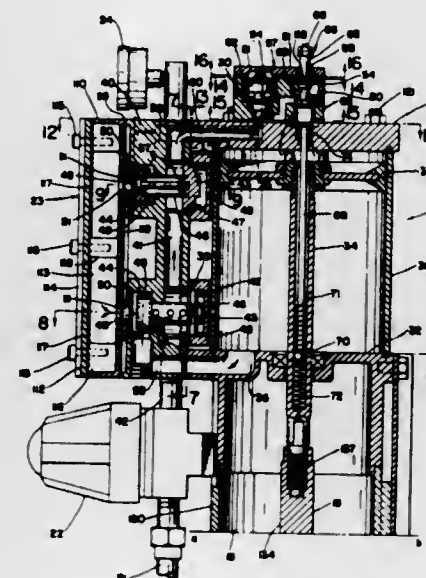
Samuel R. Rosen, Lorain; Alvin A. Rood, Westlake, and Donald R. Scharf, Amherst, all of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Mar. 21, 1969, Ser. No. 809,235

Int. Cl. F01b 23/00; F01i 25/06, 15/16

U.S. Cl. 91-55

12 Claims



A hydraulic pump and double-acting air motor therefor including means for controlling the inlet and exhaust of air to and from the opposite sides of the piston in the air cylinder. A pilot valve operated by the air piston controls one operating valve for the cylinder and a pilot relay valve. The pilot relay valve controls another operating valve which is in reverse phase with respect to the first-operating valve. The piston-operated pilot valve has a snap action feature so that the pilot valve, the pilot relay valve and the operating valves all reverse condition abruptly with a minimum dwell to provide a smoother power transmission. Also a muffler which inhibits ice formation is operatively associated with the operating valves for muffling the noise of the air being exhausted from the air cylinder through the operating valves with minimal accumulation of ice.

894 O.G.-35

3,635,126

HYDROSTATIC BUTTON BEARINGS FOR PUMPS AND MOTORS

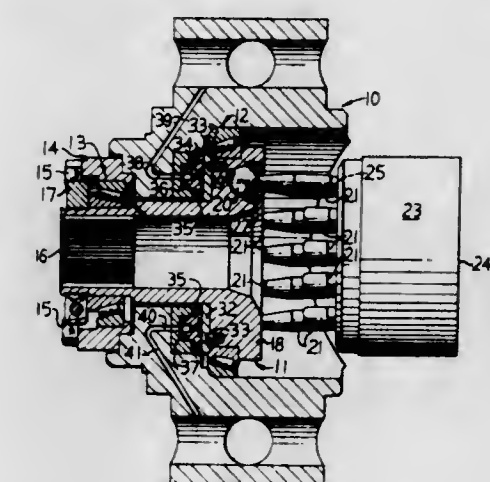
William K. Engel, Peoria; William B. Norick, Joliet; James L. St. Germain, Plainfield, and Peter Hakkenberg Van Gansbeek, Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Jan. 17, 1969, Ser. No. 791,955

Int. Cl. F01b 13/04; F04b 1/26

U.S. Cl. 92-57

6 Claims



In axial-piston, hydraulic pumps and motors, the thrust loadings of the pistons on their bearing supports vary proportionally to pressures in the unit and also circumferentially around the bearing supports. By employing hydrostatic button bearings pressurized in "sets" around the bearing support with at least one set pressurized with the unit's inlet pressure and another "set" pressurized by the unit's outlet pressure, improved bearing performance is achieved. Also, certain surface configuration forming the sills and recesses of the individual buttons can enhance bearing performance.

3,635,127

HYDRAULIC CYLINDER MOUNT FOR A FORAGE HARVESTER

Robert A. Wagstoff, 350 E. Conestoga Street, New Holland, Pa.

Original application Aug. 26, 1968, Ser. No. 762,930, now

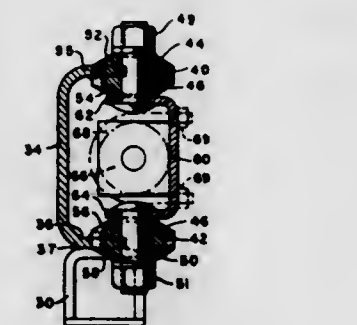
Patent No. 3,516,713. Divided and this application Jan. 2,

1970, Ser. No. 5,397

Int. Cl. F01b 29/08; F16m 13/02

U.S. Cl. 92-161

1 Claim



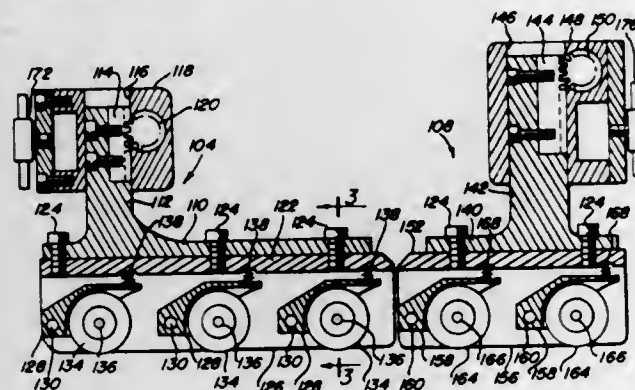
A hydraulic cylinder mount for the spout control of a forage harvester comprising a support attached to a fixed vertical spout section, adjacent the upper end thereof, a bracket having a pair of axially aligned, spaced-apart retaining rings fixed therein, said bracket being fixed to the support, spherical bearings in the rings, and a second bracket to which a hydraulic cylinder is clamped, the second bracket being connected to the bearings for pivotal movement therewith so that the pivot axis of the cylinder mount passes

through the bearings and the center of the cylinder, adjacent the rod end of the cylinder housing, producing an effective force column between the pivot axis and the rotatable spout section of the harvester to which the cylinder rod is connected.

3,635,128

MACHINES FOR MAKING ENVELOPES

Joseph J. Dohnalik, Cook County, Ill., assignor to Garden City Envelope Company, Chicago, Ill.
Original application Nov. 4, 1966, Ser. No. 591,995, now Patent No. 3,450,009, dated June 17, 1969. Divided and this application Jan. 16, 1969, Ser. No. 791,722
Int. Cl. B31b 1/08, 1/62, 1/94
U.S. Cl. 93-1 R 2 Claims

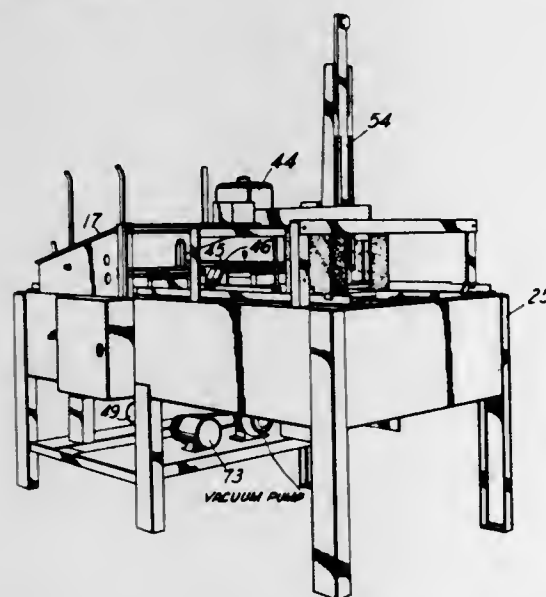


An envelope-forming machine for making large diagonal seam envelopes includes a flat horizontal bed, side-flap folders, a rotary segmental applicator and a bottom-flap folder over the bed, with presser carriages extending beneath the applicator shaft and including a plurality of presser rollers disposed over the outer edges of the path of travel of the envelope blanks and closely adjacent to the outer edges of the applicator. The presser rollers are mounted on stub shafts extending inward from a support, and a thin cover plate extends over the inner side of each set of rollers. The carriages are supported for vertical reciprocating adjustment and horizontal sliding adjustment. The mechanism for feeding the blank to the machine includes a rotary drum and two sets of independently resiliently mounted rollers disposed in opposite echelon arrangement for engaging the leading edges of a blank for forming a diagonal seam envelope.

3,635,129

TRAY FORMER

Vincent Cabelo, Jr., Dunedin, Fla., assignor to ABC Packaging Machine Corporation
Filed Sept. 15, 1969, Ser. No. 857,705
Int. Cl. B31b 1/44
U.S. Cl. 93-51 R 6 Claims



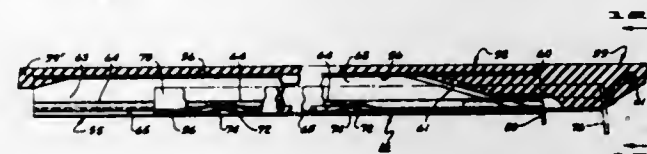
A machine for forming shipping cases or trays from flat blanks having a storage magazine, stripping means for remov-

ing one blank at a time from the magazine, glue-applying means for selectively applying glue to desired portions of the blank, an indexing means for advancing the blank past the glue-applying means to a tray-forming mandrel, and means cooperative with the mandrel for folding up the sides of the blank and folding the ends thereof in threefold overlapping relation.

3,635,130

PANEL ASSEMBLY

Robert E. Perry, Lafayette, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Continuation-in-part of application Ser. No. 767,447, Oct. 14, 1968, and a continuation-in-part of 792,357, Jan. 21, 1969.
This application Oct. 7, 1969, Ser. No. 864,329
Int. Cl. E01c 5/00
U.S. Cl. 94-13 20 Claims

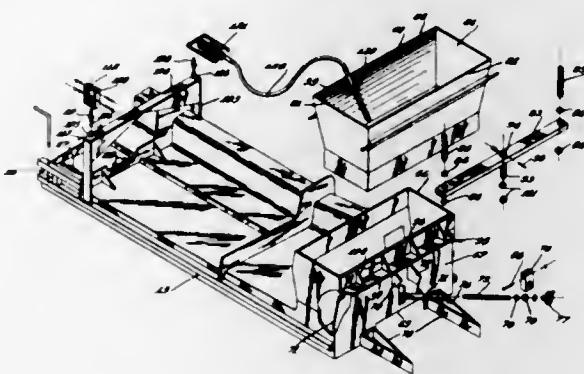


This invention relates to an improved landing mat installation and the like comprised of a plurality of removably interlocked panels, wherein the joints formed by various marginal edges of the panels are provided with improved cooperating locking and sealing means that advantageously inhibit the penetration of water and the like through the joints as well as facilitating the installation and dismantlement of the panels making up the landing mat installation.

3,635,131

SLIP FORM CURB AND GUTTER MACHINE

Richard D. Larsen, Denver, Iowa, and Harold E. Miller, Milwaukee, Wis., assignors to Curbmaster of America, Inc., Cedar Falls, Iowa
Filed Feb. 2, 1970, Ser. No. 7,709
Int. Cl. E01c 19/30
U.S. Cl. 94-46 22 Claims



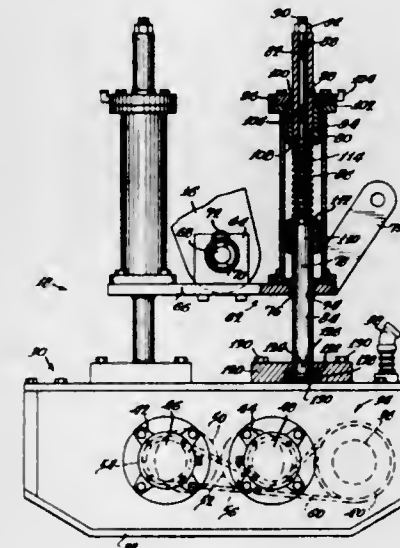
Self-propelled curb and gutter forming machine mounted on continuous traction tread devices. A curb mold form is suspended from the main frame of the machine and extends between the continuous traction tread devices. The main frame of the machine is suspended from the tread devices on three jacks, two of which are provided on one side of the machine and control the grade and a third of which is provided on the opposite side of the machine and controls the slope of the main frame and curb mold form. The curb mold form is vertically pivoted at its front end to a drawbar at the front of the main frame and is suspended from the main frame at its rear end to move laterally about the axis of the vertical pivot. The continuous traction tread devices are driven by independent hydraulic motors, controlled by a variable flow divider valve either manually operated or automatically operated under the control of a sensor biased into engagement with a line extending along the side of the roadway. The three jacks are in the form of self-locking screw

jacks driven by individual hydraulic motors. The two jacks on one side of the machine conform the machine to the grade of the roadway and are controlled by grade sensors. The hydraulic jack on the opposite side of the machine conforms the machine to the slope of the roadway and is controlled by a pendulum control.

3,635,132

VIBRATORY COMPACTOR

William P. McIlrath, and Chris Stougaard, both of Racine, Wis., assignors to Rex Chainbelt Inc.
Filed Sept. 22, 1969, Ser. No. 859,933
Int. Cl. E01c 19/30
U.S. Cl. 94-48 16 Claims



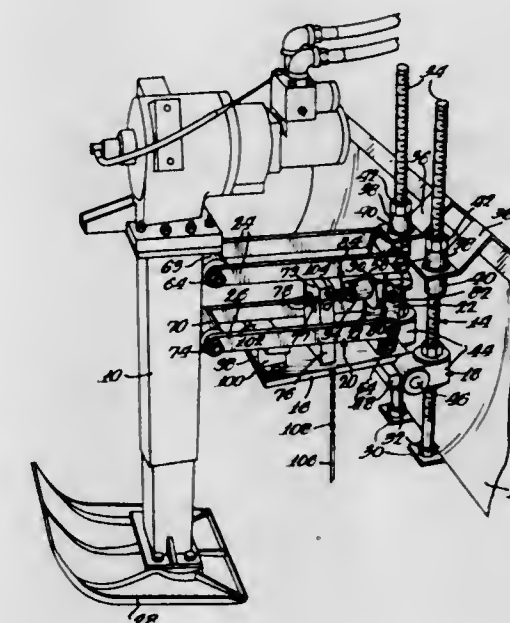
A vibratory compactor including a housing having vibratory means therein and for engaging the ground to compact the same, and a self-leveling support for the housing including spring means, a mounting device adapted to be connected to the lift arm of a vehicle, and means for compressing the springs whether the mounting device is moved upwardly or downwardly by the lift arm. The vibratory means include a pair of spaced shafts bearing eccentric weights and a motor within the housing for driving the shafts in a manner to cause vertical oscillation of the housing. The drive includes a chain extending from the motor to the underside of one of the shafts and to the top side of the other shaft and thence back to the motor to rotate the shafts in opposite directions.

3,635,133

MOUNTING FOR COMPACTORS

Chris Stougaard, Racine, Wis., assignor to Racine Federated Industries Corporation, Racine, Wis.
Filed Oct. 29, 1969, Ser. No. 872,046
Int. Cl. E01c 19/30
U.S. Cl. 94-49 10 Claims

A device for mounting a material compactor on a vehicle including means for securing the mounting device to the vehicle, a baseplate including an adjustable connection to the vehicle securing means, a pair of linkage arms pivotally mounted to the baseplate to allow conformation of the compactor to ground level, upper and lower spaced pairs of connecting arms having one end pivotally joined to the linkage arms and the other end pivotally connected to the material compactor to allow vertical compactor to allow vertical compactor movement without substantially transmitting reaction to the retaining vehicle, means for adjusting the compactor

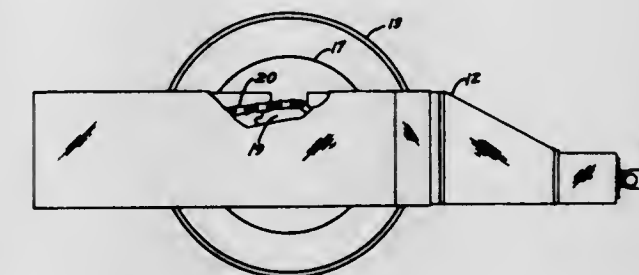


necting arms in an elevated position for vehicle movement with the compactor suspended above ground level.

3,635,134

VIBRATORY ROLLERS

Hubert E. Thomas, Francis Lane, Chester, N.J.
Filed Dec. 3, 1969, Ser. No. 881,671
Int. Cl. E01c 19/28
U.S. Cl. 94-50 7 Claims



The name and broad description of the invention is "Friction-Driven Vibrator." This invention is a new method of providing power to rotate the eccentric weights or shafts of a vibratory roller. The eccentric weights and shafts are known herein as vibrator elements. This new method utilizes the drawbar pull of the towing vehicle to supply power to rotate the vibrator element(s). The new method provides a friction-driven drive train that secures power from the drawbar pull of the towing vehicle and is dependent on the drawbar pull of the towing vehicle, the tendency of the roller drum to rotate as a force is applied radially to the drum through axles on the ends of the drum which are concentric to the drum, the coefficient of friction between the roller drum and the surface being rolled and compacted, and the weight of the towed roller. Rotary motion and power is transferred from the rotating drum through a combination of means to drive the vibrator element(s) in a rotary fashion.

3,635,135

LIGHT-MEASURING MEANS FOR MICROFILM CAMERA

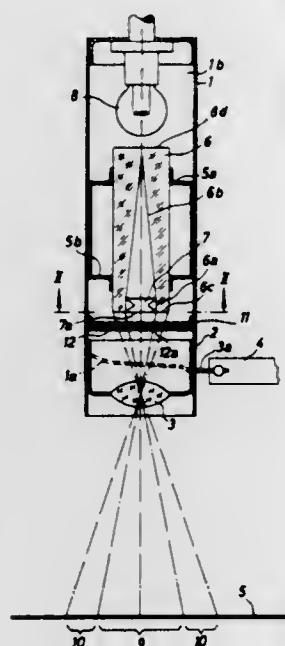
Kasimir Ambraschka, Unterhaching, and Horst Bickl, Munich, both of Germany, assignors to Agfa-Gevaert AG, Munich, Germany

Filed Feb. 18, 1970, Ser. No. 12,332

Claims priority, application Germany, Mar. 24, 1969, P 19 14 944.1

Int. Cl. G01J 1/02

U.S. Cl. 95-10 A



A light-measuring device for microfilm cameras which is adapted to measure in a point-by-point manner the brightness of an object plane. A small area of an object plane is projected by means of suitable light source via a measuring objective lens onto a measuring photoelectric cell. Light-conducting means are optically aligned with the objective lens and the light source. The photoelectric cell is mounted in the light-conducting means and has an end surface which is coplanar with an end surface of the light-conducting means. The measuring objective lens serves to also project a pattern of light defined by the shape of the end surface of the light-conducting means onto the object plane.

3,635,136

PILOT LAMP UNIT FOR USE WITH AN ELECTRONIC FLASHLIGHT

Kunihiko Hori, and Keno Okuno, both of Kawasaki-shi, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

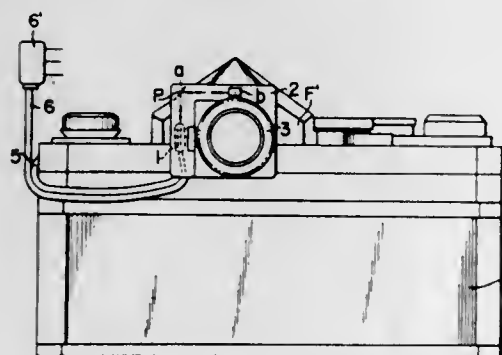
Filed Sept. 9, 1969, Ser. No. 856,424

Claims priority, application Japan, Sept. 16, 1968, 43/80247

Int. Cl. G03b 17/20

U.S. Cl. 95-11 R

7 Claims



A pilot lamp unit, for use with an electronic flash gun, attachable to a camera, having a viewfinder. The unit includes a pilot lamp, a first member having a reflecting surface for

receiving light from the pilot lamp and directing it to the viewfinder in a first direction, a second member having at least one reflecting surface for receiving light from the pilot lamp and directing it to the viewfinder in a second direction, whereby the operator can readily observe the light regardless of whether the camera is horizontally or vertically positioned.

3,635,137

CAMERA WITH DRUM SUPPORTED FILM STRIP

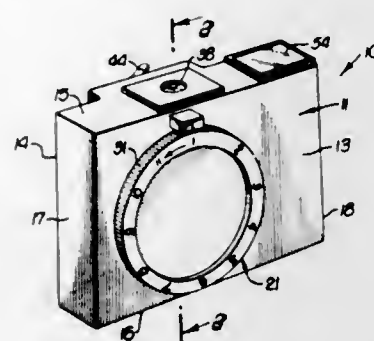
Melville R. Pollard, Jr., 19930 Fair Street, Woodland Hills, Calif., assignor to Stanley A. Cephus, Garden Grove; Edward Tanner, Northridge and Melville R. Pollard, Jr., Woodland Hills, Calif., part interest to each

Filed Sept. 2, 1970, Ser. No. 69,027

Int. Cl. G03b 19/02

U.S. Cl. 95-11 R

10 Claims



A camera of simple construction, well adapted to film loading at a central processing station, employs a rotary drum the periphery of which defines a circular sequence of flats over which the film strip may be extended, the film and drum being rotatable in the camera case, and the film being urged against the flat which is associated with the film section in position to receive light admitted to the camera interior, for field flatness.

3,635,138

PHOTOCOMPOSING MACHINE

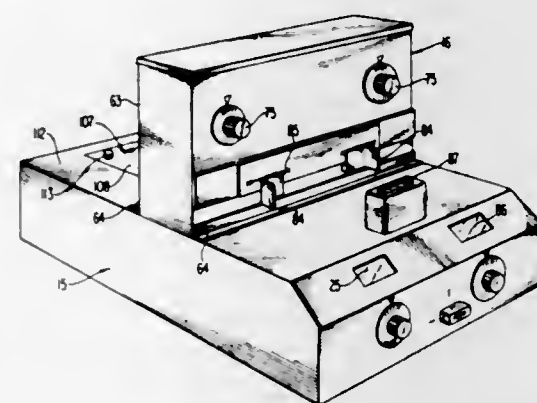
Forrest S. Mabry, 4009 St. John's Lane, Ellicott City, Md.

Filed Oct. 15, 1970, Ser. No. 81,068

Int. Cl. B41b 13/10, 15/06, 21/20

U.S. Cl. 95-12

15 Claims



A machine for producing lines of predetermined length, angularity and thickness on photographic film or paper with precision. The machine employs a film-receiving platform and means to drive this platform along a linear path and to turn it on a rotational axis. A portable film holder serves to transport film to and from the machine with the film protected from exposure to light and serves the dual purpose of constituting a closure for the lighttight body of the machine while the film is released onto the movable platform. Readily interchangeable units are mountable on the main body of the machine for producing lines and indicia characters, respectively. A separate device is employed by a draftsman to produce a program upon which a given sequence of opera-

tions of the machine is based. The machine is useful in the production of business forms, charts, printed circuits and similar articles where a master film is used directly in the manufacturing process.

3,635,139

PHOTOGRAPHIC FILM-UNIT ASSEMBLAGE

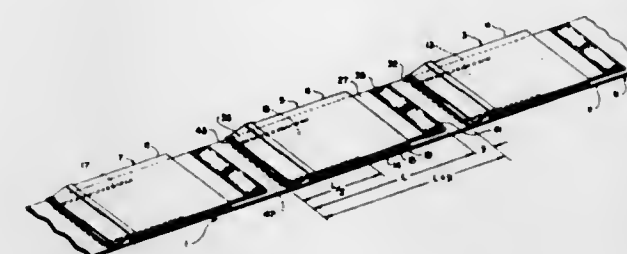
Joseph D. Guite, Sr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 2, 1970, Ser. No. 77,473

Int. Cl. G03b 17/50

U.S. Cl. 95-13

24 Claims



An improved assemblage of integral self-processing film units interconnected by a foldable web for transporting the film units in cooperating photographic apparatus is disclosed. The web is adapted, by a series of longitudinally extending flaps cut from the web, to lie flat and support the film units in closely spaced succession on a common plane when the web is unfolded, and to support the film units in superposed relationship when the web is folded in a zigzag configuration for use in the cooperating photographic apparatus.

3,635,140

TRIPOD-MOUNTED SCANNING CAMERA

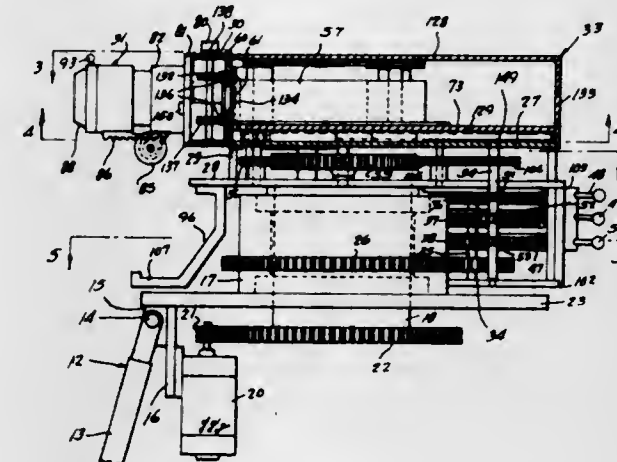
Jesse D. Wolf, Golden, Colo., assignor to Trans Horizons, Inc., Ontario, Canada

Filed Sept. 5, 1969, Ser. No. 855,681

Int. Cl. G03b 37/00

U.S. Cl. 95-15

17 Claims



A rotary panoramic camera assembly consisting of a support and a camera rotatably mounted thereon and driven in a horizontal plane by a reversible electric motor whose operation is controlled by microswitches at opposite ends of a specified arc of scanning traverse of the camera. The camera has changeable lenses and a changeable film cassette having a film advance mechanism driven through a gear system by the main camera motor. The gear system includes a speed-selecting gear-change assembly to change the speed of film movement in accordance with a change of camera lenses. The camera includes adjustable focusing mechanism, an automatic iris control system, an adjustable aperture, a film footage indicator, and a solenoid-operated idler gear in the gear system which automatically uncouples the film advance mechanism from the system at the end of the forward scan of the camera and during the return movement of the camera to its starting position for repeating the scan.

3,635,141

PHOTOGRAPHIC CAMERA WITH SHUTTER BLADE SYSTEM EXECUTING RECIPROCATING MOTION DURING EXPOSURE

Franz W. R. Stapp, and Vladimir Rackl, both of Calmbach, Black Forest, Germany, assignors to Pronter Weck Alfred Gauthier G.m.b.H., Calmbach, Black Forest, Germany

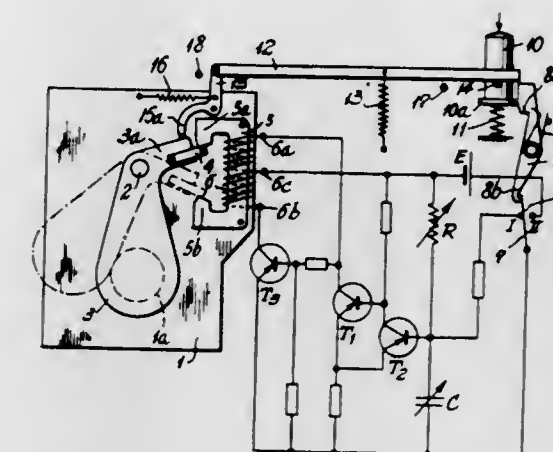
Filed Nov. 26, 1965, Ser. No. 509,888

Claims priority, application Germany, Nov. 30, 1964, G 42,139

Int. Cl. G03b 9/58

U.S. Cl. 95-53

12 Claims



A reciprocating shutter blade system for a photographic camera comprises a shutter blade system activated by an electromagnet, and a permanent magnet coupled to the shutter blade system and participating in the motion of the shutter blade system. Only one pole of the permanent magnet projects into the magnetic field of the electromagnet.

3,635,142

EXCHANGE LENS WITH THE LENS-SHUTTER

Takeshi Ataka, Sumiyoshi-ku; Shobei Tenkano; Minoru Sekita, both of Sakai-shi, and Yuji Nakaniwa, Tokyo, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

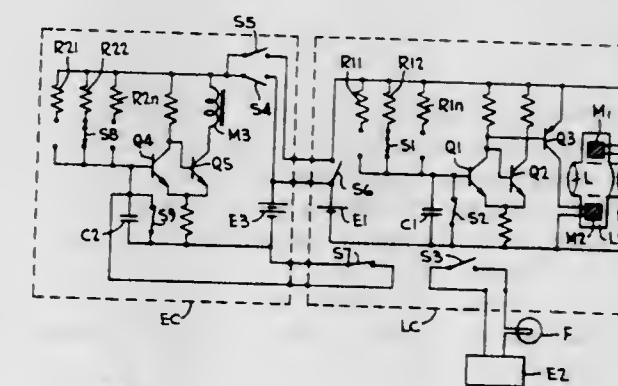
Filed Apr. 4, 1969, Ser. No. 813,622

Claims priority, application Japan, Apr. 10, 1968, 43/23803

Int. Cl. G03b 9/62

U.S. Cl. 95-53 E

3 Claims



A control circuit sets the lens shutter in action in response to the opening action of a focal plane shutter and closes the focal plane shutter after the lens shutter is closed, so that the proper exposure function of the lens shutter is maintained when the focal plane shutter is opened or closed.

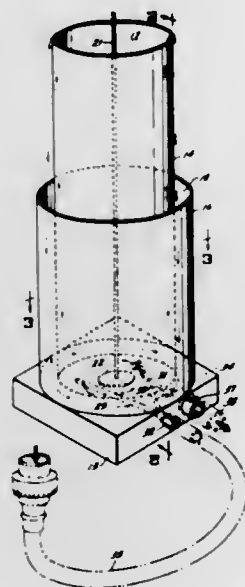
3,635,143

FILM WASHING DEVICE

Thomas W. Talley, 940 North Lane, and Thomas M. Talley, 6570 Devonwood Drive., both of Cincinnati, Ohio
Filed Oct. 27, 1969, Ser. No. 869,721
Int. Cl. G03d 3/02

U.S. Cl. 95-97

4 Claims



A film washer which includes a base block on which inner and outer tubular wall members are mounted. The wall members extend upwardly to define an inner chamber inside the inner wall member and an outer chamber between the wall members. Upper ends of the chambers are open. An inlet passageway in the base block supplies wash liquid into the inner chamber. Jets direct the liquid tangentially to cause the liquid to swirl around film reels mounted in the inner chamber. The wash liquid overflows the upper end of the inner wall member into the outer chamber. A discharge passageway in the base block receives wash liquid from the outer chamber.

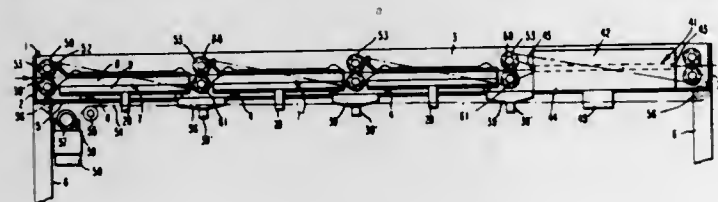
3,635,144

FLOATING FILM PHOTOGRAPHIC DEVELOPING APPARATUS

Robert Haun Beck, Fairhaven, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 19, 1969, Ser. No. 886,618
Int. Cl. G03d 3/00

U.S. Cl. 95-89 R

4 Claims



Developing apparatus for the rapid development of photographic silver halide elements, e.g., sheets or plates having a series of spaced solution-applying plates having (1) rows of spaced orifices of small diameter for supplying photographic treating solutions to the surface of the applying plates and to the surface of the elements passed across the applying plates, and (2) alternate rows of spaced orifices of greater diameter for removing excess solution; characterized in that between the applying plates are pressure or squeegee rolls for removing excess solutions, drip pans for the solutions, cover plates extending over the applying plates and flexible sealing strips at the entrance and exit ends of the cover plates, which strips are adapted to press against the back surface of the photographic elements. The apparatus can have an associated drying chamber adjacent the final solution-applying plate.

3,635,145

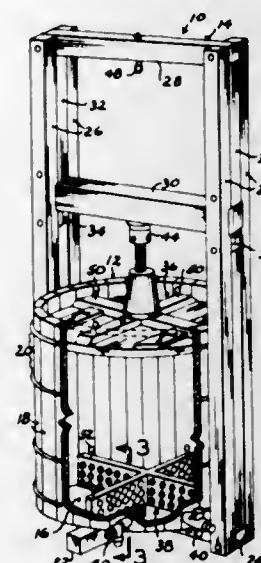
FRUIT PRESS AND FERMENTATION TANK

Joseph A. Nardella, 1500 "T" Street, Sacramento, Calif.
Continuation-in-part of application Ser. No. 768,030, Oct. 16, 1968, now abandoned. This application July 2, 1970, Ser. No. 52,040

U.S. Cl. 99-277.1

Int. Cl. C12h 1/22

6 Claims



A vertical open framework having a base, transversely surrounds and supports a tank. A fruit pulp removal frame disposed in the tank bottom permits draining off the fruit juice through a drain spout and easy removal of the crushed fruit pulp.

3,635,146

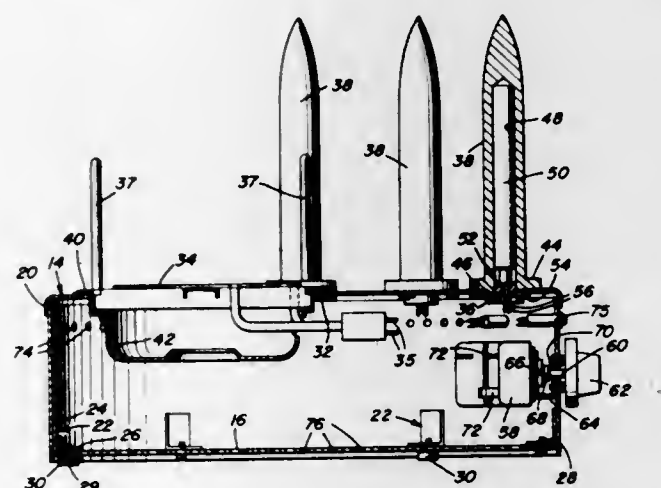
HEATING APPARATUS FOR BREAD AND FILLER MATERIAL

Jean-Pierre Aubert, Geneva, Switzerland, assignor to Commercial Holding & Metals Corporation, Toronto, Canada
Filed Oct. 26, 1970, Ser. No. 83,981

U.S. Cl. 99-339

Int. Cl. A23; A47j

9 Claims



A heating device having six heating cones for simultaneously toasting and defining elongated central openings in bread, such as French bread, and having an electric range element on which the filler material may be heated. The heating cones are divided into two groups of three cones each, and the power delivered to each group is regulated by respective continuously adjustable controls. Similarly the power delivered to the electric range element is regulated by a continuously adjustable control. A pilot light is associated with each adjustable control member and indicates when that member is delivering power. The device is further provided with means for expelling unwanted heat from its casing.

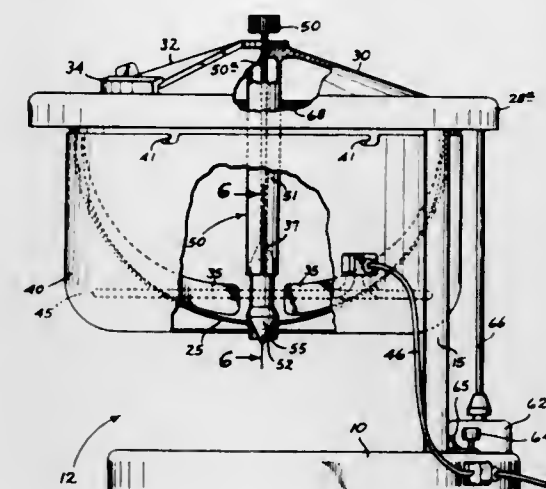
3,635,147

COMBINATION COOKING-STIRRING VESSEL

Wallace G. T. Lee, 602 S. W. Park No. 215, Portland, Oreg.
Filed July 23, 1970, Ser. No. 57,559
Int. Cl. A47j 27/02

U.S. Cl. 99-348

14 Claims



A vessel for simultaneous cooking and stirring of food ingredients in the form of a bowl provided with an electrical heating element and two sets of stirring blades, one set provided adjacent the wall of the bowl and the other set mounted on a central handle, both sets being rotated by means of a motor drive applied to the rim of the bowl. The bowl is elevated to provide space for the insertion of a plate underneath and is provided with a central hole in the bottom which during the course of the cooking operation is covered by a plug secured to the central handle which may be lifted upward, after the cooking operation is complete, to uncover the opening in the bowl through which the contents can then be pushed out by the stirring action of the blades onto the plate.

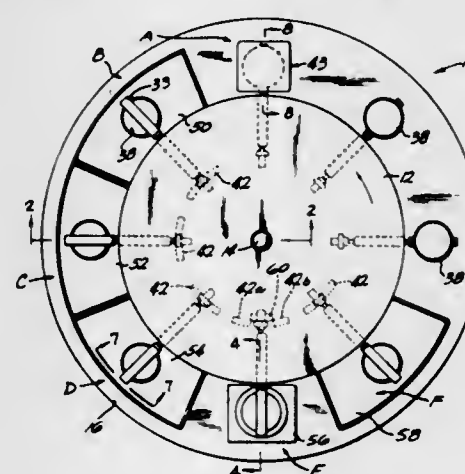
3,635,148

MACHINE FOR PROCESSING SPAGHETTI

Ligor Gregory Fenerli, 341 South Main St., Ann Arbor, Mich.
Filed Oct. 29, 1969, Ser. No. 872,083
Int. Cl. A47j 37/12

U.S. Cl. 99-404

4 Claims



Apparatus for continuously converting precooked spaghetti to a fully cooked and sauced food product wherein a rotatable table has a plurality of work stations positioned around the periphery of the table. A plurality of baskets are movably supported on the table so that they project outwardly therefrom and are movable downwardly at certain stations for food processing and basket cleaning purposes and are inverted at an unload station where the final food product is dispensed. Basket supports on the table move with the table in a manner to provide for this selective up-and-down and inverting movement of the baskets.

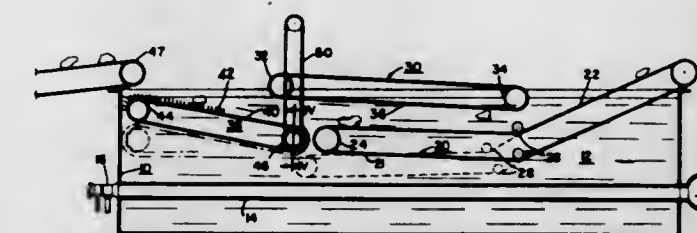
3,635,149

CONTINUOUS FRYING DEVICE

Benjamin C. Smith, and Ernest R. Fridham, both of Lunenburg, Nova Scotia, Canada, assignors to National Sea Products Limited, Halifax, Nova Scotia, Canada
Division of Ser. No. 693,461, Dec. 26, 1967.
Filed Nov. 3, 1970, Ser. No. 86,530
Claims priority, application Canada, Oct. 25, 1967, 3,406
Int. Cl. A47j 37/12

U.S. Cl. 99-404

11 Claims



The disclosure recites method and apparatus for the deep fat frying of batter coated foodstuffs wherein such foodstuff is supported adjacent the points of a plurality of closely spaced pointed elements during at least the initial stages of the cooking process for a period of time sufficient to allow the batter coating to become adequately cooked thereby to prevent adherence of the latter both to other pieces of foodstuff and to the cooking apparatus during subsequent cooking stages.

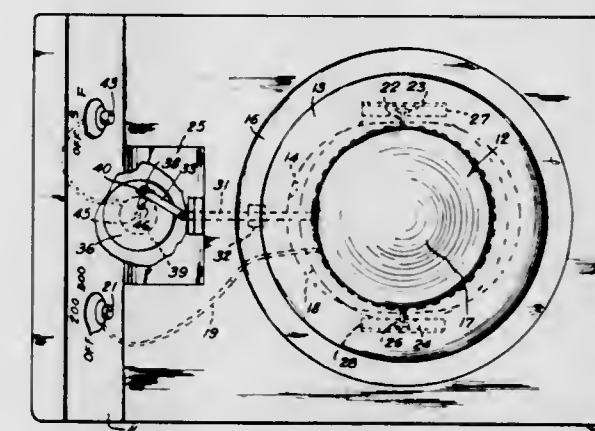
3,635,150

OSCILLATING DEEP FRYER

Marcel M. Piedallu, 2221 Mary Jane Lane, Park Ridge, Ill.
Filed Dec. 17, 1969, Ser. No. 885,665
Int. Cl. A47j 37/12

U.S. Cl. 99-409

5 Claims



An oscillating deep fryer for cooking items such as souffle potatoes which has a deep-frying container with a convex bottom which is oscillated back and forth and also slightly up and down so as to properly cook items in the fryer. A heating element is connected to the fryer with a flexible power cable to provide heat for the unit.

3,635,151

APPARATUS FOR RECOVERING LIQUIDS FROM LIQUID-CONTAINING SOLID MATERIALS OF DIFFERENT CONSISTENCIES, ESPECIALLY FROM FRUITS OF ANY TYPE

Franz Preisinger, and Ernst Reichl, both of Oberreichingen, Germany, assignors to Gugelot Design GmbH
Filed Sept. 12, 1969, Ser. No. 857,320
Claims priority, application Austria, Sept. 13, 1968, A 8967/68

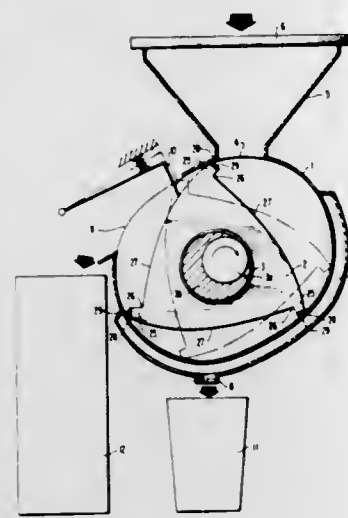
Int. Cl. B30b 9/06

U.S. Cl. 100-127

11 Claims

An apparatus for obtaining liquids from liquid-containing solid materials or goods of different consistency, especially

from fruits, in which the pressing-out of the liquid is realized by means of a rotary piston device of trochoidal construction



which automatically discharges the residue in cyclic operation.

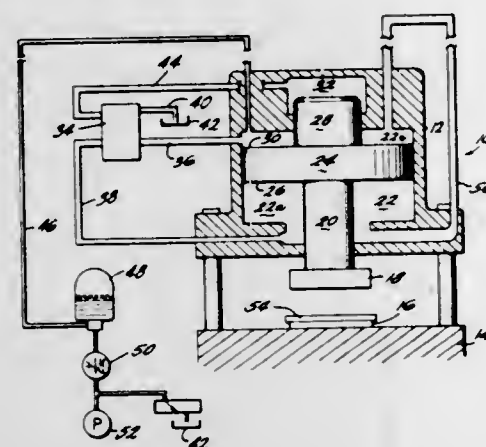
3,635,152 HYDRAULIC PRESS

Peter B. Olmsted, Ann Arbor, Mich., assignor to Olmsted Products Co., Ann Arbor, Mich.

Filed Dec. 4, 1969, Ser. No. 882,222
Int. Cl. B30b 1/32

U.S. Cl. 100-269 B

3 Claims



A hydraulic press having a fluid chamber and a piston slidably mounted therein so as to separate said chamber into a pair of portions. A conduit of "excessive" length connects the chamber portions and functions as a valve in point of time to provide the desired isolation of the chamber portions from each other and also to provide intensified pressure on the desired side of the piston.

3,635,153 HIGH-SPEED PRINTING APPARATUS FOR WIRELIKE ARTICLES

Roger H. Gartside, Township of Shaler, Allegheny County, Pa., assignor to The Pannier Corporation

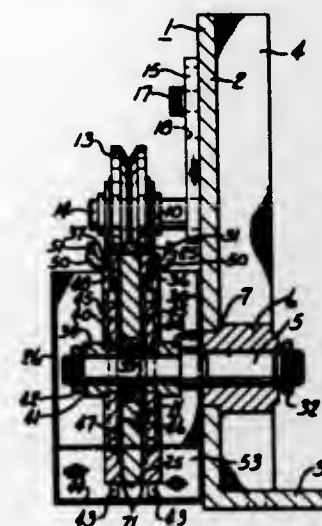
Filed May 13, 1970, Ser. No. 36,771
Int. Cl. B41f 17/10, 9/10; F16j 15/14

U.S. Cl. 101-37

14 Claims

High-speed printing apparatus for printing indicia on a wirelike article as the article is moved through the apparatus wherein a printing wheel is rotatably mounted on a shaft supported from a frame and is provided with peripheral printing surface with intaglio engraving incorporated into the printing surface. Guide rollers are mounted adjacent the printing wheel to direct and guide the article into and out of engage-

ment with the peripheral printing surface. Movement of the article rotates the printing wheel, which receives ink at its printing surface when a portion of the wheel passes through an ink reservoir. Nonrotatable disc-shaped members are mounted adjacent each side of the printing wheel, and have peripheral surfaces congruent with the printing wheel printing surface. Gas passage means are provided within each disc



member to receive a gas supply, such as air, to form a gas seal bearing between the side surface of the printing wheel and the adjacent side surfaces of the disc members. Blade means is disposed at an acute angle relative to the printing surface in a direction against the rotational direction of the printing wheel to shear away excess ink deposited on the printing surface.

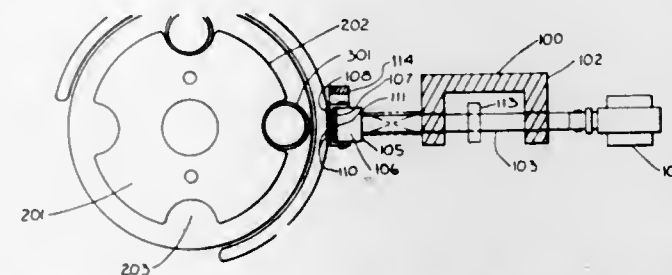
3,635,154 APPARATUS FOR PRINTING ON CONVEX SURFACES

Herbert C. Gery, Villas, N.J., and Marvin S. Samson, Philadelphia, Pa., assignors to Medical Electroscience and Pharmaceuticals, Inc., Cherry Hill, N.J.

Filed Sept. 29, 1969, Ser. No. 861,712
Int. Cl. B41f 17/20

U.S. Cl. 101-44

5 Claims



A printing device wherein a print carrier is movable toward and away from a convex surface to be printed, a depressible pad being carried by the carrier for movement therewith toward the convex surface in facing relation with the latter. A flexible printing sheet is located on the pad, being carried by the carrier and having type members, for movement with the carrier into conforming engagement with a convex surface being printed.

3,635,155 TICKET-VENDING APPARATUS

Noriaki Minami, Tamotsu Okawa, and Yoshiomi Iizima, all of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

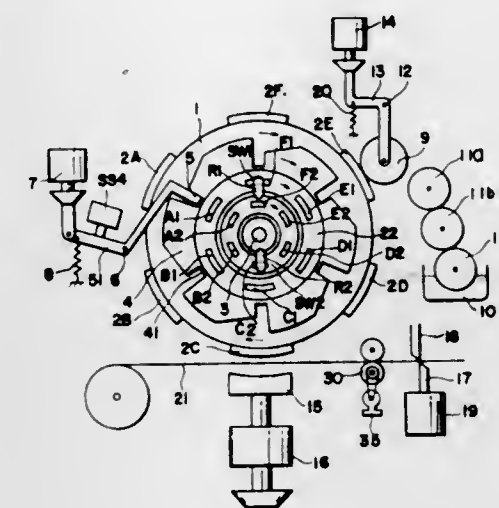
Filed Sept. 15, 1969, Ser. No. 857,756
Claims priority, application Japan, Sept. 13, 1968, 43/66485
Int. Cl. B41j 05/00, 11/10

U.S. Cl. 101-93 R

8 Claims

Improvement in vending apparatus for vending various kinds of tickets, wherein any selected stamp out of a group of

stamps arranged on a stamp-holder surface, such as a cylindrical surface of a stamp-drum or a surface of an endless belt, is accurately driven to the printing position and is



properly fed by ink, regardless of the position of such stamp when the selection is made. By means of such function, the apparatus is always able to print tickets clearly and precisely, even after a long interval of the printing operation.

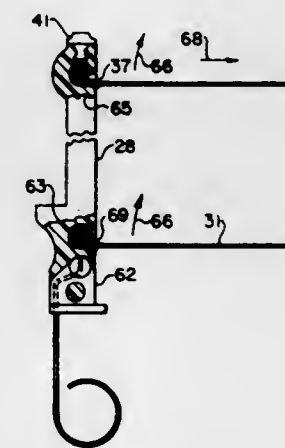
3,635,156 FATIGUE-RESISTANT ATTACHMENT FOR HIGHLY STRESSED MEMBERS SUCH AS PRINT HAMMERS

Frederick G. Krebs; Stephen D. Marcey, both of Dayton, Ohio, and Samuel A. Redman, Garden City, N.Y., assignors to The National Cash Register Company, Dayton, Ohio

Filed Oct. 6, 1969, Ser. No. 863,811
Int. Cl. B41j 9/02

U.S. Cl. 101-93 C

11 Claims



Attachment of a relatively hard flexure member to a relatively elastic body member by a combination of mechanical anchoring and adhesive bonding is disclosed. An adhesive bond free of surface voids and affording intimate contact between an adhesive material and a thermoplastic elastic member is achieved by interfacing materials in the viscous state followed by cure to a resilient state; an attachment immune to repeated high-energy loading in tension and flexure and free of stress concentrations in the members results. Application of the attachment toward anchoring a metal spring within a plastic hammer and to a metal base member for a high-speed printer mechanism is disclosed.

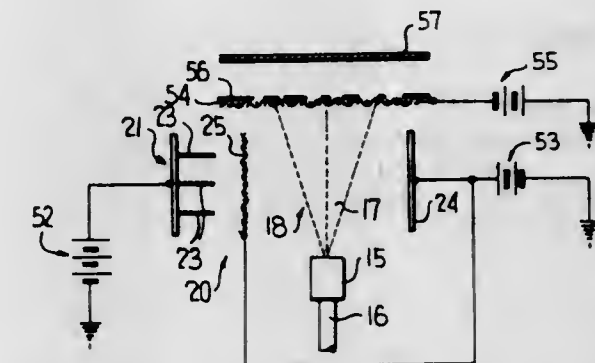
3,635,157 METHOD AND APPARATUS FOR ELECTROSTATICALLY CHARGING PARTICLES FOR PRINTING OR COATING

James R. A. Taylor, Chicago, and William A. Chambers, Harvey, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Dec. 30, 1968, Ser. No. 787,977
Int. Cl. B41f 9/00, 15/00

U.S. Cl. 101-114

15 Claims



Provisions for electrostatically charging particles, as in an electrostatic printing operation, include a corona source for providing ionization in a predetermined region, a plate electrode spaced from the corona source, a grid electrode adjacent the corona source and spaced from the plate electrode and a nozzle for directing a flow of the finely divided particles intermediate the plate and grid electrodes. The grid electrode draws ions from the corona source into the region intermediate the plate and grid electrodes. A rotatable drum may be provided proximate the region of electrostatic charging of the particles to receive the particles on the surface thereof for transportation to a printing or application zone. Alternatively, a stencil screen may be provided proximate the region of charging of the particles to direct passage of the particles therethrough to define a desired image upon a substrate proximate the stencil screen.

ERRATUM

For Class 101-142 see:
Patent No. 3,635,167

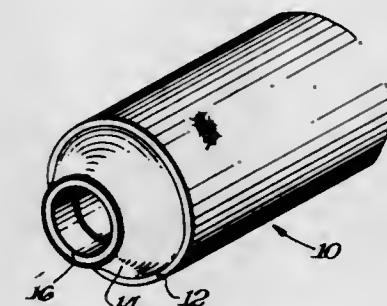
3,635,158 ROLLER FOR PRINTING PRESS

William D. Budinger, 302 River Road, Wilmington, Del.

Continuation-in-part of application Ser. No. 767,980, Oct. 16, 1968. This application Oct. 6, 1969, Ser. No. 864,052
Int. Cl. B41f 25/18, 27/12

U.S. Cl. 101-147

10 Claims



Very effective and long-lived printing roller has relatively smooth roll surface of long preferably durable fibers with a denier preferably less than 3, bonded together by yieldable binder, at least the outer portion of the surface being porous.

Fibrous surface can be provided by helically wrapping a relatively narrow sheet of felted fibers around roll core and cementing it in place under pressure with helical edges carefully butted together. Alternatively a sheet sufficiently wide can be circularly wrapped several times around the core, cemented in place and then ground to a uniform cylindrical surface, or felted tube can be shrunk on. Raising of a little nap on the surface is helpful. Roller removes hickies when used in inking train and is also good for dampening in dampening train.

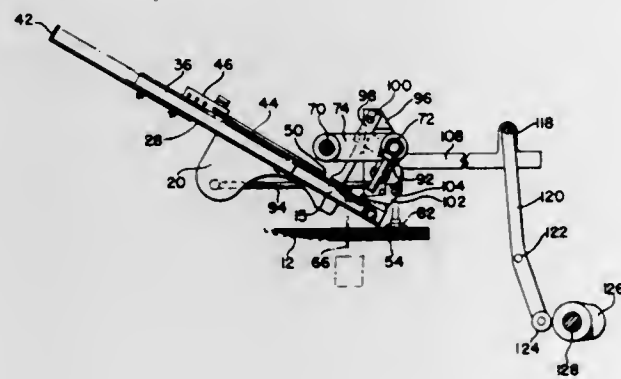
3,635,159

OVERCHUTE FEED APPARATUS FOR ROTARY PRINTING MACHINE

Jack D. Keeler, 3107 Broadway East, Seattle, Wash., and Edmund I. Fagan, 5059 116th Ave. S.E., Bellevue, Wash.
Filed Oct. 1, 1969, Ser. No. 862,845
Int. Cl. B65h 3/08

U.S. Cl. 101-232

3 Claims



Auxiliary paper feeding mechanism for a duplicating machine in which an overchute tray with a secondary paper supply is placed above the main paper stock supply. The secondary supply of paper is fed into the duplicating machine by the same feeding apparatus as is used to feed the primary paper supply. Linkage and drive mechanisms for feeding the paper sheets from the overchute are attached to the working parts of the duplicator. Air pressure is directed to the tray to assist in separating the paper sheets for feeding. The overchute tray assembly can be removed or positioned to an inoperative condition without obstructing the normal feeding of paper from the primary supply into the machine.

3,635,160

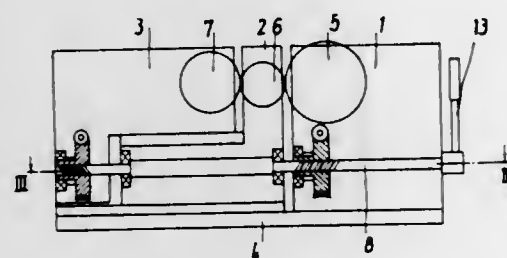
PRINTING UNIT INTERRUPTER FOR ROTARY PRINTING PRESSES

Wolfgang Specht, Gardessen, and Bernd Bertram, Braunschweig, both of Germany, assignors to S. M. B. Sondermaschinen GmbH, Braunschweig, Germany
Filed July 24, 1970, Ser. No. 57,923
Claims priority, application Germany, July 25, 1969, G 69 29 358.7

Int. Cl. B41f 13/20, 13/26

U.S. Cl. 101-247

4 Claims



A printing unit for rotary printing presses comprises three wall units, relatively movable for variable spacing and carry-

ing a printing cylinder, a counterimpression cylinder and an inking roller respectively mounted for rotation and parallel to each other, a spindle connecting the three wall units and extending parallel to a line perpendicular to the axes of the printing cylinder and the counterimpression cylinder, nuts on two of the wall units cooperating with threaded portions of the spindle, the nuts being driven individually for spacing adjustment between the wall units and being held stationary while the spindle is rotated for simultaneous variation of the spacing.

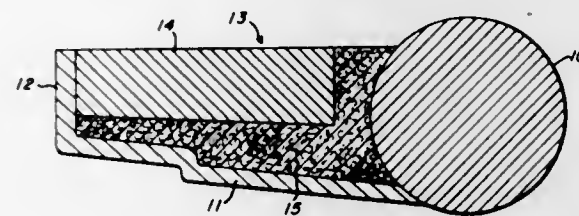
3,635,161

FOUNTAIN DIVIDER

Dale D. Leanna, Dayton, Ohio, assignor to Dayco Corporation, Dayton, Ohio
Filed Nov. 4, 1969, Ser. No. 873,878
Int. Cl. B41f 31/06

U.S. Cl. 101-364

3 Claims



A fountain divider for separating different color inks in printing presses, the divider having a magnet which holds it in place in the trough of the ink fountain system.

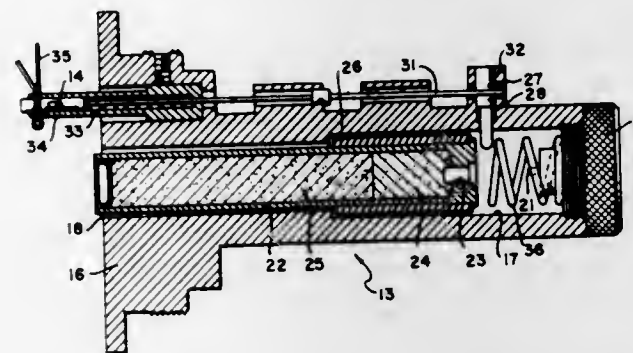
3,635,162

PRACTICE BOMB

Carl W. Lohkamp, Scotland, and James E. Short, Jr., Switz City, both of Ind., assignors to The United States of America as represented by the Secretary of the Navy
Filed July 9, 1970, Ser. No. 53,609
Int. Cl. F42b 25/18

U.S. Cl. 102-7.6

4 Claims



A practice bomb having a signal cartridge for locating the point of impact of said practice bomb after an airdrop and having means for arming the practice bomb during flight of said practice bomb by actuation of an arming pin connected to foldable fins which open upon high velocity of said practice bomb.

3,635,163

ANTIPERSONNEL ORDNANCE DEVICE

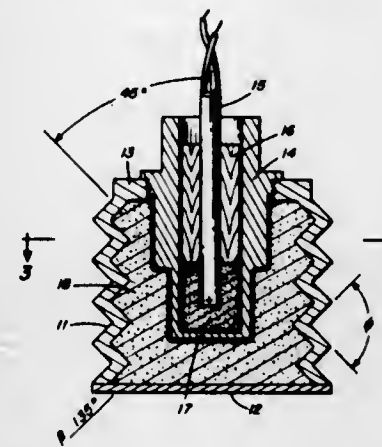
Vasil Philipchuk, Dahlgren, Va., assignor to The United States of America as represented by the Secretary of the Navy
Filed June 29, 1964, Ser. No. 379,055
Int. Cl. F42b 3/08

U.S. Cl. 102-64

6 Claims

1. A casing for an ordnance device comprising:
a wall having a substantially uniform thickness;

said wall being comprised of generally linear interconnected, angularly disposed sections forming a corrugation configuration; and



said corrugations being disposed transverse to the longitudinal axis of the casing.

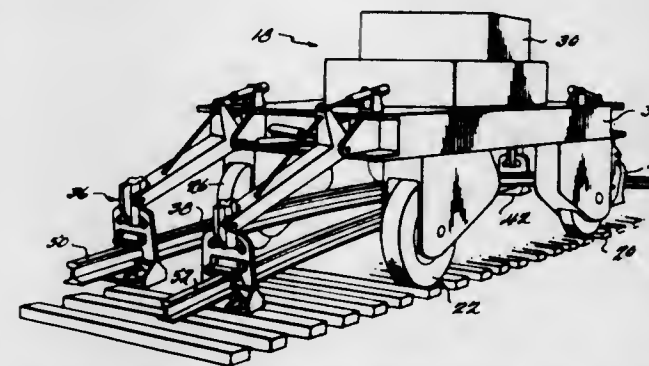
3,635,164

RAIL-TRANSPOSING MACHINE

Robert W. Patton, 537 Shaw St., Barboursville, W. Va.
Filed Dec. 29, 1969, Ser. No. 888,744
Int. Cl. E01b 29/16

U.S. Cl. 104-1

3 Claims



A method and apparatus for transposing a pair of railroad rails. In the embodiment of the invention described below, a self-propelled rail-transposing machine having a pair of rail threader eyes at both the front and rear of the machine is provided, with the two rails being threaded through these four eyes so that they cross beneath the machine. Hydraulic cylinders are preferably included for moving the eyes vertically and horizontally and for individually tilting the threader eyes to twist the rails so that, on double-shoulder tie plates, the rails will come over the shoulder when spikes are pulled only on one side of the rail. Further, a hydraulic clamp and thrust jack is provided on the machine for moving up to a quarter mile or so of a rail along its length in either direction to realign transposed rails having staggered joints.

ERRATUM

For Class 104-56 see:
Patent No. 3,635,185

3,635,165

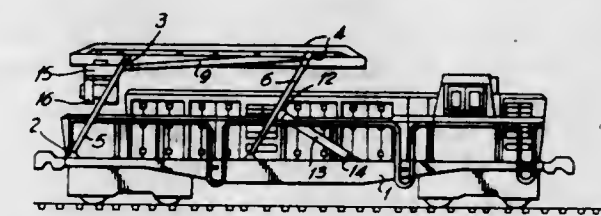
MACHINE FOR WELDING RAILS IN THE TRACK

Vladimir Ivanovich Plotov, Novo-Basmanaya ulitsa, 4/6, kv. 272, and Sergei Mikhailovich Kozlov, Oskaya ulitsa, 48/2, kv. 82, both of Moscow, U.S.S.R.
Filed Oct. 27, 1969, Ser. No. 869,761
Int. Cl. E01b 31/02

U.S. Cl. 104-15

7 Claims

A machine for welding rails of a track comprises a moving platform on which are mounted at least two frames with



well as in transverse directions. The crossbeams of the frames are rigidly interconnected by longitudinal beams which slidably carry electric hoists and welding units.

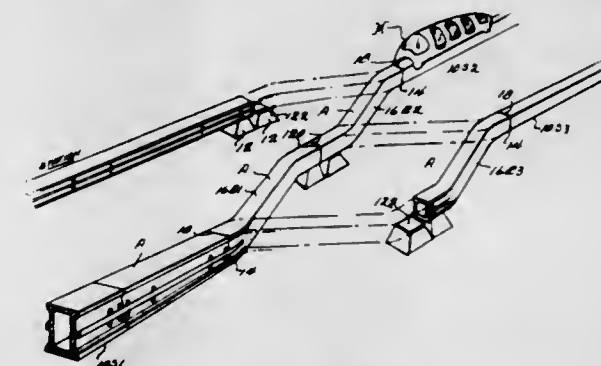
3,635,166

ROUTE-CHANGING DEVICE ESPECIALLY FOR A SUPPORTED-TYPE MONORAIL SYSTEM

Billy L. Peterson, 5305 North Sheridan Blvd. Space 119, Arvada, Colo.
Filed June 23, 1970, Ser. No. 49,014
Int. Cl. E01b 25/12

U.S. Cl. 104-130

6 Claims



The route-changing system includes curved running surface members connected to devices capable of rotating each 180° about the protrusion of the longitudinal axis from one end thereof to switch running surface and change the particular running surface member from one that curves to the right to one that curves to the left, and vice versa. The running surface members are supported upon piers.

3,635,167

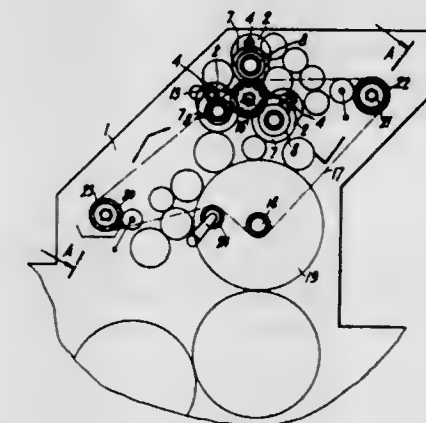
ROTARY LITHOGRAPHIC PRESS WITH DRIVE FOR PRESS ROLLS

Josef Jurny, No. 40 Hlavni, Sebranice, and Arnost Cerny, No. 82 Sadova, Blansko, both of Czechoslovakia
Filed Sept. 30, 1969, Ser. No. 862,302
Claims priority, application Czechoslovakia, Oct. 4, 1968, PV 6885/68

Int. Cl. B41f 7/02

U.S. Cl. 101-142

7 Claims



An offset printing machine having a drive mechanism for the plate cylinder and rolls comprising a sprocket and chain

mechanism for conjointly rotating the parts. The distributor rolls including means for axial reciprocation.

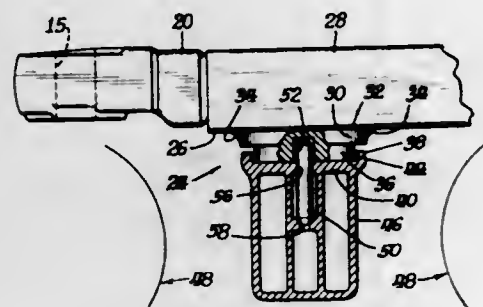
3,635,168

ARTICULATED CAR AUXILIARY CENTER BEARING
Carl E. Tack, Elmhurst, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed Dec. 19, 1969, Ser. No. 886,466
Int. Cl. B61f 3/12, 5/16; F16c 17/04

U.S. Cl. 105-4 R

4 Claims



An auxiliary center plate assembly for attaching the male end of an articulated car to the bolster of a four-wheel truck. The assembly may be rigidly attached to the bottom portion of the car center sill near the male end. Another form of the invention allows the assembly to be positioned over the male end of the car and to be removably retained thereon by a removable pin.

3,635,169

AXLE DRIVE MOTOR MOUNTING

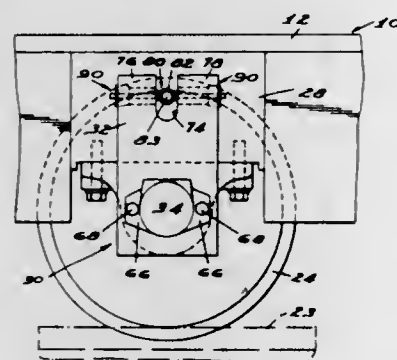
Richard G. Hopkins, Bennington Township, Mich., assignor to MWA Company, Owosso, Mich.

Filed Mar. 12, 1970, Ser. No. 18,908

Int. Cl. B61f 5/26; B24b 47/02; B23d 7/10

U.S. Cl. 105-133

12 Claims



A motor drive for a carriage comprising a mounting plate journaled on an axle of the carriage and a reversible motor secured to said mounting plate. The motor has a direct driving connection with the axle. Resilient means are interposed between the mounting plate and an abutment on the carriage to yieldably oppose rotation of the mounting plate and absorb initial reaction shock upon the motor during reversal thereof.

3,635,170

QUICK-OPENING OUTLET ASSEMBLY FOR HOPPER CARS AND SANITARY SEAL THEREFOR

Oswaldo F. Chierici, Elmhurst, Ill., assignor to Holland Company

Filed Mar. 12, 1970, Ser. No. 18,872

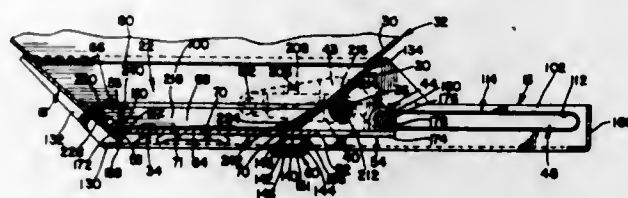
Int. Cl. B61d 7/02

U.S. Cl. 105-282

12 Claims

An outlet assembly for application to hoppers of railroad hopper cars and the like in the form of a frame made up of

spaced pairs of longitudinal and transverse frame members joined together and shaped to define a continuation of the hopper car sheets, and slidably mounting a gate for movement between open and closed positions, in which the gate is actuated by an operating shaft that is journaled adjacent the assembly outlet port and between said longitudinal frame members, and has connected thereto at either end of same a crank arm which is pivotally connected to a thrust arm that is



in turn connected to a slide bar extending between and slidably mounted in opposed guide slots formed in the longitudinal members. The gate-opening mechanism is arranged for full open and closed positioning of the gate in 180° of movement of the operating shaft, and the assembly is equipped with a sanitary top seal arranged to permit the lading when present to help provide the sealing action at the gate.

3,635,171

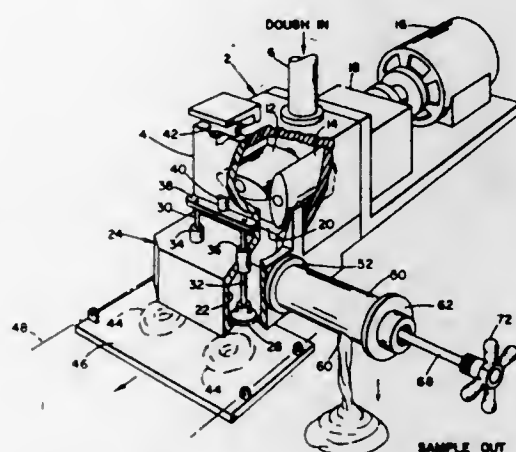
CONTINUOUS DOUGHNUT-MAKING MACHINE
Eugene P. Schertz, Wakefield, Mass., assignor to Dunkin' Donuts Incorporated, Quincy, Mass.

Filed Apr. 8, 1970, Ser. No. 26,684

Int. Cl. A21c 11/16

U.S. Cl. 425-200

10 Claims



In a continuous doughnut-making apparatus including a dough developer, a pump for forwarding dough-making ingredients to and through the developer and a depositor for receiving developed dough from the developer and forming it into doughnut form, a device is provided for withdrawing samples of developed dough from the apparatus for example for testing or for use in making speciality items, the device providing the samples without interference with the normal operation of the apparatus and being arranged to return all unused dough to the apparatus when sampling is completed.

3,635,172

TABLE WITH FOLDING LEGS

William P. De Saussure, and William P. De Saussure, III, both of Englewood, N.J.

Filed Oct. 15, 1969, Ser. No. 866,576

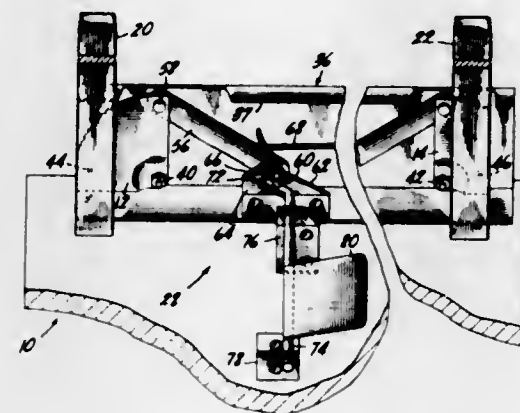
Int. Cl. A47b 3/091

U.S. Cl. 108-129

3 Claims

A table with folding legs, each leg having a supporting member operable with a locking mechanism for retaining the

leg in an extended and retracted position and each locking mechanism having a releasing device for disengaging the supporting member in order to retract the leg. The supporting member for each leg is pivotally connected to its respective leg at one end and has mounted at its other end detent means which engages a cam surface that is provided with a recess to receive the detent means to lock the leg in an extended position. A leaf spring maintains the detent means in contact with the cam surface as the supporting member moves with the folding leg and also retains the detent means in the recess



when the leg is in a locked position. The releasing mechanism upon actuation lifts the detent means from the cam recess in opposition to the force applied by the leaf spring and allows the leg to be manually folded with the leaf spring remaining in contact with the supporting member to provide a retaining force to keep the leg in a folded position. For tables of normal height and of lengths less than 60 inches the legs are mounted such that for each pair of legs one leg will be folded one on top of the other with the first leg lying flush with the underportion of the table and the other leg lying directly on top of the first leg.

3,635,173

SELF-LEVELING DISPENSER

Napoleon H. Ruben, Tilburg, Holstot, Netherlands, assignor to AMF Incorporated

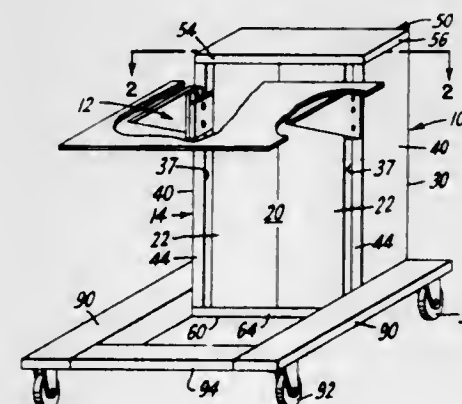
Filed Mar. 30, 1970, Ser. No. 23,713

Claims priority, application Great Britain, June 18, 1969, 30,860/69

Int. Cl. A47b 9/02

U.S. Cl. 108-136

1 Claim



A self-leveling storing and dispensing device which includes a horizontally oriented platform carriage which is directly connected, via a plurality of tension springs, to the upper end of an upright housing for carrying a workpiece load at a predetermined level. The carriage is guided by the housing in a vertical path of travel as the springs expand and contract in response to the workpiece being respectively loaded on the platform and removed therefrom.

3,635,174

DESK WITH HIDDEN WIRING

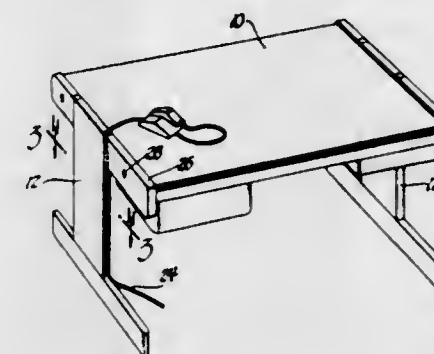
Douglas C. Ball, Sennerville, Quebec, and John W. Newfield, Mississauga, Ontario, both of Canada, assignors to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada

Filed Sept. 14, 1970, Ser. No. 72,055

Int. Cl. A47b 13/02

U.S. Cl. 108-150

6 Claims



A desk provided with a vertical flat pedestal supporting one end of the top has a wiring channel formed in an edge of the pedestal. A nose molding closes the channel normally, but may be removed to lay in an appliance cord without disconnecting the cord from either the appliance or its connector plug. Notches are provided at the top and bottom of the channel in which the cord may be laid for ingress and egress when the nose cap is replaced.

3,635,175

INCINERATOR SYSTEM

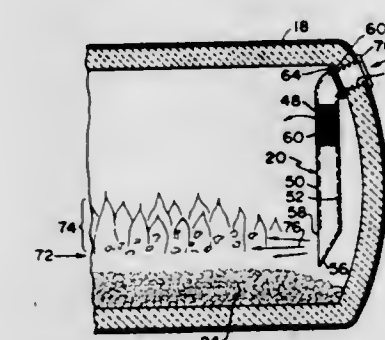
Russell I. Peterson, Jr., Seekonk, Mass., and William E. Sauter, Barrington, R.I., assignors to Cumberland Engineering Company, Inc., Pawtucket, R.I.

Filed June 8, 1970, Ser. No. 44,081

Int. Cl. F23g 7/00

U.S. Cl. 110-8 R

6 Claims



The invention is an improved incinerator system including an improved manner of feeding the incinerator with the products to be burned and air. Both the air and products are fed through an inlet chute with the product discharging from the bottom of the chute laterally across the fire bed of the incinerator proper, with a large proportion of the air conveying the products being exhausted at the upper end of the chute. The products to be burned are distributed over the fire bed but below or into the fire line or fire zone.

3,635,176

MOBILE TRASH-COLLECTING AND INCINERATING APPARATUS

Louis Gottlieb, 7421 Woodbine Ave., Philadelphia, Pa.

Filed Dec. 29, 1969, Ser. No. 888,223

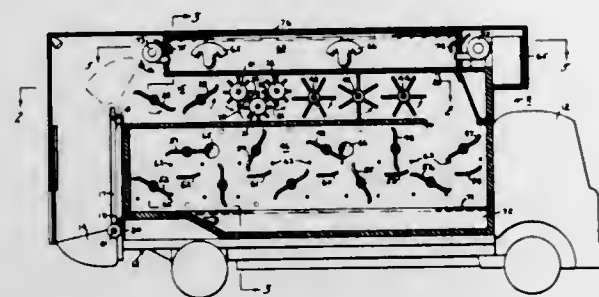
Int. Cl. F23g 5/04

U.S. Cl. 110-8 A

11 Claims

A mobile device including a station for loading refuse, a station for physically reducing the refuse received from the

loading station into smaller segments, a station for incinerating the reduced refuse, an ash station to receive the ash remains of the incinerated refuse and a gas-exhaust station to carry off the hot gases emanating from the incinerating station. A plurality of rotary feeders are provided which move the refuse from the loading station, through the reducing sta-



tion, through the incinerating station, and ultimately to the ash station. The gas exhaust station includes an afterburner to burn any incompletely combusted material which may rise with the hot gases from the incinerating station, and includes in addition a filter to thoroughly cleanse the hot gases before they are exhausted into the atmosphere.

3,635,177

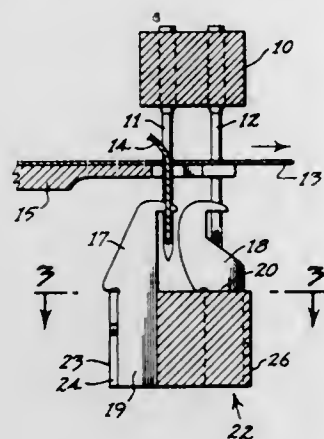
NARROW GAUGE HOOK BAR FOR TUFTING MACHINE
Larry P. Gable, and Clyde H. Langley, both of Dalton, Ga., assignors to Card & Co., Inc., Chattanooga, Tenn.

Filed Sept. 22, 1970, Ser. No. 74,378

Int. Cl. D05c 15/22

U.S. Cl. 112-79 R

4 Claims



A hook bar for a multiple needle-tufting machine having alternating staggered slots in the front and rear faces of the hook bar for receiving loopers in a narrow gauge.

3,635,178

MACHINE FOR MAKING SHIRRED CURTAINS
Stanley Levinstein, Woodmere, and Edward J. Lepow, Far Rockaway, both of N.Y., assignors to Home Curtain Corporation, Rockaway, N.Y.

Filed Apr. 17, 1970, Ser. No. 29,411

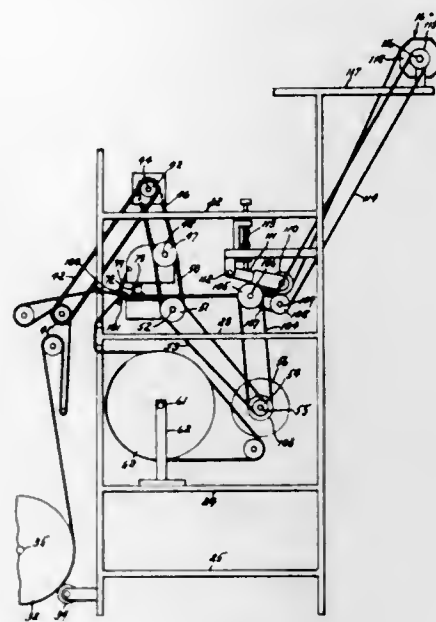
Int. Cl. D05b 35/08

U.S. Cl. 112-132

1 Claim

A device for simultaneously shirring and sewing a plurality of parallel areas on a continuous web of material to create a permanently shirred effect. The shirred areas are sewn in such condition to tapes disposed therebeneath which are fed to a point of stitching in the device at a slightly slower speed than that of the curtain web itself. Shirring is accomplished by means of a pivotally mounted arm having a claw at a lower end thereof which pushes fabric comprising the web beneath the presser foot of the sewing mechanism during the period in which the needles are in relatively elevated position. Upon withdrawal of the claw, the shirred portions are

maintained in this condition by a presser foot until interconnected to the backing strip. The shirred curtain is formed as



a continuous panel, to be subsequently cut into desired lengths, and joined and hemmed as required.

3,635,179

ZIGZAG SEWING MACHINE FOR PRODUCING CLOSED SEWING PATTERNS, PARTICULARLY BUTTONHOLES
Odette Uetschi, Steckborn, Switzerland, assignor to Fritz Gegauf Aktiengesellschaft Bernina Nähmaschinenfabrik, Steckborn, Switzerland

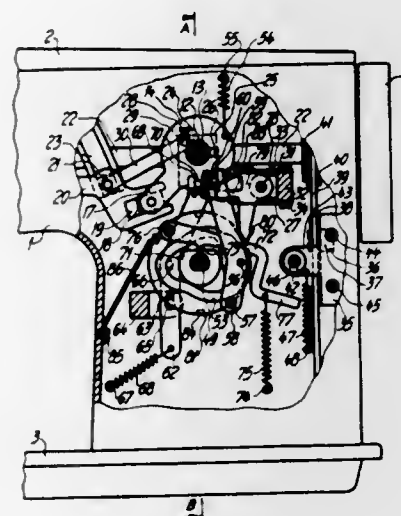
Filed Mar. 19, 1970, Ser. No. 21,037

Claims priority, application Switzerland, Mar. 21, 1969, 4442/69

Int. Cl. D05b 3/02

U.S. Cl. 112-158 R

2 Claims



A zigzag sewing machine for producing closed sewing patterns composed of segments, such as buttonholes, includes regulating elements for the stitch width, field position, and length, and further includes retaining means for the stitch width and stitch field settings. A manually operable switch element controls the regulating elements through transmission means, such as levers, in accordance with the sewing course. The switching element is movable from an inoperative rest position into successive control positions each corresponding to a respective segment. Detent means releasably latch the switching element in each of its positions, and cams on the switching element control levers and the like in such manner that, when the switching element is moved from the inoperative position to the control position for sewing the ini-

tial segment of the pattern, all of the regulating elements which control the sewing pattern are moved into the starting position for sewing the closed sewing pattern. These regulating elements may be adjusted to their proper settings in advance of starting of the sewing operation.

3,635,180

TIMING DEVICE FOR SYNCHRONIZING THE SLACKENING OF THE NEEDLE-THREAD AND THREAD-SEVERING WITH TIMING OF THE TENSION-SLACKENING FOR OVERCAST SEWING MACHINES
Cesare L. Conti, Via Varese 18, Milan, Italy

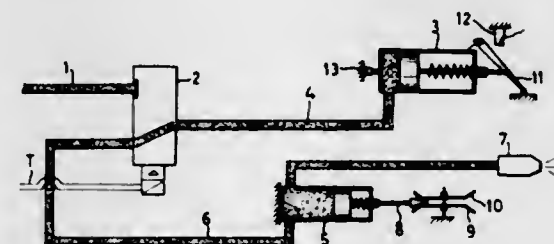
Filed Apr. 17, 1970, Ser. No. 29,621

Claims priority, application Italy, Apr. 23, 1969, 15883 A/69

Int. Cl. D05b 65/00

U.S. Cl. 112-252

9 Claims



A device is disclosed for synchronizing the slackening of the needle-thread tension with the cutting of the thread in a sewing machine, especially a sewing machine of the overcast stitch type. The device comprises a pneumatic assembly controlled by magnetic valves and a characteristic pneumatic delay mechanism is provided in order to provide an exceptionally accurate adjustment of the time during which the discs of the thread-tensioning device are kept open. The whole assembly is constructionally simple and cheap and is fully reliable in service.

3,635,181

TRANSPORTABLE FLOATING BOARD FOR SPORT BOATS OR THE LIKE

Paul Epple, and Magdalena Kruse, both of Haus Nr. 119, Bodman (Bodensee), Germany

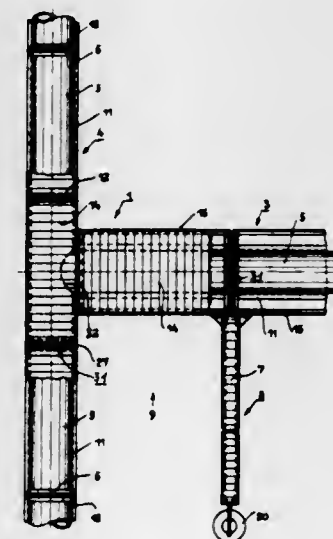
Filed Oct. 8, 1969, Ser. No. 864,623

Claims priority, application Germany, Oct. 8, 1968, P 18 01 694.9

Int. Cl. B63b 35/00

U.S. Cl. 114-0.5 F

9 Claims



A transportable floating body for sport boats or the like, which comprises a floating member stabilized and formed of pipe means in form of an extended at least single T. The floating member includes rigidly secured profile frames

rigidly secured spaced apart from each other, and triangular arms are applicable on both sides of the profile frames. The profile frames serve the reception of running boards.

3,635,182

DAMPING ARRANGEMENTS

James Arthur Haines Paffett, Feltham, England, assignor to National Research Development Corporation, London, England

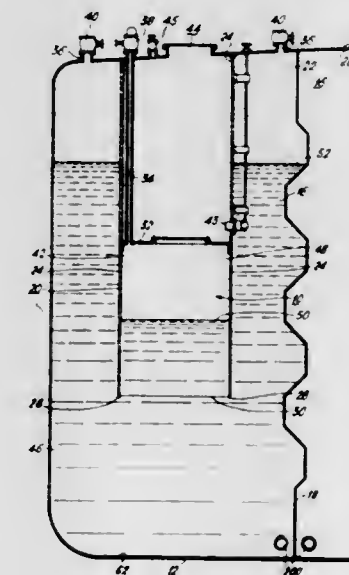
Filed Dec. 9, 1969, Ser. No. 883,390

Claims priority, application Great Britain, Dec. 10, 1968, 58,600/68

Int. Cl. B63b 35/00; F16f 9/08

U.S. Cl. 114-0.5

14 Claims



A method of damping vibrations in the hull of a floating vessel by transferring vibrational energy from the hull to a liquid-gas system within the hull, the vibrational energy being absorbed within the system by compression and expansion of the gas by the liquid and finally dissipated by friction in the liquid-gas system. Assemblies are disclosed for damping vertical, transverse or torsional vibrations in the hull.

3,635,183

REMOTELY CONTROLLED UNMANNED SUBMERSIBLE VEHICLE

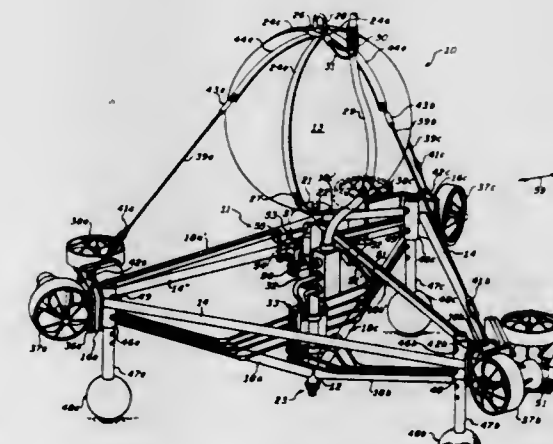
Gerald R. Keatinge, Bayville, N.Y., assignor to Sperry Rand Corporation

Filed Feb. 9, 1970, Ser. No. 9,759

Int. Cl. B63g 8/00

U.S. Cl. 114-16 R

9 Claims



A remotely controlled submersible vehicle having a rigid truss framework suspended from a flotation sphere, three horizontally disposed members of the truss framework being

arranged to form a triangular assembly about a vertically oriented center post affixed to the sphere. Thrusters affixed to the corners of the triangular assembly provide for translational and rotational control of the vehicle.

3,635,184

UNDERWATER CONNECTOR

Jean Liautaud, Paris, France, assignor to Entreprise de Recherches et d'Activites Petrolieres (ELF), Paris, France

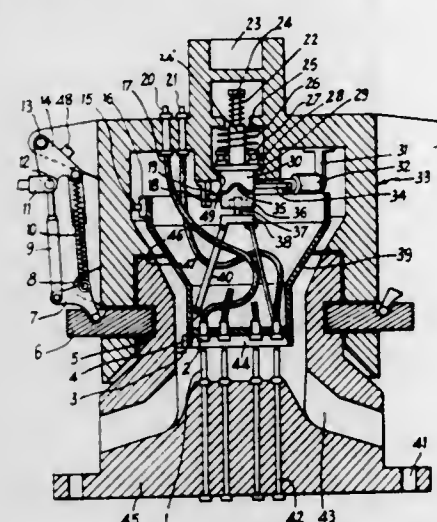
Filed June 15, 1970, Ser. No. 46,200

Claims priority, application France, June 18, 1969, 6920362

Int. Cl. B63c 7/02

U.S. Cl. 114-51

7 Claims



A device for bringing to the surface or submerging a metal object containing remote-controlled instruments, and consisting of a mobile cylindrical cap which fits easily onto an inner component which also revolves, the cap being connected to a cable by a threaded section and the other unit being attached to the object to be submerged or raised, with bolting devices forming part of the cap fitting into slots in the inner component when the edge of the said cap is resting on the upper edge of the inner component and the two components are positioned correctly in relation to each other, the bolting devices being pushed into the slots by the operation of a jack which causes a bellcrank lever to pivot on a fixed axis, the upper end of the said jack being connected to another bellcrank lever which can pivot on a second fixed axis, and which, when at rest, is held against a block by means of a spring.

3,635,185

ROTARY DRIVING AMUSEMENT EQUIPMENT

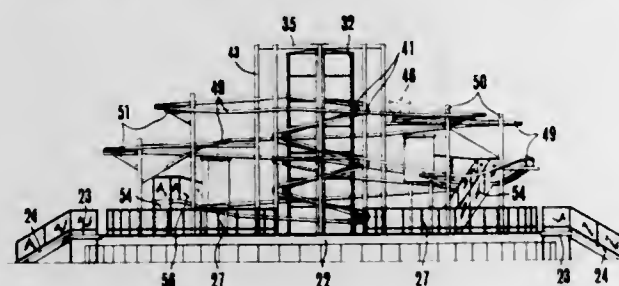
Masayoshi Kojima, Osaka-fu, Japan, assignor to Sanselyusoki Co., Ltd., Osaka, Japan

Filed Jan. 9, 1970, Ser. No. 1,778

Int. Cl. A63g 21/10

U.S. Cl. 104-56

10 Claims



A rotary-driven amusement device in which passenger bearing carriages traverse an endless and circuitous generally spiraling railway track. The device is mounted on a rotary support table and has a portion of the endless track disposed in an upwardly spiraling fashion at the center of the rotary table and up which the carriages are traversed by engagement of the carriages with peripheral portions of a concentrically inwardly disposed vertically oriented, reel-like pushing

frame, responsive to relative rotation between the rotary table-mounted track and the pushing frame. The pushing frame is preferably also mounted on the rotary table and is driven at variable speeds in an opposite direction to the table rotation, although the pushing frame in a different embodiment may be mounted stationary to a separate base or to the ground while the table is made to rotate relative thereto. The endless railway further includes a generally downwardly spiraling more outwardly disposed undulating and irregularly circuitous portion which interconnects with the top and bottom of the aforementioned centrally disposed upwardly spiraling portion. The table in operation is usually continuously rotating and has a selectively stop and start annular rotary passenger loading-unloading walkway disposed outwardly concentric with the rotary table. The rotary walkway is selectively rotatable to synchronize its speed and its access and discharge gates thereon, with those corresponding thereto on the rotary table so that the passengers may be safely loaded and unloaded with rotary support table. The passengers may also disembark from the carriages at the top to view the surrounding scenery from an observation platform thereat.

3,635,186

SHIP CONSTRUCTION

William H. German, 20180 Lakeshore Road, Bale D'Urfe, Quebec, Canada

Filed Feb. 25, 1970, Ser. No. 14,077

Int. Cl. B63b 1/08

U.S. Cl. 114-57

12 Claims



A hull designed to afford additional protection to the ship's screw or screws and rudder or rudders against damage by floating or sheet ice, the hull having a flat bottom midship section and a buttock flow stern section. A closed annular nozzle closely and coaxially surrounds each screw and a skeg projects downwardly on each side of the hull, each skeg being a forwardly extending streamline continuation of an outboard rim of a nozzle.

3,635,187

ANCHOR CARRIER AND GUIDE

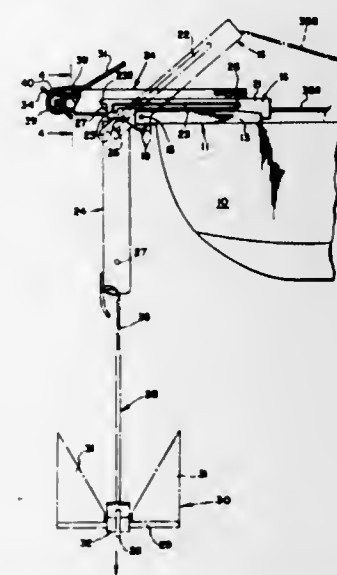
James E. Webb, 16031 Market St., Channelview, Tex.

Filed July 6, 1970, Ser. No. 52,261

Int. Cl. B63b 21/22

U.S. Cl. 114-210

10 Claims



The device serves to position a retrieved anchor on a base mounted on the bow of the boat. It is primarily adapted to an anchor whose fluked yoke is pivoted to its shank and can

swing through an angle on each side of the shank. As the anchor passes boat during dropping or retrieving it, the flukes should obviously point away from the boat. The device achieves this end, and also maintains the fully retrieved anchor so balanced that it will begin its descent into the water upon slackening the line attached to it.

3,635,188

UNDERWATER PROPULSION DEVICE

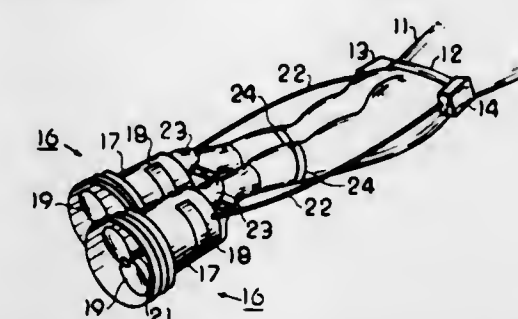
Joseph Rutkowski, 4345 Stacey Pl., San Diego, Calif.

Filed Aug. 8, 1969, Ser. No. 848,443

Int. Cl. A63c 11/10; B63b 35/00

U.S. Cl. 115-6.1

6 Claims



An underwater propulsion device having a separate housing carrying a propulsion motor and a propeller adapted to be attached to a swimmer's foot as by a shoe with power units, such as batteries or compressed gas carried by the swimmer and carrying a plurality of annular flotation rings around the periphery of the housing; the housing being hingedly attached to the swimmer's shoe for allowing the swimmer to walk on the ocean bottom or other surfaces.

3,635,189

FLARE DISPENSER

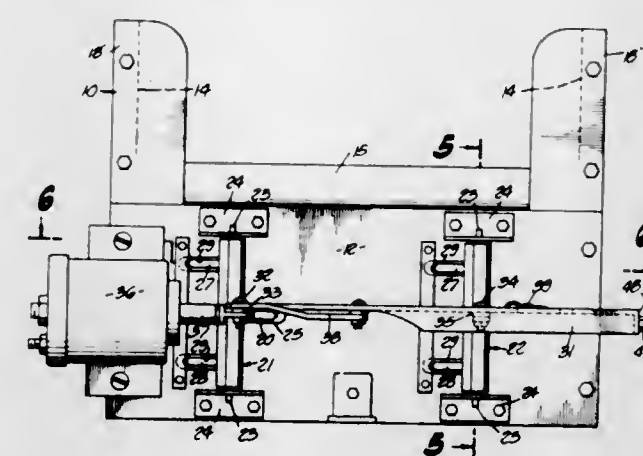
Lawrence C. Whittemore, 19641 Waterbury Ln., Huntington Beach, Calif.

Filed Mar. 26, 1970, Ser. No. 22,983

Int. Cl. G01d 21/00

U.S. Cl. 116-114

9 Claims



A flare dispenser for mounting on a vehicle such as an automobile or motorcycle supports a stack of conventional cylindrical flares each with an ignition tip at one end. The dispenser has an electrical igniter and an electrical solenoid for controlling the gravity descent of the flares in the stack, so that the lowermost flare is moved to a lowered position and then moved endwise to contact with the igniter to light the flare, which then falls to the highway. A wind deflection shield mounted on the vehicle in advance of the flare dispenser forms a pocket of relatively calm air into which the lighted flare falls. Remote controls on the vehicle operate the solenoid and the igniter, so that the flares may be ignited and dropped one at a time at desired intervals, while the vehicle is moving.

3,635,190

GOLF GLOVE HAVING A SWING COUNTER

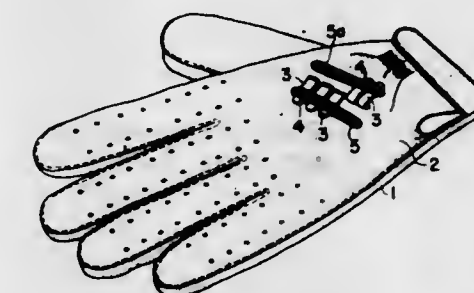
Masae Araki, No. 25-1, Yushima 2-chome, Bunkyo-ku, Tokyo, Japan

Filed Dec. 4, 1970, Ser. No. 95,062

Int. Cl. A63b 71/06

U.S. Cl. 116-120

8 Claims



A golf glove having a swing counter, comprising a plurality of flexible and tough counting strips arranged side-by-side in a row and secured at one end to the external surface of the "back" portion of the glove, each having a beltlike fastener portion formed on each side, so that the strips may be bent at said one end to either side to be adheringly engaged by the two rows of holding members made of similar fastener material and arranged on said "back" portion on both sides of said row of the respective one ends of the strips in spaced relation therefrom to thereby indicate and record the number of swings done by the golf player who wears this glove.

3,635,191

TEXTILE PROCESS CONTROL

James Donald Mackay Gibson, Bramley, Leeds, England, assignor to I. W. S. Nominee Company Limited, London, England

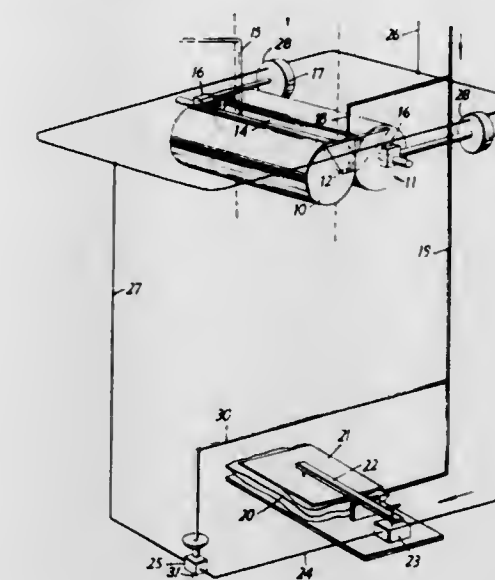
Filed Feb. 6, 1969, Ser. No. 796,978

Claims priority, application Great Britain, Feb. 7, 1968, 6,095/68

Int. Cl. B05c 11/10

U.S. Cl. 118-7

2 Claims



The level of liquid in the reservoir of impregnation apparatus, such as a pad mangle, is maintained substantially constant by control apparatus which includes a probe responsive to the level of liquid in the reservoir and producing a signal in dependence upon such level, the signal used to regulate the squeeze pressure applied to the material being impregnated. In one construction, the probe is a tube having one end open and located below the liquid level. Air is passed continuously through the tube and the back pressure set up constitutes the signal. This air pressure is transmitted

to a pneumatic actuator operating a regulator valve, which controls the compressed air supply to pneumatic actuators responsible for the pressure on the nip of the mangle.

3,635,192

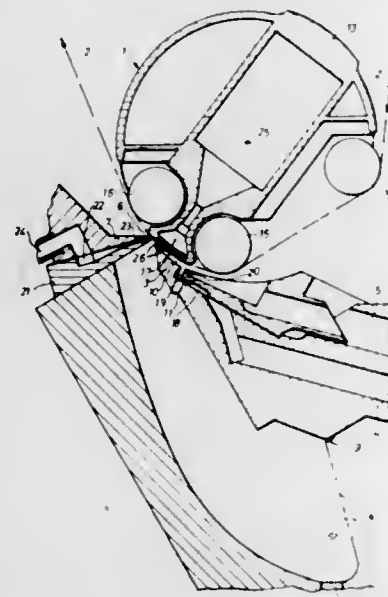
MEANS FOR COATING FOILS, TAPES AND THE LIKE

Peter Herzhoff; Stephan Platz, both of Leverkusen; Fritz Maus, Cologne-Flittard; Wolfgang Schweicher; Willi Wasser, both of Leverkusen; Kurt Browatzki, Opladen, and Hans Gref, Cologne-Stammheim, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 19, 1969, Ser. No. 859,281
Int. Cl. B05c 11/06, 5/02

U.S. Cl. 118—50

7 Claims



An apparatus for coating foils, tapes with viscous solutions, comprising a guide member for the support to be coated, a wedge-type casting device as preliminary coating means and a striplike partition in the direction of movement of the support, forming a gap with a support extending over the width of the web. That partition now is serving as final coating means and is arranged between two chambers at different pressure, wherein the preliminary coating means is arranged just before partition. The housing of the preliminary coating means has a construction in the region of the flow slots extending over the width of the web. The flow slot is open in the vicinity of the overflow of the wedge-type casting device.

3,635,193

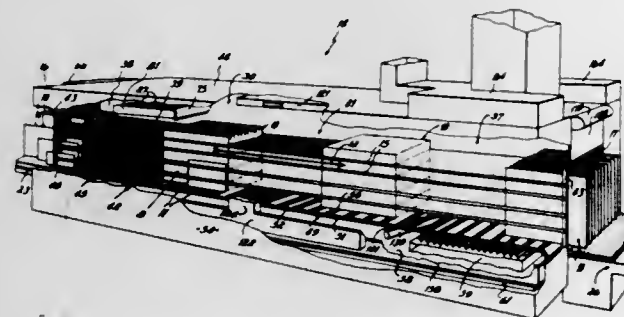
APPARATUS FOR COATING AND/OR IMPREGNATING SUBSTANTIALLY PLANAR ARTICLES

Ralph E. Stease, 8649 Melody Lane, Cincinnati, Ohio

Filed Dec. 1, 1969, Ser. No. 881,239
Int. Cl. B05c 11/06, 7/02

U.S. Cl. 118—63

9 Claims



A method and apparatus particularly adapted for impregnating corrugated paperboard with wax, the percentage wax pickup being variable within limits as desired. In opera-

tion, a plurality of boards is vertically positioned side-by-side, but slightly separated one from the other, into separate lines of travel. The group of vertically positioned boards is then passed underneath a free-falling, unrestrained cascade of molten wax at a controlled rate to obtain complete flooding or coating of all exterior board surfaces. The cascade is developed in a plane transverse to the boards' lines of travel. Such flooding also occurs within the boards' flutes if the flutes are vertical as the boards pass through the cascade. A first air knife then directs hot air onto the top edges of the vertical boards to remove excess wax from the exterior faces or liners of the boards, as well as from the boards' interior if the corrugations or flutes are also vertical. The boards then move through a temperature-controlled conditioning section the section being maintained at an elevated temperature, where impregnation takes place. Thereafter, a second air knife directs air onto the bottom edges of the vertical boards to remove excess wax in the form of beads or drips that may be formed toward the bottom of or at the bottom edge of the board. Finally, cool air is blown up through the vertical boards to set the wax and cool the boards for handling and stacking.

Depending on the wax used, the temperature of the molten wax, the temperature of the environment immediately after waxing but prior to cooling, and the throughput speed of the board, the board will be either dry waxed or wet waxed. The wax pickup percentage of the boards is controlled mainly by varying wax temperature and board exposure time in the wax-flooding step. The wax distribution in the board is controlled mainly by varying environment temperature and board exposure time in the conditioning step. Thus, the method and apparatus can be controlled to obtain either dry-waxed or wet-waxed paperboard at a desired wax pickup level.

3,635,194

HIGH-PRODUCTION MACHINE UTILIZING SPRAY MASKS

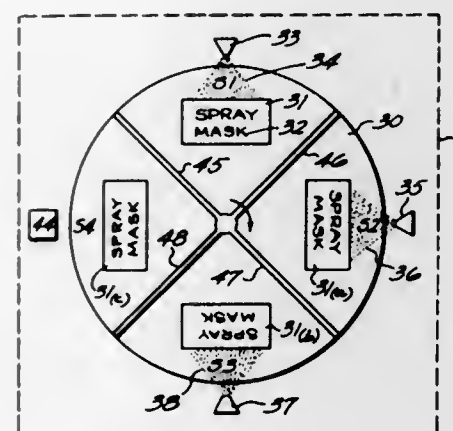
William L. Prior, Newark, Ohio, assignor to Vychem, Inc., Columbus, Ohio

Original application Oct. 31, 1967, Ser. No. 679,445, now Patent No. 3,531,311, dated Sept. 29, 1970. Divided and this application Aug. 15, 1969, Ser. No. 870,970

Int. Cl. B05b 15/04

U.S. Cl. 118—301

4 Claims



Apparatus for spray coating a substrate through a masking means. Means are provided for moving a mask from a station in which the substrate is sprayed through the mask, to a station having hot water spray means for cleaning and heating the mask, to a station for applying a coating solution to the mask, to a station for drying the mask, and finally back to the substrate-coating station.

3,635,195

METHOD AND APPARATUS FOR PRODUCING HALFTONE ELECTROGRAPHIC PRINTS

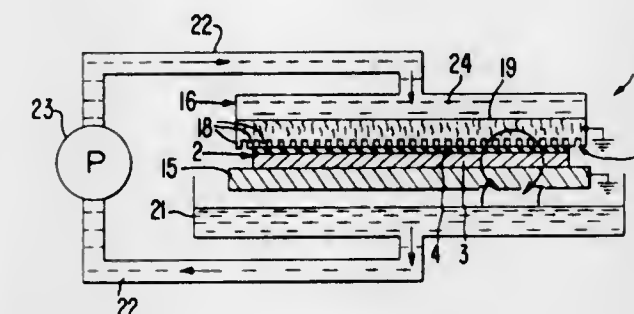
Raymond L. Levy, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Sept. 15, 1969, Ser. No. 857,979

Int. Cl. G03g 13/00

U.S. Cl. 118—637

3 Claims



Method and apparatus are disclosed for producing halftone electrographic prints from continuous tone charge image patterns deposited on the charge-retentive surface of an electrographic recording medium. The continuous tone image patterns are developed in the halftone rendition by developing the charge image pattern in the presence of a closely spaced development electrode having a development surface, facing the charge image pattern to be developed, constituted of an array of projections in the form of a halftone screen pattern. The projections concentrate the electric field over the surface of the continuous tone charge image pattern into a halftone image pattern which is developed by the pigment particles of the electroscopic ink used for developing the charge image patterns.

3,635,196

PNEUMATICALLY CONTROLLED SEAL

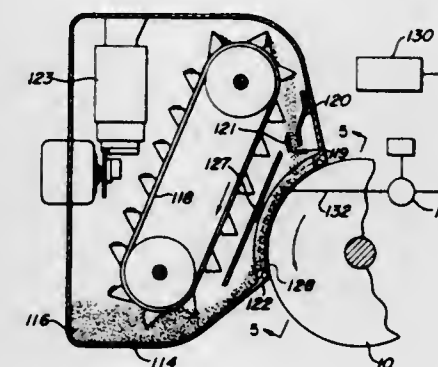
George N. Tullies, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,271

Int. Cl. G03g 13/00

U.S. Cl. 118—637

4 Claims



Seal structure for xerographic developer apparatus. The development apparatus contemplated is of the type commonly referred to as a cascade development system wherein fine developer particles are moved in an upwardly direction and allowed to fall or be cascaded onto a xerographic surface and subsequently returned to the developer sump. The seal is characterized by being inflatable in order to block the space between the housing structure and the recording surface, after movement of the recording surface has commenced.

3,635,197

CONTAINERIZED PRODUCTION OF POULTRY

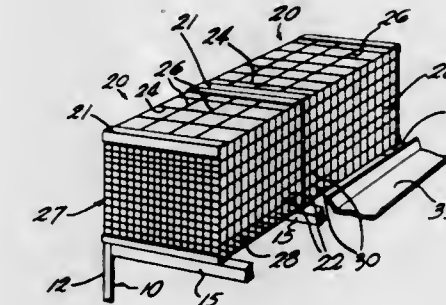
Robert L. Van Huis, Zealand, Mich., assignor to U.S. Industries, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 786,177, Dec. 23, 1968, Original application May 23, 1969, Ser. No. 827,220. Divided and this application Mar. 26, 1970, Ser. No. 30,610

Int. Cl. A01k 31/00

U.S. Cl. 119—17

4 Claims



A method for the containerized production of poultry wherein within the same cage poultry is transported from the hatchery, raised from a chick to a grown bird (either layers or broilers) and transported to the processor or egg-producing farm. Preferably the cage utilized in the process has two adjacent feeding sides formed by a mesh of two different sized openings. The cage is rotated 90° when the chicks reach a certain age, so as to retain the chicks for their entire growth, allowing the cage to be shipped with and without birds from hatchery to grower to processor, and back to the hatchery respectively. An adjustable feed trough sidewall extension allows the trough to be enlarged as the birds grow.

3,635,198

SHIPPING CONTAINER FOR POULTRY

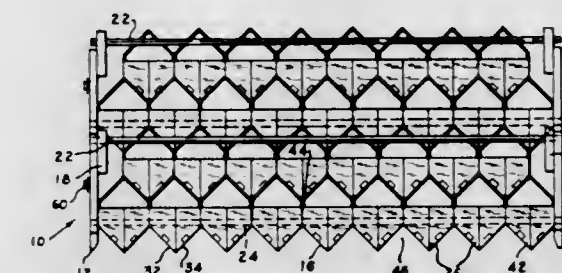
William R. Morgan, Jr., R.F.D. #2, Box 70, Hurlock, Md.

Filed Dec. 10, 1969, Ser. No. 883,689

Int. Cl. A01k 37/00

U.S. Cl. 119—19

13 Claims



The nestable shipping container for poultry includes a plurality of open ended, elongated compartments formed to completely enclose and support the body of a bird during shipment. The compartments are secured together to form a unitary assembly, and adjacent compartments are shaped to define upper and lower receiving spaces therebetween to receive a portion of an overlying or underlying compartment.

3,635,199

ANIMAL TEMPORARY HOLDDOWN DEVICE

Neal R. Fortney, Broadview, Mont.

Filed Dec. 12, 1969, Ser. No. 884,522

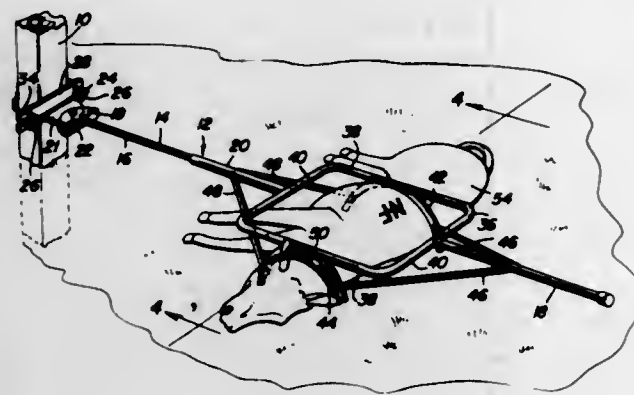
Int. Cl. A61d 03/00

U.S. Cl. 119—96

14 Claims

An elongated lever including structure at a first end for universal support from a stationary support and structure at the other end defining a handle. Further, the lever includes a central portion provided with animal body-embracing struc-

ture defining a recess opening outwardly of one side of the lever into which an animal body toward which the central



portion is swung may be received and the lever is extendible intermediate its central portion and the first end thereof.

3,635,200

HYDROCARBON CONVERSION PROCESS AND APPARATUS

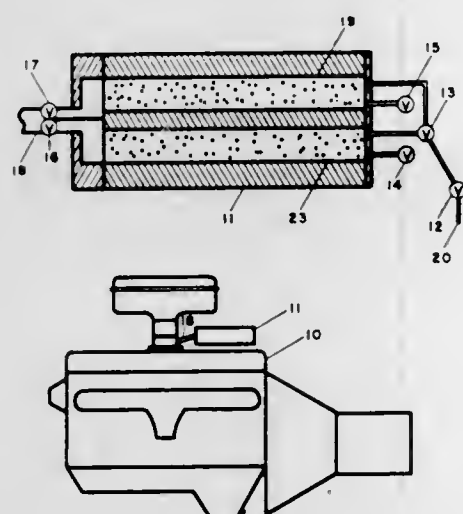
Clark Ace Rundell, Wheaton; Heyman Clarke Duecker, Ellicott City, and Carl Vance McDaniel, Laurel, all of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Feb. 18, 1970, Ser. No. 12,386

Int. Cl. F02b 43/08

U.S. Cl. 123—3

9 Claims



A system comprising the use of a small mobile catalytic cracking unit in conjunction with a mobile internal combustion engine. The cracking unit is used to treat the fuel for use in the engine.

3,635,201

PRESSURE CARBURETION SYSTEM FOR MANIFOLD DISTRIBUTION

Carl F. High, 17581 Appoloni, Detroit, Mich.

Filed Sept. 12, 1969, Ser. No. 857,415

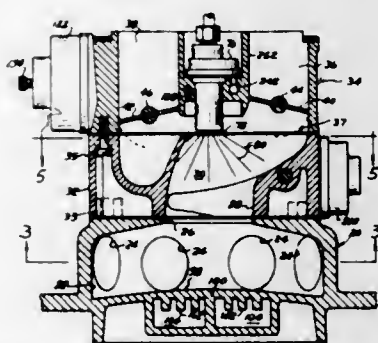
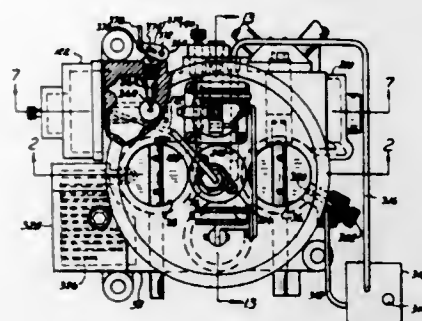
Int. Cl. F02m 29/06, 7/18

U.S. Cl. 123—130

5 Claims

A charge-forming system for an internal combustion engine in which a pressure carburetor incorporates a whirl-type mixing chamber disposed immediately upstream of the intake manifold inlet. A pair of parallel cylindrical air inlet ducts, each having a mechanically operated throttle valve therein, are disposed immediately upstream of the mixing chamber for controlling air induction thereto. A fuel nozzle supported intermediate the two air inlet ducts sprays a metered supply of atomized fuel into the mixing chamber, where the spray is

mixed with the air from the air inlet ducts and the mixture then discharged into the intake manifold. The fuel-air mixture entering the intake manifold impinges surface heated by the engine exhaust gases to aid in the vaporization of the fuel. The fuel to the fuel nozzle is pressure-varied relative to



manifold pressure and mechanically metered relative to air throttle operation. A manually operated fuel shutoff and a manifold pressure controlled idle stop are also provided. A controlled charge of water is injected into the fuel-air mixture by a spray jet operated from engine exhaust gas pressure relative to manifold pressure changes.

3,635,202

IGNITION ARRANGEMENTS FOR INTERNAL COMBUSTION ENGINES

Jorg Issler, Stuttgart; Gerd Hohne, Ludwigsburg; Gert Strelow, and Helmut Roth, both of Stuttgart, all of Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

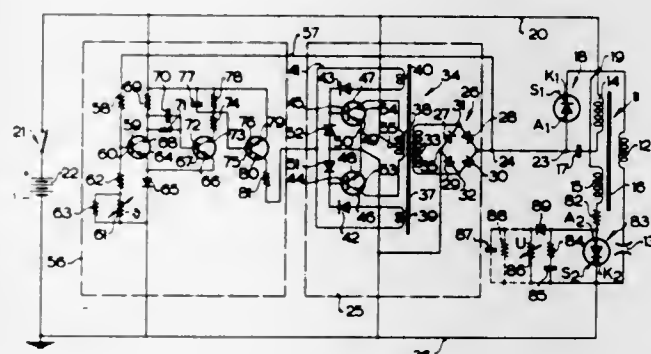
Filed June 18, 1970, Ser. No. 47,510

Claims priority, application Germany, June 20, 1969, P 19 31 236.8

Int. Cl. F02p 3/02, 3/06

U.S. Cl. 123—148 E

35 Claims



A thyristor connected in circuit with the ignition capacitor is triggered to permit the capacitor to discharge at the same time that a thyristor opening switch is turned off. Separate transistor circuits for triggering each of the thyristors are controlled by the operation of the engine-operated circuit interrupter.

3,635,203

ANTIDIESELING DEVICE FOR INTERNAL COMBUSTION ENGINES

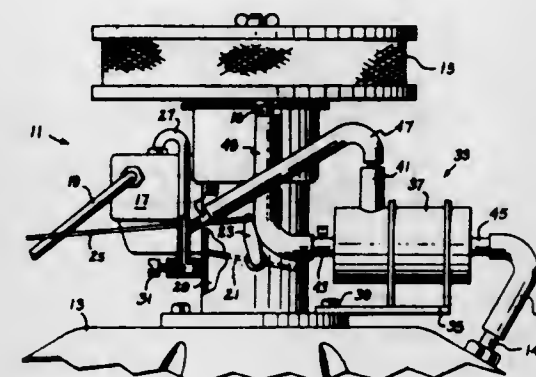
Thomas E. Gannoe, Warren, Pa., assignor to Sylvania Electric Products Inc.

Filed July 27, 1970, Ser. No. 58,392

Int. Cl. F02m 7/06, 7/00; F02d 3/100

U.S. Cl. 123—198 D

6 Claims



An automatic device and method to prevent dieseling from occurring within an internal combustion engine after ignition shutoff by introducing a sudden stream of air onto the idle fuel chamber of the engine's carburetor, thereby producing a "lean" fuel mixture, making it unable to burn within the engine.

3,635,204

SPRING DEVICE FOR ROTATING AND LAUNCHING A PROJECTILE

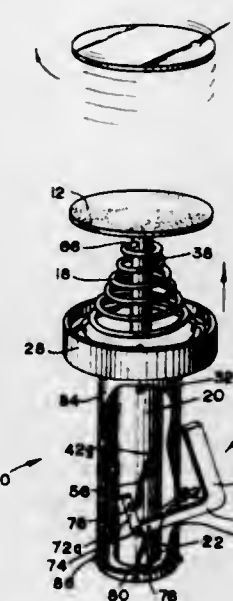
Joseph H. Plumb, Jr., Hartford St., Dover, Mass.

Filed July 17, 1969, Ser. No. 842,517

Int. Cl. F41b 7/00

U.S. Cl. 124—16

12 Claims



A discoid target launcher. A hand-held trap employs a spring-loaded shaft mounted for limited sliding movement within an upstanding pipe and carrying a platform at its upper end. During launching, the shaft and platform are impelled by the spring and are simultaneously rotated. This propels the target from the platform vertically into the air with no appreciable recoil or shock and imparts a stabilizing spin to the target solely through frictional engagement between the rotating platform and the target.

3,635,205

SPRING-LOADED BOW

Brian Wood, 414 E. Harry St., Hazel Park, Mich.

Filed Mar. 20, 1970, Ser. No. 21,354

Int. Cl. F41b 5/00

U.S. Cl. 124—24

11 Claims



Archery bow having bow limbs that are detachably connected to a handle. In the handle there are limb vibration-dampening springs positioned at each end of the handle to biasingly engage the ends of the bow limbs. The bow limbs are rotatably mounted with respect to the handle and there is a locking device on the handle that rocks the bow limbs to a desired angular position with respect to the ends of the handle resulting in varying compressive forces being applied to the springs. The springs in the ends of the handle have screw adjustable supports for varying the positions of the bases of the springs with respect to the end of the bow limb thus resulting in controllable biasing forces on the bow limbs at their connections with the handle of the bow.

3,635,206

ADJUSTABLE MASONRY SAW

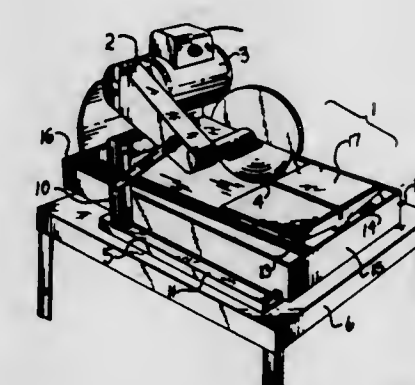
John R. Harclerode, Prairie Village, Kans., assignor to Robert G. Evans Company, Kansas City, Mo.

Filed Oct. 12, 1970, Ser. No. 79,869

Int. Cl. B28d 1/03

U.S. Cl. 125—13

8 Claims



The reservoir pan incorporates the saw table tracks and is variable in position with respect to the circular saw blade providing adjustability for reducing the necessity of the operator bending over the edge of the pan when a small workpiece is cut.

3,635,207

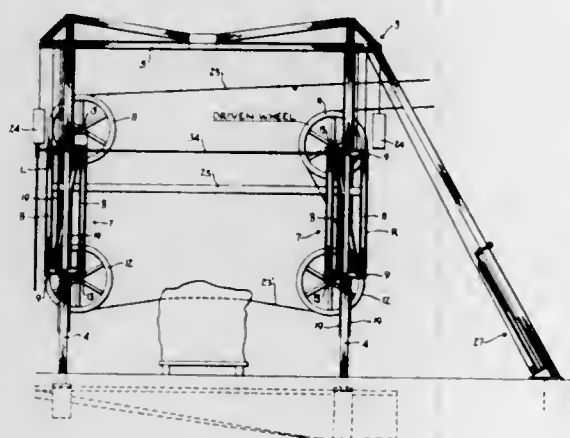
WIRE-TYPE STONE-CUTTING SAW

Casper R. Grage, and Theodore R. Vessels, both of Escondido, Calif., assignors to Continental Granite Corp., Escondido, Calif.

Filed Dec. 31, 1969, Ser. No. 889,581
Int. Cl. B28d 1/08

U.S. Cl. 125-21

3 Claims



Two separate wire-type stone-cutting saws are arranged side-by-side with the cutting stretches of their wires traveling linearly across the same work zone; the wire-guiding wheels of both saws being carried by frames with trolleys at their upper and lower ends that ride on rigid upright columns at opposite sides of the work zone, the connections between the wheel frames and the trolleys being transversely adjustable so that the location of the cut to be made by each saw can be set without disturbing the block of stone to be cut, and the wheel frames of the two saws also being tiltable into downwardly convergent relationship to bring the bottom peripheral portions of their lower wheels and hence their cutting stretchers into close juxtaposition.

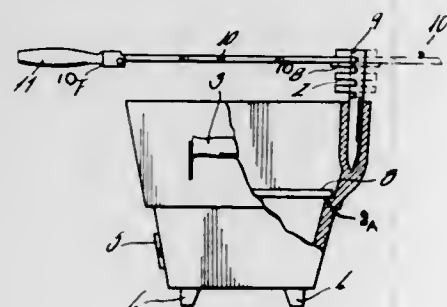
3,635,208
ROASTER

Cheng-Hsuan Hwang, No. 223, Chung Hwa Road, Hsinchu, Taiwan

Filed Mar. 6, 1970, Ser. No. 17,230
Int. Cl. A47j 37/00; F24b 3/00

U.S. Cl. 126-25 A

4 Claims



A roaster, comprising a funnel-shaped cast body having walls including a backwall and having an interior adapted to receive fuel and open at the top, the backwall in the upper center thereof formed with at least one substantially vertical supporter opening extending therein and open at the top, and a supporter means adapted to releasably support a grill thereon and including at least one supporter rod at the bottom thereof substantially complementary to the at least one supporter opening releasably being securely held therein.

3,635,209

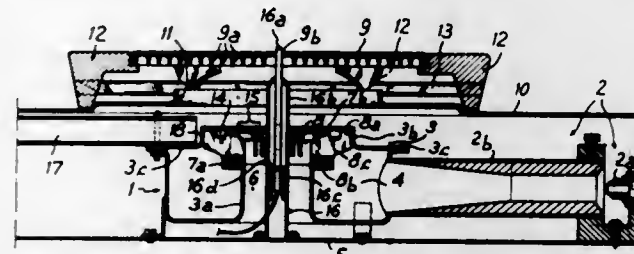
GAS BURNER

Roger Vignes, Paris, France, assignor to Service National dit: Gaz de France, Paris, France

Filed Dec. 9, 1969, Ser. No. 883,381
Claims priority, application France, Dec. 11, 1968, 177758
Int. Cl. F24c 3/00

U.S. Cl. 126-39 H

6 Claims



A gas burner, particularly for gas cookers, constituted by a mixer, an enclosure forming an annular distribution chamber and by a burner head provided with radial slots and connecting said distribution chamber to the atmosphere, said gas burner being characterized in that it is placed below a protective plate 10 provided with an opening 11, in that the upper face of the burner head onto which the radial slots 8 open out is downwardly inclined towards the center of said head, in that the radial slots 8 are obturated at their outer vertical edge 8a and at the base in the zone of their inner edge 8b completely open at their inner edge and in that, in the central zone of the slots 8c, the burner head has an annular groove 14 on its upper face.

3,635,210

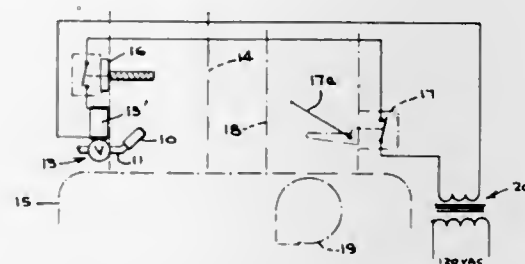
FURNACE HUMIDIFIER

William B. Morrow, Winston-Salem, N.C., assignor to Aqua-Mist, Incorporated, Winston-Salem, N.C.

Filed Oct. 16, 1970, Ser. No. 81,379
Int. Cl. F24f 3/14

U.S. Cl. 126-113

9 Claims



A humidifier unit for a warm air-heating system including a solenoid valve controlled water spray nozzle to be located in a portion of the air passage system through which warm air leaves a furnace to discharge a fine mist spray into the leaving air, a manually variable temperature-sensitive switch for sensing the air temperature in the passage, a sail switch activated by airflow through the air passage system, and an electrical circuit interconnecting the solenoid valve with the switches to operate the valve.

3,635,211

HEAT EXCHANGER FOR FIREPLACES

Henry O. Englert, 510 "F" St., Blaine, Wash.

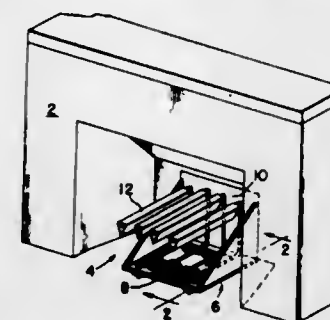
Filed Apr. 7, 1970, Ser. No. 26,245
Int. Cl. F24b 1/18

U.S. Cl. 126-121

3 Claims

A heat exchanger for an existing fireplace which includes a grate means and air-transporting means in communication with the grate means. The exchanger further includes a blower whereby when the air within the grate means is

heated, the blower will move the heated air either outwardly into the room where the fireplace is located or alternatively blow it to another section of the structure. Alternatively, the



structure could include within one section of the air-transporting means a supplemental heating means whereby the heat exchanger is useable for heating purposes even in the absence of a fire within the fireplace.

3,635,212

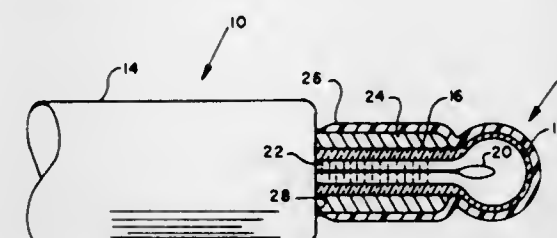
COATED ION MEASURING ELECTRODE

Hideo Watanabe, and John E. Leonard, both of Fullerton, Calif., assignors to Beckman Instruments, Inc.

Filed Mar. 3, 1969, Ser. No. 803,813
Int. Cl. G01n 27/30

U.S. Cl. 128-2

9 Claims



An ion measuring electrode is disclosed in which the ion sensitive barrier thereof is coated with reconstituted cellulose which is applied to the electrode in such a manner that the cellulose coating will remain on the electrode even after continued use thereof. The invention is particularly applicable to the coating of glass electrodes mounted in catheters utilized in the in vivo ion concentration measurements of body fluids.

3,635,213

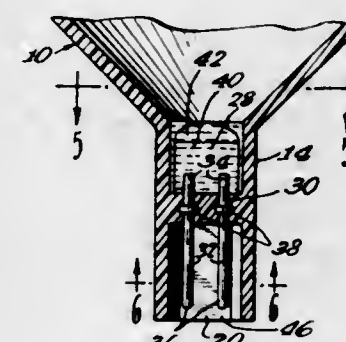
METHOD OF DETERMINING THE PRESENCE OF CYSTIC FIBROSIS

James F. LaHay, St. Louis, Mo., assignor to Sherwood Medical Industries Inc.

Filed Nov. 28, 1969, Ser. No. 880,810
Int. Cl. A61q 5/05

U.S. Cl. 128-2 R

5 Claims



A disposable combination collection and measuring electrode which may be strapped to a patient to collect sweat stimulated by iontophoresis and which may be connected to an analyzing instrument for analyzing the conductivity of the

collected sweat in a manner so as to preclude evaporation and minimize the possibility of contamination. The collection and measuring electrode is formed of a funnel shaped plastic element and in the base thereof, there are located two electrodes of a precise length and spaced from each other a precise distance. The base is configured so that a sample as small as 19 microliters may be used for analysis.

3,635,214

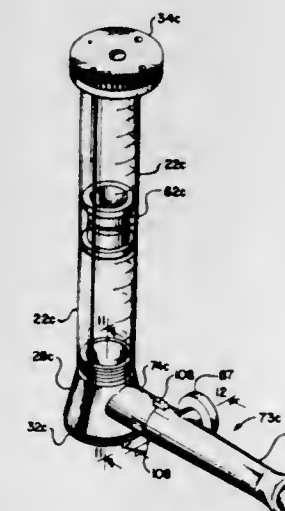
VISUAL PULMONARY METER

William A. Rand, 3299 Cambridge Ave., Riverdale, N.Y., and Jerome Kaufman, 615 West 183rd St., New York, N.Y.

Filed July 29, 1970, Ser. No. 59,205
Int. Cl. A61b 5/08

U.S. Cl. 128-2.08

11 Claims



A pocket-sized pulmonary meter which includes a hollow cylindrical chamber for slidably receiving a piston. A breathing tube assembly communicating with one end of the cylindrical chamber forms a flow passageway terminating with a mouthpiece through which a patient can exhale into the cylindrical chamber and correspondingly move the piston by this expiratory force. An air exit regulator is provided at the other end of the cylindrical chamber and has calibrated registering apertures to selectively vary the rate at which air can escape from the chamber and will thus control resistance to piston movement. The breathing tube may further include an adapter for introducing an inhalator. In an alternate embodiment the device is provided with a slidable gate valve and adapter for securing a medicament dispenser whereby rotation of the mouthpiece will selectively operate the valve and will permit either inhalation of the medicine or exhalation into the cylindrical chamber.

3,635,215

MEDICAL REMOVAL HOOK

James J. Shea, Dearborn Heights, and Russell W. Kouba, Ferndale, both of Mich., assignors to Gam Rad, Incorporated, Detroit, Mich.

Filed Aug. 14, 1969, Ser. No. 850,120
Int. Cl. A61f 5/46

U.S. Cl. 128-130

6 Claims



A removal hook assembly for removing intrauterine contraceptive devices (IUCD) such as coils or the like; the removal hook assembly includes a hook member and a retention tube slideably supported on the hook member to

facilitate gripping and removal of the IUCD with the retention tube further acting to prevent damage to the uterus and/or cervix by the hook during insertion and extraction of the hook assembly.

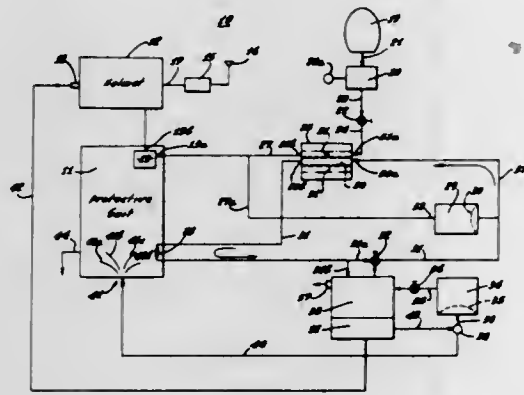
3,635,216

LIFE SUPPORT SYSTEM

Daniel L. Curtis, Manhattan Beach, Calif., assignor to
Granted to National Aeronautics and Space Administration
under the provisions of 42 USC 2457(d)
Filed Jan. 29, 1968, Ser. No. 701,244
Int. Cl. A62b 7/02

U.S. Cl. 128-142.5

9 Claims



A lightweight life support system for extravehicular space activity which may be either mounted in a back-pack or integrated into a protective suit. Two subsystems are provided to maintain the suit inhabitant in his environment. The first subsystem is an open loop, single pass ventilation system, having a high-pressure oxygen and mixed gas storage which is maintained within lightweight, stress-limited pressure vessels. A breathing bag cooperates with the open loop system to meet the peak respiratory demands. The second subsystem comprises a protective suit having a duct network, a liquid pump, and a sublimator-heat exchanger which in combination provide a suitable thermal condition.

3,635,217

DRINKING AND RESUSCITATION MASK

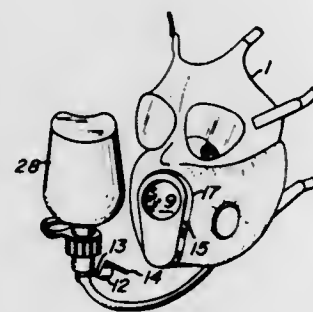
Norman Potash, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Army

Filed Mar. 4, 1969, Ser. No. 804,188

Int. Cl. A62b 7/00

U.S. Cl. 128-145.5

11 Claims

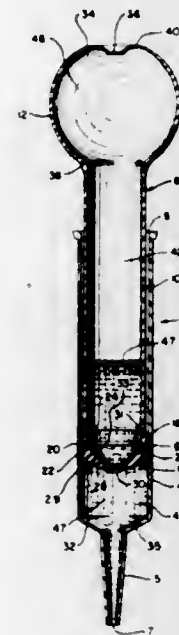


An improved protective mask means having a drinking and resuscitation connection means to permit drinking and resuscitation while wearing the mask in a contaminated atmosphere.

3,635,218
COMBINATION BULB-PISTON SYRINGE
Richard E. Ericson, Keene, N.H., assignor to Elliot Laboratories, Inc., Fitzwilliam, N.H.
Filed Mar. 23, 1970, Ser. No. 21,737
Int. Cl. A61m 1/00

U.S. Cl. 128-231

2 Claims



A piston-type irrigating syringe, in which the piston shaft, slidable in the syringe barrel with the resilient piston, is hollow and extends into and communicates with an integral resilient hollow bulb and in which the resilient piston has a restricted passage providing continuous communication between the hollow shaft and bulb and the barrel and nozzle opening of the syringe, whereby the suction and positive pressures applied to a body cavity are applied gradually at a controlled rate and can be varied over a wide gradient, as compared to standard bulb-type syringes and standard piston-type syringes, whereby such pressures and suction can be controlled to avoid harmful effects, whereby the necessity of employing more than one kind of syringe, i.e., a bulb-type syringe for mild pressures and suction and a piston-type syringe for greater pressures and suction, is avoided, whereby the fluid reservoir capacity is greatly increased over standard syringes, and whereby greater maximum suction and pressures can be achieved compared to standard syringes.

3,635,219
INHALATION DEVICE

Roger Edward Collingwood Altounyan, Wilmslow; Harry Castle Howell, Conington, and Martyn Omar Rowlands, Epping, all of England, assignors to Fisons Pharmaceuticals Limited, Loughborough, England

Filed June 4, 1969, Ser. No. 830,355

Claims priority, application Great Britain, June 7, 1968, 27209/68

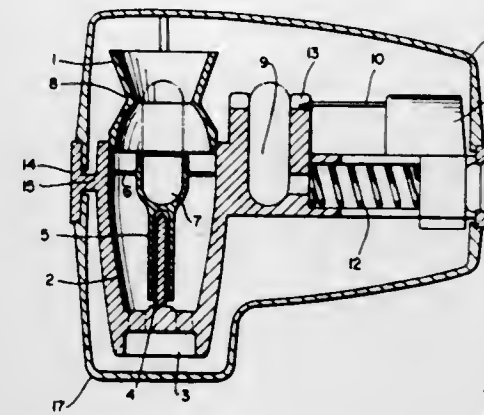
Int. Cl. A61m 15/06

U.S. Cl. 128-266

4 Claims

A dispensing device for dispensing finely divided medication from a capsulelike container. A hollow elongated housing has at both ends thereof at least one passageway to permit passage of air, and one end is adapted for insertion into the mouth. A propellerlike member is rotatably mounted in

the housing and has on the part thereof farthest from the end of the housing adapted for insertion into the mouth a mount-



ing means adapted to receive the capsulelike container. Also included is a means for perforating the container.

3,635,220

DEVICE FOR SUCTIONING

Harold Elcaness, 3555 Kings College Pl., Bronx, N.Y.
Filed June 13, 1967, Ser. No. 645,776

Int. Cl. A61m 1/00

U.S. Cl. 128-276

7 Claims



The suction device has a telescoping upper and lower casing and an interposed carrier-director with fixtures attached for the purpose of controlling suction and the amounts of fluid allowed into the lower casing of the instrument, and depending on the controlled protrusion of the carrier-director, control of suction and fluid in the parts to be suctioned is obtained, as well as releasing unwanted parts that may be suctioned into the mouth of the instrument. Transmission of pressure to the carrier-director directly by pushing a knob on the proximal end of the carrier-director or indirectly by pushing the upper casing which telescopes over the lower casing moves the carrier-director by transmitting pressure over fixtures enclosing a spring on the carrier-director. A ring on the distal end of the carrier-director is moved to slide over the fluid inlet in the distal portion of the lower casing, thus stopping the flow into and out of the mouth of the lower casing, while a ball-like object attached to the lower end of the carrier-director is protruded away from the mouth of the lower casing thus allowing the transmission of suction to the parts suctioned.

If unwanted parts are inadvertently suctioned to the opening of the lower casing, further protrusion of the carrier-director by direct pressure on the knob of the carrier-director moves the ring away from the fluid inlet, permitting fluid to enter the lower casing and flush the intruding portion away from the mouth of the device. Release of pressure on the carrier-director knob allows the continuation of suctioning of the body parts intended. Release of the upper casing closes off the device from the body and permits the inflow of fluid into the lower casing and continuation of suctioning of the matter taken into the device. Thus the suctioned matter is diluted and pressured out of the suction outlet on the upper part of the lower casing by the fluid. The spring tension having been released by release of pressure on the upper casing retracts the carrier-director and the attached ring and ball move away from the fluid inlet, respectively, and the ball occludes the mouth of the lower end of the device, thus continuous suction and dilution occur in the lower casing which has been closed off from the body parts.

3,635,221

FLUSHABLE FABRIC

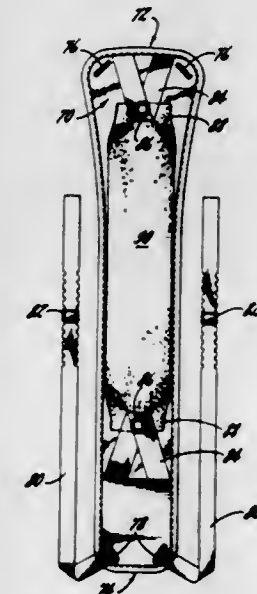
John F. Champaigne, Jr., Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Aug. 13, 1969, Ser. No. 849,737

Int. Cl. A61f 13/16

U.S. Cl. 128-290

9 Claims



A sanitary napkin designed for disposal in conventional toilet systems. A conventional pad is enclosed in a wrapper comprising a web of nonwoven fibers discontinuously bonded with a water-sensitive adhesive that is relatively more soluble in cold water than in warm water. The napkin is used with supplementary support means.

3,635,222

ANGULAR CURETTE

Ralph R. Robinson, P. O. Box 668, Middlesboro, Ky.

Filed July 31, 1970, Ser. No. 59,900

Int. Cl. A61b 17/22; A61f 5/46

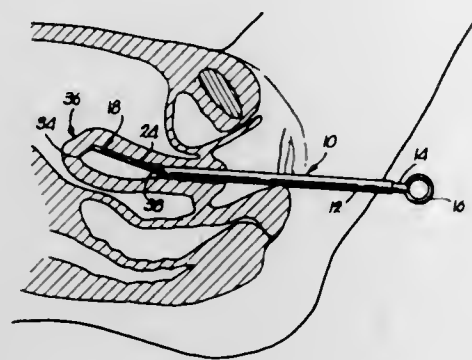
U.S. Cl. 128-304

6 Claims

A curette having an insertion tube, an ejection plunger reciprocable within the tube, and a pair of elongated, flexible branches at one end of the plunger which are joined together at their outer ends and are preformed to present in the uterus a self-sustaining loop which is angularly offset from the longitudinal axis of the plunger. When the plunger is withdrawn

from the expulsion end of the tube, the branches are flexed into a common plane with the plunger, and lie in side-by-side

the charging potential less the essentially constant drop across the diode. Battery failures result in an increase in the



relationship within the tube. Two species of the curette provide alternate designs and locations of teeth on the branches.

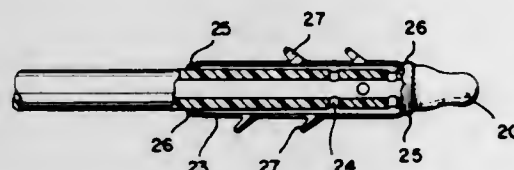
3,635,223

EMBOLECTOMY CATHETER

Charles H. Kileman, Brooklyn, N.Y., assignor to United States Catheter & Instrument Corporation, Glens Falls, N.Y.
Filed Dec. 2, 1969, Ser. No. 881,363
Int. Cl. A61m 25/00; A61b 17/22

U.S. Cl. 128—348

7 Claims



Apparatus for extracting emboli comprising a cannula, preferably guidable, adapted to be projected through a body passage (e.g., vein or artery) to a point adjacent the embolus to be removed, together with a catheter adapted to be passed through the cannula and having a distal end provided with an inflatable balloon the surface of which has rearwardly angled protrusions designed to engage an embolus into which the catheter end has been projected and to convey the captured embolus into the cannula as the catheter is withdrawn therein.

3,635,224

SAFE RATE PACER

Barouh V. Berkovits, Newton Highlands, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Filed Feb. 10, 1970, Ser. No. 10,225
Int. Cl. A61n 1/36

U.S. Cl. 128—419 P

14 Claims

A pacer which is not susceptible to a runaway rate condition no matter how many batteries fail and does not cease pacing even if several batteries fail. The timing circuit employed includes a capacitor which charges from a charging potential. When the capacitor voltage reaches a threshold potential, a pulse is generated. The charging potential is derived from a series string of batteries. The threshold potential is derived at the junction of a diode and a resistor, the diode and the resistor being connected in series across the string of batteries. The threshold potential is thus equal to

pulsing rate, but as long as pacing continues the pulsing rate does not approach a dangerous level.

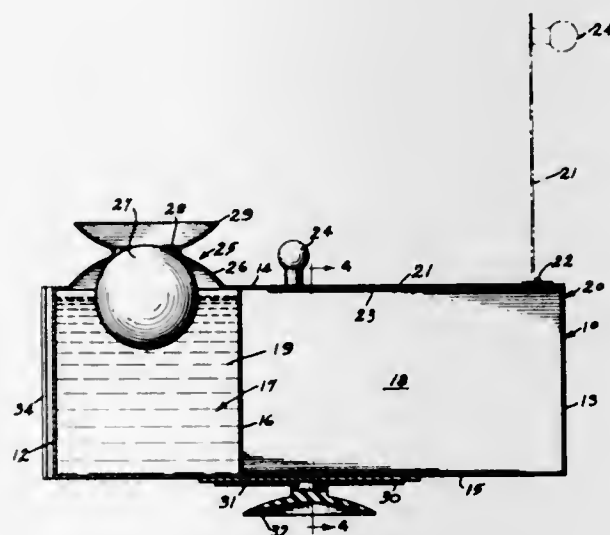
3,635,225

ASH TRAY

Malcolm C. Andrews, 652 Campbell St., Williamsport, Pa.
Filed Feb. 12, 1970, Ser. No. 10,750
Int. Cl. A24f 19/14

U.S. Cl. 131—236

2 Claims



An ash tray including a supply of liquid such as water that has a ball member floating thereon whereby a cigarette, cigar or the like can be engaged by the moistened ball member to safely and conveniently extinguish the cigarette or cigar.

3,635,226

TOBACCO-SMOKE FILTERS

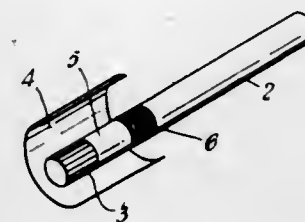
Henry George Hornewell, and Thomas William Charles Tolman, both of London, England, assignors to British-American Tobacco Company Limited, London, England
Filed June 16, 1969, Ser. No. 833,389
Int. Cl. A24b 15/02; A24d 01/06

U.S. Cl. 131—266

5 Claims

The invention concerns a multicomponent filter for tobacco-smoking articles, such as cigarettes. A three-component

filter has at least an absorbent filter section, an aqueous humidifying means and a poorly absorbent section. The humidifying



ifying means is to enhance the filtering action and/or serve as a flavorant or flavor-enhancing agent.

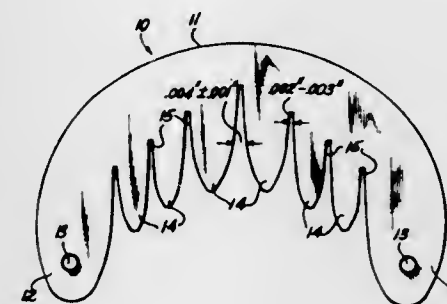
3,635,227

COMB FOR HOLDING A TOUPEE

William H. Lee, 398 Warwick Ave., Mount Vernon, N.Y.
Filed June 18, 1970, Ser. No. 47,316
Int. Cl. A45d 8/00

U.S. Cl. 132—46

7 Claims



A comb for holding or fastening a toupee is formed of a thin sheet of metal in arc form having teeth separated by very narrow slots.

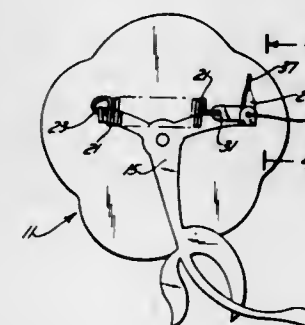
3,635,228

ADORNMENT DEVICE

Norman L. Helkes, Santa Barbara, Calif., assignor to Pantec Development Company, Santa Barbara, Calif.
Filed Dec. 12, 1969, Ser. No. 884,459
Int. Cl. A45d 8/00

U.S. Cl. 132—46 R

8 Claims



The invention is directed to a decorative attachable unit for attachment in the hair of the wearer. A coiled spring element which is normally compressed is supported at the rear side of the unit with a means provided to expand the spring for insertion of hair strands between the turns. With spring release the inserted hair strands are gripped between adjacent spring coil turns.

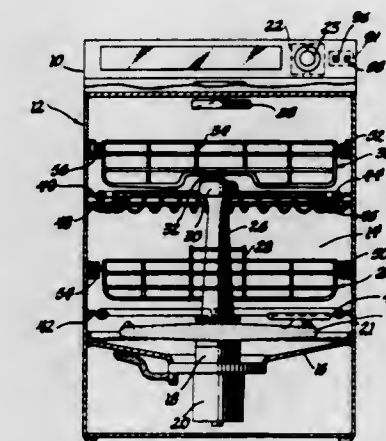
3,635,229

SELECTIVE HEATING SYSTEM FOR AUTOMATIC WASHING MACHINE

James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed May 19, 1970, Ser. No. 38,750
Int. Cl. B08b 3/02, 3/10

U.S. Cl. 134—58 D

3 Claims



A dishwasher having upper and lower utensil support racks and a heater element positioned adjacent each rack for preselective drying of utensils held in the racks. Manually operated selector switches are provided in electrical series with the dishwasher timer control circuit for determining which of the heaters will be operative during the washing and drying cycle.

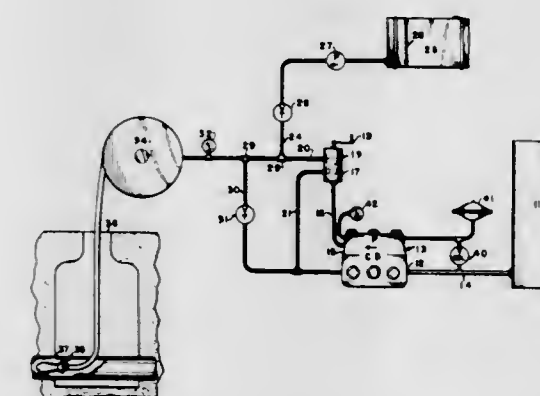
3,635,230

ROOT FUMIGANT SEWER CLEANER SPRAYER

John A. Kirschke, P.O. Box 125 Ammann Road, Boerne, Tex.
Filed May 13, 1970, Ser. No. 36,901
Int. Cl. B08b 3/02, 9/04

U.S. Cl. 134—168 C

4 Claims



An improved jet sewer cleaning device incorporating equipment for cleaning and dispensing predetermined controlled amounts of root-killing fumigant to obstructing root deposits.

3,635,231

COLLAPSIBLE BEACH-UMBRELLA

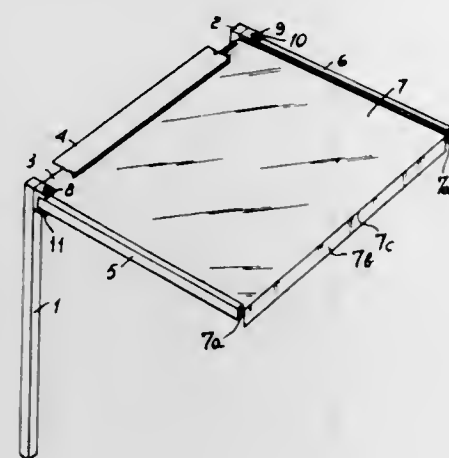
Dario Bernardi, Via Mazzini 5, Cattolica, Italy
Filed May 25, 1970, Ser. No. 40,207
Claims priority, application Italy, May 29, 1969, 1651 A/69
Int. Cl. E04f 10/06

U.S. Cl. 135—5 R

7 Claims

Collapsible beach-umbrella with a bearer structure for an awninglike shade and at least one pole adapted to be fixed on the ground for supporting said bearer structure, charac-

terized in that said bearer structure includes at least one roller shade unit supported on said pole, at least one elongated bearer guide for guiding and retaining said shade in



stretched condition, at least one of said bearer guides having one end thereof hingedly connected with said roller-shade unit and having stop means retaining said bearer guide in a cantileverwise extended position with respect to said pole.

3,635,232

ROPE RETAINING STAKE

Jordan I. Rotheliser, Highland Park, Ill., assignor to Central Specialties Co., Chicago, Ill.

Filed Apr. 27, 1970, Ser. No. 32,473

Int. Cl. A45f 1/16

U.S. Cl. 135-15 PE

4 Claims



A unitary tent stake having a cleat member along a shank edge for rope engagement; and having opposite louver channels for anchoring the stake in the ground.

3,635,233

COLLAPSIBLE CANE AND CRUTCH CONSTRUCTION

Charles H. Robertson, 505 Miller, Dumas, Tex.

Filed Mar. 19, 1970, Ser. No. 21,140

Int. Cl. A44b 1/00; A45b 9/02

U.S. Cl. 135-47.5

4 Claims

Segmented supporting aids of collapsible construction held in locking engagement by a tension cord disposed within the

tubular segments of the aid. In addition to a collapsible cane construction, a forearm engaging crutch with an improved



3,635,234

TEARABLE FILLING AND SEALING CLOSURE PLUG

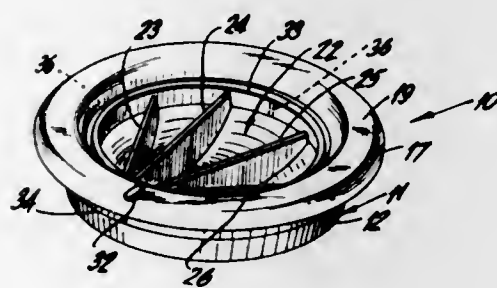
Willis S. Dawson, Henderson City, Ky., assignor to Cyanide Plastics, Inc., Henderson, Ky.

Filed June 12, 1970, Ser. No. 45,813

Int. Cl. F16k 13/04

U.S. Cl. 137-68

6 Claims



A plastic resin closure plug is particularly adapted for insertion into a rigid panel of a structure which is to be filled with a foam insulation. The tubular shank portion of the plug fits within a hole of the panel and a flange portion of the plug lies on one side of the panel. The plug's top portion is connected to the shank portion by a web which is sufficiently thin so that it may be broken for insertion of a foaming nozzle. An integral hinge is provided connecting the top portion with the plug.

3,635,235

FLUID CONTROL SYSTEM

Willis A. Boothe, Scotia, N.Y., assignor to General Electric Company

Filed Jan. 2, 1970, Ser. No. 375

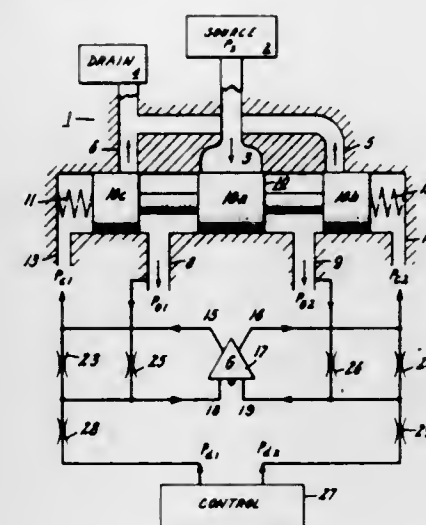
Int. Cl. F15c 3/08

U.S. Cl. 137-81.5

3 Claims

Control pressure to a hydraulic control valve is supplied by a fluid amplifier. Pressure feedback paths are provided to the amplifier inputs from both the amplifier outputs and the hydraulic control valve outlets so as to utilize sufficient pressure of the fluid amplifier to overcome friction within the

control valve assembly. The amplifier and associated feedback paths further constrain the system output differential



pressure to be linearly proportional to the system input differential pressure.

3,635,236

FLUIDIC DEVICE HAVING VISIBLE IONIZABLE FLUID FLOW

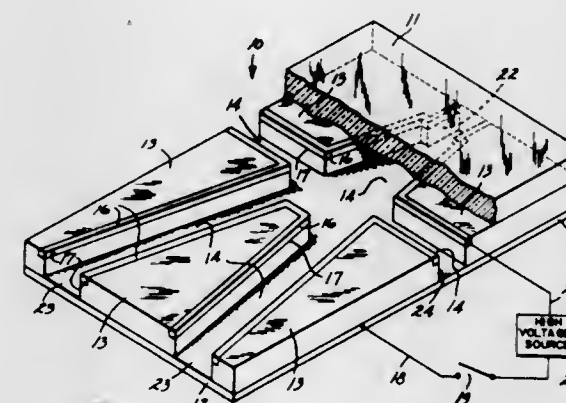
Eric Lake Faley, Buffalo Grove, Ill., and David Paul Riewe, Trenton, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 26, 1970, Ser. No. 14,497

Int. Cl. F15c 1/00, 4/00

U.S. Cl. 137-81.5

3 Claims



The operation of a fluidic logic device, or the like, is rendered visible by using an ionizable fluid, such as argon, within the device and applying an electric field across the channels of the device of an intensity sufficient to ionize and render visible the fluid so that the path which the fluid takes through the device may be observed.

3,635,237

METHOD AND APPARATUS FOR FULL SHUTOFF SEQUENCING VALVE

Carl L. C. Kah, Jr., 778 LaKenide Drive, North Palm Beach, Fla.

Filed Apr. 17, 1970, Ser. No. 29,513

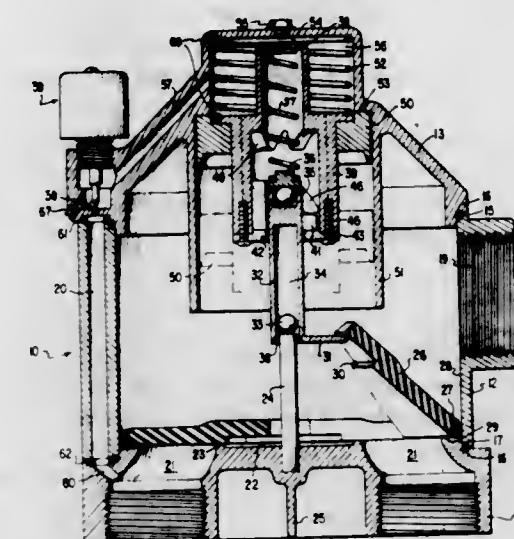
Int. Cl. F16k 21/00, 21/60; B05b 9/00

U.S. Cl. 137-119

8 Claims

A sequencing valve which distributes line pressure from a single-inlet flow line, sequentially, through a plurality of outlet flow lines as a selective function of pulsating line pressure or an independently operated pilot valve. The sequencing

valve includes a housing having a valving member positioned between the inlet line and the outlet lines. The valving member consists of a number of pie-shaped hinged flaps or valve elements corresponding to the number of outlet lines.



3,635,238

AUTOMATIC VALVING DEVICE

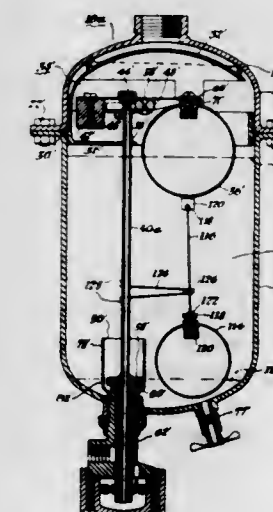
Paul M. Hankison, Peters Township, and William Foster Walker, Bethel Park Borough, both of Pa., assignors to Hankison Corporation, Conansburg, Pa.

Filed Jan. 19, 1970, Ser. No. 3,880

Int. Cl. F16t 1/20

U.S. Cl. 137-195

21 Claims



An automatic valving device, comprises a receiver for liquid, an elongated float structure disposed generally vertically in the receiver and including an upper float portion positioned in an upper region of the receiver and a lower float portion positioned in a lower region of the receiver, inlet and outlet port means for the receiver, and discharge valve means for the receiver coupled to the outlet port means. The float structure is coupled to the outlet port means and to the discharge valve means for opening and closing the discharge valve means in response to changes in liquid level in the receiver. Biasing means are coupled to the discharge valve means for urging the discharge valve means to its

closed position. The buoyancy of the float structure lower portion although submerged is insufficient to overcome the biasing means and to open the discharge valve means when closed, and the buoyancy of the float structure lower portion when fully submerged together with the buoyancy of the float structure upper portion when at least partially submerged is sufficient to overcome the biasing means and to open the discharge valve means at an upper limit level of liquid in the receiver. The total weight of the float structure and of the coupling thereof to the discharge valve means in conjunction with the biasing means is capable of closing the discharge valve means at a lower limit level of liquid in the receiver against the buoyancy of the float structure lower portion when at least partially submerged.

3,635,239

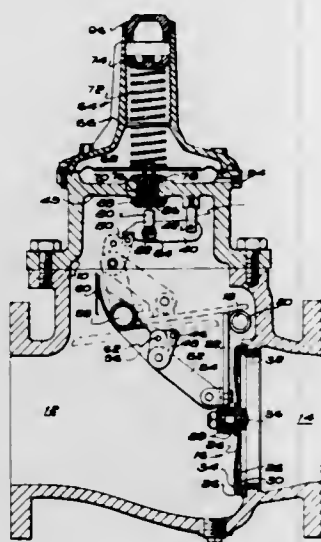
GAS SUPPLY SHUTOFF VALVES

Sydney Farrer, Sheffield, England, assignor to The Bryan Donkin Company Limited, Chesterfield, England
Filed Mar. 16, 1970, Ser. No. 19,805
Claims priority, application Great Britain, Mar. 19, 1969, 14,483/69

Int. Cl. F16k 17/02

U.S. Cl. 137-461

6 Claims



A gas supply shutoff valve including a valve member hinged within a main body part; a detent mechanism including a linkage arrangement for retaining said valve member in an inoperative position, the linkage arrangement moving "overcenter" when the valve is closed; and means for tripping the detent mechanism to cause the valve to shut.

3,635,240

ELECTROPNEUMATIC TRANSDUCER AND PNEUMATIC WEB TENSIONING SYSTEM

George Vlachukis, Menomonee Falls, and Charles K. Sedlak, Wauwatosa, both of Wis., assignors to Zerand Corporation, New Berlin, Wis.

Filed Nov. 21, 1969, Ser. No. 878,691

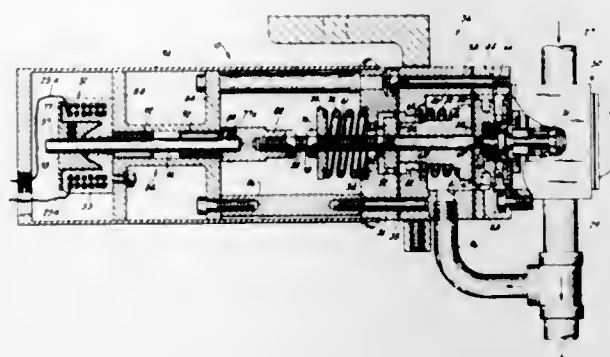
Int. Cl. G05d 15/01

U.S. Cl. 137-495

11 Claims

An electropneumatic transducer having a pneumatic pressure regulator operatively controlled by a solenoid, an adjustable spring biasing assembly connected to the regulator and solenoid to maintain the moving parts of the transducer in a normally closed position and to minimize vibratory motion induced in the moving parts. A diaphragm arrangement is connected to respond to the output pressure of the regula-

tor to introduce an additional force to the force of the solenoid. The inherent friction of the solenoid is reduced by a



linear bearing arrangement. A pneumatic web tensioning system utilizing such an electropneumatic transducer.

3,635,241

PRESSURE REDUCER, PARTICULARLY FOR HYDRAULIC BRAKE SYSTEM IN VEHICLES

Riccardo Franzl, Turin, Italy, assignor to FIAT Societa per Azioni, Turin, Italy

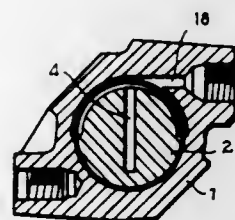
Filed July 14, 1969, Ser. No. 841,525

Claims priority, application Italy, Apr. 1, 1969, 841315

Int. Cl. F16k 17/02

U.S. Cl. 137-505.18

1 Claim



This invention relates to a pressure reducer of the type having a piston slidable in a cylinder with a piston head in the cylinder cooperating with a resilient packing to subdivide the cylinder into high- and low-pressure chambers. A spring is provided in the high-pressure chamber surrounding the piston rod, and engages at one end a piston rod packing and at the other end a radial projection on the piston rod. The radial projection is spaced axially from the piston head by a distance which is greater than the axial length of the piston head packing, the spring preferably holding the piston at the low-pressure end of the cylinder even in the absence of external spring loading on the piston rod.

3,635,242

VALVE SEIZURE PROTECTION DEVICES

Jerzy Leon Couteau, and John Richard Simmons, both of Wolverhampton, England, assignors to H. M. Hobson Limited, London, England

Filed July 10, 1970, Ser. No. 53,926

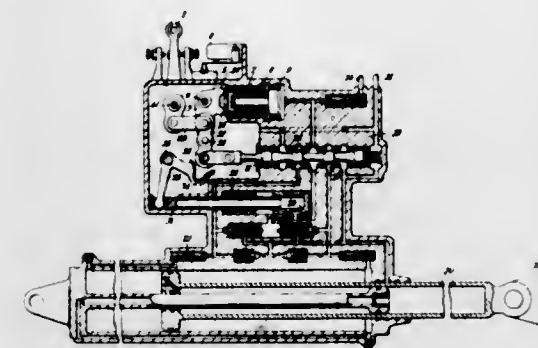
Int. Cl. F16k 37/00, 11/07

U.S. Cl. 137-554

3 Claims

A hydraulic actuator of the type specified for operating a flying control surface of an aircraft, which includes

mechanism responsive to operation of the pilot's input



3,635,243

FAUCET-COUPLING ASSEMBLY FOR A WASHING MACHINE

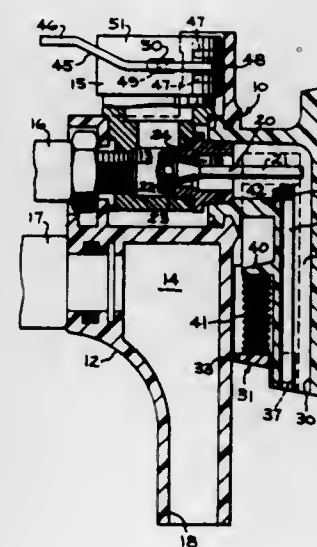
Bernard J. Brezovsky, Louisville, Ky., assignor to General Electric Company

Filed Sept. 19, 1969, Ser. No. 859,441

Int. Cl. B05b 1/22; F16k 13/00; E03b 7/07

U.S. Cl. 137-583

4 Claims



An improved coupling assembly for connecting a washing machine to a water faucet has a handle member protruding from its body portion that serves as a spout for dispensing water from the assembly. A slidable member disposed between the handle member and the body portion is adapted to be manually pushed from a first to a second position which action opens a shutoff valve to allow the water to be dispensed through the handle member. The slidable member is linked to a quick-release connector that fastens the assembly to the faucet so that manipulation of the connector to remove the assembly from the faucet slides the slidable member toward its second position and opens the valve, thereby bleeding off water pressure from the assembly and preventing hot water from the assembly from spurting from the connector.

3,635,244

VALVE FOR DISTRIBUTING FLUID TO A SYSTEM OF FLUID-ACTUATED MACHINES

Ferruccio Lamborghini, Cento (Ferrara), Italy, assignor to Lamborghini Oleodinamica S.p.A., Bologna, Italy

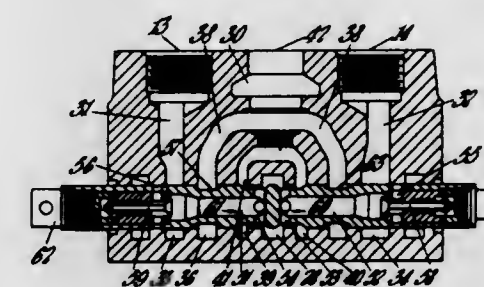
Filed Dec. 12, 1970, Ser. No. 2,067

Claims priority, application Italy, Jan. 13, 1969, 1504-A/69

Int. Cl. F16k 11/10

U.S. Cl. 137-596

4 Claims



A valve for distributing fluid to a system of fluid-actuated machines in which a monobloc defines a plurality of spaced compartments, with each compartment having ports communicable with an individual machine of the system, first passage means in the monobloc for distributing fluid equally to the compartments, each compartment having a cavity to establish a second passage means for supplying fluid to the compartments and communicable with fluid outflow means from said monobloc, a pair of channels communicable with each of said compartments to exhaust fluid therefrom, first valve means in each compartment to direct the flow in said second passage means, and second valve means interposed between said first passage means and said compartment to control the flow of fluid to each machine whereby the machines may be actuated in series-parallel, in series or in parallel.

3,635,245

AIR CONTROL DEVICE

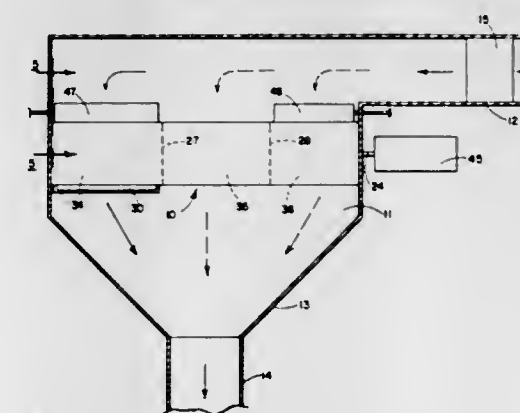
John L. Canfield, 7719 Isis Avenue, Los Angeles, Calif.

Filed Oct. 6, 1969, Ser. No. 863,905

Int. Cl. F16k 3/02

U.S. Cl. 137-607

5 Claims



A damper control for an air-conditioning system including opposed walls defined by concentric, cylindrical segments divided transversely into three passageways in each of which is a vane, the vanes being on a shaft concentric with the opposed walls, the vanes also being angularly displaced relative to each other so that, when each vane is positioned intermediate the walls so as to open its passageway, the other two vanes engage the opposed walls to close their passageways, with a heating unit being positioned adjacent one of the passageways.

passageways to heat the air flowing through it, and a cooling unit being positioned adjacent another of the passageways for cooling the air flowing through that passageway.

3,635,246

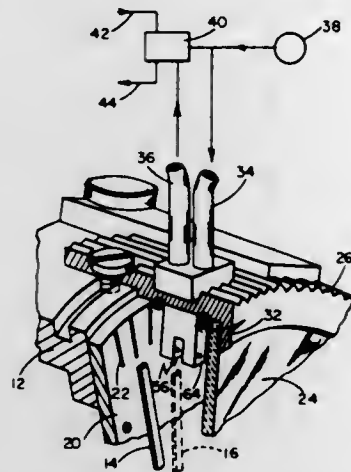
CONTROL SYSTEM

Leon A. Glickman, Westwood, Mass., assignor to Keystone Bay State Industries, Inc., Boston, Mass.

Filed Nov. 4, 1969, Ser. No. 873,801

Int. Cl. F15c 3/00

U.S. Cl. 137—608



Fluidic control apparatus including structure defining a control passage for the flow of fluid along a straight path, the control passage being open at least one end, a slot dividing the control passage into two sections so that two opposed intermediate ports are defined in the walls of the slot, inlet means for supplying fluid to one of the sections, and outlet means for receiving fluid flow from the other section at an intermediate point along the length of the other section. A first blocking member is mounted for movement adjacent the open end of the passage to block flow through that end and a second blocking member is mounted for movement into the slot to interrupt fluid flow from the first section of the passage to the second section of the control passage.

3,635,247

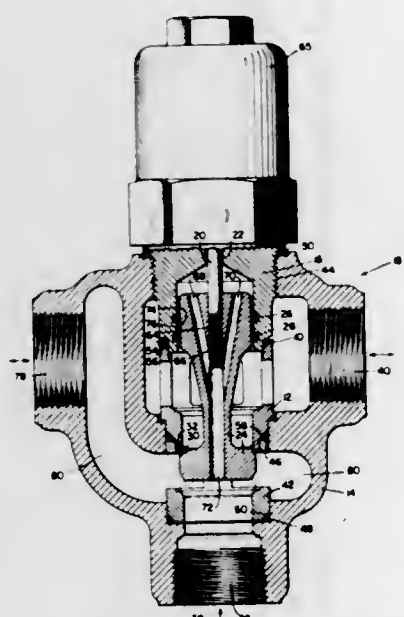
CAGE VALVE WITH MULTIPURPOSE RING

Edward B. Myers, Orelana, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 28, 1970, Ser. No. 6,509

Int. Cl. F16k 11/00

U.S. Cl. 137—625.5



A three-way valve, having (1) a unitary balanced plug, (2) a pair of stacked cages each having an inverted cone-shaped

end for engaging separate wedge-shaped ring seals to move them outwardly and into sealing contact with the valve body and (3) a unique ring member to apply a biasing force on the cage to permit the caged parts to expand without becoming distorted when the temperature of the fluid passing through the valve is increased or decreased and to also maintain the ring seals in fluidtight sealing contact with the valve body before, during and after the changes in temperature of the fluid.

3,635,248

CONTROL ELEMENT FOR THE PNEUMATIC ESTABLISHMENT OF LOGICAL CONNECTIONS

Gerhard Klee, Frankfurt am Main-Glinheim, Germany, assignor to Sanson-Apparatebau A.G., Frankfurt am Main, Germany

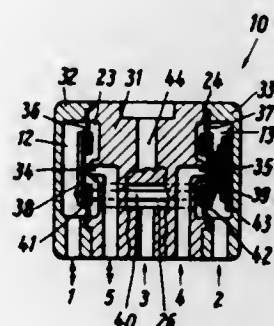
Filed Nov. 17, 1969, Ser. No. 877,409

Claims priority, application Germany, Jan. 27, 1969, P 19 03 838.1

Int. Cl. F15c 3/04

U.S. Cl. 137—625.5

5 Claims



A control element, for the pneumatic establishment of logical connections, includes two coaxially arranged mutually interconnected diaphragms whose surfaces facing toward each other as well as whose surfaces facing away from each other can be subjected to a pressure medium. The diaphragm surfaces facing toward each other are the alternately acting switching elements of a three-way branch connection. Connecting rods interconnect the two diaphragms and extend through bores in the housing of the control element, and the diaphragms have relatively rigid plates secured thereto. A conical coil spring biases the two diaphragms to one position when no fluid pressure is effective on the control element. The active surfaces of the diaphragms subjected to a pressure medium are of substantially equal size. The control element includes a housing and a pair of covers which conjointly define diaphragm chambers connected to flow channels in the covers. Either of two inputs or outputs in the body may be connected to a third input or output by displacement of the diaphragms in one direction or the other.

3,635,249

SELECTOR VALVES AND SEALS THEREFOR

Douglas Frederick Kirkman, Ickenham, England, assignor to I.V. Pressure Controllers Limited, Feltham, England

Filed Jan. 30, 1970, Ser. No. 7,106

Claims priority, application Great Britain, Feb. 6, 1969, 6,579/69; May 23, 1969, 26,569/69

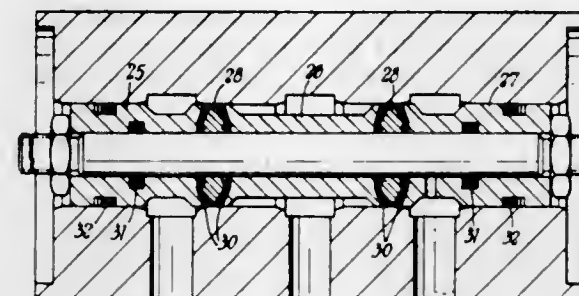
Int. Cl. F16k 11/07

U.S. Cl. 137—625.48

8 Claims

The spool of a selector valve of the spool-type is provided with sealing means in the form of at least one annular washer of plastic or elastomeric material which is clamped between two parts of the spool body and is so dimensioned relatively to the latter as to project outwardly therefrom to provide a flexible annular sealing flap encircling the spool body. The sealing flap is capable of limited flexing movement under the action of fluid or liquid pressure the arrangement being such that with fluid or liquid acting in one direction along the spool the sealing flap will perform no sealing function while

when the direction of fluid or liquid pressure is reversed said flap will be urged into an operative position wherein it will between its two ends in each of the two bistable positions, and in each bistable position the spring clamps a section of



sealingly engage the inner surface of the bore in the valve body in which the spool is axially movable.

3,635,250

INDEXING FLUID CONTROL DEVICE

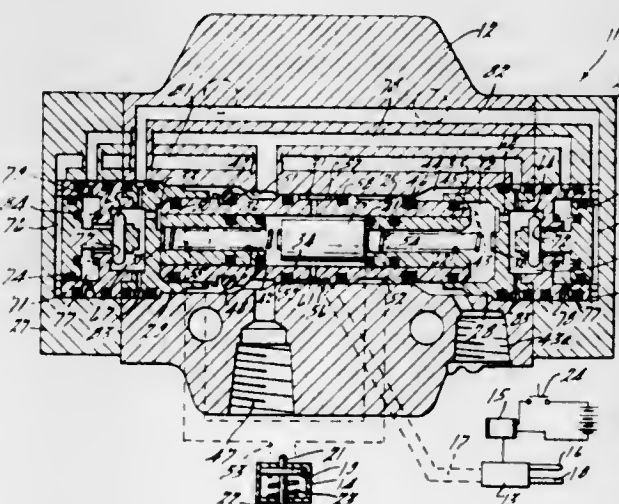
Edward B. Porter, Sr., Pontiac, Mich., assignor to Ross Operating Valve Company, Detroit, Mich.

Filed Aug. 21, 1970, Ser. No. 65,960

Int. Cl. F16k 11/07

U.S. Cl. 137—625.63

4 Claims



A fluid control device which shifts to alternate positions in response to successive applications and removals of signal pressure. The device uses no mechanical latches and has only a single bore and spool. It can be used with compressible or incompressible fluids, and avoids entrapment of entrained fluid particles when compressible fluids are used by an automatic venting arrangement for the spool end chambers.

3,635,251

VALVE

Stanley L. Gaines, Wayland, Mass., assignor to Instrumentation Laboratory, Inc., Lexington, Mass.

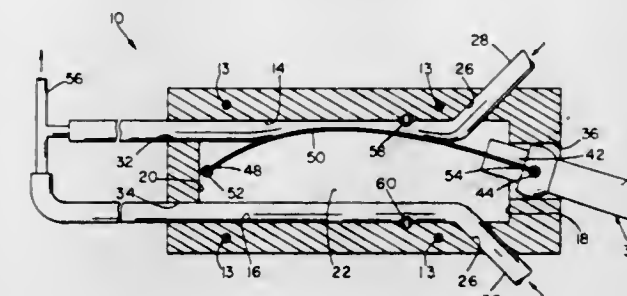
Filed Apr. 7, 1970, Ser. No. 27,196

Int. Cl. F16l 55/14; F16k 31/56

U.S. Cl. 137—636

6 Claims

A bistable double-acting valve includes a valve body having two opposed compression surfaces and an elongated spring element located between the two compression surfaces and having a first end pivotally secured to the valve port and its other end secured to an actuating lever. The length of the spring is such that a smooth curve is formed



tubing against a corresponding compression surface to block fluid flow through that tubing.

3,635,252

PUSHBUTTON-OPERATED SLIDING PLATE MIXING VALVE

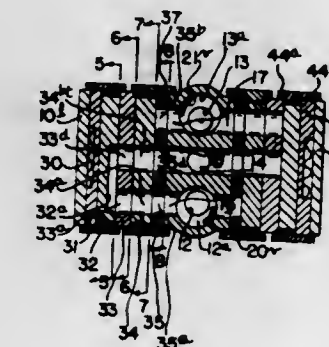
Irlin H. Botnick, 3155 Kersdale Road, Pepper Pike, Ohio

Filed Aug. 22, 1969, Ser. No. 852,200

Int. Cl. F16k 11/20

U.S. Cl. 137—637

24 Claims



Captive in two open-top rectangular-section through-bores between a central wall and end walls in a valve body block, two similar sets of ceramic hard smooth plates as valving sub-assemblies each include stationary port plates, one resilient gasket sealed to central wall hot and cold supply and discharge passages and a second intermediate port plate, a stationary bias plate, and also pushbutton shifted movable plates alternately sandwiched between, held in sliding sealing face contact with, and apertured or ported for cooperation with the stationary plates to select four respective temperatures and flow of discharged water; throttling plugs included in the central wall presetting two mixed flow temperatures between the supply temperatures. Variants of the shiftable plate assemblies are disclosed.

3,635,253

STABLE OCEAN PLATFORM

Virgil E. Johnson, Jr., Gaithersburg; John O. Scherer, Jr., Laurel; Eugene R. Miller, Annapolis, and Viggo A. Blaes, Pikesville, all of Md., assignors to Hydronautics, Inc., Laurel, Md.

Original application July 16, 1968, Ser. No. 745,285, now Patent No. 3,500,783. Divided and this application July 30, 1969, Ser. No. 870,874

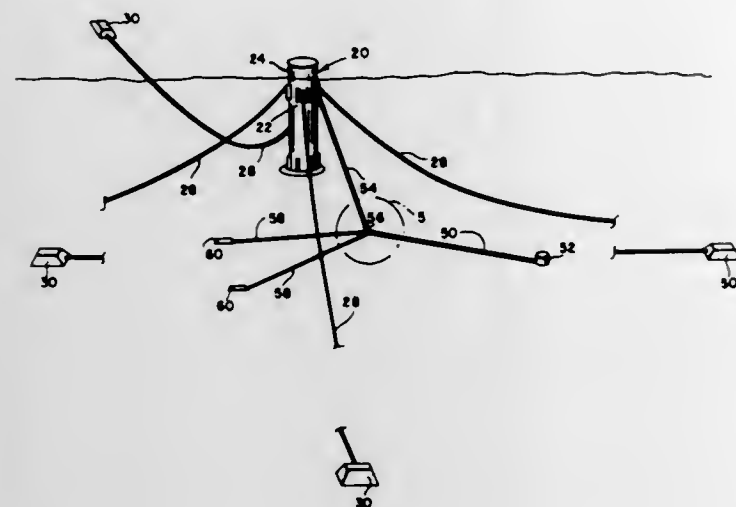
Int. Cl. F16l 11/00

U.S. Cl. 137—799

7 Claims

A stable, floating marine platform is provided having a natural period of oscillation greater than the period of the waves of maximum energy to which the platform may be exposed. A plurality of vertically and radially extending damp-

ing plates are circumferentially spaced around the upper and lower submerged portions of the platform, and a horizontal



damping plate is secured to the bottom of the platform to prevent resonance oscillation of the platform.

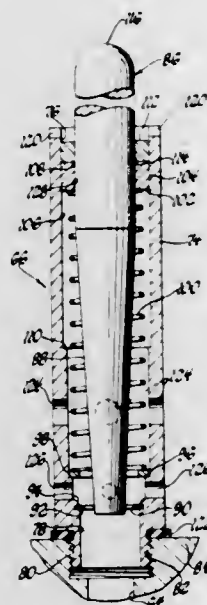
3,635,254 VALVE ASSEMBLY

Robert D. Mitchell, Madison Heights, Mich., assignor to Holley Carburetor Company, Warren, Mich.

Filed Aug. 18, 1969, Ser. No. 850,829
Int. Cl. F15d 1/00

U.S. Cl. 138—45

5 Claims



A valve assembly having a housing with an inlet and outlet, has a stem valve situated therein and resiliently urged in the flow-increasing direction; a collarlike member slidably contained within the housing and carried by the stem valve is, upon application of sufficient force, movable with respect to the stem valve; when the stem valve is forced in the flow-decreasing direction the collar is held against movement by an abutment permitting relative motion between the stem valve and collar with such relative motion continuing until a predetermined rate of flow is attained through the valve assembly.

3,635,255 CORRUGATED FLEXIBLE HOSE WITH INTEGRAL SOCKET AND APPARATUS FOR FORMING SAME

Vance M. Kramer, c/o Crushproof Tubing Co., McComb, Ohio

Filed Sept. 26, 1969, Ser. No. 861,320
Int. Cl. F16I 11/06, 11/10

U.S. Cl. 138—122

3 Claims



A flexible length of hose or tubing formed of helical circumferential corrugations and having means integral therewith at one end for threaded connection to another similarly constructed length in end-to-end relation. The internal threads of the helical corrugations at the end having the receptacle or female connection portion are of approximately the same crest and root diameter as the external threads of the rest of the hose to provide a threaded socket for the opposite end of a similarly constructed hose length. A core member is provided for forming the enlarged female socket at one end by the cording process. The core member defines helical threads for progressively enlarging the crest and root diameter of the internal threads of the hose from their smaller dimension to their maximum dimension while maintaining the same pitch to form the female receptacle for the connection.

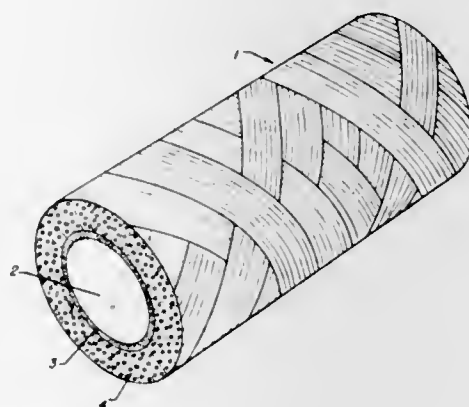
3,635,256 WEAR-RESISTANT TUBE

Jack Lowrie McLarty, Milwaukee, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Mar. 2, 1970, Ser. No. 15,474
Int. Cl. F16I 9/14

U.S. Cl. 138—144

12 Claims



A wear-resistant tube having a smooth inner wall and constructed of layers of helically wound glass filaments and finely divided particles of copper at the surface of the smooth inner wall bonded together in a thermosetting resin system.

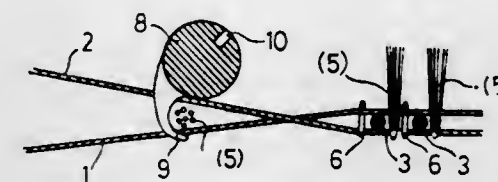
3,635,257 METHOD OF MANUFACTURING CARPETS

Kimichi Takizawa, 1831-6, Goby-Machi, Yonezawa-shi, Japan

Continuation-in-part of application Ser. No. 668,291, Sept. 11, 1967, now abandoned, Continuation-in-part of application Ser. No. 833,319, June 16, 1969, now abandoned. This application Oct. 6, 1970, Ser. No. 78,509
Int. Cl. D03d 27/04

U.S. Cl. 139—116.5

3 Claims



A carpet is manufactured by forming a shed of warp yarns, inserting a pile yarn through the shed between layers of warp yarns defining the shed, advancing a rotating pile-wrapping rod with a hook at one end from one side of a loom across the wrap yarns to helically wrap the pile yarn around the wrapping rod so as to embrace at least one warp yarn of one layer of the warp yarns by each loop of the helix, forming the shed in the opposite direction by moving the yarns of the one layer embraced by the pile yarn loops between adjacent warp yarns of the other layer, inserting a weft through the shed, interconnecting the warp yarns with a binding weft and cutting the loops of the pile yarn along the wrapping rod.

3,635,258

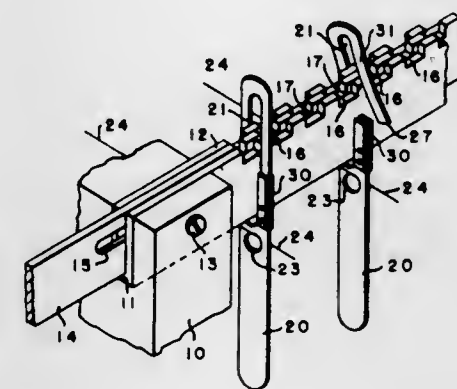
STOP MOTION DROP WIRE

Robert H. Powell, Hartwell, Ga., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed July 2, 1970, Ser. No. 51,848
Int. Cl. D03d 51/26

U.S. Cl. 139—368

1 Claim



A drop wire which has its top portion securely held in a slot formed on the drop wire by attaching two metal strips thereto.

3,635,259

IMITATION MOHAIR FABRIC

Irving Layton, Great Neck, N.Y., assignor to Burlington Industries, Inc., Greensboro, N.C.

Continuation of application Ser. No. 710,628, Mar. 5, 1968, now abandoned. This application Feb. 27, 1970, Ser. No. 14,779
Int. Cl. D03d 15/00

U.S. Cl. 139—426

9 Claims

A woven imitation mohair fabric comprising a spun yarn consisting essentially of a blend of trilobal polyester fibers and wool fibers.

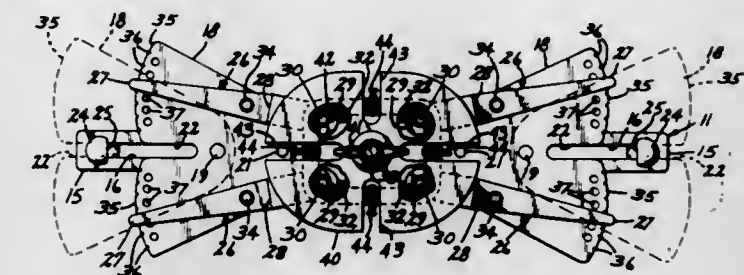
3,635,260 COIL-WINDING APPARATUS

Edwin N. Olson, 109 1st St. S. E., Minot, N. Dak.

Filed Dec. 11, 1969, Ser. No. 884,212
Int. Cl. B21f 3/00

U.S. Cl. 140—92.2

3 Claims



A rotary coil-winding head having diametrically opposed jaw-mounting members mounted for movements radially of the axis of rotation of the head, and pairs of wire receiving jaw elements mounted on the jaw-mounting members for movement of the jaw elements of each pair relative to each other and to the jaw elements of the other pair for winding coils of various dimensions.

3,635,261

METHOD AND APPARATUS FOR PACKAGING PRODUCTS WHICH ARE TO BE STORED SEPARATELY BUT DISPENSED SIMULTANEOUSLY

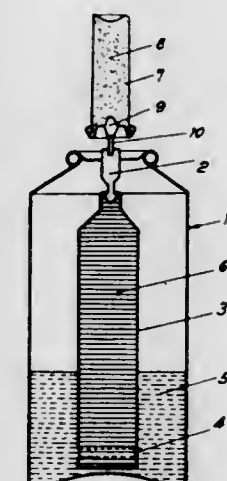
Bruno Morane, Paris; Charles Paoletti, Aulnay Sous Bois; Louis Merrien, Fontenay Sous Bois; Manlio Maurelli, Vaujours, and Robert Sathicq, Villepinte, all of France, assignors to L'Oreal, Paris, France

Filed July 25, 1969, Ser. No. 844,841

Claims priority, application France, Aug. 1, 1968, 161436; Dec. 5, 1968, 176871
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141—3

2 Claims



A dispenser for packaging two products which must be stored separately but mixed when dispensed, said dispenser comprising an outer container and an inner container within said outer container, said inner container being provided with closure means which opens in response to a difference between the pressure in said outer container and that in said inner container, and means for creating such a pressure difference.

3,635,262

APPARATUS FOR BLEEDING HYDRAULIC LINES

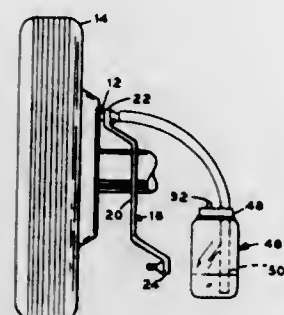
Ray M. Stebbins, 3847 Eggeman Ave., Toledo, Ohio

Filed Dec. 15, 1969, Ser. No. 884,835

Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-98

8 Claims



A wrench for bleeding brake systems has a nipple extending from an end thereof to which a flexible tube and a receptacle are connected. Hydraulic fluid in the brake lines is collected through the nipple and the tube into the receptacle. The nipple can be permanently attached to the wrench and the flexible tube can be connected to the nipple so that the wrench, nipple, tube, and receptacle are used as a system and need not be disconnected in order to manipulate the wrench.

3,635,263

APPARATUS FOR FILLING BOTTLES AND SIMILAR RECEPTACLES WITH LIQUID

Heinz Jordon, Dortmund-Wambel, Germany, assignor to Holstein & Kappert Maschinenfabrik Phoenix GmbH, Dortmund, Germany

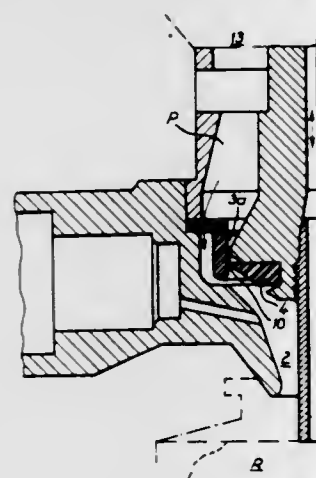
Filed Sept. 25, 1969, Ser. No. 863,413

Claims priority, application Germany, Sept. 26, 1968, P 17 82 642.5

Int. Cl. B67c 3/06

U.S. Cl. 141-286

3 Claims



A bottle-filling apparatus includes a filling head whose outlet is to be placed in communication with the interior of a bottle or similar receptacle. Annular valve seat surrounds the internal liquid-conveying passage of the filling head, and a valve member is movable into and out of engagement with the valve seat between a valve-opening and a valve-closing position. A venting conduit is carried by the valve member coaxially therewith and extending therethrough and has an inlet opening which communicates with the interior of the bottle when the outlet of the filling head similarly communicates with the bottle. The venting conduit serves to vent gas from the interior of the receptacle in response to admis-

sion of liquid into the latter until such time as the level of liquid rises to and closes the inlet opening whereupon a cushion of compressed gas develops above the liquid level and prevents continued flow of liquid into the bottle. Throttling means is provided which defines two narrow annular gaps, spaced axially from one another, in the interior of the liquid passage of the filling head, serving to prevent the compressed gas of the cushion from penetrating and escaping through the liquid contained in the passage.

3,635,264

FUELING MEANS

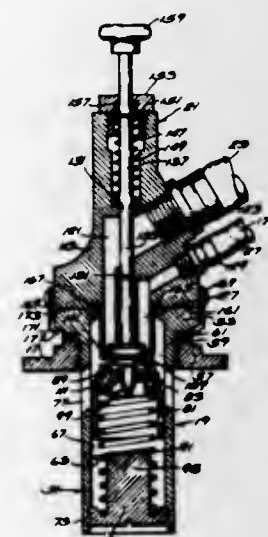
Hudson M. Milburn, Peterborough, Ontario, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Apr. 27, 1970, Ser. No. 32,311

Int. Cl. B67d 5/04

U.S. Cl. 141-291

12 Claims



A fuel supply system including a fuel storage container communicating through an air-vapor conduit and a fuel conduit with a connector including a male member having an end part adapted for insertion into the bore of a valve housing included in a fuel tank. The means for supporting and moving said plunger includes a first passage connected to the fuel conduit and terminating at the end part together with a second passage communicating with the air-vapor conduit and communicating with the end part. The connector further includes a plunger which is supported for engagement, when the end part is inserted into the bore, with a piston which is movable in the valve housing relative to a position preventing flow to or from the interior of the fuel tank. The plunger is further supported for movement between a first position wherein the passages in the connector are sealed against fluid flow and a second position spaced from the end part, whereby the piston is displaced to a position affording communication between the fuel tank interior and the fuel and air-vapor passages and thereby also with the fuel storage container.

3,635,265

COPYING LATHE

Jose L. Cortez, 9050 East Jeff St., Bellflower, Calif.

Continuation-in-part of application Ser. No. 755,302, Aug. 26, 1968, now abandoned. This application Feb. 5, 1970, Ser. No. 8,897

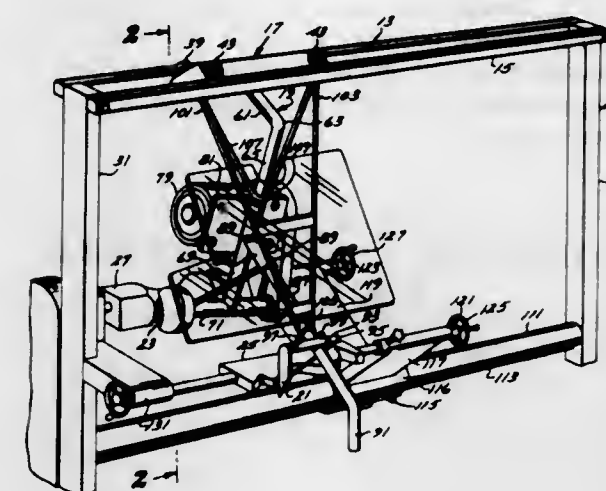
Int. Cl. B23b 3/28

U.S. Cl. 142-38

2 Claims

A copying lathe having a first support for supporting and rotating a workpiece and a second support for supporting a template. A horizontal track is supported centrally above the first and second supports and mounts a freewheeling truck

which has a carriage pivotally suspended therefrom. Mounted on the lower end of the carriage is a cutting blade and a follower for tracing along the profile of the template. A



handle projects from the carriage whereby the lathe operator may pull the carriage longitudinally to trace the follower along the profile of the template to cut the workpiece to the desired shape.

3,635,266

PROCESS AND APPARATUS FOR DEBRANCHING FELLED TREES

Erik Helmer Eriksson, Soderhamn, Sweden, assignor to Mo och Domajo Aktiebolaget, Ornskoldsvik, Sweden

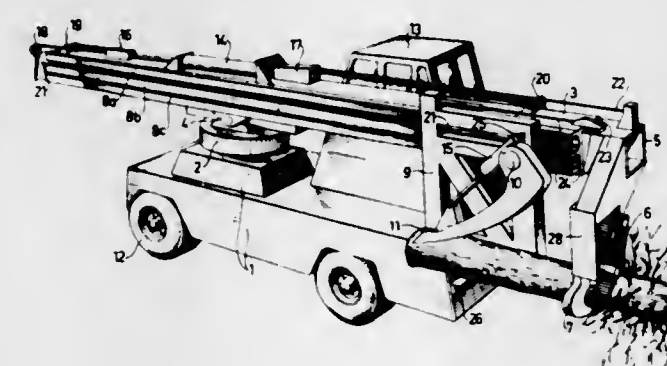
Filed Nov. 20, 1969, Ser. No. 878,469

Claims priority, application Sweden, Nov. 21, 1968, 15826/68

Int. Cl. A01g 23/02

U.S. Cl. 144-2 Z

34 Claims



A method is provided for debranching felled trees at a high rate of speed, which comprises moving the tree in a longitudinal direction towards a debranching device, while simultaneously moving the debranching device in an opposite longitudinal direction, and debranching the tree in the course of such movement.

Apparatus is provided for debranching felled trees, which comprises, in combination, a pair of beam members movable towards and away from each other; means for effecting such relative movement; tree-gripping means and debranching means attached to one beam member, and arranged, respectively, to grasp the tree trunk and to remove branches from the trunk; tree feed means movably attached to the other beam member, and arranged to move along the beam member; tree-gripping means attached to the tree feed means, and arranged to grasp the tree trunk; and means for moving the tree feed means simultaneously with and in a direction opposite to the direction of the debranching means.

3,635,267

CUTTING HEAD FOR PROFILE CHIPPING OF LOGS

Alfred Reuter, Oberkirch, Baden, Germany, assignor to Gebruder Linck, Maschinenfabrik und Eisengiesserei "Gatterlinck", Oberkirch, Baden, Germany

Filed June 20, 1969, Ser. No. 835,105

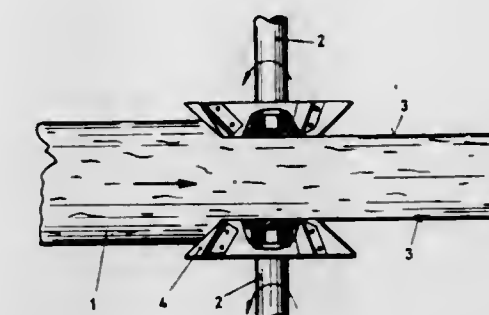
Claims priority, application Germany, Mar. 15, 1969, P 19

13 295.7

Int. Cl. B27c 1/08

U.S. Cl. 144-118

2 Claims



In a rotary cutting head for chipping longitudinally moving logs by engagement on the side of a log with the rotary axis of the cutterhead extending transversely to the logs; a log support member mounted within the cutting head for free rotation relative to the head and for engagement against the surface of the log to reduce the friction between the support member and the log.

3,635,268

MULTIJOB ROUTER GUIDE KIT

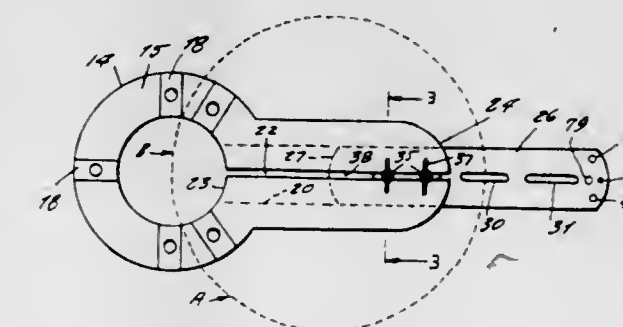
Henry G. Lange, 1620 Bayview Ave., Bronx, N.Y.

Filed Sept. 15, 1969, Ser. No. 858,086

Int. Cl. B27c 5/10

U.S. Cl. 144-134 D

1 Claim



A router subbase attachment to the base of the router, the subbase having an annular attaching portion and a radial arm carrying a main guide track longitudinally adjustable thereon by means of plural bolt and slot connections. The main guide track is provided with pin receiving openings and may have detachably affixed thereto guide track extensions. A trammel pin unit embodying a pin and circular base can be employed wherein the base is adhesively secured to the surface of the workpiece thus precluding the need for driving a pin into the workpiece. Various types of contour guide elements may be attached to the outer end of the main guide track and the coupling connection consisting of interfitting coupling bar and dovetailed recess respectively at the forward end of the guide track extension and at the rear of the main guide track is such that the dovetailed recess may have positioned therein a contour guide element having a coupling head. In addition the base of the router which is annular is provided with a slot so that a trammel pin may be located between the circumferential confines of the base so as to enable to cutting of a small diameter circle.

3,635,269

METHOD AND MEANS FOR CUTTING TREES

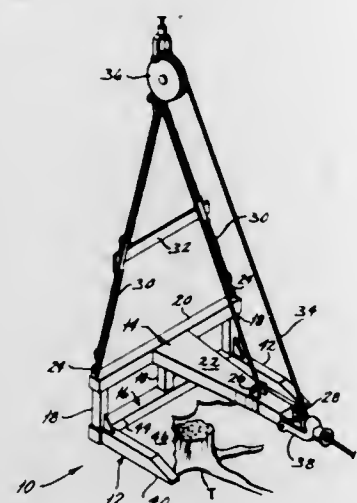
John H. Price, 163 Frey Lane, Belleville, Ill.

Filed Dec. 31, 1969, Ser. No. 889,532

Int. Cl. A01g 23/02

U.S. Cl. 144—309 AC

11 Claims



A tree cutter includes a frame and means on the frame for connecting it to a prime mover for movement in the direction of a tree. A blade is provided on the frame and includes a serrated cutting edge formed by an indentation in one of the blade's margins.

The blade is moved in the direction of a tree so that one end of the serrated cutting edge engages the tree and slices into it. The serrated edge is dragged along the tree until the tree is embraced within the innermost portion of the indentation whereupon the momentum of the blade will cause a shearing force to be applied to the tree.

3,635,270

COMBINATION CAN OPENER AND SLICING SHREDDING APPLIANCE

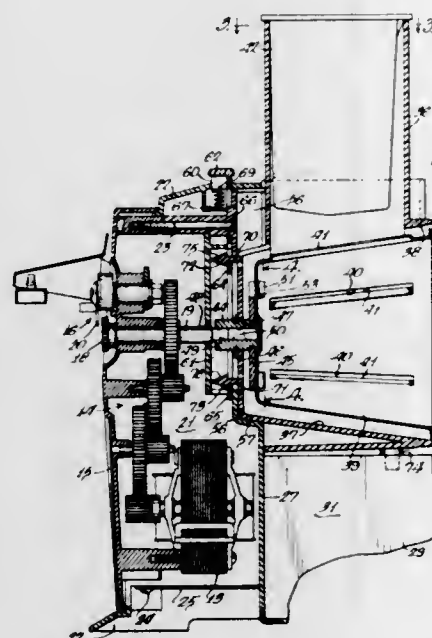
Robert P. Petroske; Robert L. Artin, both of Menomonee Falls, and Donald R. Meyer, Thiensville, all of Wis., assignors to John Oster Manufacturing Co., Milwaukee, Wis.

Filed July 13, 1970, Ser. No. 54,426

Int. Cl. B02c 18/00

U.S. Cl. 146—92

15 Claims



A can opener having combined therewith apparatus for shredding and slicing foods. The slicing and shredding ap-

paratus consists of a detachable attachment which may be mounted in either of two alternative positions on the can opener housing. In one of the alternative positions, the slicing and shredding attachment is drivingly coupled to the can opener mechanism and the chute through which food is supplied is in an exposed position. The attachment is also provided with a storage position in which it is mounted on the can opener housing with the food delivery chute blocked and the slicing/shredding mechanism uncoupled from the can-opening mechanism.

3,635,271

CUTTERHEAD AND SHEAR BAR FOR FORAGE HARVESTERS

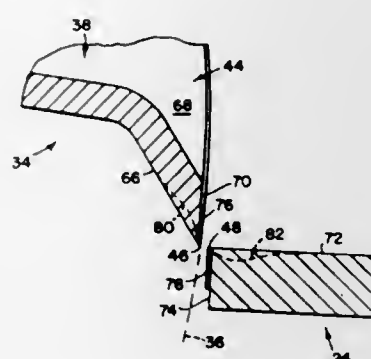
David Rees Markham, Ottumwa, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Aug. 26, 1970, Ser. No. 67,006

Int. Cl. A01d 55/18

U.S. Cl. 146—117

31 Claims



A forage harvester reel-type cutterhead having a plurality of angularly spaced knives with cutting edges on the outer periphery thereof and defining an imaginary cylindrical surface as the cutterhead rotates. The knives coact with a stationary shear bar to reduce crop material fed into the cutterhead housing by conveyor means on the harvester, the shear bar having a cutting edge generally parallel with the axis of the cutterhead and extending in close proximity to the imaginary cylindrical surface defined thereby. Each of the knives and the shear bar have a hardened, wear-resistant portion on their adjacent, substantially parallel end surfaces bordering their respective cutting edges, the hardened portions of the knives lying substantially on the imaginary cylindrical surface. During operation of the cutterhead, the softer face surfaces of the knives and shear bar wear away from the respective cutting edges to thereby maintain the sharpness of the latter. Despite such wear the clearance between the respective cutting edges of the knives and shear bar remains substantially constant during operation due to the particular configuration and relationship of the respective end surfaces of the knives and shear bar.

3,635,272

THREADED FASTENING DEVICE AND METHOD OF MAKING THE SAME

Harry Scheffer, Brackwede, Germany, assignor to Helmut Rieke, Thal u. Bad Pyrmont, Germany

Continuation-in-part of application Ser. No. 764,264, Oct. 1, 1968, now Patent No. 3,520,342. This application Nov. 6, 1969, Ser. No. 874,579

Int. Cl. F16b 39/34

U.S. Cl. 151—7

7 Claims

A cylindrically enlarged end of an otherwise hexagonal steel nut has a shallow cylindrical depression in its radial seating face. Shallower recesses extend radially outward from the depression which partly receives a nylon ring in the relaxed condition of the latter. The portion of the ring which projects from the depression is frustoconical and its volume

3,635,274

VEHICLE RIM AND SIDE RING CONSTRUCTION

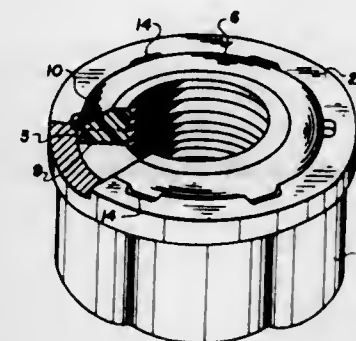
John N. Bradley, Grosse Pointe Woods, and Peter N. Pentescu, Warren, both of Mich., assignors to The Budd Company, Philadelphia, Pa.

Filed Nov. 24, 1969, Ser. No. 879,228

Int. Cl. B60d 25/06

U.S. Cl. 152—410

2 Claims



none is extruded into the narrowing gap between the seating face of the nut and the workpiece. The important conical shape of the ring is maintained during manufacture of the fastener by injection molding the ring, inserting it in the nut and exposing the latter to induction heating whereby only the surface of the ring is fused and bonded to the metal.

A wheel rim and side ring combination to provide a stronger wheel for providing more support for a tire on the rim and reducing stresses in the rim gutter.

3,635,275

TRACTOR TIRE VALVE ASSEMBLY

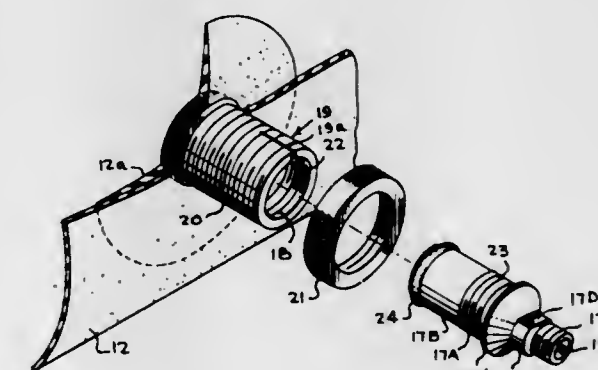
Melvin Lee Davis, Stony Creek, Va., and Ray L. Cutchins, 305 N. Church St., Lake City, S.C.

Filed Dec. 15, 1969, Ser. No. 885,106

Int. Cl. B60c 29/00

U.S. Cl. 152—429

2 Claims



A tractor tire valve assembly to facilitate withdrawal and return of liquid from or to the tire, including a tubular sleeve forming a housing collar, a valve core carrier threaded into the bore of the sleeve, and a valve core unit supported in the carrier. The sleeve has an externally threaded outer end sized to be intercoupled with a standard hose coupling and the diameter of the bore in the sleeve approximates that of a standard hose.

3,635,276

WASTE DISPOSAL SYSTEM

Harry W. Green, and Melvin L. Dietrich, both of North Olmsted, Ohio, assignors to The Standard Products Company, Cleveland, Ohio

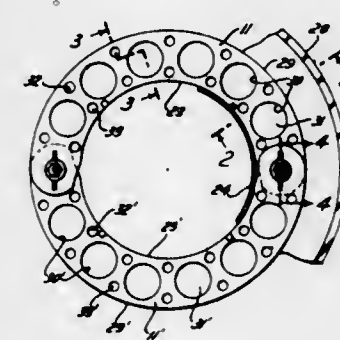
Filed June 23, 1969, Ser. No. 835,615

Int. Cl. B01d 1/00

U.S. Cl. 159—29

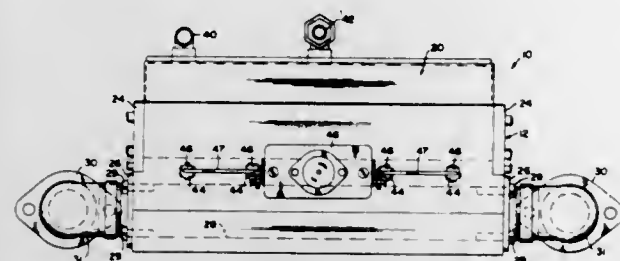
2 Claims

A combined exhaust manifold and boiler unit for employing the hot exhaust gases from an engine to vaporize liquids such as the effluent from a septic tank with secondary heat-



A safety insert or roller for inflatable tires comprising a plurality of arcuate members having detachable and pivotal clamping engagement adapted to form a ring closely engaging the drop center of a tire mounting rim and protruding beyond said rim a substantial distance in the direction of the tread of an inflated tire mounted thereon. At least the inner and outer peripheries of the assembled ring are of rigid plastic material, preferably having lubricant properties, such for example as high-density polyethylene. Connecting structure between said inner and outer peripheries can be of the same material or a different material such as formed metal, and is fashioned to provide a combination of low weight and high tensile and compression strength. Overlapped end portions of the arcuate members when loosely joined together permit relative swinging movement facilitating assembling the device within a tire while half mounted on a rim; and the fastening means for adjacent ends of the arcuate members including bevelled means for providing circumferential clamping of the assembled ring in the tightening thereof.

ing coils available for vaporizing the liquid when the engine is not running. The unit either may be an integral or split hous-



ing of aluminum construction which maximizes heat transfer and minimizes manufacturing costs.

3,635,277

DOOR CONTROL MECHANISM

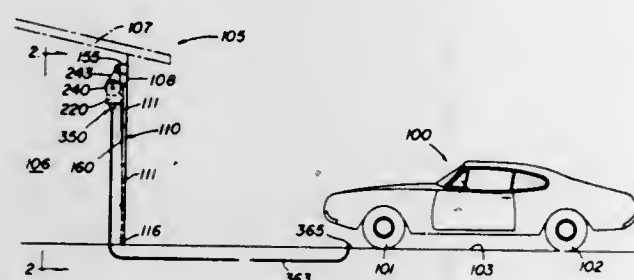
Erwin B. Bahnsen, Hinsdale, Ill., assignor to Steiner American Corporation, Salt Lake City, Utah

Filed Oct. 29, 1969, Ser. No. 872,130

Int. Cl. E05f 11/54, 13/00

U.S. Cl. 160—191

43 Claims



A door control mechanism for controlling the movement of a sectional door between the closed position and the open position thereof wherein the door is biased towards the closed position thereof, the mechanism accommodating manual movement of the door to the open position followed by an automatic movement of the door to the closed position followed by an automatic movement of the door to the open position and then followed by manual movement of the door to the closed position, the mechanism including a first latch having a door-holding condition for holding the door in its open position and having a door-releasing condition for releasing the door and allowing it to move to the closed position thereof, a second latch mechanism having a device-connecting condition for connecting an energy-storing device to the door thereby automatically to move the door to the open position thereof, and having a device-holding condition for maintaining the energy-storing device out of operative connection with the door, a trigger for selectively operating the first and second latch mechanisms, and a selector for selectively rendering the trigger operable to change the condition of only one of the first and second latch mechanisms at one time.

3,635,278

COLLAPSIBLE BARRIER MEMBER

Emil J. Bocade, Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.

Filed June 16, 1969, Ser. No. 833,578

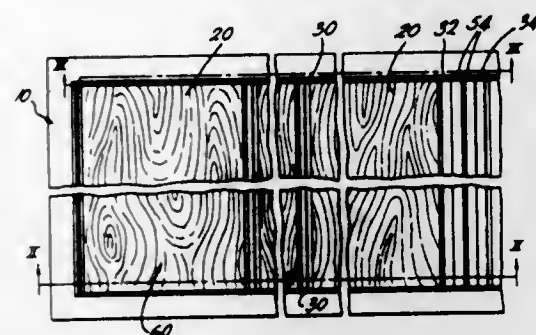
Int. Cl. E05d 1/02

U.S. Cl. 160—206

17 Claims

A collapsible barrier formed of inflexible panels joined to living hinges at each end thereof, each living hinge being separated from the hinge of the adjacent panel by a rib, so that each hinge is bent at the the "open" position not more

than 90° from the "closed" position or vice versa. The hinge is given a memory by extruding it from plastic along with the panels, while in a position in which the panels are angled 45°,



approximately, from their closed position. The panels may be either pivoted about pins located at their midpoints or about pins spacing every other pair of adjacent panels. These pins are constrained to move in a linear track.

3,635,279

METHOD OF CASTING AN INGOT IN A THIN-WALLED DEFORMABLE STEEL MOULD

Yonosuke Matsumaga, No. 8, 1-chome, Nishitobe, Nishi-ku, Yokohama; Eiichi Kato, and Seiji Tobisawa, both of Tokyo, all of Japan, assignors to said Matsumaga, by said Kato and said Tobisawa

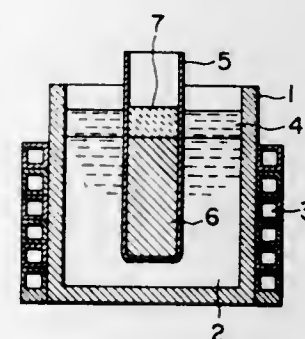
Filed Oct. 28, 1969, Ser. No. 871,908

Claims priority, application Japan, Oct. 28, 1968, 43/78035

Int. Cl. B22d 7/00, 27/02, 27/08

U.S. Cl. 164—49

4 Claims



A method of manufacturing an ingot made of a high-melting point metal such as iron, steel, nickel, cobalt and alloys thereof, in which a thin-walled mould is vertically and movably supported by a molten bath contained in a bath tank and a molten metal is poured into said mould to move it downwards into said molten bath in response to an increase of the amount of the molten metal poured in the mould. The molten metal poured in the mould is cooled and coagulated upwards in succession from the lower end of the mould, thereby forming an ingot in the mould.

3,635,280

SELF-ALIGNED MULTIPART COMBUSTIBLE CASTING PATTERN AND METHOD OF MAKING SAME

John T. Parsons, 205 Wellington, Traverse City, Mich.

Filed Nov. 7, 1969, Ser. No. 874,930

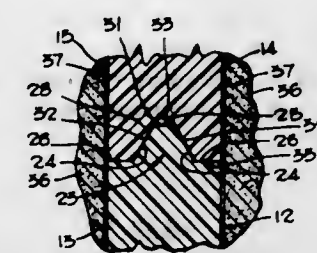
Int. Cl. B22c 7/02

U.S. Cl. 164—246

4 Claims

Combustible patterns of expanded polystyrene, carved to complex forms by the tape-controlled milling of two or more self-aligning parts, resist displacement from each other as sand is packed within and around them. Tongue-and-groove joints, formed on the mating surfaces of the parts, locate and align the parts and prevent their displacement more surely

than adhesives, which tend to cause inclusions and voids in the casting. Adhesive may be coated on the tongue-and-groove parts only, leaving adjacent margins of the mating surfaces free from adhesive; and the exterior surfaces of the



assembled pattern may be coated with a noncombustible ceramic coating. The marginal spacing of the adhesive inward from such coating permits quick dispersion of the adhesive when the molten metal is cast.

3,635,281

EXTRACTOR FOR STRIPPING PIPES AND OTHER HOLLOW PARTS FROM MOULDS AND SIMILAR OPERATIONS

Bernard Michel Comte, Nancy, and Jean-Marie Louis Philippe Gareaux, Pont-a-Mousson, both of France, assignors to Centre de Recherches de Pont-a-Mousson, Pont-a-Mousson, France

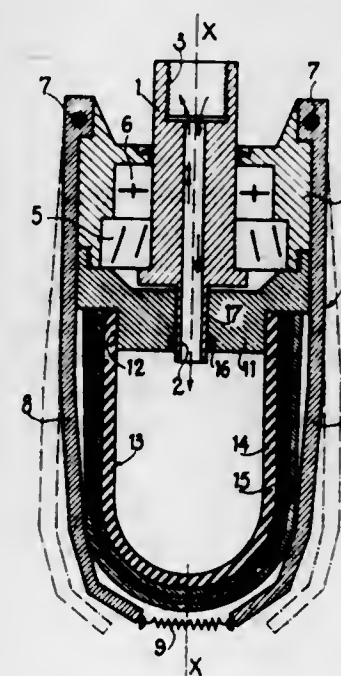
Filed May 14, 1970, Ser. No. 37,086

Claims priority, application France, May 16, 1969, 6915848

Int. Cl. B22d 29/04

U.S. Cl. 164—404

9 Claims



Extractor for extracting pipes from centrifugal casting moulds. The extractor has jaws capable of radially engaging the inner face of the pipe and a fluid-actuated device for urging the jaws into engagement with the pipe in opposition to spring return means. The device is so arranged that each jaw is urged into engagement independently of the other jaws. The device may be a rubber bulb inflated by the fluid or a series of radial piston and cylinder devices communicating with a common supply of fluid under pressure.

3,635,282

AIR-CONDITIONING DEVICE OF AUTOMATIC VENTILATION TYPE

Koichi Watanabe, Akashi, Japan, assignor to New Cosmos Electric Co., Ltd., Osaka, Japan

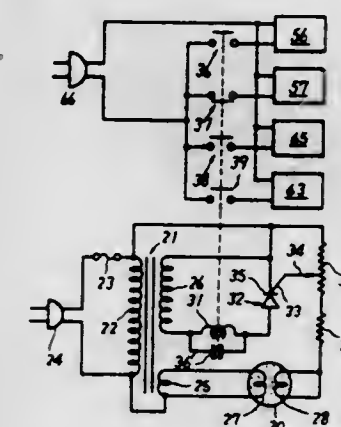
Filed June 1, 1970, Ser. No. 42,342

Claims priority, application Japan, June 5, 1969, 44/44174

Int. Cl. F28f 13/00

U.S. Cl. 165—11

5 Claims



An air-conditioning device embodying means for detecting the level of contamination of air in a room, means for heating and/or cooling, an air intake and exhaust and a control device for automatically operating the air intake and exhaust to provide for either recirculation of air within the room when the contamination level is below a selected value or for exchanging air in the room when the contamination level exceeds a predetermined value.

3,635,283

MODULAR HEAT EXCHANGER

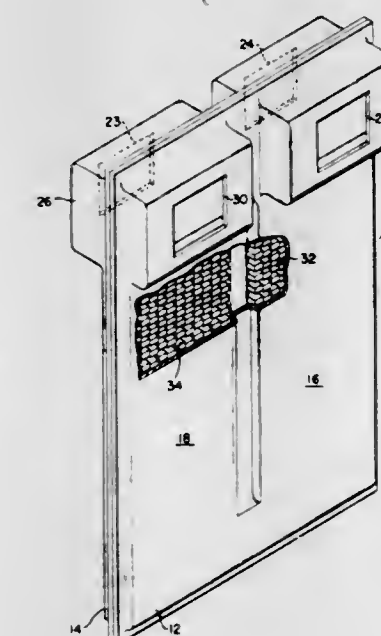
David L. Satchwell, Rolling Hills Estates, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Jan. 17, 1969, Ser. No. 791,938

Int. Cl. G05d 23/00

U.S. Cl. 165—37

12 Claims



A modular heat exchanger having a core of a plurality of individual core elements supported within a separate, removable heat exchanger case.

3,635,284

FLASH BOILER

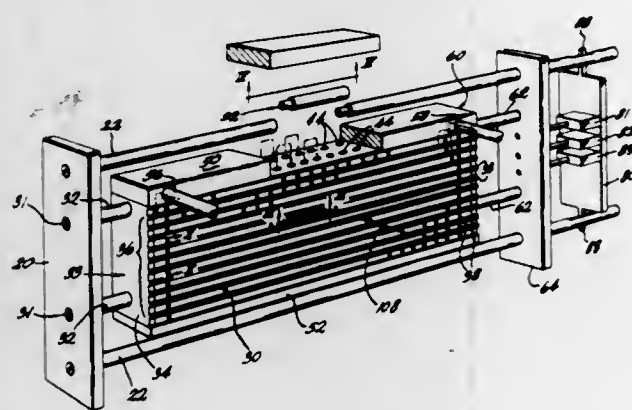
Earl W. Hoch, R.R. #3, Petoskey, Mich.

Filed May 21, 1970, Ser. No. 39,265

Int. Cl. B60h 1/00

U.S. Cl. 165—39

35 Claims



A flash steam boiler utilizing a solid metallic core wherein the heat exchange passageways are drilled, the hot gas openings extending perpendicularly through the core with the water passages winding in a dual serpentine path through the core so as to contact both sides of the metal surfaces surrounding each gas passageway. The cores can be stacked so as to exchange heat between the gas flow and the serpentine path at a plurality of discreet levels. Because the cores are metallic, the ends of at least one core in each boiler is provided with a sensing plate which is caused to move by thermal expansion of the entire core toward a plurality of microswitches controlling the operation of the boiler, each of the microswitches being activated at a different amount of thermal expansion of the core.

3,635,285

COOLING FAN

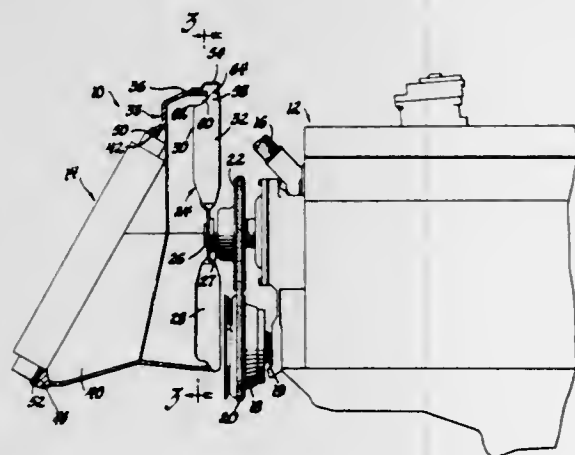
Dennis A. Davis, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 11, 1970, Ser. No. 36,325

Int. Cl. F01b 7/02; 416 228

U.S. Cl. 165—51

2 Claims



A fan-cooling system wherein the fan and shroud arrangement is such that the rearwardly extending cylindrical portion of the shroud encompasses only substantially the forward half of a fan assembly, there being a radially outwardly extending continuation formed adjacent the trailing edge of each of the fan blades and extending radially outwardly of the inner surface of the shroud, thereby effectively enlarging the fan in a given engine compartment. This causes the tip of each blade to include a generally radially outwardly extending contoured central segment intermediate two generally

transversely extending forward and rear segments, both tapering slightly inwardly from their respective points of juncture with the intermediate central segment, resulting in the formation of a generally conically shaped clearance between the rear edge of the shroud and the generally radially extending central segment of the fan blades. Recirculation of air through the clearance is thus diminished, as a result of the edge of the shroud serving to directly block the air from flowing into the vacuum area created between the radiator and the fan, and the now larger diameter fan producing a radially extending circumferential "wall" of air adjacent the shroud edge because of the increased action of centrifugal force.

3,635,286

STORAGE TANK FOR LIQUID METAL

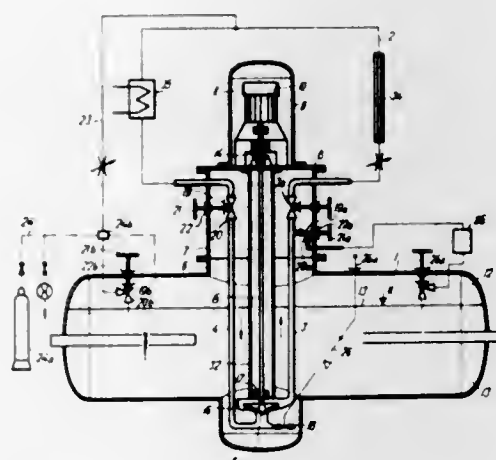
Frantisek Dubcek; Václav Tómes, both of Brno; Mojmir Nigrin, Jaromer, and Jiri Sobotka, Brno, all of Czechoslovakia, assignors to První brněnská strojírna, Závody Klementa Gottwalda národní podnik, Brno, Czechoslovakia

Filed Dec. 29, 1969, Ser. No. 888,369

Int. Cl. F28f 13/06

U.S. Cl. 165—108

12 Claims



A system for circulating heated liquid metal (e.g. metallic sodium) through a conduit arrangement wherein, for example, the liquid metal functions as a heat-exchanging medium and is alternately cooled and heated. The system includes a unitary liquid metal storing and circulating device having a tank for storing the liquid metal and a pump for circulating the liquid. The pump, which is immersed in the liquid in the tank, has a liquid flow-through bearing and means for removing excess liquid metal which flows through the bearing. Valves associated with the system have liquid metal flow-through seals; means is provided for removing liquid metal which has leaked through the valve seals and returning it to the tank by the pump. The pump chamber is substantially isolated from the liquid metal pool or bath in the tank, whereby the absorption of inert gas into the liquid metal bath is minimized.

3,635,287

ONCE-THROUGH VAPOR GENERATOR

Theodore S. Sprague, Hudson, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,483

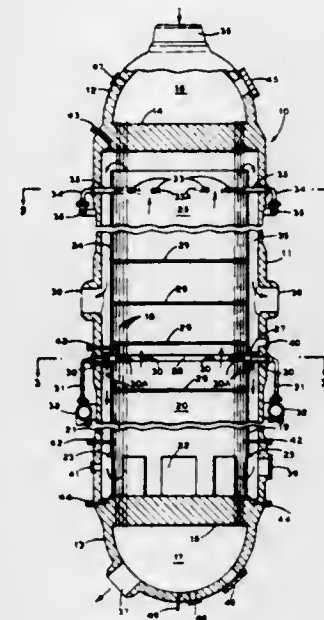
Int. Cl. F28f 19/00

U.S. Cl. 165—134

5 Claims

A method and apparatus for separately introducing an auxiliary feedfluid into a shell-and-tube-type vapor generator when the flow of main feedfluid is discontinued. The auxiliary feedfluid provides the vapor for preheating the entering

main feedfluid when flow of the latter is resumed thereby reducing temperature differentials between the shell and tube



sheet metal and the entering main feedfluid so as to eliminate thermal shock.

3,635,288

LINER-CEMENTING APPARATUS

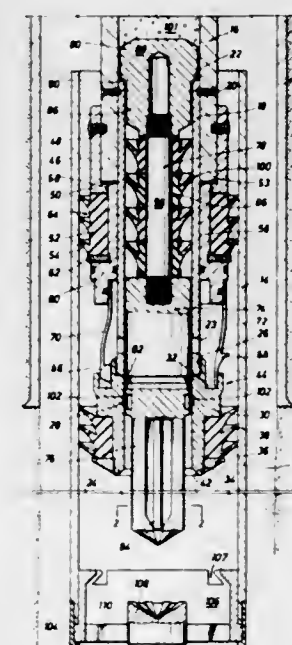
Maurice P. Lebourg, 301 Post Oak Bank Bldg., Houston, Tex.

Filed Dec. 29, 1969, Ser. No. 888,993

Int. Cl. E21b 33/16

U.S. Cl. 166—156

48 Claims



A dual-plug-cementing device has a first plug for traveling down the operating string ahead of the cement which engages a liner wiper at the bottom of the operating string. Both wiper and plug in sealing engagement travel ahead of the cement to the cementing region. An elongated portion of the plug strikes a stop in the cementing region permitting the wiper to continue downward movement relative to the plug and break the seal permitting the cement to flow past the plug.

3,635,289

WELL CEMENTING WITH A SETTABLE WATER-IN-OIL EMULSION

John C. Van Dyk, Oklahoma City, Okla., assignor to Woods Research & Development Corp., Oklahoma City, Okla.

Filed Aug. 15, 1969, Ser. No. 850,629

Int. Cl. E21b 33/138

U.S. Cl. 166—295

12 Claims

Cavities such as cracks and various other voids in subsurface formations are sealed such as for example, to stop lost circulation of drilling fluid in a well bore by a process wherein an emulsion having a continuous phase containing a polymerizable unsaturated polyester component, a discontinuous phase of water, and a catalyst system for the polymerizable component is forced into and allowed to set within the cavity. The catalyst and inhibitor thereof within the catalyst system are selected so that the emulsion begins to gel and set up only after the emulsion reaches the cavity which is to be plugged. The emulsion will set up in the presence of formation fluids and yield a very hard, high-strength cementlike material. The resulting hardened cementlike material contains at least about 60 percent water dispersed therein, and can be penetrated by a drill without cracking or chipping.

3,635,290

APPARATUS FOR FIGHTING FOREST FIRES

James L. Schneider, 223 W. Wilshire Ave., Fullerton, Calif.

Filed Mar. 7, 1969, Ser. No. 805,150

Int. Cl. A62c 3/00

U.S. Cl. 169—1

4 Claims



Apparatus for fighting forest fires in which a plurality of large sails are erected in the path of a forest fire thereby forming a shield which the fire cannot penetrate. The sails are erected using hot air balloons and the individual sails are constructed in such a manner that the heat and wind are trapped thereunder thereby helping keep the sails erect.

3,635,291

FLOATING CARRIER

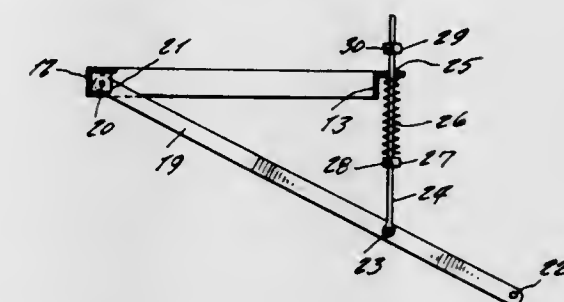
Jerry J. Tomanek, Star Route, Truscott, Tex.

Filed Feb. 13, 1970, Ser. No. 11,186

Int. Cl. A01b 21/08

U.S. Cl. 172—573

1 Claim



A frame designed to be hitched to a tractor, the frame supporting a plurality of pairs of bars connected at their one

ends pivotally free to the frame, the opposite ends of the bars depending diagonally downwardly and being supported springingly to the frame, and the ends of the bars being adaptable to support a large rotary hoe.

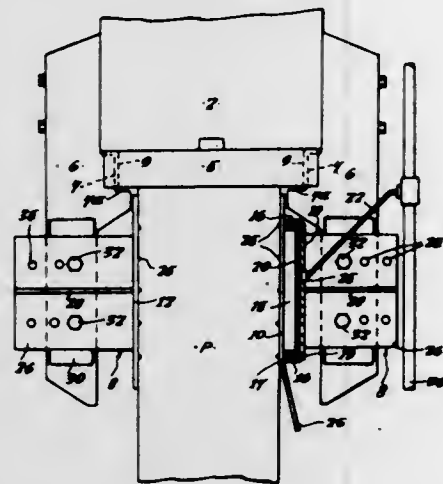
3,635,292 PILE GRIPS

Anthony Edward Walter Last, Stowmarket, England, assignor to The British Steel Piling Co., Limited, Clayton Ipswich, Suffolk, England

Filed July 17, 1970, Ser. No. 55,700
Int. Cl. E02d 7/00

U.S. Cl. 173-132

9 Claims



A fluid-operated pile driver incorporating a pair of jaw members to grip the pile to prevent the upward reaction force from lifting the housing of the driver during the downstroke of the ram, gripping of the pile being achieved through a piston attached to one of the jaw members, the piston and associated member being movable towards and away from the other jaw member by means of a diaphragm, subjected to the pressure of a fluid supply, cooperating with the piston.

3,635,293 DRILLING SHORT BOREHOLES

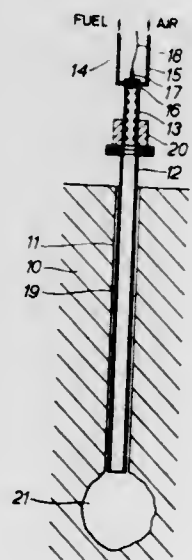
Denis Henry Desty, Weybridge; Barry Herbert Francis Whyman, Teddington, and John Lionel Thomas, Ottershaw, all of England, assignors to The British Petroleum Company Limited, London, England

Filed Aug. 26, 1969, Ser. No. 853,044
Claims priority, application Great Britain, Sept. 16, 1968, 43,937/68

Int. Cl. E21b 7/00

U.S. Cl. 175-4.5

3 Claims



Short boreholes, e.g., shallow wells for piles and horizontal holes for pipelines, are drilled by directing a series of explo-

sion waves at the closed end of the borehole. This compacts material at the walls thereby extending the hole.

3,635,294 DRILL PIPE VIBRATION CONTROL IN ROTARY DRILLING

Joseph H. Faulk; Jurgen J. Hanke, both of Dallas, and John H. Striegler, Richardson, all of Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Apr. 29, 1970, Ser. No. 33,084
Int. Cl. E21b 21/04

U.S. Cl. 175-65

7 Claims

A method for drilling a well using high-speed rotation of the drill bit and drill pipe wherein catastrophic vibration of the drill pipe during high speed rotation is at least in part prevented by the use of a drilling fluid whose ratio scar width/(plastic viscosity)^{1/2} is no greater than about 4.

3,635,295 APPARATUS FOR DRILLING A SMALL BOREHOLE DOWNWARDLY FROM THE BOTTOM OF A LARGE BOREHOLE

James H. Cobbs, Tulsa, Okla., assignor to Fenix & Scisson, Inc., Tulsa, Okla.

Filed Dec. 2, 1969, Ser. No. 881,394
Int. Cl. E21b 11/00

U.S. Cl. 175-257

7 Claims



A small borehole drilling tool, lowered into a large borehole tubular drilling bit, includes a drill shaft interconnected to the large borehole drilling bit through driving drums for common rotation therewith. The small borehole drilling tool further includes upwardly of the drill shaft a coaxial neck, and an annular seal interposed between the neck and the inner wall of the large borehole drilling bit to form a drilling fluid chamber which receives and retains drilling fluid which in turn produces a downward thrust force on the upper surface of the annular seal to force the small borehole drill shaft downwardly into the earth during rotation thereof.

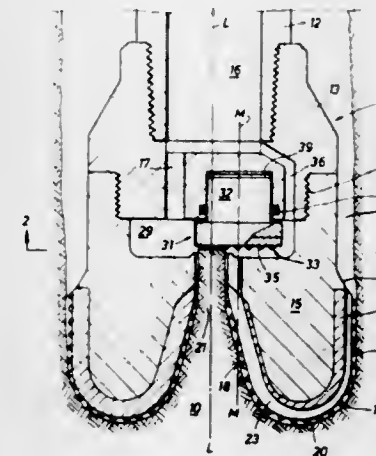
3,635,296 DRILL BIT CONSTRUCTION

Maurice P. Lebourg, 3700 Greenway Plaza, Suite 428, Houston, Tex.

Filed June 4, 1970, Ser. No. 43,508
Int. Cl. E21b 9/16; E21c 13/02

U.S. Cl. 175-404

16 Claims U.S. Cl. 177-210



A drill bit construction, particularly adapted to rotary drill bits employing diamonds or like cutting elements includes a secondary cutting means disposed within the bit body and independently rotatable with respect to the bit body. The cutting face of the secondary cutting means is exposed to and overlies that portion of the borehole below the axis of rotation of the bit, and will efficiently drill that portion of the formation beneath the axis of rotation of the bit, which in conventional bit construction would be exposed to cutting elements having a velocity approaching zero.

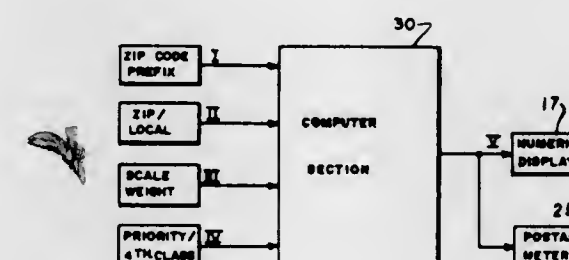
3,635,297 POSTAGE CALCULATOR

Roger F. Salava, 1214 West Haven Drive, Arlington Heights, Ill.

Filed Aug. 6, 1970, Ser. No. 61,760
Int. Cl. G01g 23/42; G06f 15/20

U.S. Cl. 177-5

11 Claims



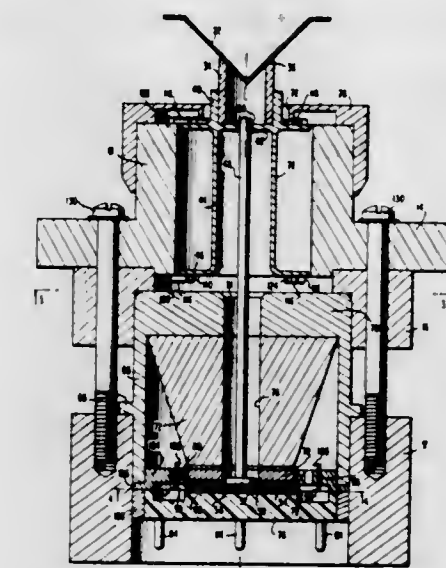
A postal scale and computer for calculating the exact postage for a parcel to be mailed according to its weight, destination zip code, and class of handling. The computer includes a read only memory which stores the postal zone information according to the first three digits of the destination zip code, and the postage rate information according to the combined parcel weight, zone and class of handling. The computer also includes a control logic which searches the memory, first for the proper zone as established by an upper limit prefix for a series of zip code numbers falling within the same zone, and secondly for the proper rate for the weight of the parcel being mailed to the zone determined. The memory is broken down into separate sectors, each mounted on an easily replaceable circuit board to accommodate for changes in postal rates and for different points of mailing origin.

3,635,298 FORCE FEEDBACK MASS BALANCE

Walter P. Kistler, Clarence, N.Y., assignor to Kistler Instrument Corporation, Clarence, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,667
Int. Cl. G01g 3/14

11 Claims



Disclosed is a force feedback mass balance particularly constructed for the rapid measurement of the weight of small objects. It comprises a weighing pan mounted at the upper end of a vertical rod. The rod is supported by tangential wires for movement along and about its longitudinal axis and carries a forcer coil at its other end. Movement of the rod is sensed by a capacitive pickoff which varies the current through the coil in such a direction as to oppose the movement. The magnitude of the current flow through the coil is displayed by a meter to give an indication of the weight of an object in the pan.

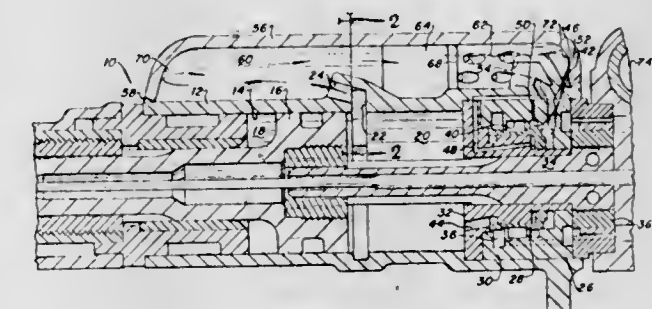
3,635,299 MUFFLER FOR PNEUMATIC TOOL

Roy J. Hayes, Denver, Colo. assignor to Gardner-Denver Company, Quincy, Ill.

Filed Apr. 20, 1970, Ser. No. 29,982
Int. Cl. F01n 1/08

U.S. Cl. 181-36 A

5 Claims



A muffler for a pneumatic tool of the expansible chamber percussion motor type. The muffler comprises a substantially integral shroud covering a portion of the tool casing and forming a double expansion chamber for the motive air exhausting from the percussion motor. The muffler shroud includes a plurality of openings for discharging exhaust air from the expansion chamber. Exhaust ports opening from the percussion motor into the double expansion chamber are ar-

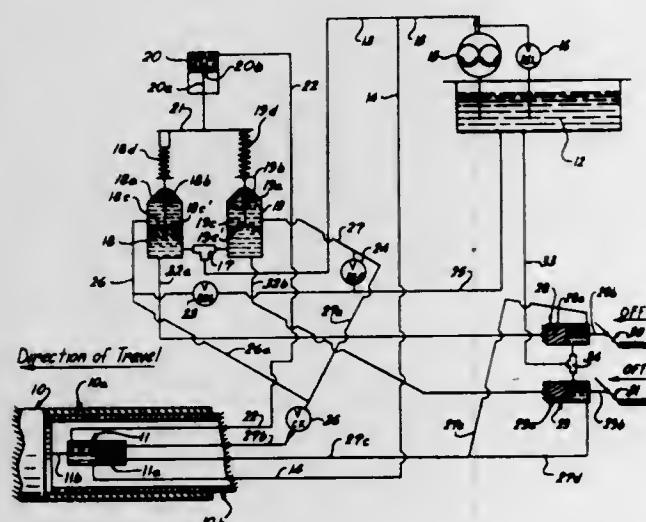
ranged with respect to the exhaust openings in the shroud to provide substantial retroverted flow of the exhaust air upon entering and leaving the muffler. An exhaust flow stream from the percussion motor distributing valve is also introduced into one of the muffler expansion chambers and interacts with the percussion motor exhaust air to produce a synergistic noise reduction effect.

3,635,300 CONTROL DEVICE FOR SELF-PROPELLED TOWED VEHICLE

Joseph B. Gibbs, Route 1, Rochepot, Mo.
Filed Jan. 5, 1970, Ser. No. 622
Int. Cl. B60d 7/00

U.S. Cl. 180—14 A

5 Claims



A device for controlling the operation of a self-propelled towed vehicle has an extensible drawbar with two telescoping parts capable of relative movement therebetween. A piston of a master hydraulic cylinder is fixedly attached to one of the drawbar parts and is positionable in accordance with the relative movement thereof. Each towed vehicle has an associated master cylinder which effects the control of the movement of one or more pistons of slave hydraulic cylinders, which in turn control the hydrostatic transmission and source of motive power with its respective towed vehicle. Hydraulic linkages are provided with respect to each drawbar master cylinder and the slave cylinders to insure increased motive power as the load in towed vehicle increases. In this regard, the hydrostatic transmission is controlled and the source of motive power regulated for the towed vehicle when the towed vehicle overtakes the towing device due to broken control springs, quick stops, accidental uncouplings, or the like. The hydraulic system controlling the above functions further includes means to compensate for fluid expansion and contraction from temperature variations or system leaks.

**3,635,301
ELECTRICALLY POWERED VEHICLES**
Ian V. Tuson, Bognor Regis, England, assignor to Harlequin Manufacturing Limited, Christchurch, Hampshire, England
Filed Oct. 20, 1969, Ser. No. 867,644
Claims priority, application Great Britain, Feb. 19, 1969, 9022/69

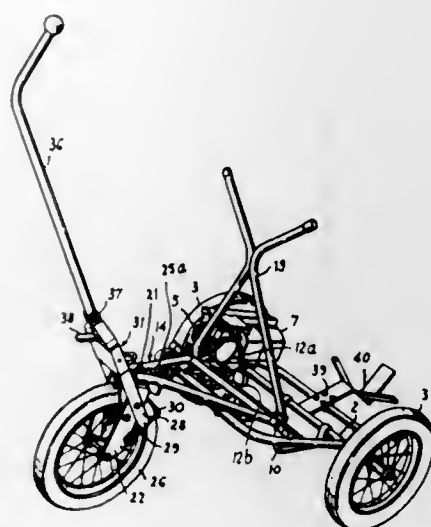
Int. Cl. B62d 61/00, 1/00, 51/00

U.S. Cl. 180—19 H

4 Claims

The invention relates to a three-wheeled electric golf trolley, two rear wheels of which are driven via separate free wheel mechanisms by a battery-powered electric motor. The

single front wheel is steerable by a handle intended to be grasped by a pedestrian, the inclination of the handle being



adjustable, and being employed to control the operation of the motor.

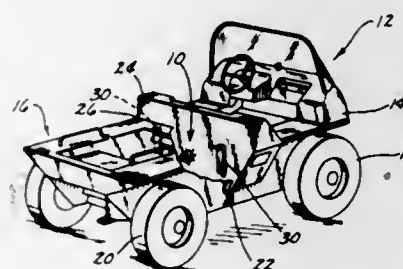
**3,635,302
VEHICLE BODY COUPLING**
John A. Rogers, and Fredrick R. Bossard, both of Fort Dodge, Iowa, assignors to Standard Engineering Co., Inc., Fort Dodge, Iowa

Filed Dec. 19, 1969, Ser. No. 886,473

Int. Cl. B60d 1/00

U.S. Cl. 180—44 R

10 Claims



A vehicle having front and rear body units rotatably connected by a body coupling for rotational movement about an axis parallel to the longitudinal axis of the vehicle. The coupling includes a hollow male member carried on the rear wall of the front body unit and extends through a sleeve carried on the front wall of the rear body with each being rigidly connected to their respective body walls by mounting plates. A plurality of bolt members extend outwardly from the inner peripheral surface of the hollow male member and extend through an end plate adapted to limit longitudinal movement of the sleeve on the male member. Wear plates are provided between the adjacent front and rear body walls and the end plate may be tightened against the sleeve as it is appropriate to compensate for wear on the wear plates.

**3,635,303
BEARING FOR WHEELS, PARTICULARLY
AUTOMOTIVE VEHICLE WHEELS**
Richard Hetmann, Tamm; Erich Stotz, Rommelshausen; Ludwig Asel, Korntal, and Karl Arnold, Korb, all of Germany, assignors to Dr. Ing. h.c.F. Porsche K.G., Stuttgart-Zuffenhausen, Germany

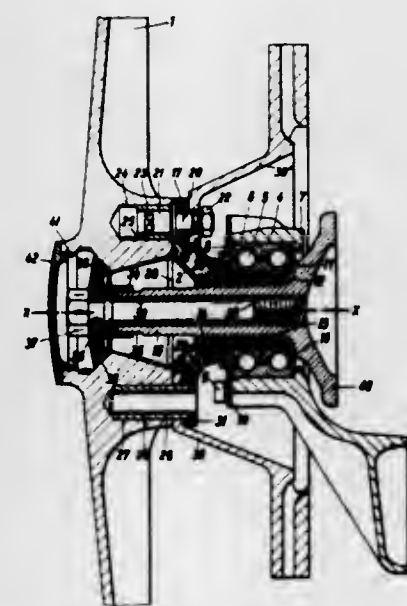
Filed Oct. 21, 1969, Ser. No. 868,148

Claims priority, application Germany, Nov. 2, 1968, P 18 06 566.2

Int. Cl. B60k 17/00

U.S. Cl. 180—75

29 Claims



A bearing for wheels, particularly for automotive vehicle wheels, wherein the wheel bearing inserted in a wheel carrier is held between a wheel spindle associated with a clamping disk and a hub, which has screwless catches disposed radially with respect to the wheel axis, for the rim. The bearing is a multiple-row antifriction roller bearing, the outer ring of which is inserted in a recess of the wheel carrier and the inner ring being clamped between the wheel spindle and the hub. The wheel spindle is tensioned with respect to the inner ring of the bearing by means of an expanding bolt extending in the direction of the wheel axle and the abutment for the expanding bolt is the clamping disk resting in the rim.

**3,635,304
RESETTABLE LOAD LIMITING SAFETY DECOUPLERS
FOR A REMOTELY CONTROLLED TOY AUTOMOTIVE
VEHICLE STEERING MECHANISM**

Isaac Hills, c/o My-Toy Company Inc., 944 Third Ave., Brooklyn, N.Y.

Filed Nov. 23, 1970, Ser. No. 91,678

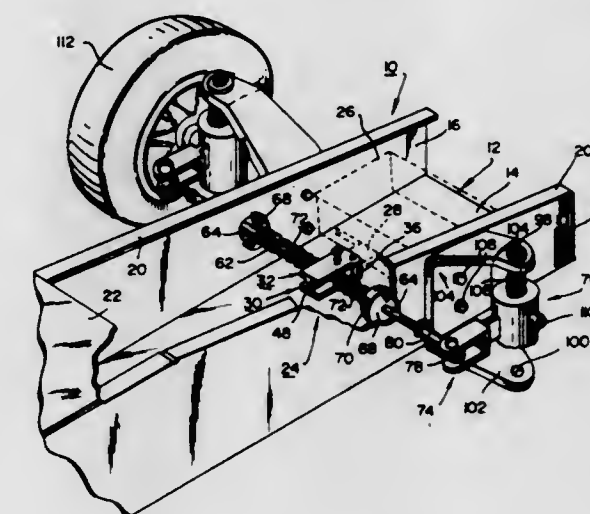
Int. Cl. B62d 7/00

U.S. Cl. 180—79

24 Claims

A remotely controlled locally powered steering mechanism for a toy automotive vehicle utilizing a servomotor for actuating the steering train, wherein there is interposed in the train between the servomotor and the steerable wheels a resettable decouplable device for limiting the force transmitted from the servomotor, said mechanism comprising the resilient arms of a yoke having facing ribs on the interior of the yoke arms extending along the length of the vehicle and jointly engaging opposed portions of a neck in a transversely disposed tie rod, the ends of which are connected to steering knuckles that oscillate steering arms. The yoke arms are adjustably spring biased toward one another to enable the connection between the yoke and tie rod to be selectively adjusted in a fashion such that when the axial impact exerted on the tie rod due to a steerable wheel striking a heavy or stationary object exceeds the maximum force exertable by

the servomotor, the arms of the yoke spread and ride off the neck and onto the tie rod whereby the servomotor is not damaged. A restoring spring automatically returns the ribs to their neck-engaging position when the impact force on the tie rod is diminished to less than the maximum force exertable by the servomotor to thereby reestablish a preset coordination between the servomotor and the steerable wheels. Because the yoke arms and ribs run longitudinally of the vehicle chassis, the ribs accommodate movement of the tie rod in a front-to-back direction as the servomotor is actuated



without affecting the coordinated control of the steerable wheels. Each steering knuckle includes a ball engaged by an oppositely disposed pair of seats that are biased toward one another with a force greater than the maximum force exerted by the servomotor; moreover axial movement of the tie rod is limited so that in the case of a severe wheel turning shock a ball steering knuckle will decouple after the tie rod has reached the extreme of its travel and thus prevent damage to the kinematic steering train, or to a kingpin, kingpin bracket, steering arm or steering wheel.

**3,635,305
HOUSING FOR ENCLOSING INSTRUMENTS AND THE
LIKE TO BE MOUNTED ON FRONT INSTRUMENT
PANEL OF COMPARTMENT OF AUTOMOBILE**
Takeshi Kunishi; Yoshihiro Kawade, both of Kariya-shi; Koiti Yamakita; Ryozo Takaki, both of Aichi-ken, and Katsuhito Yamanaka, Hekinan-shi, all of Japan, assignors to Nippon-denso Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

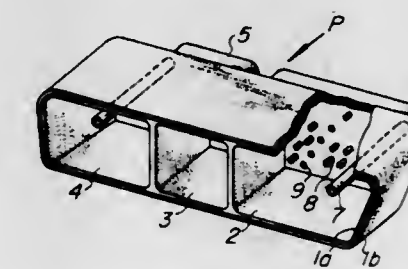
Filed Dec. 11, 1969, Ser. No. 884,271

Claims priority, application Japan, Dec. 17, 1968, 43/92905

Int. Cl. B60k 37/00

U.S. Cl. 180—90

2 Claims



A housing for enclosing instruments, such as meters, gages, a radio, control units for an air-conditioning system, etc. and the like in the partitioned chambers integrally formed with the main body of the housing made of a synthetic resin. The housing further includes an air duct integrally formed therewith and made of a foamed synthetic resin so as to have

a spongelike structure, and a plurality of electric conductors embedded in the walls of the main body for electrically connecting said instruments and the like with the exterior and with each other.

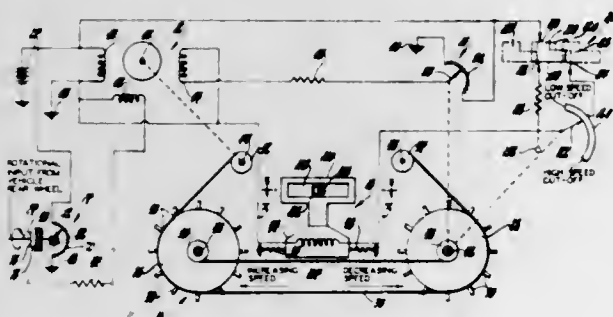
3,635,306

VEHICLE SPEED INDICATOR AND CONTROLLER
Judson S. Davis, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 8, 1970, Ser. No. 1,422
Int. Cl. B60k 31/00

U.S. Cl. 180-110

7 Claims



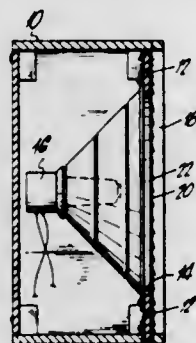
A vehicle speed indicator and controller having a drive motor with differential field windings to position a constant force extension spring between two pulleys to indicate the vehicle speed. A potentiometer supplies a signal corresponding to vehicle speed to one of the differential field windings to cause rotation of the drive motor output shaft. Another potentiometer supplies a signal corresponding to the position of the constant force extension spring to the remaining differential field winding to stop rotation of the drive motor output shaft. The speed controller has a tape having magnetic properties positioned by the speed indicator. At the control speed, an electromagnet is energized to attach to the tape which in turn transfers movement of the speed indicator to a power unit to control a vehicle throttle.

3,635,307

GRILL CLOTH FOR LOUDSPEAKER
Frank L. Lewis, 2122 N. 26th St., Tacoma, Wash.
Filed Jan. 6, 1970, Ser. No. 986
Int. Cl. G10k 13/00; H04r 1/28

U.S. Cl. 181-31 B

5 Claims



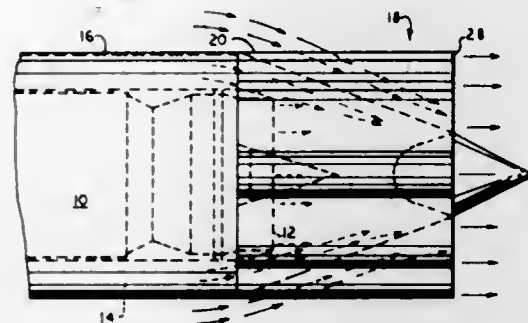
An enclosure for a loudspeaker provided with a frame spaced therefrom and supporting a cloth which is porous and is provided with a plurality of closely spaced elongated strips of metallic foil secured to the cloth at one end. When sound is emitted from the enclosure, the cloth moves and the strips flutter and glitter.

3,635,308
SOUND SUPPRESSION SYSTEM
Victor Millman, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed July 3, 1969, Ser. No. 838,947
Int. Cl. B64d 33/06; F01n 1/14

U.S. Cl. 181-33 HC

7 Claims



System includes a shroud immediately downstream of turbine exhaust nozzle to form confined zone to receive turbine discharge. Conduit, which preferably surrounds nozzle, supplies fan air to mix with exhaust gas in zone, cool it, and increase mass flow. Shroud is corrugated to form peripherally spaced, radially extending lobes to discharge gaseous mixture. Spaces between lobes define flow paths for ambient air to flow between lobes and mix with gaseous mixture at fluted exit margin to further attenuate noise.

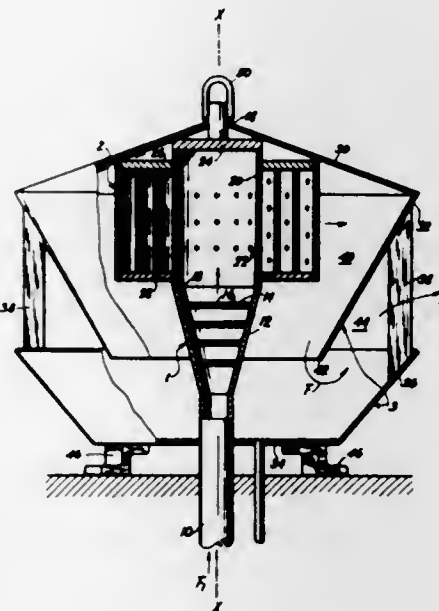
3,635,309

STEAM OR GAS DAMPER WITH AXIAL AND RADIAL Baffle PLATES

Jan Nemcansky, and Stanislav Merta, both of Brno, Czechoslovakia, assignors to Průmysl brněnská strojírna, oborový podnik, Brno, Czechoslovakia
Filed Sept. 30, 1970, Ser. No. 76,805
Int. Cl. F01n 1/08

U.S. Cl. 181-55

6 Claims



A damper for steam or gas comprising an inlet, a first axial flow section, a second radial flow section and an outlet flow section. The axial flow section is formed of a conduit having a plurality of successively larger diameter perforated plates. The radial section is formed of a plurality of perforated coaxial cylinders. The housing surrounds the first and second sections and provides an annular tortuous passage to atmosphere.

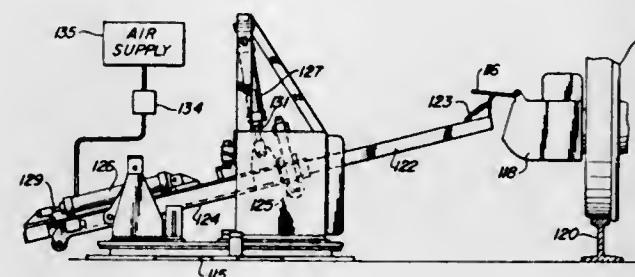
3,635,310

APPARATUS AND METHOD FOR AUTOMATICALLY SERVICING JOURNAL BOXES OF RAILROAD CARS
Kenneth A. Roll, Oberlin, Ohio, assignor to Cleveland Technical Center, Inc., Cleveland, Ohio

Filed Jan. 9, 1970, Ser. No. 1,718
Int. Cl. B61k 3/02; F16n 1/00

U.S. Cl. 184-3 R

18 Claims



Apparatus and method for automatically servicing the journal boxes of railroad cars moving along a track at unknown speeds. A journal box servicing device, for example, a journal box lid lifter or a journal box oiler is positioned alongside the track. Sensors detect the presence of each journal box at a first point and at a second point on the track as the car travels toward the device. The sensors are used to provide information functional of the speed of the car. This information is utilized with a reference signal which represents the response time of the journal box servicing device to transmit an actuating signal to the servicing device at the proper time in advance of the arrival of the journal box at the servicing device so that the operation of the device is substantially synchronized with the arrival of the journal box at the device. Another reference signal is also supplied to the system that prevents giving of the actuating signal to the servicing device in the event that the travel time of the car and the journal box between the first point and the second point exceeds a predetermined maximum.

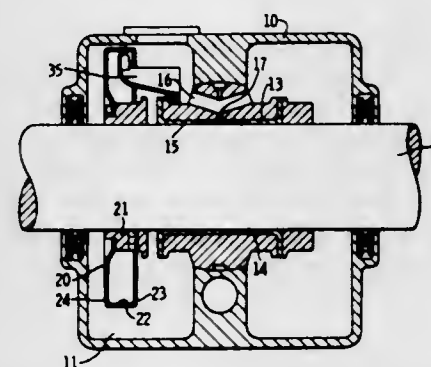
3,635,311

OIL SCOOP DUCT FOR ROTATABLE TROUGHED OIL PUMPING DRUM

Howard N. Kaufman, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 25, 1970, Ser. No. 22,565
Int. Cl. F16n 7/16

U.S. Cl. 184-11 A

7 Claims



A scoop duct for a rotatable troughed oil pumping drum is comprised of a first curved scoop member extending at one end towards the top of the drum in close proximity and substantially tangent to the upper position of the internal floor surface of the trough of the drum in a direction against the direction of rotation of the drum and curved downwards to extend at its other end towards the axis of the drum. The duct further includes an oil distribution member having a sur-

face curving from the other end of the scoop member to incline in the direction of the rotatable axis of the drum towards a bearing lubrication oil port. The mating surfaces at each end of the scoop duct are substantially tangent to the adjacent curved surfaces so that substantially continuous curved surfaces lead to and from the scoop and the oil is scooped and distributed from the drum with a minimum of agitation and aeration.

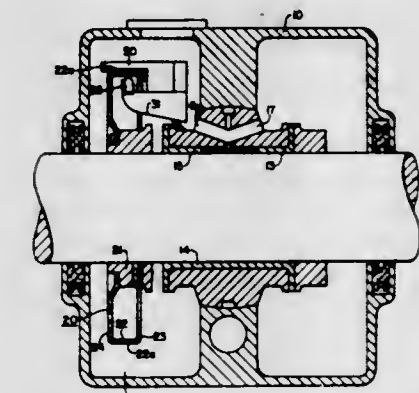
3,635,312

OIL SCOOP DUCT FOR ROTATABLE TROUGHED OIL PUMPING DRUM

Howard N. Kaufman, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed July 16, 1970, Ser. No. 55,318
Int. Cl. F16n 7/20

U.S. Cl. 184-11 R

3 Claims



A scoop duct arrangement for a rotatable troughed oil pumping drum is comprised of a first curved scoop member extending at one end towards the top of the drum in close proximity and substantially tangent to the upper position of the internal floor surface of the trough of the drum in a direction against the direction of rotation of the drum and curved downwards to extend at its other end towards the axis of the drum. The duct further includes an oil distribution member having a surface curving from the other end of the scoop member to incline in the direction of the rotatable axis of the drum towards a bearing lubrication oil port. The mating surfaces at each end of the scoop duct are substantially tangent to the adjacent curved surfaces so that substantially continuous curved surfaces lead to and from the scoop and the oil is scooped and distributed from the drum with a minimum of agitation and aeration. For oil pumping at extremely low speeds, an outer scraper blade is positioned adjacent the upper position of the outer drum floor surface and is angled in the direction of drum rotation towards the distribution member.

3,635,313

TORSIONAL OSCILLATING DEVICES

Hugo Hettich, Postfach 46, Ludwigshafen/Baden, Germany
Filed Mar. 9, 1970, Ser. No. 17,382

Claims priority, application Germany, Mar. 18, 1969, P 19 13 745.2

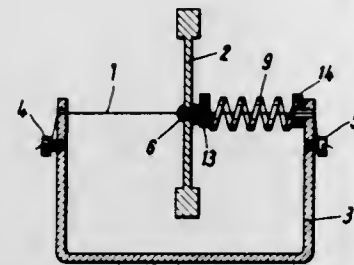
Int. Cl. F03g 3/00

U.S. Cl. 185-29

5 Claims

The specification describes torsional oscillating devices,

for instance for use in clock escapements, in which an oscillating mass which is mounted on a torsional element is provided with a spring providing an additional restoring force.



3,635,314

LINEAR-TYPE ENERGY ABSORBER HAVING CIRCULAR ELEMENTS BETWEEN CYLINDERS

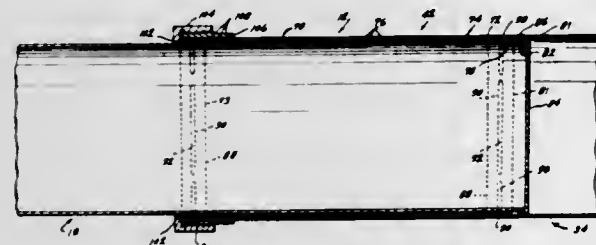
Bernard Mazelsky, West Covina, Calif., assignor to Ara, Inc., West Covina, Calif.

Original application Jan. 22, 1968, Ser. No. 699,532, Pat. No. 3,528,529, which is a continuation-in-part of application Ser. No. 558,317, June 17, 1966 Pat. No. 3,369,634. Divided and this application Sept. 9, 1970, Ser. No. 70,687

Int. Cl. F16f 7/12

U.S. Cl. 188—1 C

12 Claims



An inner member is telescopically engaged in an outer member having cycling and energy absorbing means operatively associated therewith for absorbing energy by deformation and reverse deformation in response to mechanical energy transmitted thereto by at least one of the members. The energy absorbing means are in the form of circular elements having a circular cross section for rolling action between the telescoping members. In one form, the circular elements are turns of a helically wound wire.

3,635,315

SPRING APPLIED EMERGENCY BRAKE

Alan John Shalders, Tolworth, England, assignor to A.C.E. Machinery Limited

Filed Nov. 26, 1969, Ser. No. 880,125

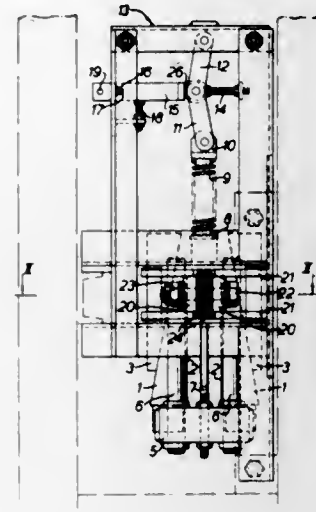
Claims priority, application Great Britain, Dec. 9, 1968, 58,407/68

Int. Cl. F16d 59/00; B61h 11/02

U.S. Cl. 188—189

5 Claims

An emergency brake mechanism for use in the cage of a hoist comprising a pair of brake members spring-biased



3,635,316

COMBINED FOOT OPERATED THROTTLE AND BRAKE

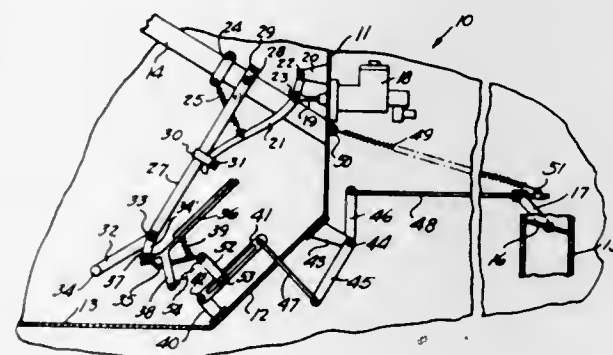
Henry C. Rogers, and Fanny L. Rogers, both of P.O. Box 98, Rufus, Oreg.

Filed Dec. 19, 1969, Ser. No. 886,671

Int. Cl. F16d 67/00

U.S. Cl. 192—3

4 Claims



A combined foot operated throttle and brake for motor vehicles in which the linkage is such that the normal braking action of straightening the knee is used for applying the brake while the normal throttling operation of pivoting the foot at the ankle is used for operating the throttle. The linkage is adjustable to fit the specific requirements of an individual driver and incorporates a safety feature in that the throttle is closed when the brakes are applied.

3,635,317

BRAKE CONTROL SYSTEM WITH TRANSMISSION INTERLOCK

Elmer R. Crabb, Morton, and Larry G. Warren, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 17, 1969, Ser. No. 885,700

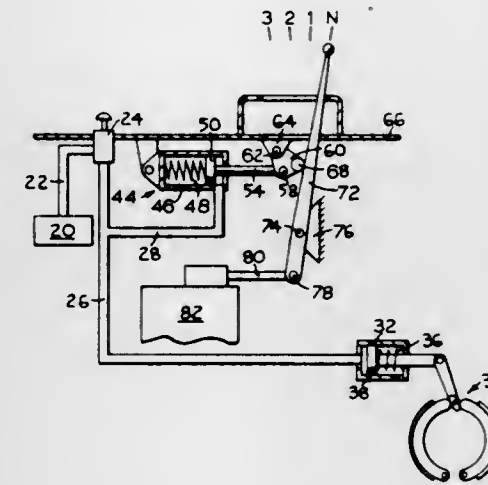
Int. Cl. F16h 57/10

U.S. Cl. 192—4 A

4 Claims

A control system for a vehicle having a parking brake and a transmission is provided with two simple spring actuated devices which function to automatically place the transmission in a neutral position and engage the parking brake when

certain predetermined conditions occur in the system. The system is further constructed so that the parking brake acts as an emergency braking means when fluid pressure in the system drops below a predetermined level.



3,635,318

CONTROL DEVICE FOR ROTATING APPARATUS

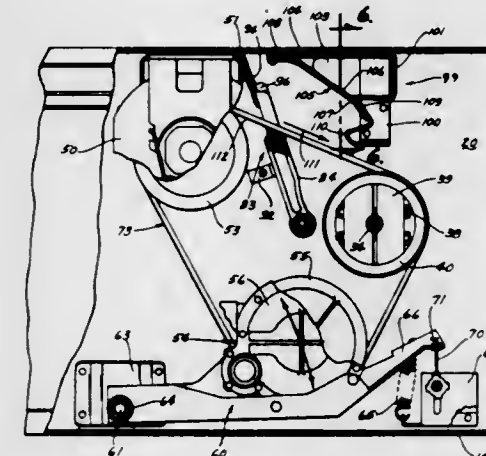
Tad B. Anthony, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Dec. 18, 1969, Ser. No. 886,155

Int. Cl. F16d 67/00

U.S. Cl. 192—8 R

21 Claims



A brake device includes a pivotally mounted arm engageable with a drive belt. The pivotally mounted arm is self actuating for applying a braking drag to the belt responsive to the change in the belt from a loose side condition to a tight side condition.

3,635,319

DRIVE RELEASE AND POSITIVE STOP DEVICE

Alexander Bleibtreu, 84 Regensburg, Roter Brachweg 65, and Josef Neumayer, 8401 Kofering, Buchhauser Siedling 156, near Regensburg, both of Germany

Filed Aug. 18, 1970, Ser. No. 64,756

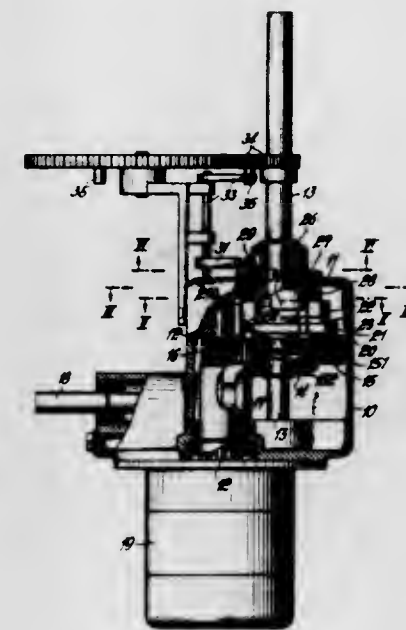
Claims priority, application Germany, Oct. 3, 1969, P 19 49 906.0

Int. Cl. F16d 65/30, 71/00

U.S. Cl. 192—28

22 Claims

A gear mechanism for operating tap-changing regulating transformers includes means for automatically disconnecting



3,635,320

CLUTCH FLYWHEEL

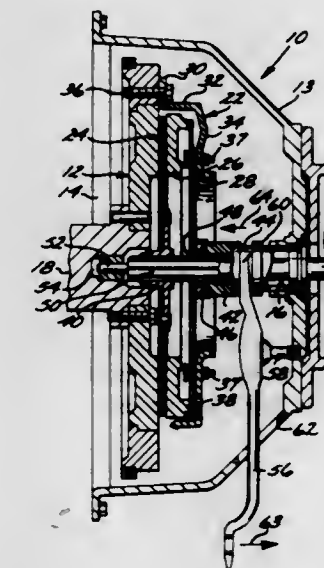
Anthony Capanna, 209 Via Colusa, Palos Verdes Estates, Calif.

Filed Dec. 31, 1969, Ser. No. 889,633

Int. Cl. F16d 13/60

U.S. Cl. 192—107 M

4 Claims



A bimetal flywheel for clutches including a steel inner disc and an outer aluminum ring secured together by interlock means, the steel disc including a smooth radial surface for bearing against a disc of a clutch assembly and the outer ring being adapted to carry a cover for the clutch assembly, and the interlock means opposing separation of the inner disc and outer ring as the disc presses against the radial face when the associated clutch is engaged.

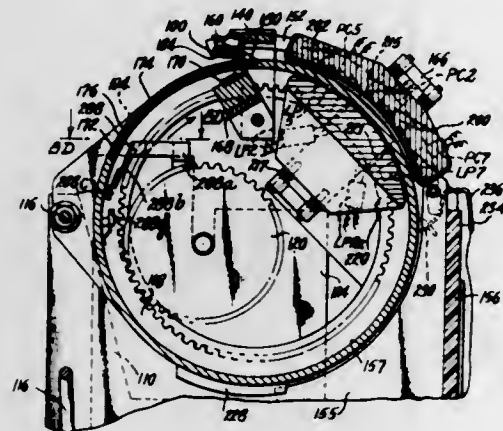
3,635,321

DOCUMENT VERIFICATION AND BANKING MACHINE
James N. Frazier, Sr., Alexandria, Va., assignor to Allied Automation, Inc., Alexandria, Va.

Original application Mar. 1, 1967, Ser. No. 619,642, now Patent No. 3,487,805. Divided and this application Mar. 19, 1969, Ser. No. 808,634
Int. Cl. G071 1/06

U.S. Cl. 194-4 C

14 Claims



This invention relates to a document verifying machine and, in examples, relates specifically to such a machine adapted for use with a banking depository machine, wherein tokens such as coins of various denominations and documents, such as paper currency of various denominations, may be inserted into the banking machine in any order desired. These are tested for their genuineness.

In the case of currency, the sensings of currencies of various denominations are sensed in one area, and the monetary values of the currencies deposited in the machine are incrementally shown on an indicator and are set up on printing wheels.

If it is desired that the currencies be returned to the operator, a switch is operated, as a result of which the indicator and the printing wheels are automatically restored to zero, and an escrow device in the machine is actuated to refund the deposit of currency.

If it be desired that the currencies are to be accepted by the machine, then another switch is operated. As a result the escrow device transfers the deposited currency to a deposit receptacle.

Following this, duplicate receipt tickets are preferably imprinted with the amount accepted by the machine and are issued to the depositor, and the indicator and printing wheels are zeroized.

Should the machine refuse to accept currency or other documents deposited therein by reason of failure to be genuine, or otherwise, the currencies are not deposited in the escrow device but are refunded directly, and no change occurs in the indicator or printing wheels.

3,635,322

CONVEYOR SYSTEM FOR DIVIDING A LINE OF ARTICLES INTO SEVERAL DISCRETE LANES

John L. Raudat, North Madison; Lloyd D. Johnson, Portland, and Anthony L. Cuneo, Chester, all of Conn., assignors to Emhart Corporation, Bloomfield, Conn.

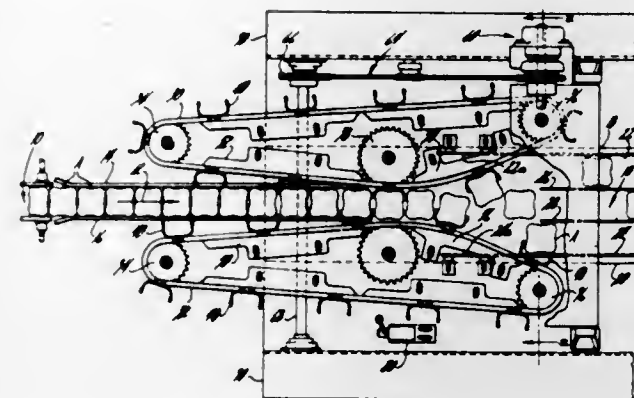
Filed Feb. 24, 1970, Ser. No. 13,639
Int. Cl. B65g 47/26

U.S. Cl. 198-31 AA

7 Claims

Noncircular articles are fed in a single line on a primary conveyor, and a pair of take away conveyors are provided on either side thereof for receiving articles diverted from the primary conveyor. A pair of pocket chain conveyors have facing runs traveling downstream at a slightly slower speed than that of the primary and take away conveyors. U-shaped

pockets are mounted at staggered locations on these pocket chain conveyors, and move inwardly to releasably grip the articles to be diverted, and once an article has been so gripped these pockets move outwardly to divert the article onto an associated take away conveyor. An article-stripping bar acts



on the article so diverted, releasing it from the U-shaped pocket, which pocket then travels upstream for diverting another article. With two take away conveyors, every third article is allowed to pass between the pocket chain conveyors and three discrete lanes of articles are provided.

3,635,323

WORK HOLDERS FOR USE WITH APPARATUS FOR TRANSFERRING WORK BLANKS AND WORKPIECES IN BEVEL-GEAR-MAKING MACHINES

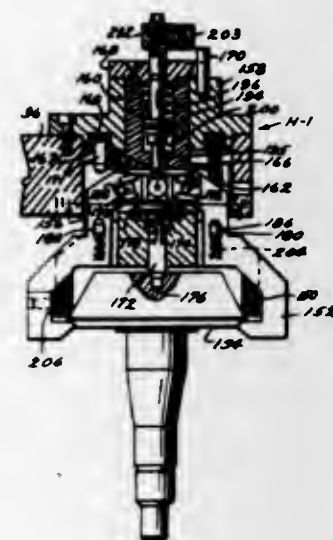
Lawrence R. Helfer, Macedon, and Ernst J. Hunkeler, Fairport, both of N.Y., assignors to The Gleason Works, Rochester, N.Y.

Original application Oct. 1, 1968, Ser. No. 764,219, now Patent No. 3,541,921. Divided and this application Feb. 24, 1970, Ser. No. 13,423

Int. Cl. B65g 47/24; B23g 5/22

U.S. Cl. 198-33

7 Claims



Work-holding devices for use with work loading and transferring apparatus for automatically handling and moving gear blanks and gear pieces from one station to another relative to gear-cutting machines. The work-holding devices, which are positioned at the ends of loading and transfer arms, each include a cup means for contacting and centering a gear piece relative to the holding device, and jaw members for effecting a tight grip on the workpiece. These different embodiments of the workholder device are disclosed, namely, (H-1) a basic device for handling work blanks which have not been cut at all, (H-2) a device similar to H-1 but including stock-

dividing means suitable for orienting a rough cut workpiece for a further cutting operation, and (H-3) a device similar to H-2 but including a different form of stock-dividing means for orienting a workpiece between two finish-cutting operations.

3,635,324

VIBRATORY EXIT CHUTE

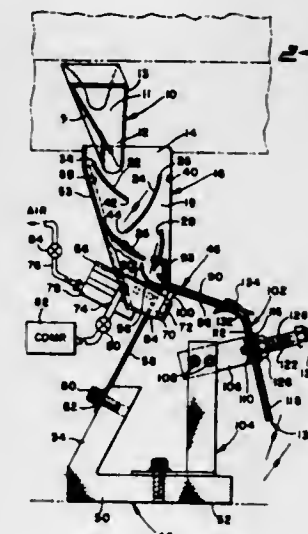
Warren C. Burgess, Jr., Avon Lake, Ohio, assignor to Burgess & Associates, Inc.

Filed Mar. 9, 1970, Ser. No. 17,733

Int. Cl. B65g 47/24, 45/00

U.S. Cl. 198-33 AA

18 Claims



There is provided an improved vibratory parts handling method and apparatus characterized by a return baffle chute carried on a resilient supporting and guiding means, for example a flat spring or springs, and having vibration-inducing means adapted and disposed for vibrating the chute. The apparatus and method are especially useful in the handling of axial lead electrical circuit elements, e.g., resistors having axial extending wire leads.

3,635,325

CLOSURE-HANDLING APPARATUS

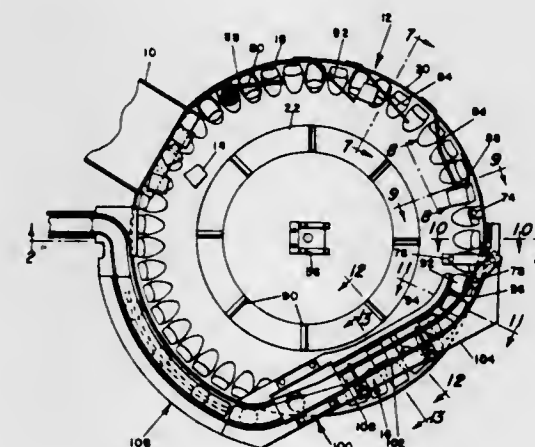
Walter S. Sterling, Quincy, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Filed Nov. 24, 1969, Ser. No. 879,334

Int. Cl. B65g 47/24

U.S. Cl. 198-33

10 Claims



The closure-handling apparatus is arranged to effect orientation of relatively large tapered closures heavier at the

smaller closed end by providing moving pockets shaped to conform to the shape of the closures and into which a majority of the closures fall by gravity to assume an oriented position, provision being made for manipulating incorrectly positioned closures carried by the moving pockets into an oriented position in the pockets.

3,635,326

DISTRIBUTING APPARATUS

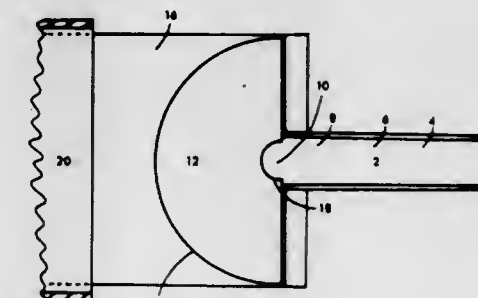
Vernon L. Langlinak, New Iberia, La., assignor to Morton-Norwich Products, Inc., Chicago, Ill.

Filed May 1, 1970, Ser. No. 33,648

Int. Cl. B65g 47/18

U.S. Cl. 198-52

6 Claims



A distributing apparatus for providing uniform distribution of granular, crystalline or amorphous solids onto a bed or moving belt involving use of a discharge chute to carry said solids and discharging them onto a sloping discharge surface resulting in a uniform distribution of said solids over the entire width of said bed or moving belt.

3,635,327

RAPID LOADING AND UNLOADING EQUIPMENT

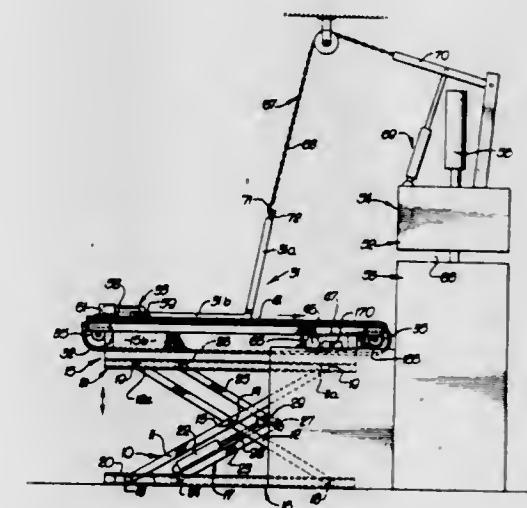
Walter H. Thiessen, Long Beach, Calif., assignor to Darnell Corporation, Ltd., Downey, Calif.

Filed Nov. 8, 1968, Ser. No. 774,423

Int. Cl. B65g 21/00

U.S. Cl. 198-126

8 Claims



The disclosure concerns equipment for rapidly loading and unloading loads (such as molds with respect to presses), and utilizing a load actuator movable on a load conveyor carried by a scissors linkage enabling precise and rapid movement of the load between positions on and off the conveyor.

3,635,328

ACCUMULATING TABLE FOR EGG PACKER

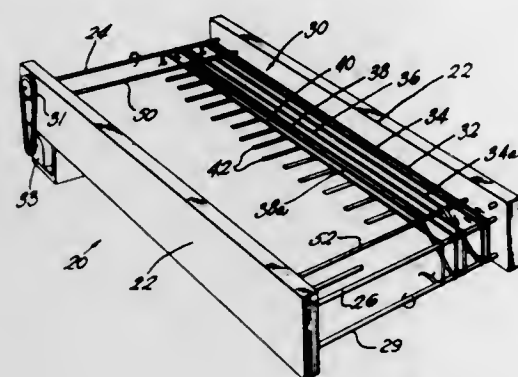
Harvey Z. Burkholder, Ephrata, Pa., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Sept. 23, 1969, Ser. No. 860,193

Int. Cl. B65g 15/00

U.S. Cl. 198-161

9 Claims



An egg-accumulating table which reduces the surface area of the surface engaging the eggs by utilizing endless wirelike belts of narrow dimension. To further reduce the forward pressure exerted by the supporting wirelike belts, every other belt is returned in the same supporting plane in which it moves forward, so as to present to the eggs as every third belt, one which is moving in the opposite direction. The reversal is accomplished by utilizing a separate roller which every other belt returns to after reaching the delivery end, and a separate roller over which every other belt departs the supporting plane before reaching the initiating end of the table.

3,635,329

SAFETY GATE FOR MATERIAL AUGERS

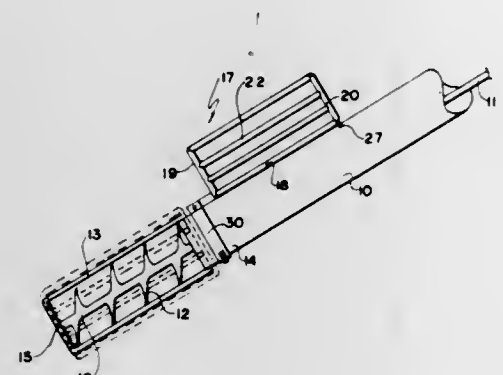
Fred Walters, Box 26, Kayville, Saskatchewan, Canada

Filed June 15, 1970, Ser. No. 46,023

Int. Cl. B65g 33/00

U.S. Cl. 198-213

4 Claims



A three-sided grating covers the exposed outer end of the auger flight and is hinged to a retaining strap which in turn is secured around the lower end of the auger tube. The grate has a handle which enables the grate to be swung clear of the auger flight for maintenance purposes.

ERRATUM

For Class 206-62 see:
Patent No. 3,635,608

3,635,330

SPACER FOR CASED CYLINDRICAL OBJECTS

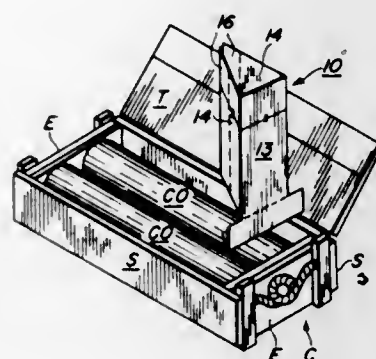
William C. Merrick, Carol Stream, and Casimir E. Zwierzyna, Addison, both of Ill., assignors to Container Corporation of America, Chicago, Ill.

Filed Apr. 20, 1970, Ser. No. 29,806

Int. Cl. F42b 39/00

U.S. Cl. 206-3

3 Claims



A spacer for properly positioning a pair of side-by-side cylindrical objects loaded into a case. The spacer is formed from a cut and scored blank consisting of a first panel having spaced longitudinally extending fold lines enabling the panel to be folded into a wedge-shaped structure adapted to be wedged against and between the cylindrical objects, and a second panel foldably connected to the first panel along a score extending transversely to the score lines in the first panel. The second panel has a fold line therein whereby the second panel is folded on itself and wedged between the ends of the cylindrical objects and the case. The first panel may include a separable portion also capable of being wedged against and between the cylindrical objects at another point thereon.

3,635,331

DISPLAY PACKAGES

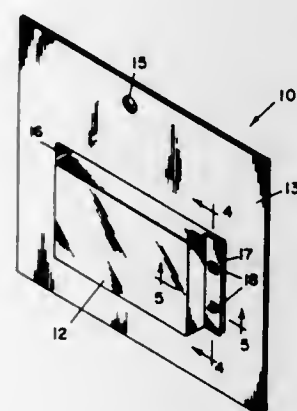
Armand S. Zucker, c/o 20th Century Plastics Co., 4210 N. Sayre Ave., Chicago, Ill.

Filed Sept. 18, 1969, Ser. No. 858,959

Int. Cl. B65d 25/00

U.S. Cl. 206-45.34

5 Claims



A pair of juxtaposed identically constructed transparent box members are positioned at opposite sides of a display card which is formed with an opening in register with the box members, so that the latter coact to define a closed compartment. The box members are provided with pairs of flanges which have the card sandwiched between them, and detents passing through the card locking the flanges together, thus holding the box members and the card in assembled relation. The locked flanges are intended to be broken off the box

members so that the latter may be separated for gaining access to contents of the compartment. The box members may be used again to hold the contents.

3,635,332

SHOCK-ABSORBING DEVICE

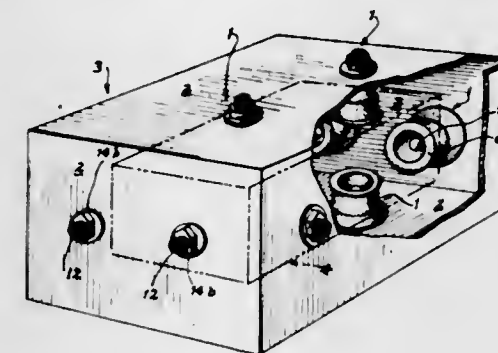
Donald R. Ross, 126 California Ave., Freeport, Long Island, N.Y.

Filed Dec. 8, 1969, Ser. No. 882,894

Int. Cl. B65d 25/12, 81/02, 85/30

U.S. Cl. 206-46 FR

9 Claims



A shock-absorbing device for positioning an article within a container including a suction device for gripping the article, a bumper device and means to mount the suction and bumper devices on a wall of the container. The suction and bumper devices cooperate to both cushion the article and define the extent of movement thereof relative to the container wall.

3,635,333

WIRE SPOOL PACKAGE

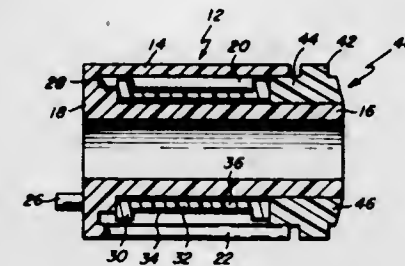
Scott R. Bonis, Stow; Thomas E. Salzer, Bedford, and David R. Robillard, Westboro, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Sept. 19, 1969, Ser. No. 859,433

Int. Cl. B65d 85/04

U.S. Cl. 206-52 W

4 Claims



A protective package for a spool of wire, said package comprising a cuplike container having a longitudinal opening in the periphery thereof and including a center post having an external portion which fixedly supports the container and an internal portion which rotatably supports a spool of wire, and a cylindrical cap which slidably engages the circular rim of the container thereby retaining the spool wire within said container.

3,635,334

CARTRIDGE FOR SHEET-FEEDING ARRANGEMENTS

Reginald Collins, Potters Bar, England, assignor to Omal Group Limited, London, England

Original application Mar. 18, 1968, Ser. No. 713,806, now Patent No. 3,533,617. Divided and this application Oct. 29,

1969, Ser. No. 872,275

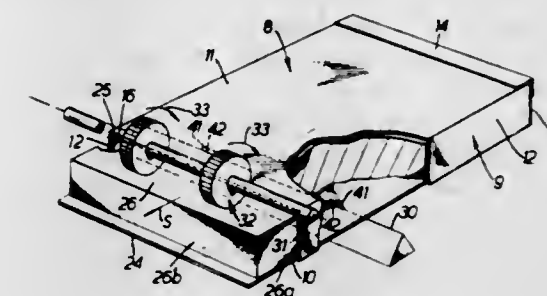
Int. Cl. B65d 83/08

U.S. Cl. 206-57

3 Claims

For feeding sheets from a stack a cartridge presents a platform supporting the stack and is removably pivoted on a ful-

crum edge so that the weight of the stack urges the top sheet against a sheet feed means positioned above the stack



towards one end. The stack is permanently housed in the cartridge, thus facilitating handling of the stack.

3,635,335

NUMISMATIC COIN OR MEDAL DISPLAY CASE

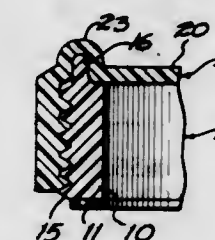
Joseph A. Kramer, 12556 Middlecoff Pl., Granada Hills, Calif.

Filed Apr. 27, 1970, Ser. No. 32,065

Int. Cl. B65d 73/00

U.S. Cl. 206-0.82

10 Claims



A coin or medal display case embodies an annular frame having on its bottom face a flat ring of pressure sensitive adhesive for sealing attachment to an air-impervious support sheet such as an album page to seal the bottom of the frame; and a transparent cover attachable to the frame to seal it at the top and to provide a viewing window. Resilient fingers, formed integrally with the inner periphery of the frame, spiral inwardly to yieldingly engage a coin periphery to position it beneath the window.

3,635,336

DRY CANE CLEANING AND SPREADING

Martin Wykeham Chapman, Middle Cove, New South Wales, Australia, assignor to The Colonial Sugar Refining Company Limited, Sydney, New South Wales, Australia

Filed Jan. 15, 1969, Ser. No. 791,289

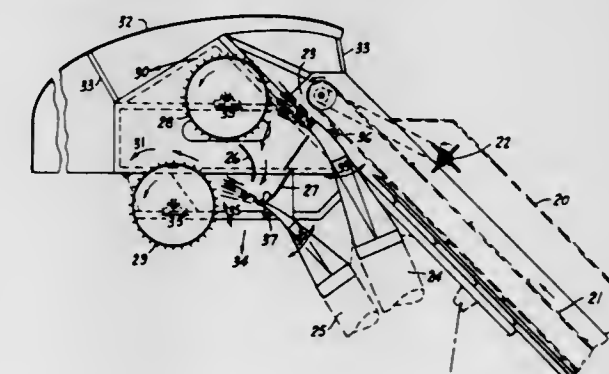
Claims priority, application Australia, Jan. 16, 1968,

32387/68

Int. Cl. B07b 4/04

U.S. Cl. 209-3

6 Claims



Apparatus for spreading harvested sugar cane pieces and for dry separating the extraneous matter from the cane, com-

prising means for spreading the cane to effect frictionally a slight dissociation of the extraneous matter from the cane; means for forming the cane into a falling curtain; means for providing a low-velocity air jet to intercept transversely the falling curtain of cane and separate therefrom a low-density fraction of extraneous matter (for example, leaves); means for subsequently providing a high-velocity air jet to intercept transversely the falling curtain of cane and separate therefrom a generally higher density fraction of extraneous matter (for example, tops); the final separation being enhanced by the provision of means for imparting a horizontal component of velocity to the cane before it is intercepted by the high-velocity air jet.

3,635,337

METHOD FOR TREATING FLOATED SOLIDS

Venacio Mercade, Metuchen, and Samuel R. Weir, Long Branch, both of N.J., assignors to Engelhard Minerals & Chemicals Corporation, Township of Woodbridge, N.J. Filed Aug. 23, 1968, Ser. No. 754,952. The portion of the term of the patent subsequent to July 8, 1986, has been disclaimed.

Int. Cl. B03b 1/00; B03d 1/06

U.S. Cl. 209—3

10 Claims

To prevent the flotation of a mineral containing an anionic collector reagent, the coated mineral is formed into a thick alkaline pulp containing another mineral having a greater affinity for the collector and an alkaline dispersant at a high concentration. The pulp is aged and then diluted and aerated. The mineral having the greater affinity for the anionic reagent floats; the other mineral is depressed.

3,635,338

REAGENT FLOTATION OF BORAX FROM SALT MIXTURES AT LOW TEMPERATURES

Elie M. Chemtob, Claremont, and William R. White, Alta Loma, both of Calif., assignors to Occidental Petroleum Corporation

Filed Aug. 6, 1969, Ser. No. 848,093

Int. Cl. B03b 1/00; B03d 1/02

U.S. Cl. 209—11

5 Claims

Sulfonated fatty acids and their salts are shown to be effective reagents for the low-temperature flotation of borax from a mixture of salt crystals, particularly a borax-Glauber's salt-natron salt complex.

3,635,339

APPARATUS FOR SORTING EGGS OR SIMILAR OBJECTS ACCORDING TO THEIR WEIGHT

Jelle van der Schoot, and Leonardus Johannes Temming, both of Aalten, Netherlands, assignors to Van Katwijk's Industrieën N.V., Aalten, Netherlands

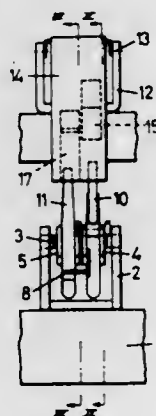
Filed Jan. 29, 1970, Ser. No. 6,690

Claims priority, application Netherlands, Jan. 31, 1969, 6901573

Int. Cl. B07c 5/16; A01k 43/00

U.S. Cl. 209—121

5 Claims



An apparatus for sorting eggs or similar objects according to their weight comprises a plurality of juxtaposed balances,

of which at least the first is double-acting, said double-acting balance comprising two axial balance levers, one adapted as maximum balance, the other as minimum balance, said double-acting balance also comprising an ejector device which is only operative when the load scale is loaded with a weight which is heavier or lighter than the maximum or the minimum weight to which the balance is adjusted.

3,635,340

ELECTROSTATIC SEPARATING APPARATUS FOR PARTICLES

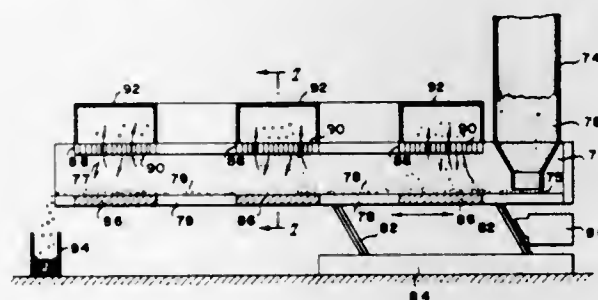
John P. Dunn, Elmira, N.Y., assignor to F.I.N.D. Inc., Elmira, N.Y.

Filed Jan. 31, 1969, Ser. No. 795,484

Int. Cl. B03c 7/04

U.S. Cl. 209—130

1 Claim



The transfer of powder particles of the type which are capable of movement in an electric field which is created by applying potential between two spaced electrodes. The particles are charged and propelled from the first electrode towards the second electrode and due to the particle momentum, they can travel through the second electrode if it is apertured and beyond the second electrode if it is not apertured. Once the particle travels past the second electrode it may be utilized for various useful purposes such as electrostatic printing, particle classifying, or transfer to a series of successively arranged electrodes as in a particle pump.

3,635,341

PROCESS OF PRECOATING AND FILTERING USING A ROTARY DRUM VACUUM FILTER

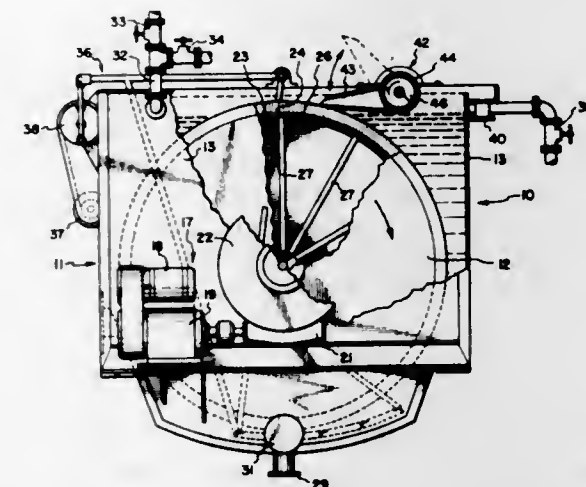
Steven S. Davis, 550 South First East, Bountiful, Utah

Filed July 22, 1969, Ser. No. 843,502

Int. Cl. B01d 37/02

U.S. Cl. 210—75

4 Claims



A rotary drum vacuum precoat filter equipped so that the liquid level therein may be controllably varied to completely submerge the drum for precoating, followed by exposure of only a small part of the drum (not more than 30 percent) for cake drying and removal during filtration. There is also disclosed a scraper assembly for cake removal from the exposed drum just prior to resubmergence.

3,635,342

METHOD AND APPARATUS FOR RECOVERING A SUBSTANCE FLOATING AS A SHEET ON THE SURFACE OF A LIQUID MASS

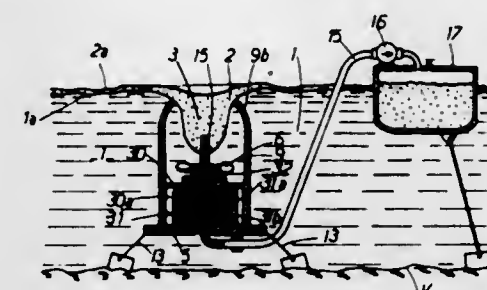
Jean-Claude Moulon, Saint-Germain-en-Laye, and Ernest Marie Rene Dubois, Sceaux, both of France, assignors to Bertin & Cie, Plaisir, France

Filed Dec. 22, 1969, Ser. No. 887,297

Int. Cl. C02c 1/38

U.S. Cl. 210—84

15 Claims



For recovering a substance, more especially a hydrocarbon, spread as a thin sheet and floating on the surface of a liquid, the liquid is, in the vicinity of its surface, subjected to a local rotating movement so as to bring about the formation of a vortex-type cavity which is open and has a vertical axis, and in which the substance originating from the sheet accumulates, and from the said cavity the accumulated substance is extracted, the amount extracted being automatically replaced, as it is extracted, by further substance emanating from the sheet.

3,635,343

FILTRATION SYSTEM

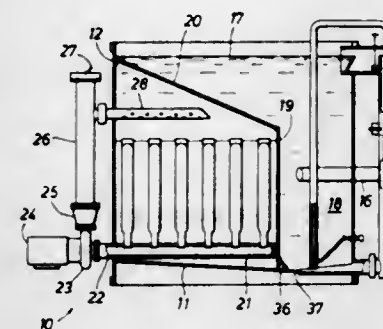
Richard W. Holland, 13103 Conifer, Houston, Tex.

Filed Apr. 28, 1969, Ser. No. 819,845

Int. Cl. B01d 29/24

U.S. Cl. 210—104

7 Claims



For use in filtering a fluid which is susceptible to light and heavy solids and other materials suspended in the liquid, a filtration system which removes the heavier and lighter suspended particles through settling and skimming whereupon the suction of a downstream pump draws the liquid through the filter apparatus, the filter apparatus functioning after removal of the heavier and lighter contaminants which typically clog filter media, all the apparatus included in an open tank.

3,635,344

UNITARY FILTER AND PUMP FOR HOME AQUARIUMS

David D. Lovitz, Short Hills, N.J., assignor to Sternco Industries, Inc., Harrison, N.J.

Filed Aug. 21, 1970, Ser. No. 65,810

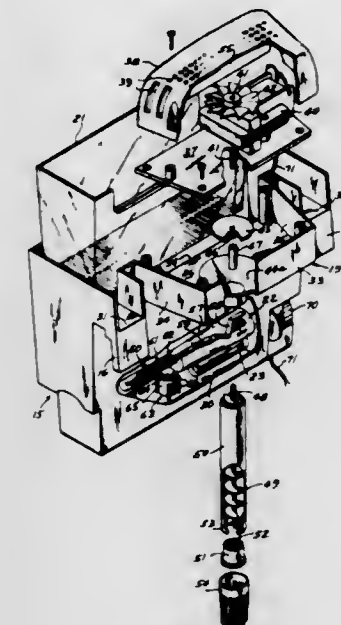
Int. Cl. E04h 3/20; A01k 64/00

U.S. Cl. 210—169

10 Claims

A combination filter and motorized pump for mounting on the wall of an aquarium. A housing containing a removable filter tank and electric heater is connected by an upper cas-

ing to a screw-type of water elevator adapted for positioning within the aquarium, the said housing being positionable outside of the aquarium wall. The top of said casing comprises a platform supporting an electric motor, the said screw elevator extending up through the floor of the casing and being connected by shafting to said motor. A deflector disc is



mounted on said shafting for deflecting water downwardly to protect the motor and direct the water to the casing floor from which it flows downwardly through the filtering and heating compartments of the housing, and then upwardly through lateral passageways to correspondingly positioned spillways, the latter being integral with hook members supporting the device on the rim of the aquarium.

3,635,345

CHROMATOGRAPHY

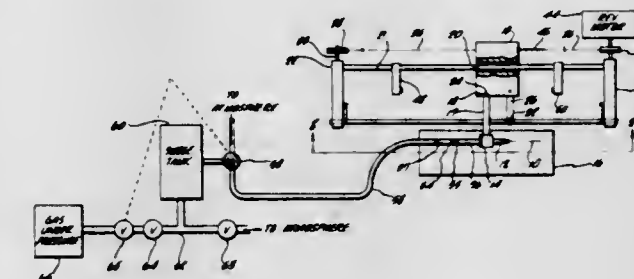
Jerome A. Rodder, 775 Sunshine Drive, Los Altos, Calif.

Continuation of application Ser. No. 503,067, Oct. 2, 1965, now abandoned. This application Mar. 13, 1969, Ser. No. 808,375

Int. Cl. B03d 1/00

U.S. Cl. 210—198 C

5 Claims



A thin line chromatography dispenser having an elongated, flexible capillary tube which is supported over an adsorbent surface such that the angle between the surface and the tube is substantially less than 90°. The angle is made as small as practicable, and preferably is less than 20°. Means are provided for moving the tube over the adsorbent surface so that liquid can be discharged onto the surface in a thin straight line.

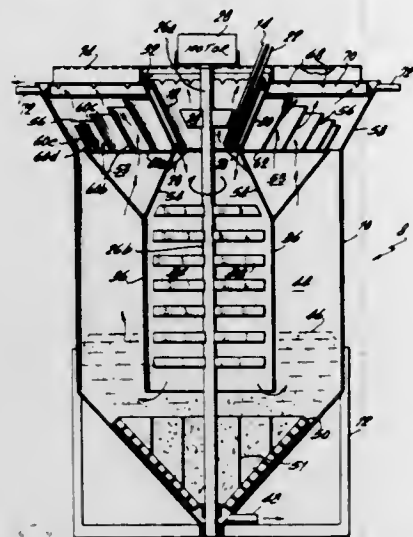
3,635,346 SOLIDS SEPARATOR

Mathew M. Zuckerman, Yonkers, and Alan H. Molof, New York, both of N.Y., assignors to Envirotech Corporation, Palo Alto, Calif.

Filed Feb. 24, 1970, Ser. No. 13,641
Int. Cl. B01d 21/16

U.S. Cl. 210-208

7 Claims



A solids removal device for use in the treatment of water and wastewater includes a final settling zone for removal of lightweight particles. The final settling zone comprises a liquid-carrying conduit defining a path for the upward flow of liquid and encloses settling plates dividing the conduit into flow spaces of upwardly increasing cross-sectional area and providing impingement and conglomeration surfaces for the accumulation and downward flow of solids.

3,635,347 APPARATUS FOR CONTROLLING THE DISPERSION OF POLLUTANTS FLOATING ON A BODY OF WATER

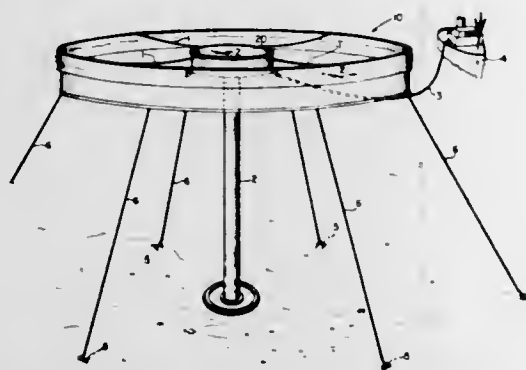
Edward J. Rupnick, 1501 Lincoln Ave., N.E., Renton, Wash.

Filed Aug. 15, 1969, Ser. No. 850,420

Int. Cl. C02b 9/02

U.S. Cl. 210-242

10 Claims



Dispersion of pollutants having specific gravities less than that of water and floating on a body of water are controlled by encircling the pollutant body with a floating reservoir wall having an open top and open bottom. The reservoir wall comprises an elongated length of flexible water-impervious material having disposed along its upper end a plurality of inflatable flotation cells inflatable through a common duct running the length thereof and having disposed along its lower end ballast means for maintaining the lower end of the wall beneath the surface of the pollutant and body of water. The ends of the reservoir wall are joined together in sealing relationship by compressively engaging inflated cells disposed along the ends of the reservoir wall. Pollutants issuing into a body of water can be directed into the interior of the enclosed reservoir formed by the reservoir wall by a flexible or inflexible conduit secured at one end around the source of pollution with the opposite end leading to the interior of the

reservoir. The reservoir wall is held in a predetermined location by means of anchors resting on the floor of the body of water and connected by lead lines to the lower end of the reservoir wall.

3,635,348

AUTOMATIC SELF-CLEANING STRAINERS

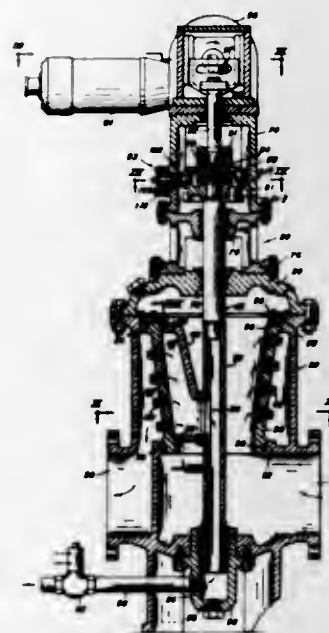
Hugh B. Carr, McMurray, Pa., assignor to S. P. Kinney Engineers, Inc., Carnegie, Pa.

Filed June 9, 1970, Ser. No. 44,674

Int. Cl. B01d 25/38, 29/24

U.S. Cl. 210-333

20 Claims



An automatic self-cleaning strainer including a housing having a liquid inlet and outlet, a strainer drum having straining media in the periphery thereof, a backwash shoe arranged to normally engage the surface of the shoe exposed to the liquid inlet, and indexing means for intermittently effecting relative rotation between the shoe and drum in increments of arc about the axis of the drum and also effecting radial separation between the shoe and drum during incremental movement therebetween and reestablishing engagement of the shoe with the surface of the drum when such incremental movement has stopped.

3,635,349

POWER-OPERATED EXTENSIBLE SKIMMING BLADE

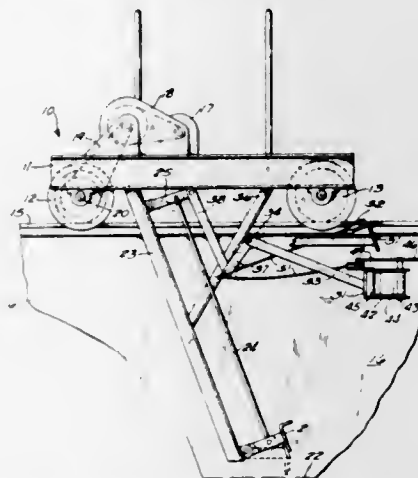
Gordon E. Weiss, Butler; John B. Rank, Milwaukee, and Gilbert W. Quast, Brookfield, all of Wis., assignors to Rex Chainbelt, Inc., Milwaukee, Wis.

Filed Oct. 16, 1970, Ser. No. 81,273

Int. Cl. B01d 21/04

U.S. Cl. 210-527

4 Claims



A reciprocating bridge with scraper and skimmer blades operates in a tank requiring skimming to the uneven sidewalls of the tank. Each end of the scraper is provided

3,635,352

SPACE SAVER DRAWING HOLDER

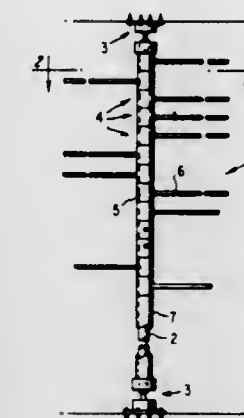
Otis Brooks, Route No. 1, Box 152, McDermott, Ohio, and Bernard S. Moltz, P.O. Box 2147, Boca Raton, Fla.

Filed July 11, 1969, Ser. No. 841,063

Int. Cl. A47f 5/05, 7/16

U.S. Cl. 211-47

1 Claim



Disclosed is a space-saving drawing holder whereby drawings, plans, blueprints and the like may be stored so as to conserve space yet to permit quick and easy access thereto. A plurality of brackets are pivotally mounted in stacked fashion to an upstanding frame. Drawings are attached to individual drawing holding members, which may be slid over rods on the brackets when it is desired to store the attached drawings. Once the drawings are mounted on the rods, the brackets may be rotated, as a unit, to, as for example, a space-saving position along a wall. When it is desired to remove a drawing, the appropriate bracket may be selectively isolated and the drawings and attached drawing-holding member removed therefrom.

3,635,353

FOOTWEAR HOLDER

Tsuneji Matsubara, Osaka, Japan, assignor to Hatanaka Chemical Industry Co., Ltd., Osaka, Japan

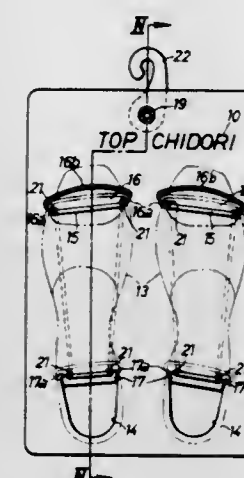
Filed Mar. 19, 1970, Ser. No. 21,075

Claims priority, application Japan, Mar. 24, 1969, 44/26018

Int. Cl. A47f 7/08

U.S. Cl. 211-34

1 Claim



A footwear holder comprises a base sheet having an area for placing a pair of footwear thereon side-by-side, a pair of openings formed in the base sheet for receiving the heels of the footwear and members attached to the base sheet for fastening the footwear against detachment from the base sheet when the heels are fitted in the openings. The footwear thus held onto the base sheets in pairs is ready for transportation or display.

3,635,350

SNAP-IN RACK FOR CASSETTES

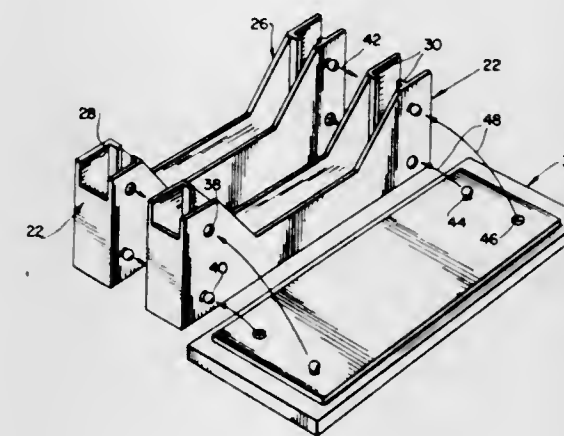
Bern E. Wolf, 4070 Laurel Canyon Blvd., Studio City, Calif.

Filed Oct. 14, 1970, Ser. No. 80,561

Int. Cl. A47g 29/00

U.S. Cl. 211-40

8 Claims



A horizontal or vertical stack for cassettes having a plurality of snap-in panels including male and female elements, the snap-in feature permitting forming a complete holder of indeterminate length and in which the individual units can be joined together and used in vertical or horizontal position.

3,635,351

RACK FOR A SET OF BOOKS

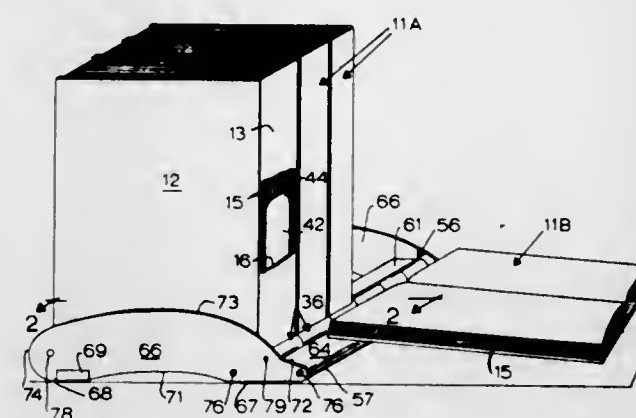
Douglas M. Homs, 1538 Industrial Way, Belmont, Calif.

Filed Apr. 9, 1970, Ser. No. 27,091

Int. Cl. A47b 65/00

U.S. Cl. 211-42

8 Claims



A rack for books has individual holder elements for each volume each having a blade which fits inside the spine binding of the volume. A base receives the elements so that each volume can be pivoted between a storage position with the volume upright and inverted to a use position rotated forwardly approximately 90° and out of contact with the other volumes so that the book may be opened, resting on the supporting surface for the base. In one form of the invention, the base has a rod passing through holes in all the elements preventing accidental dislodgement of the volumes.

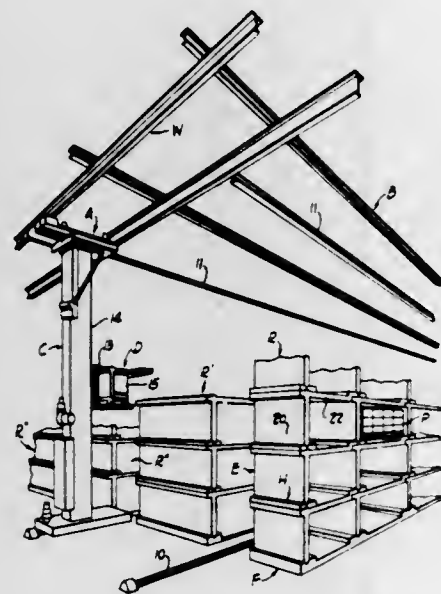
3,635,354 STORAGE RACKS

Stuart A. Martin, Euclid, Ohio, assignor to McNeil Corporation, Akron, Ohio

Filed Sept. 12, 1969, Ser. No. 857,439
Int. Cl. A47f 5/00

U.S. Cl. 211-177

8 Claims U.S. Cl. 213-64



Pigeonhole-type storage racks, shelves, stands and the like constructed of a plurality of interlocking duplicate members, preferably of precast or extruded concrete.

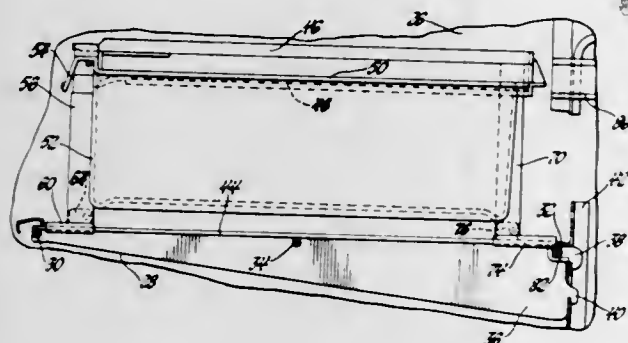
3,635,355 DRAWER SUPPORT FOR WIRE SHELF

Paul E. Kronenberger, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 13, 1969, Ser. No. 876,305
Int. Cl. A47f 5/00

U.S. Cl. 211-183

5 Claims



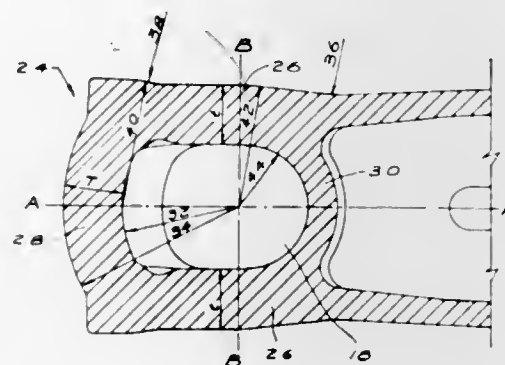
In the preferred form, a drawer cover is provided with guide ways for supporting a flanged drawer. The drawer cover is provided with downwardly extending hollow legs of sheet metal formed into a closed rectangle. The bottoms of the front legs are supported upon an adjacent pair of wires by an inverted U-shaped foot of resilient plastic having inwardly extending projections at the bottom so that it will snap over the wires. Each of these feet also has an upwardly extending projection extending a substantial distance into the bottoms of the legs and provided on each side with chamfered projections which snap into apertures provided at the bottom of the sides of the legs. The rear feet are provided with similar projections snapping into apertures in the bottom of the legs. However, the rear feet while they rest upon two wires, do not snap over the wires but have a U-shaped rearwardly extending projection between the wires having legs which extend upward, downward, rearward and sideward movement.

3,635,356 RAILWAY COUPLER BUTT

Paul F. Shramovich, Chicago, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed Dec. 16, 1970, Ser. No. 98,658
Int. Cl. B61g 9/00

2 Claims



An improved railway coupler shank design wherein the thickness T of the rear spherical wall of the butt and the minimum thickness t of the sidewalls are maintained in the relationship of T/t . The improved coupler so designed causes a change in the force and moment distribution of the shank so that the proportionally stiffer and stronger rear walls resist a greater portion of the induced moment thereby providing a stress reduction in both the rear wall and the sidewalls. The relationship of T/t also serves to reinforce the rear spherical wall of the butt thereby increasing its wearing characteristics.

3,635,357 MODIFIED PINHOLE FOR RAILWAY COUPLERS

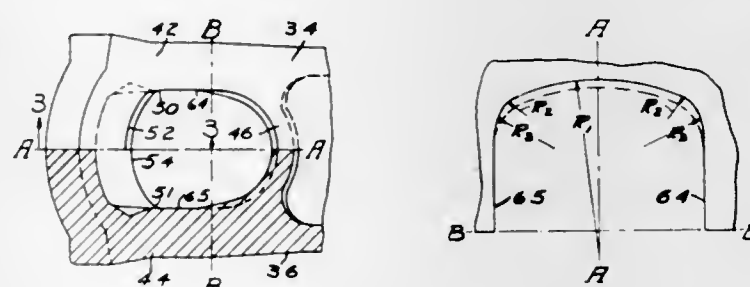
Russell George Altherr, Chicago, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed Aug. 10, 1970, Ser. No. 62,540

Int. Cl. B61g 9/00

U.S. Cl. 213-64

3 Claims



An improved pinhole for a standard A.A.R. (Association of American Railroads) type "F" coupler having a top and bottom strap formed in a compound curve generated by multiradii. The straps formed thusly provide reduced stress levels in tension and compression through the coupler centerline as well as through the rear corner radii at the pinhole thereby minimizing coupler failures at these points.

3,635,358 COUPLER ARRANGEMENT

Russell George Altherr, Munster, Ind., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed Sept. 2, 1970, Ser. No. 68,978

Int. Cl. B61g 9/00

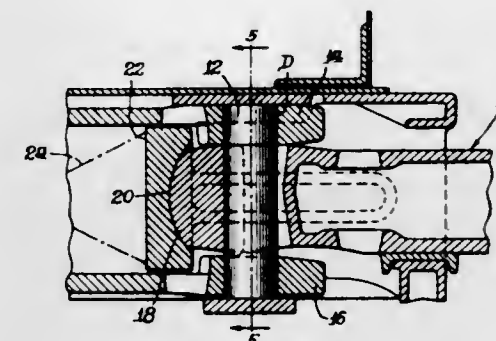
U.S. Cl. 213-69

7 Claims

According to the disclosure, a railway vehicle coupler comprises a shank embraced by top and bottom straps of a conventional yoke for a conventional draft gear. A conven-

tional pin extends through aligned pinholes in the shank and straps. The shank is specially contoured in the area of its pin-

holes into the wall ironing apparatus in timed relation to the movement of the rams. Two hoppers are provided for supplying blanks, one hopper for each of the rams. On the other



hole to increase its strength and resistance to wear in railway service.

3,635,359 CONTROL MEANS FOR ROLLING RACK OF BALE WAGON

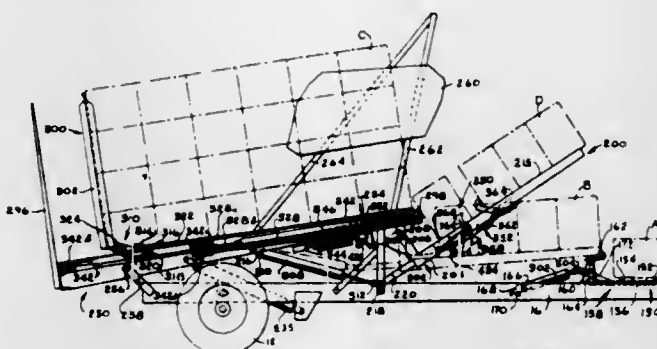
Raymond E. Fisher, Reedley, Calif., assignor to Sperry Rand Corporation, New Holland, Pa.

Filed Mar. 31, 1970, Ser. No. 24,153

Int. Cl. B65g 57/32

U.S. Cl. 214-6 B

5 Claims



An agricultural bale wagon having a rolling rack which is movable rearwardly incident to tiers of bales being loaded onto the forward end of the load bed of the wagon, the rolling rack being movable in loading and unloading directions by a hydraulic cylinder unit which actuates a cable connected to the rolling rack and the hydraulic cylinder being controlled by a fluid circuit including certain control valves which are shiftable to permit movement of the rolling rack rearwardly when a new tier of bales is loaded onto the forward end of the load bed, but prevent rearward movement thereof immediately upon said new tier of bales being fully loaded onto said bed and the preceding load correspondingly having been shifted rearwardly.

3,635,360 FEED MECHANISM

Richard E. Prendergast, Western Springs, and Lawrence M. Rogers, Chicago, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

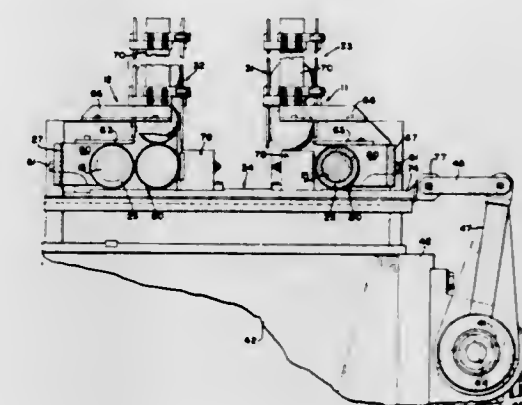
Original application Oct. 22, 1965, Ser. No. 500,816, now Patent No. 3,491,575. Divided and this application June 6, 1969, Ser. No. 831,035

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 F

7 Claims

This disclosure relates to a feed mechanism for a wall ironing machine of the type which includes two reciprocating rams driven in out of phase relation by a crankshaft. The disclosure particularly relates to a feed mechanism for feeding



hand, a single feed mechanism is provided for alternately receiving blanks from the two hoppers and feeding the blanks to the respective rams.

3,635,361 HANDLING PERISHABLE PRODUCTS

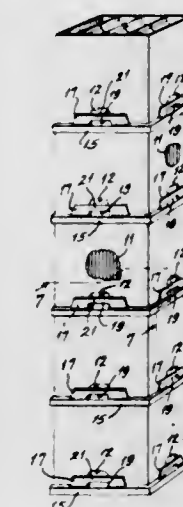
William H. Hayes, Overland, Kans., assignor to Alton Box Board Company, Alton, Ill.

Filed July 31, 1969, Ser. No. 846,385

Int. Cl. B65g 1/14

U.S. Cl. 214-10.5 R

3 Claims



Packaging and handling of perishable products in stacks of articulated disposable containers, in which the disposable containers are intervened and articulated by a rebated ring having a major perimeter and a minor perimeter with an intermediate ledge, and the respective perimeters being proportioned so that the minor perimeter embraces the outside of an articulated container, above, and the major perimeter embraces the outside of another articulated container below, the ring.

3,635,362 TRUCK TO RAILCAR TRANSFER DEVICE AND METHOD

Robert A. Pratt, Harbert, Mich., assignor to Clark Equipment Company

Filed July 30, 1969, Ser. No. 846,066

Int. Cl. B61d 3/16

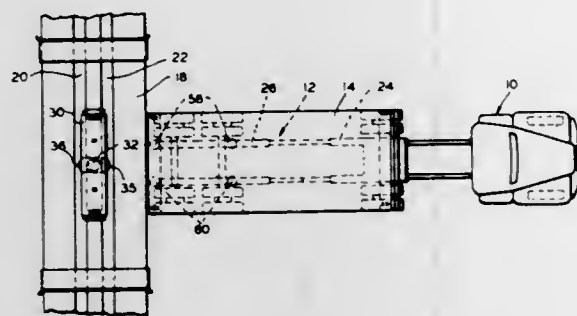
U.S. Cl. 214-38 A

5 Claims

Transfer of a load container from a truck to a railcar using a loading bolster to support and to swing the container into longitudinal alignment on the railcar during projection of the

container onto the loading bolster by relative sliding movement between the container and the supporting surfaces of

tions outside mounting of the source of energy for the machine on the platform, provide structure movable by means for lowering the pair of ground wheels alternately



the truck, with transfer assisted by forward and reverse movements of the truck in directions transversely of the rail-car.

3,635,363

CAR DUMPER END SUPPORT

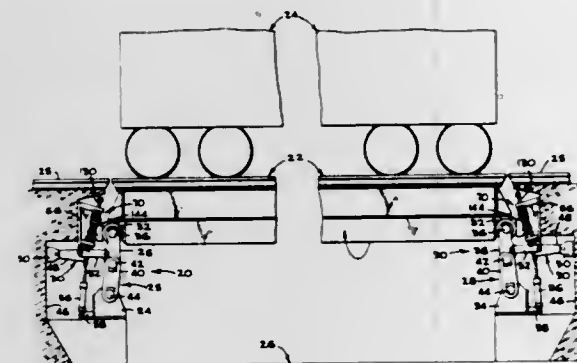
Ralph C. Ouska, Hinsdale, Ill., assignor to FMC Corporation, San Jose, Calif.

Filed Dec. 29, 1969, Ser. No. 888,635

Int. Cl. B65g 67/50

U.S. Cl. 214-52 C

7 Claims



3,635,365

TRACTOR VEHICLE WITH HYDROSTATIC DRIVE MEANS

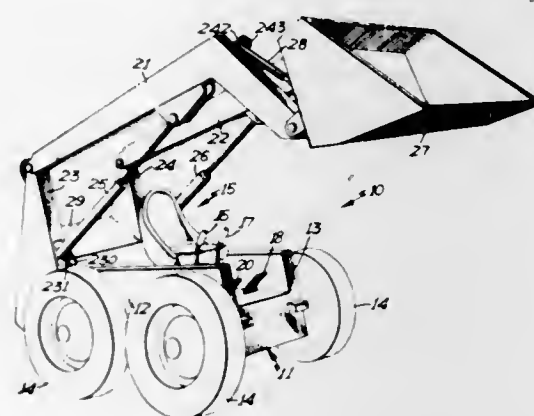
James J. Bauer, Lisbon, N. Dak., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Feb. 20, 1969, Ser. No. 800,839

Int. Cl. B66f 9/00

U.S. Cl. 214-778

15 Claims



A combined vertical support and end lock mechanism is located at each end of a tiltable track section of a rotary car dumper. Engagement of the mechanism simultaneously actuates both the horizontal and vertical end supports. The vertical support maintains the end of the tiltable track section at the same elevation as the rail bed when a loaded car is placed in the dumper. The end lock mechanism also prevents longitudinal shifting of the tiltable track section when cars are moved onto or through the dumper. In addition, the end lock is self adjusting to accommodate longitudinal shifting of the track section prior to engagement of the lock mechanism.

3,635,364

MOBILE WORKING MACHINE

Gunnar Tingleff, Dyshøj 11, Lind, 7400 Herning, Denmark

Filed July 10, 1969, Ser. No. 848,382

Int. Cl. E02f 3/74

U.S. Cl. 214-138

5 Claims

Only a single pair of ground wheels are mounted on a platform of a movable working machine, and this single pair of ground wheels carried by individual respective stub axles located on the ends of the arms movably journaled in loca-

A front-end loader having a hydrostatic drive means. The front-end loader is characterized by a pair of stanchions at the rear of the body and loader arms pivotally mounted to the stanchions projecting forwardly and downwardly on opposite sides of the operator's seat terminating at a material handling member at the lower front of the body. Means is provided for lifting the loader arms and tilting the material handling member. Two hydrostatic transmission units each consisting of a variable displacement pump and a fixed (or variable) displacement hydraulic motor serve to drivingly connect the engine with the respective wheels on each side of the body. The power system is of modular design and includes the following modular components: engine, transfer case, two hydrostatic transmissions (each including a variable displacement pump and a fixed (or variable) displacement hydraulic motor both of the swash plate type), and a gear reduction unit for each of the transmissions. The disclosure also includes an adjustable linkage for independently tilting the swash plate to vary the displacement of each hydraulic pump. The adjustability relates to varying the rate at which the pump displacement is changed per increment of movement of a control lever which actuates the linkage.

3,635,366

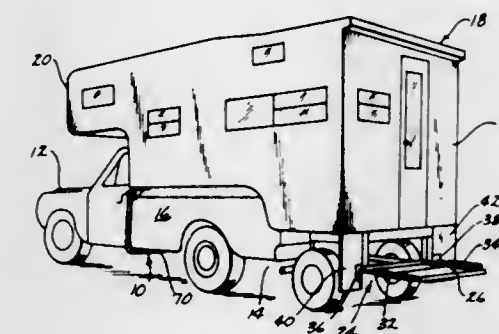
JACK AND TIEDOWN SYSTEM FOR A VEHICLE MOUNTED CAMPER

John N. Dodgen, Humboldt, Iowa, assignor to Dodgen Industries, Inc., Humboldt, Iowa

Continuation-in-part of application May 2, 1969, Ser. No. 821,183. This application Feb. 5, 1970, Ser. No. 9,003

Int. Cl. B60p 3/32

U.S. Cl. 214-515



A jack and tiedown system for a vehicle mounted camper including a first pair of jacks secured to the lower front corners of the camper and a second pair of jacks secured to the rearward end of the camper. The front jacks each include a vertically movable leg portion extending downwardly therefrom. A U-shaped support member is secured to the lower ends of the two leg portions and extend therebetween. The support member serves as a stand for the front end of the camper when the camper is removed from the vehicle and also provides a means for leveling the camper when it is being used while on the vehicle. The support member extends beneath the vehicle frame and engages the same to serve as a tiedown means for the front end of the camper when the camper is on the vehicle. The second pair of jacks also have a support member extending therebetween which is adapted to engage the vehicle frame to serve as a tiedown means for the rear end of the camper when the camper is on the vehicle. The support member on the second pair of jacks also serves as a stand for the back end of the camper when the camper is removed from the vehicle and serves as a means for leveling the camper when the camper is being used while on the vehicle. In the modified form of the system, the second pair of jacks are pivotally connected to the auxiliary axle and wheel assembly which supports the rearward end of the camper. In the modified form of the embodiment, a support member does not extend between the jacks of the second pair of jacks.

3,635,367

CONTAINERS WITH HANGERS AND METHOD OF PREPARING THE SAME

Kazuyuki Morita, Gifu-ken, and Satoshi Nakajima, Bisai-shi, both of Japan, assignors to Eisai Kabushiki Kaisha, Tokyo-To, Japan

Filed Dec. 29, 1969, Ser. No. 888,763

Claims priority, application Japan, Dec. 28, 1968, 43/95925

Int. Cl. B65d 25/22

U.S. Cl. 215-100 A

4 Claims



A method of manufacturing container provided with a flexible hanging member including an annular flat rim and a

hanger with its roots connected to the rim. The rim is firmly secured to the bottom of the container by means of a hollow jacket heat shrunk around the main body of the container and on the rim.

3,635,368

COLLAPSIBLE CONTAINER

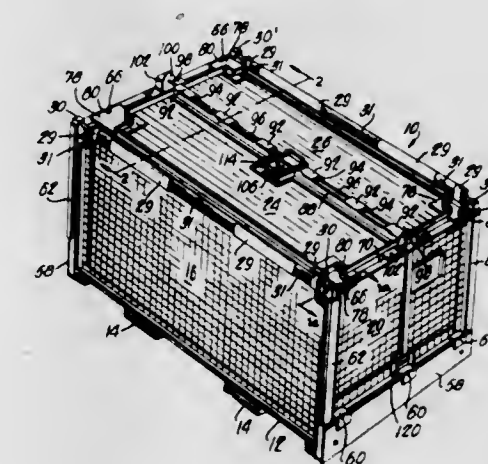
Robert Beck Winsor, Beaconsfield, Quebec, Canada, assignor to IEC-Holden Ltd., Montreal, Quebec, Canada

Filed Dec. 22, 1969, Ser. No. 886,978

Int. Cl. B65d 7/26

U.S. Cl. 220-6

16 Claims



A collapsible container having a bottom platform with end walls and at least one side frame pivotally connected thereto, a sidewall pivotally connected to the top edge of the side frame, and a top wall pivotally connected to the top of the container, the various walls of the container being pivotable about an end edge thereof so that said walls may be moved from a collapsed position to an erected position or vice versa, and locking means to ensure that all of the walls are locked in position when the container is closed in erected position.

3,635,369

PRECOATED PLUG

Tull C. Lasswell, 230 Pawnee Path, Lake Orion, Mich., and John L. Monier, 1968 Harwood Drive, Oxford, Mich.

Filed Aug. 19, 1969, Ser. No. 851,261

Int. Cl. B65d 41/00

U.S. Cl. 220-42 B

7 Claims



A plug adapted to close off core openings in an internal combustion engine is precoated with a plastic which forms a fluidtight seal between the peripheral surface of the plug and the core opening upon insertion of the plug therein. The plug is preferably coated with a solution of a polyvinylidene chloride in cyclohexanone which is cured by heating for 20 minutes at 160° F. The thickness of the plastic coating may be doubled by heating the coated plug for 10 minutes at 350° F.

3,635,370

CENTRIFUGE TUBE CLOSURE ASSEMBLY

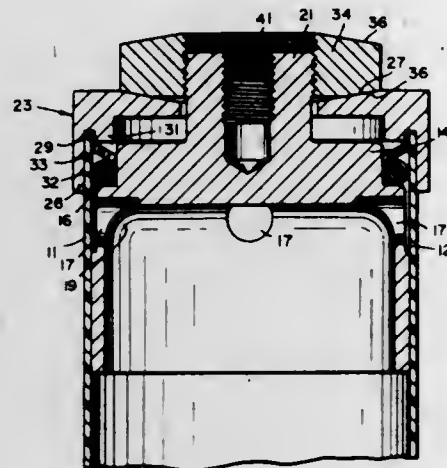
William A. Romanas, Southbury, Conn., assignor to Ivan Sorvall, Inc., Newton, Conn.

Filed Aug. 11, 1970, Ser. No. 62,921

Int. Cl. B65d 53/00

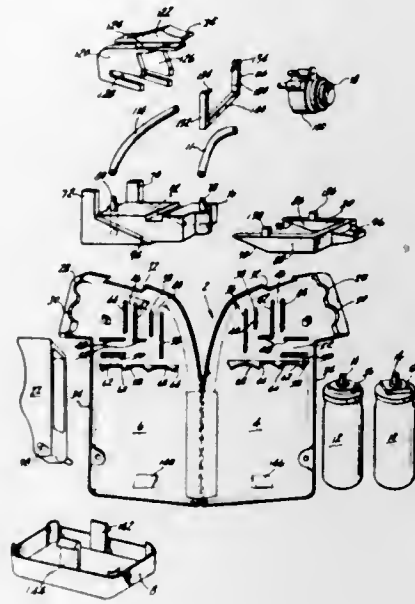
U.S. Cl. 220-46 R

15 Claims



A centrifuge tube closure assembly removably attached to a centrifuge tube and including means for securing said assembly firmly to the centrifuge tube and means for venting air above the contents of the tube when said closure assembly is secured to the tube.

The contents of the cans are released by the actuation of a trigger which in turn actuates a camming member which



moves a valve actuator to depress the valve stems of the cans.

3,635,371

SELECTIVELY SUPPORTABLE COOKING APPARATUS

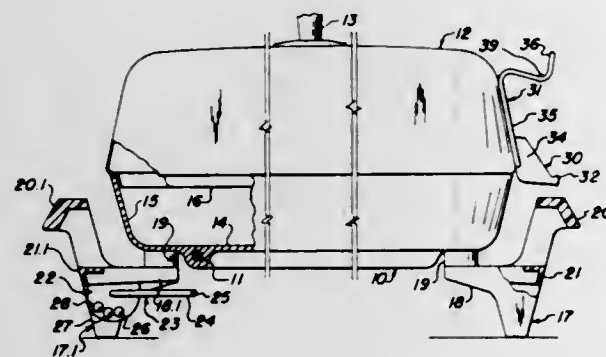
Berton R. Oxel, Louisville, Ohio, assignor to The Hoover Company, North Canton, Ohio

Filed Mar. 12, 1970, Ser. No. 18,881

Int. Cl. B65d 7/42

U.S. Cl. 220-69

17 Claims



A cooking vessel which may be selectively supported in various angular positions and having a lid which may also be selectively supported in angular positions either associated with or disassociated from the vessel.

3,635,372

SELF-PROTECTIVE DEVICE

Kenneth A. Van Dyck, Weston; Phillip W. King, Cheshire, and Charles F. Stephenson, Rowayton, all of Conn., assignors to Olin Corporation

Filed Sept. 29, 1969, Ser. No. 861,733

Int. Cl. B67b 7/24

U.S. Cl. 222-3

3 Claims

A nonlethal self-protective device utilizing pressurized cans of an incapacitating fluid and a gaseous fluid. The device includes a nozzle for dispensing the incapacitating fluid and a whistle which is activated by the gaseous fluid.

**3,635,373
AUTOMATIC DEVELOPABILITY CONTROL APPARATUS**

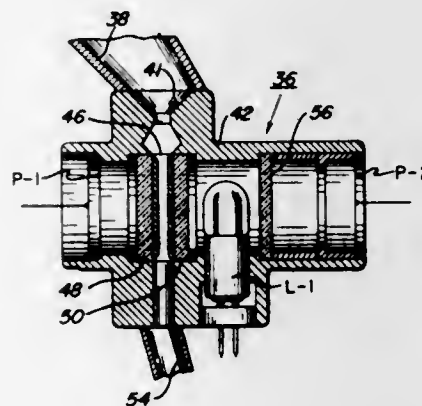
James E. Kuhl, and Francis D. Witinski, both of Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,727

Int. Cl. B67d 5/08

U.S. Cl. 222-57

7 Claims



A developability control system for a xerographic reproducing machine. The system includes two parallel-spaced NESA glass plates through which two-component developer material, including toner and carrier, flows. The plates are connected in a circuit wherein each is electrically charged alternately for equal periods of time for attracting and repelling toner. A light source is located at one side of the two plates while a photocell is located on the other side to sense the optical density of the sum toner deposit on the two plates at all operating times. This sensing is compared with light received by a second photocell, separated from the same light source by a filter, to cause the dispensing of toner to the developer at appropriate times.

3,635,374

FLUID-DISPENSING CLUB

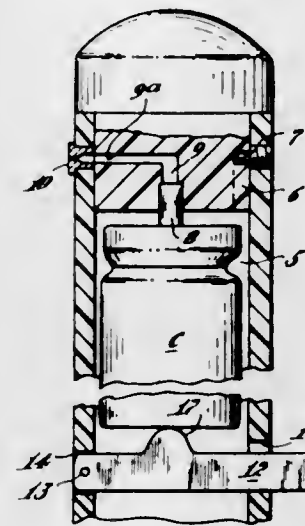
John E. Anketell, Fitzwilliam, N.H.

Filed Dec. 15, 1969, Ser. No. 885,246

Int. Cl. F41b 15/02

U.S. Cl. 222-78

4 Claims



A dispensing device comprising an elongate rigid holder having a handle portion and a normally closed interior chamber designed to hold an aerosol container having a normally closed delivery valve, the wall of the chamber having a discharge port; a manually controllable, external trigger device for opening the valve of the container; a concealed safety valve which normally closes said discharge port, and means accessible, at the exterior of the device, for setting said safety valve to inoperative position.

3,635,375

RESILIENT SQUEEZABLE SPRAY DISPENSER

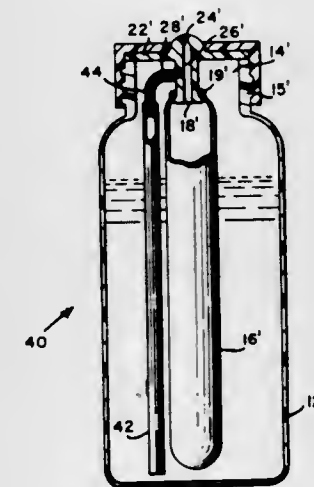
Hubert J. Gaetke, 6630 Dartmoor Way, San Jose, Calif.

Filed Nov. 6, 1969, Ser. No. 874,479

Int. Cl. B65d 35/28

U.S. Cl. 222-94

8 Claims



A spray container including an outer receptacle of yieldable or resilient material, the outer vessel being adapted to hold a supply of a first fluid and having a top opening to the exterior of the receptacle; an inner vessel of yieldable or resilient material adapted to hold a supply of a second fluid; a top sealing member engaged to the outer receptacle about the top opening, a nozzle within the top member and opening to the exterior of the container, the nozzle joined to passage

means extending to the interior of the outer receptacle to receive said first fluid and to the inner vessel to receive said second fluid.

3,635,376

QUICK-OPEN FLEXIBLE PACKAGE

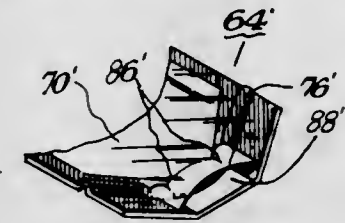
Harold Richard Hellstrom, 5245 Center Ave., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 852,553, Aug. 25, 1969, now abandoned. This application June 5, 1970, Ser. No. 43,717

Int. Cl. B65d 35/08

U.S. Cl. 222-107

27 Claims



I disclose a quick-open container structure comprising a pair of sheet members, means for peripherally sealing said sheet members to define a containment section therebetween, said peripheral sealing means being interrupted to define a relatively narrowed dispensing channel, extending from said containment section to an edge of said structure, at least one of said sheet members being sufficiently flexible to permit deformation at said containment section to extrude the contents thereof through said dispensing channel, a deformable member mounted on one of said members and disposed to block said dispensing channel in the undeformed condition of said deformable member, means for stretching said one flexible member over said deformable member in its nondeformed condition to seal said containment section, said deformable member being shaped to loosen said one flexible member in the deformed condition of said deformable member.

3,635,377

MATERIAL-TRANSPORTING DEVICE

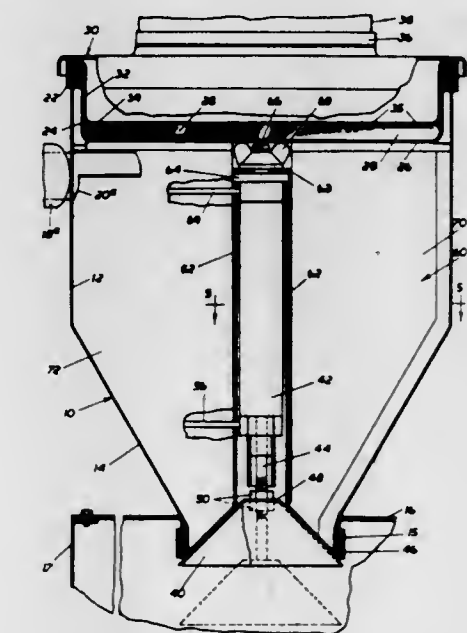
Raoul J. Potvin, Franklin, Pa., assignor to Conair, Incorporated, Franklin, Pa.

Filed Aug. 19, 1969, Ser. No. 851,224

Int. Cl. B67d 5/60

U.S. Cl. 222-145

10 Claims



A device for transporting pulverant, finely divided or granular material from a source of such material to an in-

terim material-receiving loader or chamber having improved valve means for controlling the discharge of one or more materials from the chamber and which valve means can additionally distribute the discharged materials within a subsequent receiving chamber.

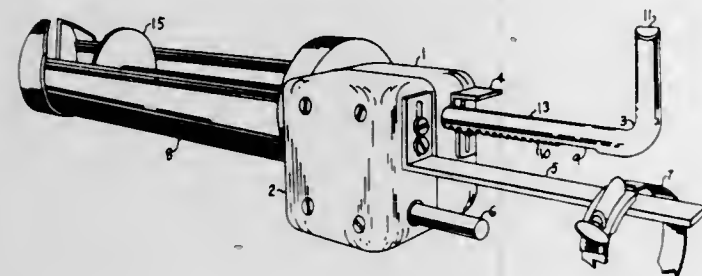
3,635,378

APPLICATING DEVICES

Damon DeHart, 6 Veterans Ln., Stoneham, Mass.
Filed Nov. 24, 1969, Ser. No. 879,333
Int. Cl. F16n 3/12

U.S. Cl. 222-333

12 Claims



A device including an encasement, a dividing plate inside the encasement, a securing bar mounted on the encasement, a drive source secured by the securing bar to the encasement, a gear train supported inside the encasement, a modified rack gear driven linearly through the encasement by the gear train, a storage chamber mounted on the encasement through which the modified rack gear also travels linearly, a disk mounted on the end of the modified rack gear which forces the contents of the storage chamber to expel as the modified rack gear advances through the storage chamber, an automatic stop on the modified rack gear which prevents its advancement after a predetermined distance of travel, a keeper to cause the modified rack gear to resist disengaging from the gear train, but still allow the disengagement and withdrawal of the modified rack gear from any point of its advancement.

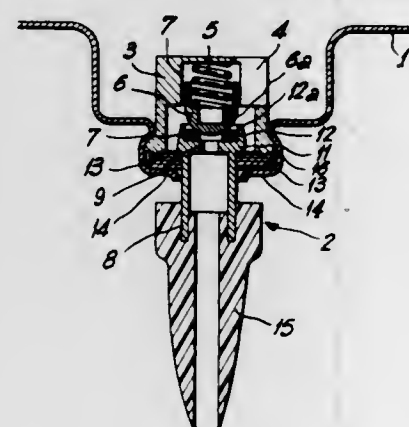
3,635,379

SPRING-BIASED TILTING VALVE

Henry Angele, Rieck, Gers, France, assignor to Etablissements Valois, Marly le Roi, Yvelines, France
Filed June 4, 1969, Ser. No. 830,262
Claims priority, application France, June 10, 1968, 154317
Int. Cl. B65d 83/06

U.S. Cl. 222-402.22

4 Claims



A dispensing valve having a valve member with rounded cap and means enabling rocking of the tube for progressive

opening of the valve by displacing the valve seat relative to the rounded cap.

3,635,380

CONTAINER CLOSURE

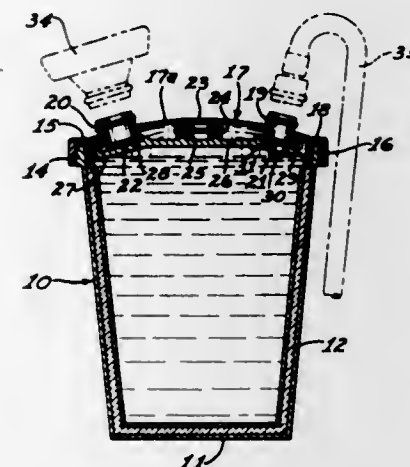
Leonard C. Fitzgerald, Fairfax, Calif., assignor to Nospil Limited, Los Angeles, Calif.

Filed Jan. 5, 1970, Ser. No. 631

Int. Cl. B67d 3/00

U.S. Cl. 222-484

6 Claims



A traveler's nonspillable, reusable drinking cup for use of drivers and passengers in automobiles, boats, trains and airplanes, to dispense liquid only when held in the hand and pressed slightly on any part of the top to actuate normally closed sealing valves in the closure for the cup.

3,635,381

FRONT FLOOR MOUNTED AND SEAT ATTACHED VEHICLE GUN RACK

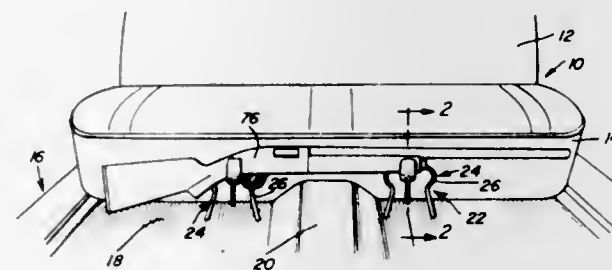
John V. Hensley, Shreveport, La., assignor to Jack H. Kaplan, Shreveport, La., a part interest

Filed Aug. 22, 1969, Ser. No. 852,290

Int. Cl. A47b 81/00

U.S. Cl. 224-1

5 Claims



A pair of upstanding structures for supporting longitudinally spaced portions of an elongated horizontal member extending transversely in front of the forward edge of a vehicle seat cushion. Each of the cradle structures includes front and rear sides and a pair of upstanding opposite side legs spaced horizontally apart at their lower ends and joined together at their upper ends and is provided with an upper upwardly opening U-shaped cradle element disposed in an upstanding plane generally normal to an upstanding plane containing the lower end portions of the legs of the cradle structure with the cradle element projecting forwardly from the front side of the structure. Also, elongated resilient ten-

sion members have one pair of corresponding ends thereof supported from upper portions of the cradle structures and anchor portions on the other pair of ends thereof for anchoring to the forward lower edge of the associated seat cushion when the cradle structures are disposed upright in front of the seat cushion.

3,635,382

HANDLE GRIP FOR BAILS

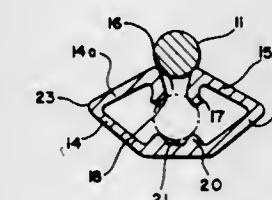
Earl Wilson, Seattle, Wash., assignor to Sales & Services, Inc., Seattle, Wash.

Filed Dec. 1, 1969, Ser. No. 881,108

Int. Cl. A45f 5/10

U.S. Cl. 224-45 P

5 Claims



A handle grip for bails on buckets and the like in which the grip snaps into position from the inner concave side of the bail and has transverse slits so that the grip can more readily bend into chordal segments in accordance with the arch of the bail.

3,635,383

TAPE DISPENSER FOR MULTIPLE ROLLS

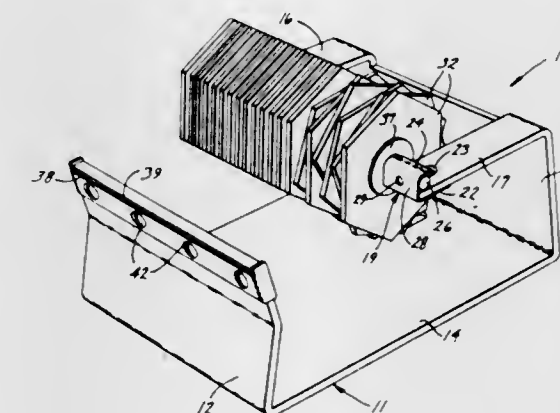
Edward Waltz, Grand Rapids, Mich., assignor to The E. O. Bulman Manufacturing Company, Inc., Grand Rapids, Mich.

Filed Oct. 22, 1969, Ser. No. 868,393

Int. Cl. B26f 3/02

U.S. Cl. 225-37

8 Claims



Shaft means is mounted upon a base and supports a plurality of adjacent plate members for rotation around the axis of said shaft. Said plate members define substantially identical and regular polygons circumscribed by identical circles coaxial with said shaft axis. Plural rolls of tape having coaxial openings with diameters substantially identical to the diameters of said circumscribed circles can be sleeved over said plate members for separate, independent rotation. A cutting edge is mounted upon the base for severing portions of the tape from the rolls thereof.

3,635,384

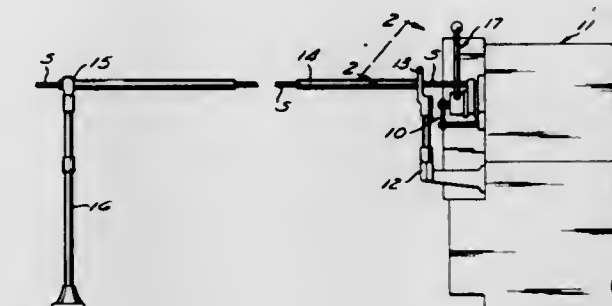
STOCK FEEDING DEVICE FOR AUTOMATIC SCREW MACHINES

John F. Wedler, 30749 Summit Ln., Pepper Pike, Ohio
Filed Feb. 4, 1970, Ser. No. 8,557

Int. Cl. B65h 17/34

U.S. Cl. 226-49

11 Claims



A device for inserting bar stock into the spindle of an automatic lathe, such as an automatic screw machine. The device is mounted on the feed end of the machine and is provided with work-engaging jaws that are coaxial with the spindle of the machine. The jaws are manually operable to engage and clamp a bar and also are movable in directions parallel to the axis of the spindle so that a bar clamped in the jaws can be advanced into the spindle and into engagement with the feeding mechanism of the machine or withdrawn from the feeding mechanism of the machine.

3,635,385

HIGH-SPEED MAGNETIC TAPE

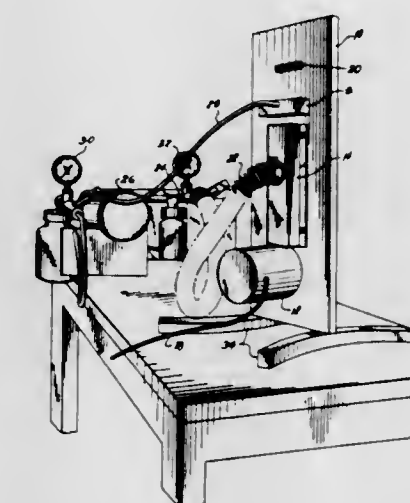
William David Cohen, Huntington, N.Y., assignor to Systems Resources Corporation, Plainview, N.Y.

Filed Jan. 15, 1970, Ser. No. 3,071

Int. Cl. B65h 17/32

U.S. Cl. 226-97

9 Claims



An endless loop of magnetic tape is supported on two bearings and a driving capstan positioned in triangular relationship. The bearings and the capstan are mounted on a panel which is spaced a parallel cover. The cover and panel confine the space within the loop of tape to define a chamber to which an evacuating force is applied to draw the tape toward the bearings and capstan. The outside of the tape is exposed to ambient atmosphere so that movement of the tape past a magnetic head to which the tape is exposed creates a laminar airflow avoiding direct contact between the head and tape. Inside of the loop the bearings are fixed but

are, however, provided with a flow of air providing for a cushion between the bearings and the tape. The output of the head can be monitored and used to control the aforementioned evacuating force to control the passage of the tape across the head.

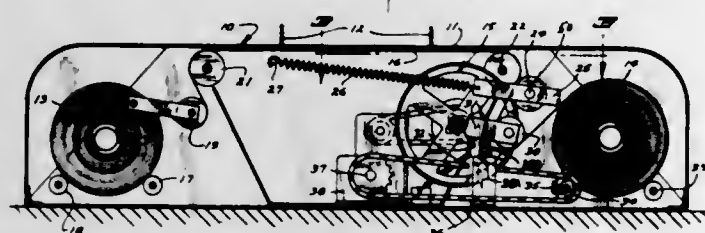
3,635,386

STRIP FEED MECHANISM

Karl J. Kallenberg, Minneapolis, Minn., assignor to Electronic Systems Engineering Co., Cushing, Okla.
Filed Jan. 26, 1970, Ser. No. 5,528
Int. Cl. B65h 17/22

U.S. Cl. 226—135

15 Claims



A strip feed mechanism for precisely feeding preselected lengths of a strip material, such as a paper used in photographic printing, in response to a predetermined signal. The drive includes positive stop mechanism for precise feeding of selected lengths, and adjustable means to permit feeding different lengths as desired. The length of feed is measured precisely, and the unit includes stop means that releases to stop the feeding mechanism at an exact position. The stop signal is dependent upon the length actually fed and is not affected by inertia or time lag in the starting of drive motors.

3,635,387

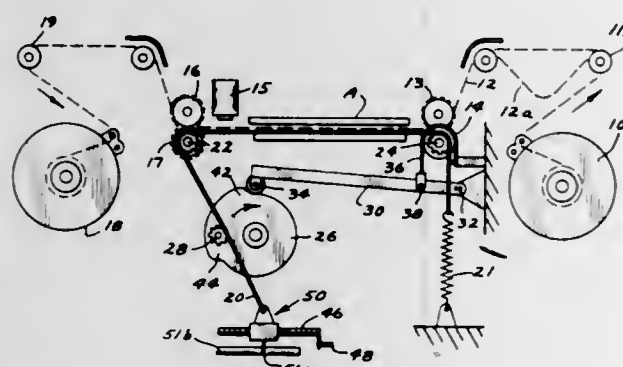
INCREMENTAL WEB FEEDING MEANS

Albert F. Gallistel, Wayzata, and Warren R. Posthumus, Minneapolis, both of Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed Nov. 28, 1969, Ser. No. 880,866
Int. Cl. B65h 17/22

U.S. Cl. 226—141

14 Claims



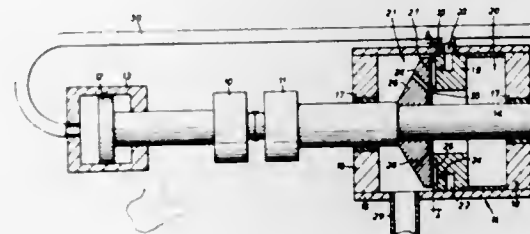
Readily adjustable web-feeding means which, in the specific form disclosed, embodies a chain and sprocket drive with a takeup crank arm engaging an intermediate portion of the chain to produce an intermittent driving action which is readily adjustable from a location remote from the crank arm by varying the relationship between the engaged chain segment and the crank arm axis such as by moving by means of a remote-controlled mechanism one end of the engaged chain segment such as the anchored end of the chain whereby the effective takeup stroke on the chain can be varied.

3,635,388
FRICTION WELDING APPARATUS
Brian E. Jenkinson, Barkston, near Grantham; Geoffrey W. Watson, Grantham, and Peter B. Folster, Melton Mowbray, all of England, assignors to Steelweld Limited, Grantham, England

Filed Jan. 30, 1969, Ser. No. 795,306
Claims priority, application Great Britain, Feb. 5, 1968, 5,666/68
Int. Cl. B23k 27/00

U.S. Cl. 228—2

5 Claims



In a friction welding machine one workpiece chuck is urged by a ram or rams towards a second workpiece chuck which is rotatable. The second chuck is supported in bearings with freedom for limited axial displacement under axial thrusts transmitted to it from the ram or rams through the workpieces and is supported against the thrusts by a hydrostatic thrust bearing.

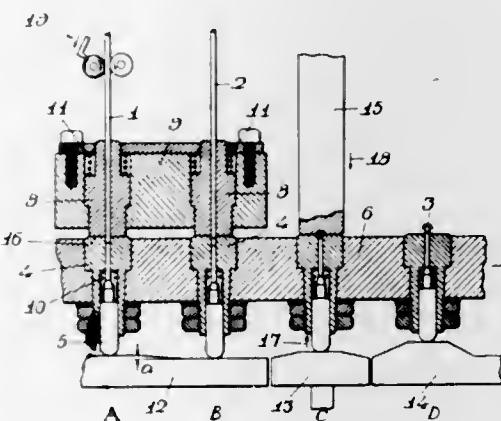
3,635,389

HEADING MACHINE

Akira Shibata, Tokyo, Japan, assignor to Chugai Denki Kogyo Kabushiki Kaisha, Tokyo, Japan
Original application Sept. 13, 1965, Ser. No. 486,621, now Patent No. 3,460,735. Divided and this application Nov. 27, 1968, Ser. No. 779,546
Int. Cl. B23k 21/00; B23p 3/02

U.S. Cl. 228—3

3 Claims



A heading machine for joining and shaping, by cold welding under pressure, cut lengths of wire of respectively different metal compositions is disclosed as including means for feeding continuous wires of the different metal compositions, means for severing that short lengths of the different wires, means for positioning and retaining the short lengths in axial alignment with each other, pressure means for forcing the cut ends of the short lengths of wire into abutment to cold weld the short lengths to each other, and shaping means operable to deform and "head" one end of the joined short wire pieces, these means being mounted on a mounting means

which is arranged to be stepped along a path of travel past plural working stations in uniformly spaced relation.

3,635,390

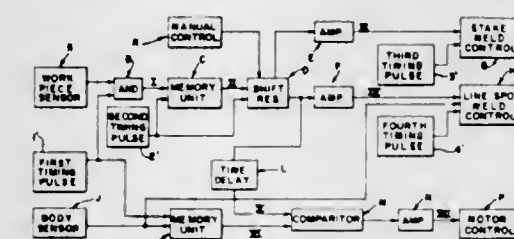
ELECTRONIC CONTROL CIRCUIT FOR AUTOMATICALLY FED MACHINES

Clarence R. Gross, Hastings, Mich., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Original application Jan. 17, 1968, Ser. No. 698,657, now Patent No. 3,534,897, dated Oct. 20, 1970. Divided and this application Sept. 25, 1969, Ser. No. 870,830
Int. Cl. B23k 1/00, 5/00

U.S. Cl. 228—8

8 Claims



There is provided an apparatus controlling an automatically fed machine having multiple feed stations and a conveyance path along which workpieces are fed. A pulse generator operatively connected to the apparatus generates a plurality of timing pulses in timed relationship with feeding of the workpieces, and a multiple of workpiece detection sensors produce signals when detecting workpieces in several of the stations, such signals being stored in associated memory units in time relationship with several of the timing pulses. An output signal from one of the memory units impulses a shift register, which is then stepped for each machine cycle by one of the timing pulses. An output signal from the shift register is adapted to energize a work-performing apparatus should the workpieces be conveyed properly, and another output signal from the shift register is compared in a comparator with an output signal from the other of the memory units. Should the two comparator signals agree in point of time, an output signal from the comparator will energize a machine control that keeps the machine operating. Should the two signals not compare in point of time, both the work performing apparatus and the machine control remain deenergized, and the machine stops.

ERRATA

For Classes 229—14, 229—37 and 229—40 see:
Patent Nos. 3,635,450 thru 3,635,452

3,635,391

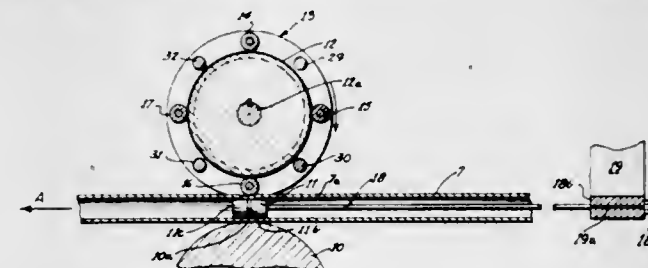
INTERNAL BEAD FORGING DEVICE FOR CONTINUOUS WELDED TUBE MILL

Donald W. Foltaedt, and Robert S. Burns, both of Middletown, Ohio, assignors to Armco Steel Corporation, Middletown, Ohio

Filed May 7, 1970, Ser. No. 35,330
Int. Cl. B23k 19/00

U.S. Cl. 228—24

15 Claims



A forging assembly for the continuous flattening of the longitudinal, internal weld bead of small diameter tubing

produced by a continuous tube mill. The forging assembly comprises a support roll for the tubing, a mandrel mounted within the tubing, and forging means adapted to impart periodic, overlapping blows so as to flatten the internal bead against the mandrel. The forging means comprises a plurality of planetary forging rolls carried by a roll cage rotatively mounted on a driven race. There is a time delay between each contact of the tube by a forging roll, sufficient to enable the mandrel to engage a new portion of the bead for forging.

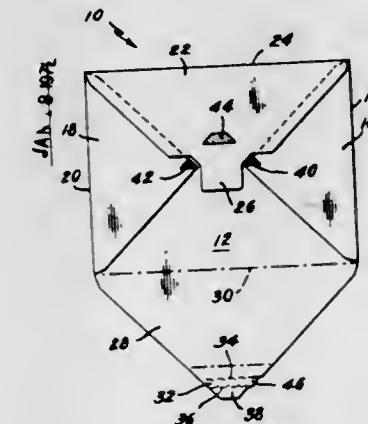
3,635,392

REUSABLE ENVELOPE

Harvey W. Burgher, 204 Jacobs St., Seekonk, Mass.
Filed Dec. 22, 1969, Ser. No. 887,046
Int. Cl. B43m 7/00

U.S. Cl. 229—85

1 Claim



A reusable envelope for carrying sheet material therein and being defined by a one-piece blank having a central portion to which side and end flaps are integrally joined and that are folded relative thereto; the end flaps being adhered in place when the envelope is initially sealed, and a tear tab being formed on one of the end flaps and being stripped therefrom to disconnect the end flap to which it is joined from the other end flap, wherein the other end flap may be withdrawn from the closed position for removal of the contents of the envelope, and thereafter is reinsertable into a positive closed position when the envelope is to be reused.

3,635,393

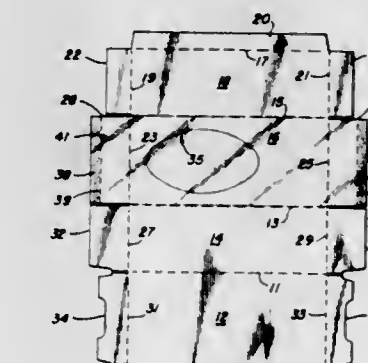
OVERWRAPPED DISPENSING CARTON

Harold J. Herglotz, Newark, Del., assignor to Westvaco Corporation, New York, N.Y.

Filed Oct. 9, 1969, Ser. No. 865,073
Int. Cl. B65d 5/72

U.S. Cl. 229—17 S

2 Claims



A dispensing carton is formed from a one-piece blank of paperboard or the like which includes a flexible sheet of

A dispensing carton is formed from a one-piece blank of paperboard or the like which includes a flexible sheet of

overwrap material overlying the outer surface of the dispensing wall of the carton. The flexible overwrap is attached to the end flaps of the carton so that it can be readily removed without damaging the outer surface of the carton walls.

3,635,394

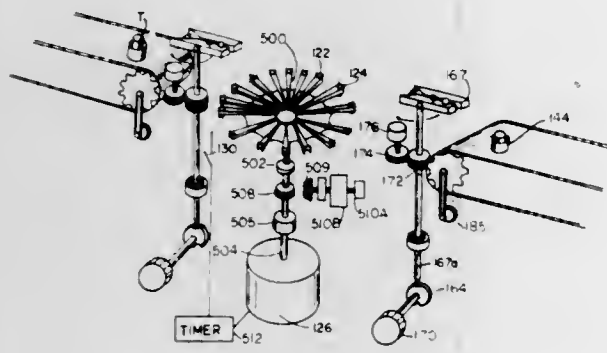
AUTOMATED CLINICAL LABORATORY

Samuel Natelson, Chicago, Ill., assignor to Robe Scientific Corporation, Santa Ana, Calif.

Continuation-in-part of application Ser. No. 845,992, July 30, 1969. This application Nov. 7, 1969, Ser. No. 874,824
Int. Cl. B04b 9/12, 9/14

U.S. Cl. 233-26

2 Claims



An automated centrifuge system having a conveyor for test tubes to be loaded thereon at a first transfer station, the test tubes are removed from the conveyor and placed into trunnion cups on a trunnion carrier. Program means are coupled to the trunnion carrier to first slowly rotate the trunnion carrier as the test tubes are loaded thereon, second, rapidly rotate the trunnion carrier to centrifuge specimens therein and third, slowly rotate the test tubes so that the test tube can be unloaded. The test tubes are then removed from the trunnion carrier and, second conveyor carries the test tubes away from the trunnion carrier.

3,635,395

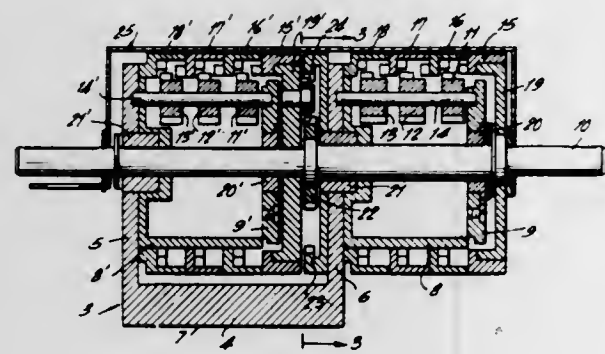
PLANETARY CONVERSION COUNTER

David F. Walsh, Lake Ronkonkoma, N.Y., assignor to Meland Gear and Instrument Co., Inc.

Filed Jan. 16, 1970, Ser. No. 3,347
Int. Cl. G06c 27/00

U.S. Cl. 235-1 A

10 Claims



A first and a second counter are provided. Each counter has at least one rotatable readout wheel. Drive means are provided for rotating the readout wheels. Internal planetary gearing is provided between the counters. The drive means

causes the readout wheel of one counter to rotate at a predetermined rate relative to and different from that of the readout wheel of the other counter. An externally driven revolvable mask may be disposed over the face of the numbers on the rotatable readout wheels of the counters. The mask when revolved in one direction exposes only the numbers of one counter and when revolved in counter direction exposes only the numbers on the other counter.

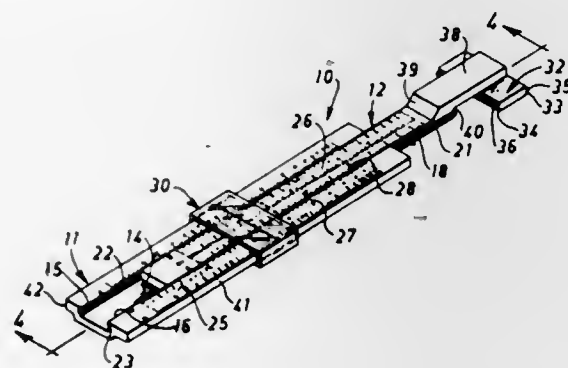
3,635,396

SLIDING PARALLEL RULE

Leslie Palfi, 167 Bayview Heights Drive, Toronto 17, Ontario, Canada

Filed Dec. 10, 1970, Ser. No. 96,763
Int. Cl. G04b 27/02; B431 7/06
U.S. Cl. 235-70 R

9 Claims



A parallel rule includes an elongated body and an elongated arm with a crosshead which is slidably inserted into a longitudinally extending channel in the body for longitudinal movement of the arm relative to the body at a desired angle thereto. To allow the rule to be carried in a person's pocket, the crosshead can be slid from the channel and the arm then slid bodily into the channel. With the arm so disposed in the channel, the rule can also be used as a slide rule.

3,635,397

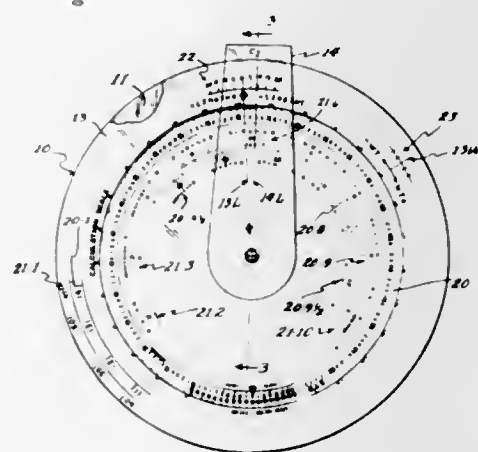
SPEED REGISTER

Jerome J. Kurland, 2725 W. Fitch Ave., Chicago, Ill.

Original application July 13, 1967, Ser. No. 653,061, now Patent No. 3,473,731. Divided and this application Sept. 15, 1969, Ser. No. 857,998
Int. Cl. G06c 27/00

U.S. Cl. 235-78

6 Claims



A speed register intended for thoroughbred racing (flat) is disclosed in a circular slide embodiment and in a straight slide embodiment. The circular slide has a base provided

with an annular elapsed time scale and a set of corresponding speed readout scales spaced therealong according to individual race distances. The circular slide embodiment includes a set of rotary discs and cursors secured by a pair of eyelets to accommodate relative shifting movement. The straight slide embodiment includes a plurality of base scales each associated with common cursor elements, with the base scales being relatively shiftable to portray relative performance factors simultaneously with direct speed readouts. A pivoted base scale also enables conversion of past performance data between tracks having different speed characteristics.

3,635,398

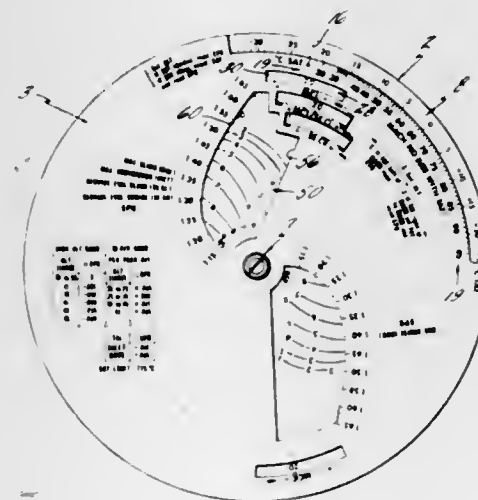
ENGINE RATING PRESSURE RATION COMPUTER

Anselm J. Conl, Wapping, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 20, 1970, Ser. No. 21,555
Int. Cl. G06c 3/00

U.S. Cl. 235-88

10 Claims



A computer for determining turbine engine pressure ratio limits during engine operation for several inflight ratings. The computer comprises a circular base with a circular overlay mounted thereon for relative movement. Indicia indicative of static air temperature (SAT), total air temperature (TAT) and altitude are placed at different radii in arcuate form on the circular base with arcuate windows being provided on the overlay to read said indicia to insure the overlay is positioned at a desired position with respect to the circular base. While the windows over the altitude indicia only have an arrowhead selector, the window for SAT and TAT has a scale representing Mach number. Also on the base are two sets, or families, of curves representing Mach numbers. Each set of these curves has been calculated to meet with a mating curve formed on one side of each of two other windows on the overlay which is marked in numbers representing engine pressure ratio.

While the circular base and circular overlay of this computer can be hand operated, it is to be understood that they can be turned by other means. An instrument wherein the circular base could be moved by total air temperature (TAT) and the circular overlay could be turned by the speed of an aircraft to read in Mach number is contemplated. A fixed hair line in front of the base and overlay is used to read off the indicated Mach number and the indicated total air temperature. When these are properly lined up on the hair line, the static air temperature (SAT) can be read directly therefrom.

3,635,399

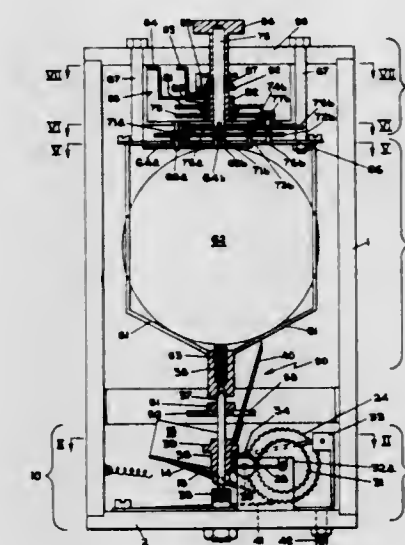
PEDOMETER WITH DIRECTION READOUT

Ernst A. Dahlquist, 7744 Thornapple Drive, Ada, Mich., and Eric A. Sandberg, 5744 20th Ave. S., Minneapolis, Minn.

Filed Sept. 23, 1969, Ser. No. 860,194
Int. Cl. G04b 43/00

U.S. Cl. 235-105

15 Claims



An integrating pedometer, to be carried by a person walking, having a pendulum pedometer movement, a spring-loaded escapement assembly which suddenly reciprocates a needle at distance-related periodic intervals, a compass assembly which positions said needle as a function of the direction of travel, a sphere which is turned by said sudden reciprocation of said needle, a north-south register wheel and an east-west register wheel contacting said sphere to register the rotation thereof, and a readout assembly including a dial to indicate the distance and direction back to the point of origin.

3,635,400

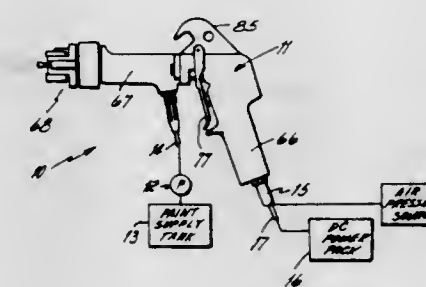
PAINT SPRAYING METHOD AND APPARATUS

Eric T. Nord, Oberlin; Samuel R. Rosen, Lorain; Don R. Scarbrough, Elyria; Burton J. Vilagi, Amherst, all of Ohio, and Peter W. Runstadler, Jr., Hanover, N.H., assignors to Nordson Corporation, Amherst, Ohio

Filed Mar. 27, 1970, Ser. No. 23,227
Int. Cl. B05b 5/00; F23d 11/28

U.S. Cl. 239-15

20 Claims



A method and apparatus for spraying paint and similar coatings. In one form the paint is sprayed at low pressure from a flat fan nozzle. A flat fan of air impinges upon the fan of paint at an angle of from 30°-70°. The air atomizes the paint to form a soft spray with low-forward velocity. In another form of the method, two fans of paint are projected toward one another at an angle and an air fan is directed along the bisector toward the zone of intersection. The air

fan atomizes both streams of paint. An electrode can be placed in the air stream to ionize the air stream which in turn charges the paint particles. The width of the paint spray pattern is varied by varying the included angle of the air fan.

A spray gun is disclosed having two tubular paint nozzles for projecting two fan-shaped fans of paint. An air nozzle is mounted between the paint nozzles for projecting a fan of air against the paint fans to atomize the paint. The air nozzle is adjustable to provide air fans of different angles for varying the width of the paint spray pattern. An electrode is disposed in the air nozzle for ionizing the air stream. This electrode is energized through a resistor and flexible cable. The cable is spring-urged toward the resistor so that when the resistor is removed, the cable shifts causing a safety switch to open deenergizing the gun. When a nozzle mounting member is removed, the cable and surrounding tube are shifted forwardly to automatically close a valve to seal off the air and electrical conduits. Removable caps are provided on the ends of the tubular paint nozzles for facilitating cleaning of the nozzles.

3,635,401

ELECTROSTATIC SPRAYING METHODS AND APPARATUS

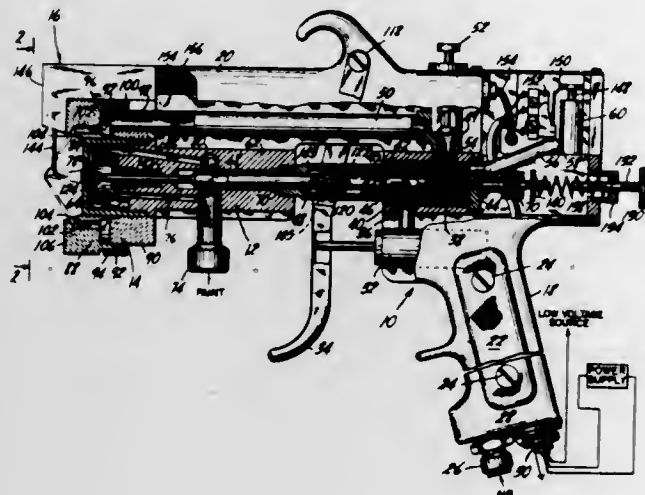
Leo L. Bromley, Nutley, and James B. Williams, West Orange, both of N.J., assignors to Gourline Coating Systems, Inc., Livingston, N.J.

Filed Oct. 27, 1969, Ser. No. 869,628

Int. Cl. B05b 5/00

U.S. Cl. 239-15

17 Claims



Apparatus and methods for electrostatically coating a workpiece in which a spray of atomized coating material particles is charged electrically and thereafter confined within a surrounding shroud of moving air to control dispersal of the charged particles and to increase the charge potential carried by the particles. The shroud of air issues from the spray apparatus as a multiplicity of separate airstreams that extend toward the workpiece to be coated a distance sufficient to confine the charge particles against electrostatic attraction to objects other than the workpiece. Electrostatic charges are imparted to the coating material particles by a rearwardly directed corona discharge established between a corona electrode positioned in the spray path and the spray head. An air-operated switch energizes the corona electrode upon the flow of air to the spray head, thus preventing sparking between the corona electrode and the spray head by ensuring that the corona electrode is immersed in an airflow prior to being energized.

3,635,402

WATER FOUNTAIN CLOCK

Koreichi Kawamura; Yoshiko Kawamura, and Koichi Kawamura, all of No. 66, Jyomiyoji, Kamakura, Japan

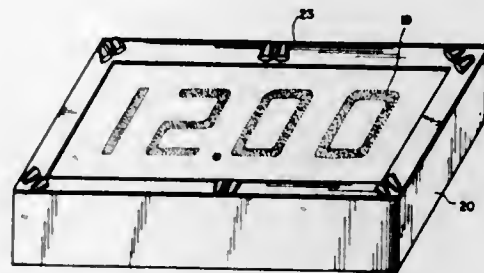
Filed Mar. 31, 1970, Ser. No. 24,270

Claims priority, application Japan, May 24, 1969, 44/39905

Int. Cl. B05b 17/08

U.S. Cl. 239-18

6 Claims



A water fountain clock, including nozzles, each selectively producing water columns in the form of one of numerals zero to nine. The nozzles are connected to flow control means, which are regulated by a timer generating output signals in a certain time sequence. Whereby, the numerals indicated by the water columns are varied in a suitable time sequence, so as to digitally indicate correct time by the water columns.

3,635,403

FUEL INJECTION DEVICE

Wilfried Hofken, Vaihingen (Enz.), and Walter Eckstein, Ostelsheim, both of Germany, assignors to L'Orange GmbH., Porschestrasse, Zuffenhausen, Germany

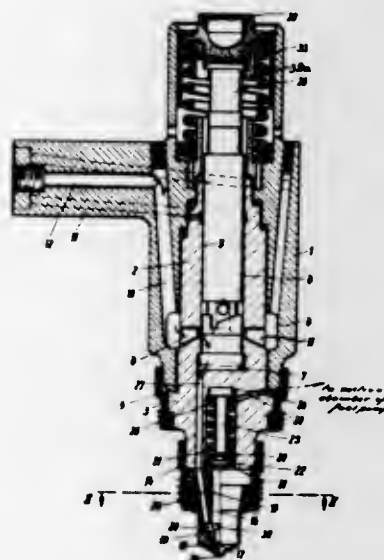
Filed Oct. 10, 1969, Ser. No. 865,456

Claims priority, application Germany, Oct. 25, 1968, P 18 05 024.3

Int. Cl. F02m 47/02

U.S. Cl. 239-90

10 Claims



A fuel injection device, especially for diesel engines, in which the fuel injection plunger is reciprocable in a guiding body one end portion of which forms a spring chamber for the spring which controls the valve member in the nozzle body which latter is connected to that end portion of the guiding body which forms said spring chamber.

3,635,404

SPIN STABILIZING ROCKET NOZZLE

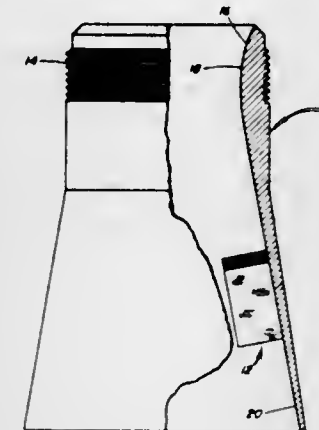
Wayne J. Hopkins, College Park, and James K. Watson, Potomac, both of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed June 18, 1970, Ser. No. 47,478

Int. Cl. B64d 33/04

U.S. Cl. 239-265.15

7 Claims



A rocket nozzle having a plurality of internal vanes located downstream of the nozzle throat for imparting rotational spin to the rocket about its longitudinal axis. Each vane may have a nonablative body having a cross section symmetric with the nozzle axis and a consumable ablative body attached thereto to provide a composite cross section asymmetric to the nozzle axis. The ablative material, imparts spin stabilization to the rocket leaving only the symmetric nonablative vane portions, thus preventing excessive spin rates.

3,635,405

AERATOR CONSTRUCTION

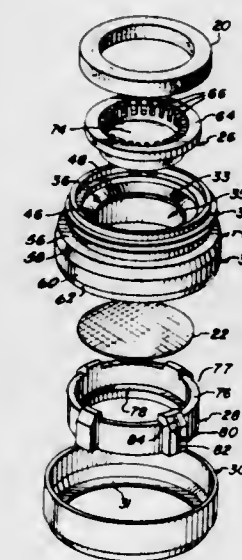
Sidney J. Shames, 57 Holly Pl., Briarcliff Manor, and Harold Shames, 5 Agnes Cir., Ardsley, both of N.Y.

Filed Nov. 5, 1970, Ser. No. 87,075

Int. Cl. E03c 1/084

U.S. Cl. 239-428.5

10 Claims



An inexpensive faucet aerator is provided by three molded parts and a thin metal cup that holds two of the molded parts in assembled relationship. The first molded part is an elongated annulus provided with upstream and downstream recesses separated by an inner ring that helps to break up the

liquid flow and serves as an abutment to support a second molded, jet-forming, part in the upstream recess and is arranged to be engaged by the third, molded, part located in the downstream recess and aiding in defining air intake means to the aerator.

3,635,406

ONE-PIECE SPRAY HEAD AND CORE PIN CONSTRUCTION THEREFOR

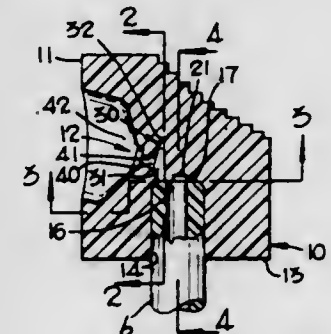
Christian T. Scheindel, Glen Gardner, N.J., assignor to Clayton Corporation, St. Louis, Mo.

Filed May 27, 1970, Ser. No. 40,800

Int. Cl. B05b 1/34

U.S. Cl. 239-490

6 Claims



A spray head for aerosols has a flow channel recessed upwardly into the end surface of its bore; when seated on the tip of a hollow stem, the recessed flow channel controls the rate of flow by providing a cross-sectional area smaller than that of the spray orifice. From the flow channel, the flow leads upward into the aft side of a large circulation chamber; from its forward circular face a converging spray orifice, located below center, induces vortex circulation to produce a fine spray.

3,635,407

SPRINKLER HEAD

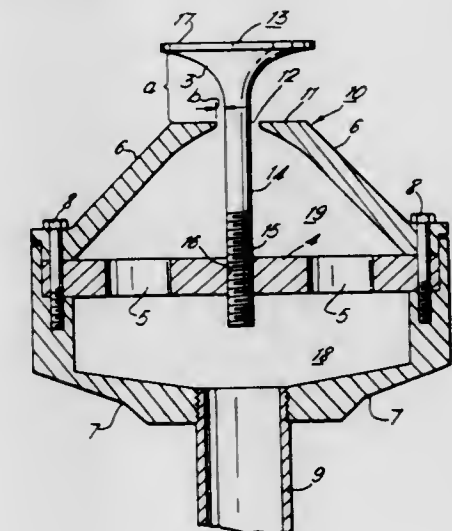
Hollis Banks Wheelock, R.R. #3, Middleton, Nova Scotia, Canada

Continuation-in-part of application Ser. No. 767,154, Oct. 14, 1968, now abandoned. This application Sept. 25, 1970, Ser. No. 75,473

Int. Cl. B05b 1/26

U.S. Cl. 239-514

2 Claims



A sprinkler head is provided which includes four interassembled elements. The first three elements are: (A) a dished

lower casing having means for connection to a source of liquid under pressure; (B) an aperture plate adapted to be secured to the lower casing; and (C) an upper frustoconical casing adapted to be secured to the plate and to the lower casing, the upper casing including a central discharge aperture at the apex thereof. These three elements are assembled to provide firstly a pressure equalization chamber provided with inlet means for liquid to be dispersed and outlet means, the cross-sectional area of the pressure equalization chamber being greater than the cross-sectional area of the inlet means by a factor of about 20 times or more; and secondly, a discharge chamber fed from the outlet means of the pressure equalization chamber, the discharge chamber being frustoconical and including a central outlet means at the apex thereof. The fourth element is (D) a diversification element including a stem of lesser diameter than the diameter of the central outlet disposed through the central outlet means and vertically adjustable with respect to the apex of the frustoconical member, the stem terminating in a threaded end threadedly secured to a central, internally threaded aperture in the plate (B).

3,635,408

TREATMENT OF CARBON LINING FROM REDUCTION CELLS

Merlyn Morris Williams, Montreal, Quebec, Canada, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

Filed Aug. 25, 1970, Ser. No. 66,854

Int. Cl. B02c 19/00

U.S. Cl. 241—1

18 Claims

Carbon lining removed after long, chemical-accumulating use in an aluminum reduction cell is crushed and treated with dry steam at a temperature insufficient to destroy the carbon, so that unwanted carbides and nitrides are eliminated and the lining material is conditioned for recovery of useful values, advantageously by classification thereafter into a coarse fraction providing carbon in reusable form and a fine fraction in which chemical material is reclaimed, such as alumina and fluorides suitable for use in the fused bath of a reduction cell.

3,635,409

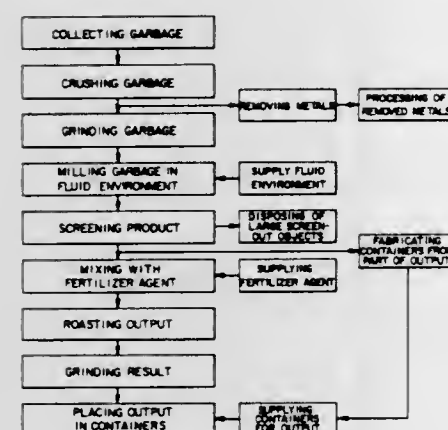
INTEGRATED MUNICIPAL WASTE PROCESSING SYSTEM AND METHOD

John C. Brewer, Salt Lake City, Utah, assignor to Garbaltzer Corporation of America, Salt Lake City, Utah
Continuation-in-part of application Ser. No. 707,910, Feb. 5, 1968, now abandoned. This application Aug. 3, 1970, Ser. No. 60,353

Int. Cl. B02c 15/00

U.S. Cl. 241—43

9 Claims



The present invention provides a system and method for processing municipal waste into useable products. In a

preferred form of the invention the same may be utilized as a composting plant having a rapid time cycle, requiring for batch or continuous feed through operation, a small fraction of the processing time required by conventional biochemical composting plants. Central in the invention is the concept of utilizing a ball-mill to pulverize incoming materials. Specifically usable as a unique combination for municipal waste processing is a wet-grind ball-mill stage followed by a dry-grind ball-mill stage, nonfloatables being reduced by the former and floatables being reduced by the latter. Preferably, both outputs are later combined prior to compacting to produce a usable end product. Heat is supplied in the dry-grind ball-mill stage to preclude layer build up on the interior walls of the ball-mill. In one form of the invention the system or method is used in conjunction with a municipal sewage treatment plant wherein the liquid and sludge phases thereof are utilized in the system and method for milling and also for enriching the materials developed in the system and method, for ultimate processing as a useable fertilizer product.

3,635,410

PULPWOOD CHIPPER

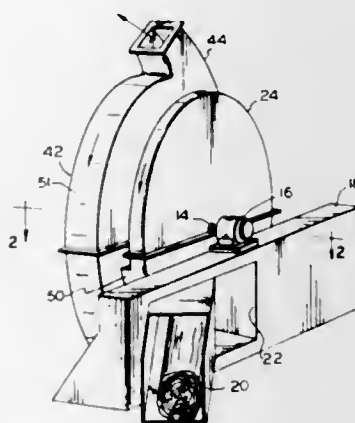
William C. Smith, West Vancouver, British Columbia, Canada, assignor to Rader Pneumatics & Engineering Co. Ltd., Burnaby, British Columbia, Canada

Filed May 4, 1970, Ser. No. 34,250

Int. Cl. B27I 11/02

U.S. Cl. 241—56

5 Claims



Wood chipper has rotating chipper disc and fan wheel spaced from disc. Housings surround disc and fan wheel with passageway from disc to fan wheel housing for chips. Blades on fan wheel engage chips to impel them out of top discharge opening. Total arrangement provides low angles of impact to minimize chip damage.

3,635,411

WINDING MANDREL

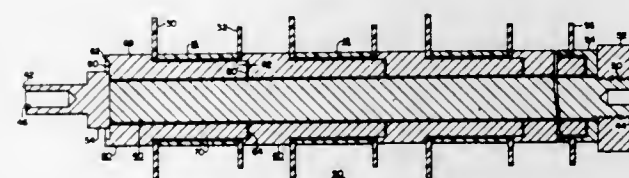
Emerick J. Petrinjak, Masury, Ohio, and William J. Granger, Stoneboro, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 31, 1969, Ser. No. 889,509

Int. Cl. B65h 54/00, 55/00

U.S. Cl. 242—1

1 Claim



A winding mandrel assembly for holding a plurality of coil bobbins while electrical coils are wound thereon, including a

plurality of individual bobbin holders or mandrels telescoped over a common shaft member. Each bobbin mandrel axially locates one end of its associated coil bobbin, and one end of a coil bobbin on an adjacent bobbin mandrel. One end of each bobbin mandrel extends into a depression in the end of the next adjacent bobbin mandrel, to locate and properly support the ends of the coil bobbins while compensating for dimensional tolerances in the length of the coil bobbins.

3,635,412

BOBBIN WINDING DEVICE FOR SEWING MACHINE

Silvano Perlino, Pavia, Italy, assignor to Necchi, S.p.A., Pavia, Italy

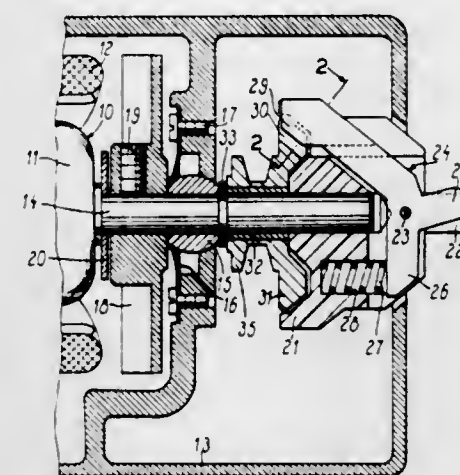
Filed Sept. 3, 1969, Ser. No. 854,903

Claims priority, application Italy, Sept. 23, 1968, 32419 A/68

Int. Cl. B65h 54/00, 54/40

U.S. Cl. 242—20

4 Claims



A bobbin-winding arrangement for sewing machines including a means for uncoupling the motor drive shaft from the machine's normally driven elements.

3,635,413

BREAK DETECTION AND CORRECTION SYSTEM FOR THREADLIKE MATERIALS

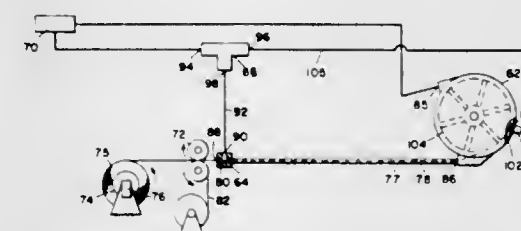
Davis S. Gish, Bel Air, Cumberland, Md., assignor to Hercules, Incorporated, Wilmington, Del.

Filed Dec. 29, 1969, Ser. No. 888,434

Int. Cl. B65h 63/02, 25/08

U.S. Cl. 242—54

11 Claims



A device for detecting the breakage of a filament as a filament passes to a working surface is provided. The detection device has a conduit through which a filament and a gas passes. This conduit is connected through a pressure port to a device for measuring pressure change. If a filament being pulled from a supply source through the conduit of the device is broken, the filament will be pulled out of the conduit. When the broken filament is pulled out of the conduit a

3,635,414

CARTRIDGE CONTAINING TWO ENDLESS LOOPS OF MAGNETIC TAPE

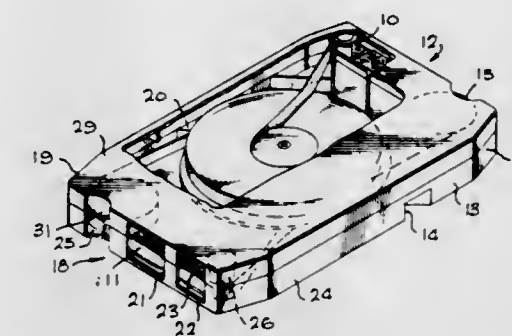
Shashikant M. Patel, Garden Grove, Calif., assignor to Cerron Corporation, Anaheim, Calif.

Filed Nov. 24, 1969, Ser. No. 879,020

Int. Cl. B65h 17/48

U.S. Cl. 242—55.19 A

9 Claims



A magnetic tape cartridge for use with standard sound recording and reproducing apparatus is provided with two endless loops of tape coiled on a separate hub and platform assembly, each guided past apertures in a different end wall. Selection of a given tape for use is made by inserting into the using apparatus the end of the cartridge where the given tape is exposed through apertures.

3,635,415

WINDING APPARATUS

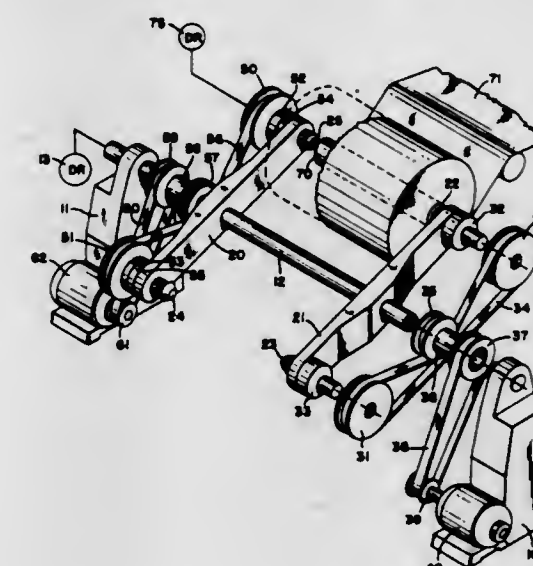
Richard W. Phelps, Fulton, and Ronald O. Mehofer, Baldwinville, both of N.Y., assignors to The Black Clawson Company, Hamilton, Ohio

Filed Sept. 8, 1969, Ser. No. 855,851

Int. Cl. B65h 19/22, 75/30

U.S. Cl. 242—64

16 Claims



A winder for webs of sheet material utilizes a pair of drive motors of different, although slightly overlapping, speed ranges for driving the cores upon which the webs are wound. The motor having the higher speed range is connected to one end of the core by an air clutch and the motor having the

lower speed range is connected to the opposite end of the core by an overrunning clutch. The first motor, therefore, drives a core at a steadily decreasing speed and increasing torque as the overall diameter of the roll being built on the core increases. When this speed decreases to the upper speed limit of the second motor, the overrunning clutch engages and allows the drive to be transferred to the second motor. This permits the building of significantly larger rolls than would be feasible with a single drive motor.

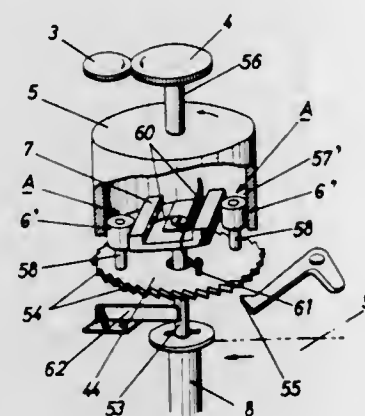
3,635,416

FILM-WINDING MECHANISM IN A PHOTOGRAPHIC CAMERA

Shigeru Kurihara; Tamotsu Yamazaki; Hideaki Yamamoto, and Junichi Yokozato, all of Tokyo, Japan, assignors to Zenza Bronica Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 23, 1969, Ser. No. 887,663

Claims priority, application Japan, Dec. 25, 1968, 43/112970
Int. Cl. G03b 1/10, 1/40

U.S. Cl. 242—71.4



Film-transporting mechanism in a photographic camera provided with such constructions that film-transporting operation may be made smooth and positive, while the various complex operations such as multiple exposure or changeover from the longer to the shorter films and vice versa may be carried out in an easy manner.

3,635,417

METHOD OF AND APPARATUS FOR DETECTING THE POSITION OF THE END OF A COIL OF STEEL STRIP

Toshiyuki Kajiura; Tsuneo Nakanishi, and Tatsuhiro Sata, all of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

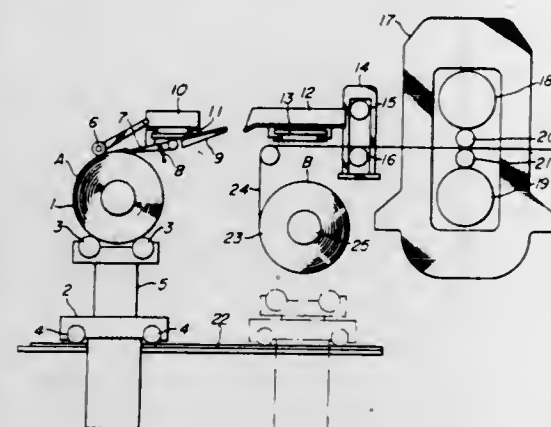
Filed Sept. 9, 1969, Ser. No. 862,618

Claims priority, application Japan, Sept. 13, 1968, 43/65558; Dec. 11, 1968, 43/90246

Int. Cl. B21c 47/22

U.S. Cl. 242—78.8

12 Claims



A method of and an apparatus for detecting the position of the end of a coil of steel strip or other strip material which is

to be paid out and setting the end of the coil at a predetermined position on the outer peripheral surface of the coil for initiating feeding of the steel strip to a rolling mill or other equipment. Support means mounting detection means is maintained in contact with the outer peripheral surface of the coil. The support means is adapted to operate in response to a variation in the outer diameter of the coil at the point of contact between the support means and the outer peripheral surface of the coil. The position of the end of the coil is detected by detecting a variation in the level of the outer peripheral surface of the coil or by detecting the action of the end portion of the coil to spring back by its own resilience as the end of the coil is moved past the detection means while the coil is rotated in a direction opposite to the paying out direction.

3,635,418

UNIDIRECTIONALLY DRIVEN LEFT- OR RIGHT-HAND SPINNING REEL

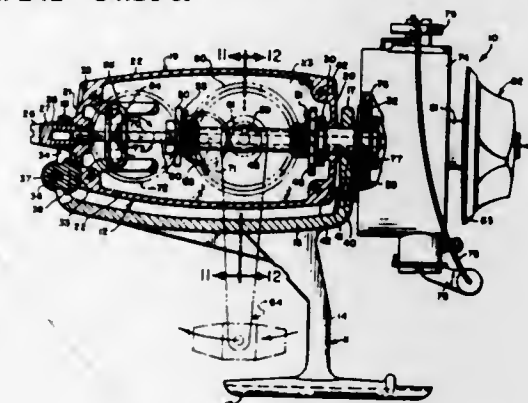
Shikizo Kamei, Kobe, Japan, assignor to Shinyei Company, Inc., New York, N.Y.

Filed July 3, 1969, Ser. No. 838,922

Int. Cl. A01k 89/00

U.S. Cl. 242—84.21 R

6 Claims



A spinning reel includes a mounting bracket which supports a housing swingable about a longitudinal axis between opposite releasably locked positions for left or right use. A bail-carrying rotor is mounted on a shaft projecting into the housing and a crank extends transversely from the housing. Two one-way clutches having a common drive direction are mounted on the shaft and are gear coupled to the crank which rotates them in opposite directions so that the shaft is driven in only one direction independent of the crank direction of rotation.

3,635,419

AUTOMATIC LOCKING RETRACTOR

William L. Pringle, Grosse Pointe, Mich., assignor to Jim Robinson Seat Belt Co., Clemens, Mich.

Continuation-in-part of application Ser. No. 724,687, Apr. 29, 1968, now abandoned, Continuation-in-part of

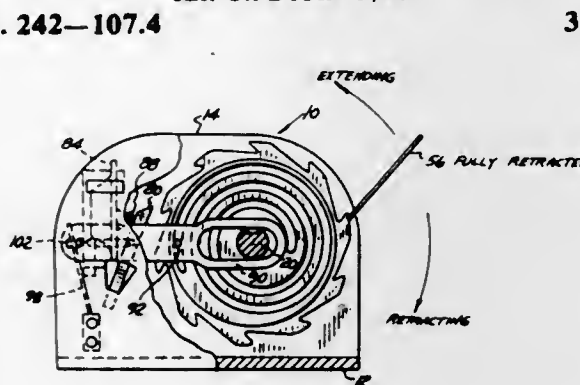
application Ser. No. 771,159, Oct. 28, 1968, now abandoned.

This application Oct. 17, 1969, Ser. No. 867,194

Int. Cl. B65h 75/48

U.S. Cl. 242—107.4

3 Claims



A retracting reel assembly including a support means with reel means rotatably supported by the support means for

winding and unwinding an elongated flexible seat belt element thereonto and therefrom. The assembly also includes control means for controlling the rotation of the reel means which control means has a cam member rotatable about the axis of the reel means in response to rotation of the reel means. The cam member has a cam track at least a portion of which is in the form of a spiral and extends radially about the axis of rotation. A cam follower engages the cam track to be moved in a plane generally perpendicular to the axis.

3,635,420

SEAT BELT RETRACTOR

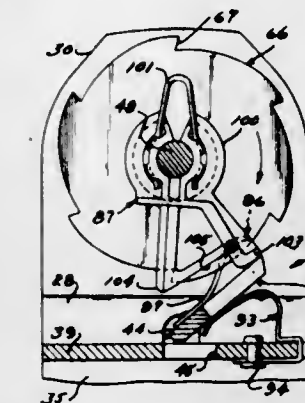
Louis Romanzi, Jr., Brighton Township, Livingston County, Mich., assignor to Irvin Industries Inc., Lexington, Ky.

Filed Jan. 15, 1970, Ser. No. 3,087

Int. Cl. A62b 35/00

U.S. Cl. 242—107.4

4 Claims



A seat belt retractor having a rotatable reel; a clutch including a first member manipulative for blocking locking action of a pawl with a ratchet wheel on initial protraction of the belt, a land portion which permits locking action of the pawl with the ratchet wheel on partial rewind of the belt and a second member manipulative to hold the pawl away from the ratchet wheel during retraction of the belt.

3,635,421

SPOOL ASSEMBLIES

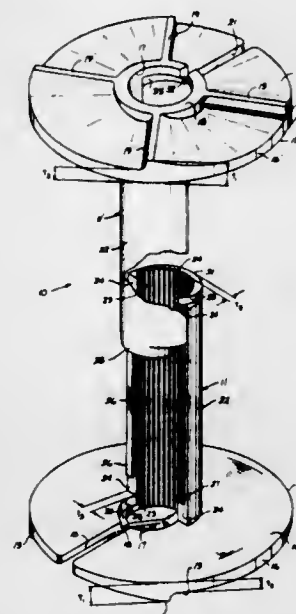
Daniel E. Boland, Buffalo, and Dale E. Craig, Tonawanda, both of N.Y., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 20, 1969, Ser. No. 878,317

Int. Cl. B65h 75/14

U.S. Cl. 242—118.6

22 Claims



Two spool halves each include a flange and a hub half which has a semicircular cross section and which is con-

nected to and extending from the flange thereof, with complementary tongues and grooves formed along the longitudinal mating surfaces thereof and with an inner face of each flange provided with an arcuate recess for receiving a free end of the mating hub half. The spool is assembled by aligning the mating tongues and grooves and then moving the halves slidably into engagement with each other to connect together the halves and then securing the halves together by inserting the free end of each hub half into the recess in the flange of the mating half. The outer face of each flange is formed with inclined portions or surfaces so that as the spool is rotated with a spindle, the flange is subjected to air pressures which maintain the spool on the spindle in a generally fixed position along the longitudinal axis of rotation. Longitudinal grooves are formed on the inner wall surfaces of the hub halves to receive splines formed on the spindle to secure the spool to the spindle for rotation therewith.

3,635,422

SUPPORT FOR A REEL CORE

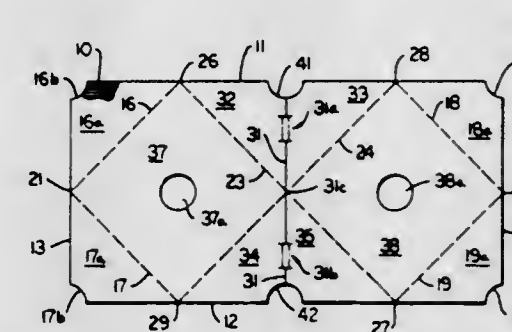
Lloyd W. Elson, Indianapolis, Ind., assignor to Inland Container Corporation, Indianapolis, Ind.

Filed Dec. 10, 1969, Ser. No. 883,913

Int. Cl. B65h 75/14

U.S. Cl. 242—118.8

3 Claims



Disclosed is a support for a roll or reel core which is folded or erected from a unitary blank which has been scored or cut to provide fold lines in a unique pattern on the blank. The fold lines permit the blank to be erected into a reinforced, multilayer support for the core on which flexible material is rolled, one of the supports being used at each end of the roll core.

3,635,423

CARTRIDGE-LOADING MEANS AND METHOD FOR TAPE RECORDER

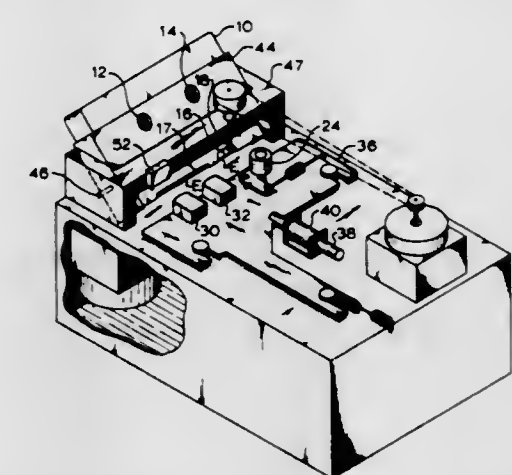
Kenneth B. Lennie, Scarborough, Ontario, Canada, assignor to 230494 Merchandising Limited, Toronto, Ontario, Calif.

Filed Feb. 5, 1970, Ser. No. 8,945

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242—198

3 Claims



Loading or unloading a "cassette" tape recorder cartridge is facilitated by a cartridge holder which allows: insertion and

withdrawal of the cartridge into a cartridge holder diagonally between upwardly and downwardly projecting tape recorder spindles; after insertion of the cartridge in this manner, pivoting the cartridge in the holder into operative position on the spindles; and before withdrawal of the cartridge, pivoting the cartridge in the holder out of operative connection with the spindles and into the diagonal withdrawal position.

3,635,424

TAPE CARTRIDGE RECEIVING AND POSITIONING STRUCTURE

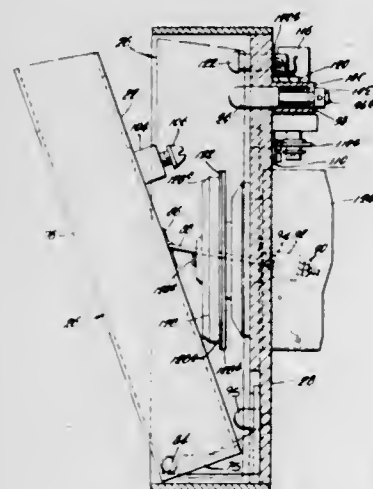
Herbert Morello, Phoenixville, and Robert J. Miller, Salford, both of Pa., assignors to Digital Information Devices, Inc., Norristown, Pa.

Filed Dec. 4, 1968, Ser. No. 781,164

Int. Cl. G11b 23/10

U.S. Cl. 242-198

7 Claims



Preferred apparatus employs a cartridge in the form of a narrow casing containing a supply of magnetic tape on and between a supply reel and a take-up reel. The cartridge is inserted from above into a well in a support housing which is hinged along a bottom edge to move out from the console for loading and unloading and back to the console for cooperation with a tape drive. Spring loading causes the tape reel supporting structure to engage and center on drive hubs, and a vacuum system, including ports through the hubs, holds the reel-supporting structure to the drive hubs. Automatic threading is then accomplished. The head assembly including a pickup and recording head and suitable guide rollers is supported in the middle one of three tape loop boxes. A lever arm pivoted to the tape deck structure withdraws the head assembly from the tape deck by movement about its pivot. Indexing is accomplished by opposed flat surfaces on a wall of the tape deck and a supporting plate of the head assembly and spring means is provided between the lever arm and the head assembly to assure good positioning against the indexing surface. The head assembly is withdrawn from the tape deck to allow the automatic positioning of tape in the middle loop box. Thereafter the head assembly is replaced and the tape is drawn into it by drawing loops of tape into each of a pair of outer loop boxes.

3,635,425

DEPLOYMENT METHOD FOR A TELESCOPING SOLAR ARRAY

Charles J. Swet, Mount Airy, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Oct. 1, 1969, Ser. No. 862,702

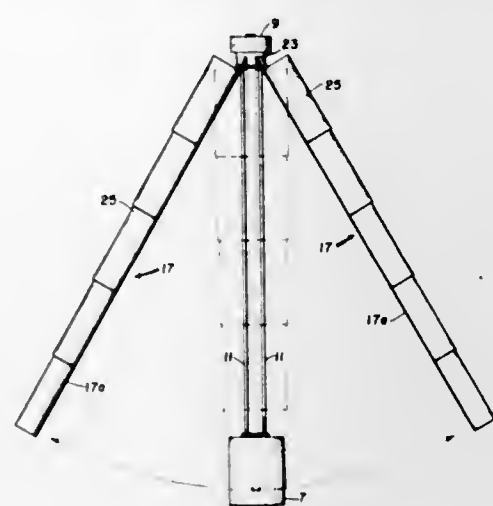
Int. Cl. B64g 1/00

U.S. Cl. 244-1 SS

5 Claims

A method for deployment of a solar cell array, conduction of generated power from the array to the satellite, and utilization of the array and deployment means as an aid for

the gravity-gradient stabilization of the satellite. The method envisions telescoping sections of a solar cell array being extended in orbit by an erectable mast and boom assembly. Power is carried from the array through electrically conductive booms and twin conducting masts, thereby eliminating



the need for electrical wiring and associated wiring guides and connectors. The extended solar array also assists in stabilizing the satellite by providing necessary gravity-gradient restoring moments. Multiple function of equipment increases the wattage to weight ratio of the array.

3,635,426

ROTARY WING TRANSPORT AIRCRAFT

Paul H. Stanley, deceased, late of Glenside, Pa. (by First Pennsylvania Banking and Trust Co., executor), assignor to Autogiro Company of America, Jenkintown, Pa.

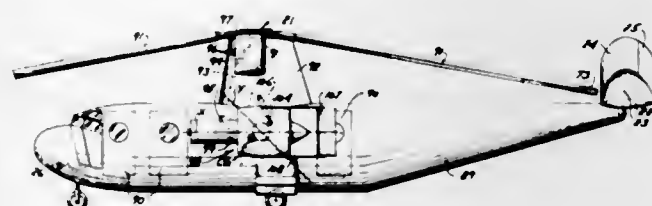
Continuation-in-part of application Ser. No. 503,536, Oct. 23, 1965, now abandoned. This application Sept. 12, 1968, Ser.

No. 759,829

Int. Cl. B64c 27/18

U.S. Cl. 244-17.11

19 Claims



A rotary wing aircraft especially adapted for short haul transport service, having rotor blade jet devices providing torqueless rotor drive, outboard propulsive airscrews, and gas generators or gas turbine engines some of which provide for drive of the outboard propulsive airscrews and at least one of which provides hot effluent gas which is somewhat cooled by mixing with air or water and then fed to the rotor driving jet devices, the aircraft also having controllable means utilizing the discharge of gas generators or gas turbine engines, or the slip stream of propulsive airscrews, to provide for directional control of the aircraft.

3,635,427

AIRCRAFT VIBRATION COMPENSATION SYSTEM

Rodney W. Balke, Dallas, Tex., assignor to Textron, Inc., Wheatfield, N.Y.

Filed May 6, 1969, Ser. No. 822,136

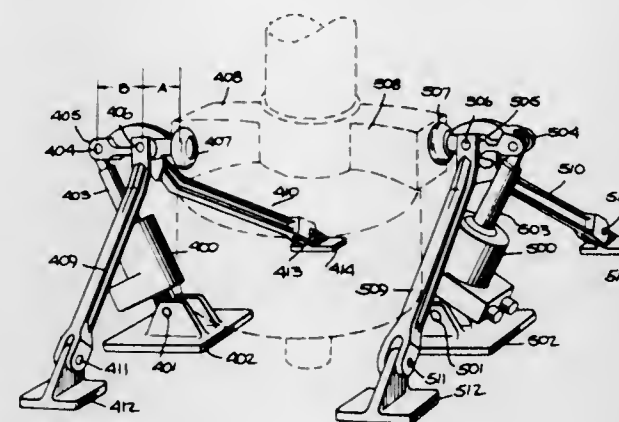
Int. Cl. B64c 27/00

U.S. Cl. 244-17.27

4 Claims

Apparatus is disclosed to compensate for forces that are applied to the aircraft pylon from rotor blade vibratory disturbances in a rotary wing aircraft. The compensation is such that the effect of the vibratory disturbances on the

pilot's cabin, or at any other desired area in the fuselage, is minimized. The apparatus includes a signal generating device that generates a signal having the same frequency as the frequency of the forces resulting from the rotor blade vibratory disturbances. The signal is employed to control the frequency of compensating forces or motions that are applied by the apparatus of this invention between the pylon and the



fuselage. Control over the amplitude and phase of the compensating forces or motions applied between the pylon and the fuselage by the apparatus of this invention will establish an amplitude and phase for the net forces and moments on the fuselage of such a fashion that a desired portion of the fuselage, such as the pilot's cabin, can be effectively insulated from the effects of the rotor blade vibratory disturbances.

3,635,428

AUTOMATIC PILOT FOR NAVIGABLE CRAFT

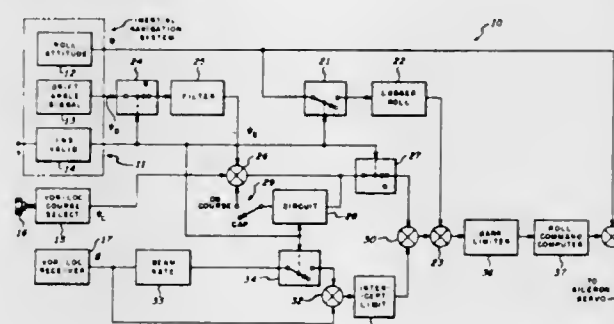
Raymond A. Nelson, and William F. Poland, both of Phoenix, Ariz., assignors to Sperry Rand Corporation

Filed Jan. 17, 1970, Ser. No. 791,887

Int. Cl. B64c 13/50

U.S. Cl. 244-77

10 Claims



An automatic pilot for navigable craft in which the drift angle of the craft derived from an inertial navigation system is used to cancel the course heading error in the presence of wind to provide the beam damping function required to achieve asymptotic capture and tight on-course control without overshoot or stand off in the presence of crosswind and/or wind shear.

3,635,429

AIRCRAFT VIBRATION COMPENSATION SYSTEM

Rodney W. Balke, Dallas, and David L. Kidd, Arlington, both of Tex., assignors to Textron Inc., Providence, R.I.

Filed Mar. 27, 1970, Ser. No. 23,258

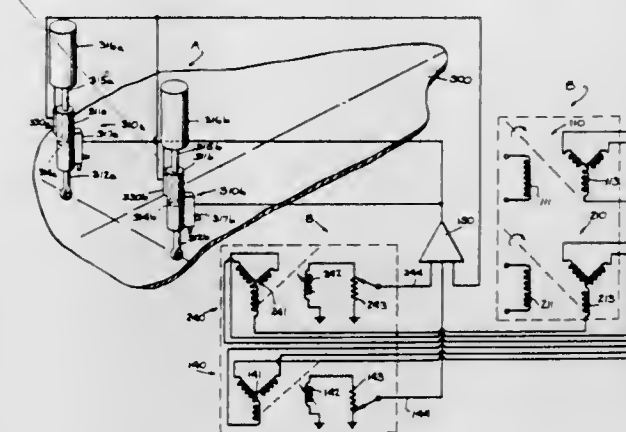
Int. Cl. B64c 17/00

U.S. Cl. 244-93

10 Claims

Apparatus is disclosed that minimizes the effect of rotor blade induced vibratory disturbances at the pilot's seat and in the cabin of an aircraft. The apparatus generates a reciprocating force which is applied to the aircraft to modify

the mode of vibration of the fuselage in such a fashion that the magnitude of the vibration disturbance at any selected area of the fuselage, such as at the pilot's seat, is minimized. The compensatory reciprocating force is developed by vibrating a mass mounted on the fuselage. A control signal equal in frequency to the disturbing rotor blade vibration is



3,635,430

BABY-FEEDING BOTTLE HOLDER

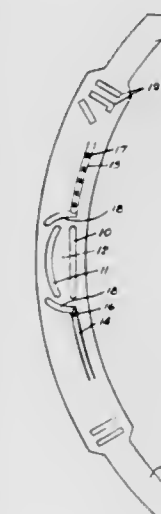
Armand J. Emond, P. O. Box 62, Pembroke, Ontario, and Duncan B. McDonald, Fredericton, New Brunswick, both of Canada, assignors to said Emond, by said McDonald

Filed Sept. 11, 1969, Ser. No. 856,943

Int. Cl. A47d 15/00

U.S. Cl. 248-102

3 Claims



A baby bottle or toy holder formed from a strip of flexible material including integrally formed bottle-holding and toy-holding means; adjustable fastening means on said flexible material to maintain the bottle or toy in an operative position and an adjustable fastener to secure the strip to the baby's body.

3,635,431

BOTTLE HOLDER

Charlie Dwain Mariner, 1013 South Butler, Farmington, N. Mex.

Filed May 18, 1970, Ser. No. 37,984

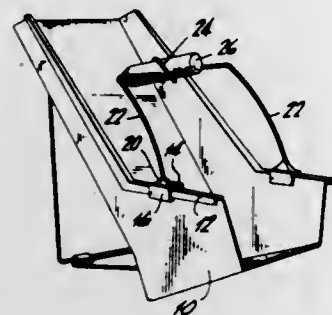
Int. Cl. A47d 15/00

U.S. Cl. 248-104

2 Claims

A holder for an infant bottle adapted to be secured to the arms of an infant seat and the like comprising a length of

resilient wire having a substantially U-shaped configuration with two substantially parallel leg portions and a central portion connecting the leg portions, the central portion including an expandable loop formed therein for holding an infant bottle, the loop comprising approximately one and one-half



turns of the wire and being connected to the leg portions at substantially diametrically opposite points of the loop, the turns of the wire being spaced so as to provide a gripping contact of bottle over a substantial portion of the length thereof, and means for securing the holder to the arms of an infant seat.

3,635,432

COMBINATION SUPPORT MEMBER AND HINGE LOCK MEANS

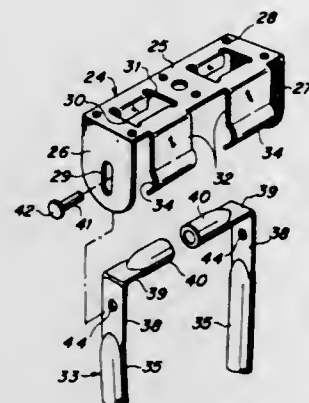
Irvin Hollander, Dayton, Ohio, assignor to Tildex Products, Dayton, Ohio

Filed Oct. 10, 1969, Ser. No. 865,285

Int. Cl. F16m 11/38

U.S. Cl. 248—188.6

8 Claims



A leg and hinge unit for supporting a table or the like and which permits the leg to be folded beneath the table for storage. The unit includes a U-shaped bracket having a baseplate portion adapted to be permanently secured to the underside of the table with the legs of the U extending therefrom. A support leg is slidably and pivotally secured to the U-shaped bracket by means of pins fixed to the support leg so as to ride in vertical slots located in the legs of the U-shaped bracket. With the table in its horizontal position and the support leg in its vertical position the pins are at the tops of the slots and the support leg is locked in position by means of shallow channel members on the underside of the bracket plate which receive end portions of the support leg. When the support leg is moved to a position substantially parallel to the table, the pins slide downwardly in the slots and the end portions are moved out of the channel members so as to be received in vertical members depending from one side of the bracket baseplate to thus lock the support leg in its horizontal position.

3,635,433
ARTICLE-HOLDING APPARATUS
Malcolm J. Anderson, 42-43 149th Street, Flushing, N.Y.
Filed June 11, 1969, Ser. No. 832,069
Int. Cl. A47I 5/00
U.S. Cl. 248—309
1 Claim



An article-holding device for fishing poles or other rodlike articles comprising a base having at least one article-holding opening and a movable, spring-mounted plate member lying on the base. The plate has an opening which is partially enclosed from the exterior by a flange. The opening in the plate lies directly above the base opening when the spring means are uncompressed. The flange holds the article in the opening. Insertion of the article is accomplished by pressing it against a beveled portion of the flange. Removal is accomplished by compressing the spring means thereby moving the flanges in the plate out of blocking engagement with the openings.

3,635,434

WHEEL SUPPORT

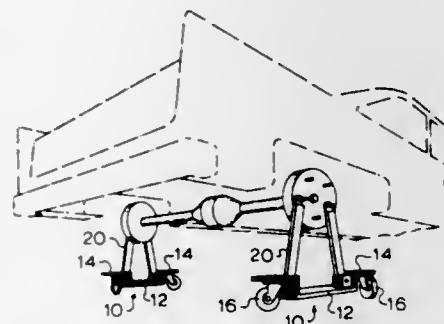
Guy Chartier, West Hill, Ontario, Canada, assignor to Guy Chart Tools Limited, Ontario, Canada

Filed Feb. 9, 1970, Ser. No. 9,594

Int. Cl. B60r 27/00

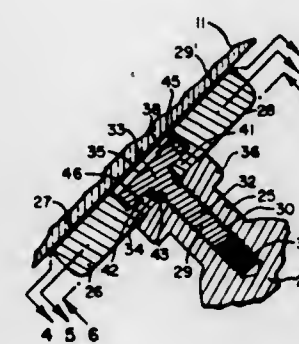
U.S. Cl. 248—352

1 Claim



A support takes the place on an automobile of a wheel removed, having a caster support designed to rest on the ground, an arm rigidly connected to the support attached to one wheel bolt and an arm pivotally connected to the support attached to the other wheel bolt.

3,635,435
BREAKAWAY SUPPORT FOR REAR VISION MIRROR
Ronald C. Perison, Sr., East Aurora, N.Y., assignor to The Lamson & Sessions Co., Cleveland, Ohio
Filed Mar. 16, 1970, Ser. No. 19,809
Int. Cl. B60r 1/04
U.S. Cl. 248—475 A
5 Claims



A rear vision mirror support including a stem mounting a rear vision mirror at one end and having a connector at its other end securing it to a base mounted on a vehicle, the connector including a bolt having an annular groove thereon which weakens it sufficiently so that it will fracture when the mirror-supporting stem is subjected to an impact force of a predetermined value.

3,635,436 STRAIGHT-THROUGH FLOW VALVE WITH RESTRICTING SEALS

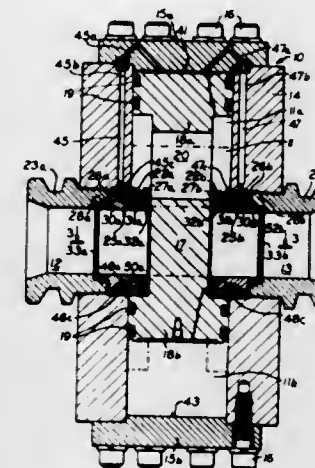
Alfred Tillman, Mt. Tabor, N.J., assignor to Marotta Scientific Controls, Inc., Boonton, N.J.

Filed Apr. 27, 1970, Ser. No. 32,223

Int. Cl. F16k 39/04

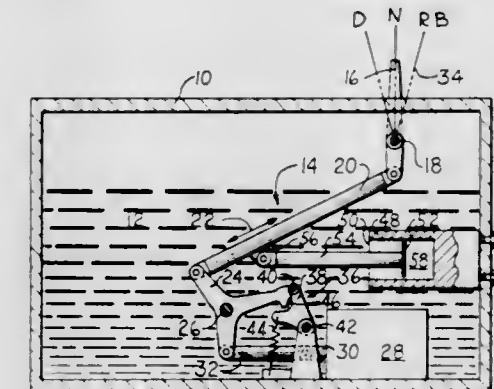
U.S. Cl. 251—31

11 Claims



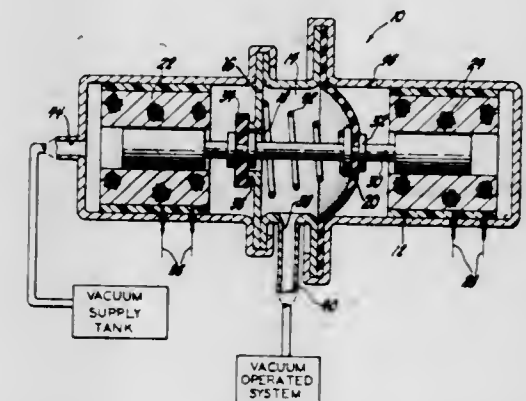
This flow straight-through valve has a valve element with piston heads at both ends which slide in a cylindrical valve chamber. A transverse opening through the valve element, between the piston heads, is moved into alignment with inlet and outlet passages on opposite sides of the cylindrical valve chamber to open the valve. The transverse opening is of the same cross section as the inlet and outlet passages. The valve element has slanted-off flat surfaces on the sides that confront the inlet and outlet passages. Moveable seals are resiliently urged toward the flat surfaces, and fluid pressure means, which move the valve element between open and closed positions, cause the seals to move away from the valve element, and thus unseal it, when the fluid pressure is applied to move the valve element.

3,635,437
DAMPING MEANS FOR CONTROL LEVERS
Harold F. Bieringer, Peoria; Lloyd D. Finley, Lockport, and William R. Stary, Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 22, 1970, Ser. No. 30,810
Int. Cl. F16k 31/48
U.S. Cl. 251—48
3 Claims



The disclosed embodiment of the invention is a damper for control mechanisms which are employed in hydraulically controlled implements and which are normally subject to violent forces during portions of an operating cycle. In hydraulically controlled implements, certain operations which are initiated by an operator can be terminated automatically by means of a kickout circuit. A control lever, if moved to an actuated position by the operator, can be returned to a neutral position by the kickout circuit. Excessively high forces may be generated when the control lever is returned to its neutral position, which forces are transmitted to the control level and can be imparted to any object in its path of travel from its actuated position to its neutral position. The disclosed damper substantially reduces the transmitted forces and is generally formed of a cylinder having a closed end and a piston mounted for reciprocal movement therein and pivotally secured to the control lever. The diameter of the piston is slightly less than the diameter of the bore of the cylinder to permit relatively unrestricted movement therebetween. The cylinder is immersed in the hydraulic fluid contained in the hydraulic fluid tank and employs that fluid for developing a pressure gradient from one side of the piston to the other side thereof whenever a large force is applied to the piston to move it within the cylinder.

3,635,438
POWER-OPERATED CONTROL VALVE
Theodore F. Peters, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 2, 1969, Ser. No. 863,148
Int. Cl. F16k 31/06
U.S. Cl. 251—137
1 Claim



A power-operated control valve for fluid systems includes a pair of electrical solenoids each briefly energizable to move

a valve member to a respective open or closed condition thereof, the valve member being bistable in such positions from the influence of a coil spring and a pressure differential responsive diaphragm.

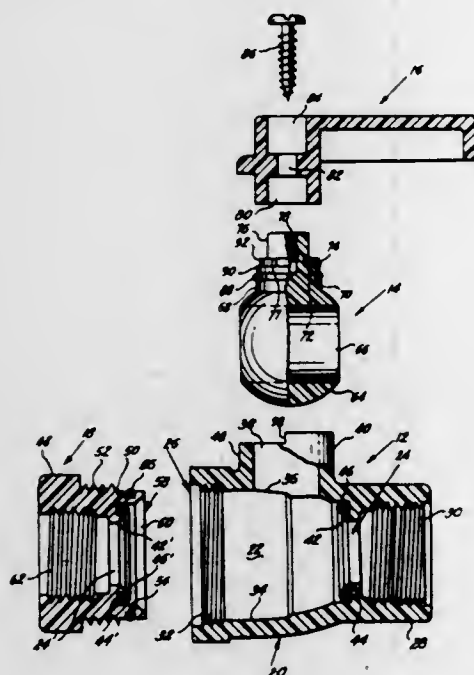
3,635,439

BALL VALVE

John D. McNally, 2714 Caulder, Des Moines, Iowa
Filed Feb. 17, 1970, Ser. No. 12,030
Int. Cl. F16k 5/06

U.S. Cl. 251—315

5 Claims



A two-way flow control ball valve device having an improved valve seat for an O-ring seal so that there is no binding or restriction on the movement of the ball under high pressures. Includes a housing having different diameter openings at opposite ends with the opening at the smaller end defining a fixed valve seat and a combined removable adapter plug and valve seat mountable in the larger end. The housing is designed for mounting of the ball valve so that the seal connection between the valve stem and the operating lever can be made from the outer side of the housing after the valve has been mounted therein.

3,635,440

FORCE-EXERTING APPARATUS

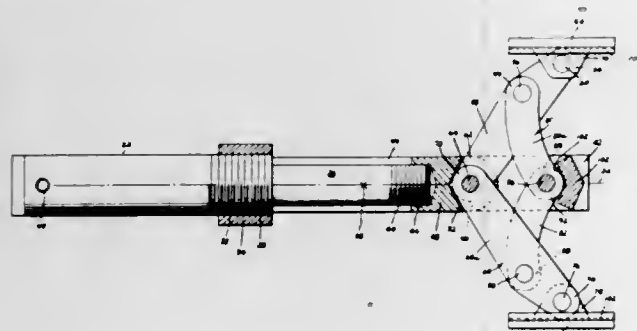
James J. Van Gompel, Fremont, Ind., assignor to Brammall, Inc., Angola, Ind.

Filed July 20, 1970, Ser. No. 56,536

Int. Cl. B66f 3/24

U.S. Cl. 254—93 R

24 Claims



Apparatus for exerting force in lateral directions with respect to a longitudinal axis, the apparatus being particularly adapted for use in straightening deformed rolls of sheet stock. A fluid power cylinder is provided having a piston rod

coaxial with the axis and being movable between retracted and extended positions. A pair of elongated, transversely spaced, parallel frame members is provided having rear ends secured to opposite sides of the cylinder and extending longitudinally forwardly on opposite sides of the piston rod. A pair of force-exerting shoes is provided respectively on opposite sides of the frame members and movable laterally outwardly away from and inwardly toward the frame members. A first pair of links is provided having inner ends respectively pivotally connected to the outer end of the piston rod and outer ends respectively pivotally connected to the shoes. A second pair of links is provided respectively having outer ends pivotally connected to the first links intermediate their ends and inner ends respectively pivotally connected to the frame members longitudinally forwardly of the outer end of the piston rod when the same is in its extended position. The first and second pairs of links form a toggle, movement of the piston rod toward its extended position causing the toggle simultaneously to move the shoes laterally outwardly in opposite directions away from the frame members, and movement of the piston rod toward its retracted position causing the toggle simultaneously to move the shoes laterally inwardly toward the frame members.

3,635,441

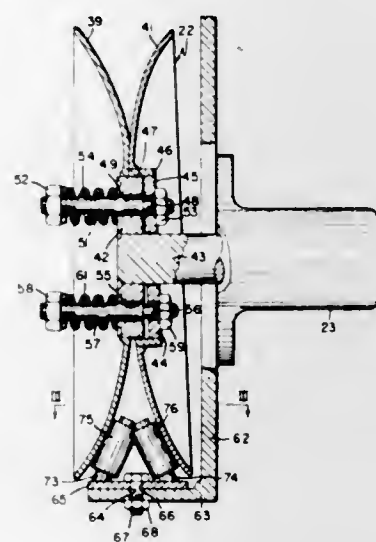
FISHING APPARATUS AND SHEAVE THEREFOR

William B. Haines, Freeport, Nova Scotia, Canada, assignor to Norman S. Blodgett, Worcester, Mass., a part interest
Continuation of application Ser. No. 476,263, Aug. 2, 1965, now abandoned. This application Apr. 23, 1969, Ser. No. 818,843

Int. Cl. A01k 73/06

U.S. Cl. 254—138

5 Claims



A power sheave for continuously pulling a line, the sheave having a pair of spring-loaded disks with facing convex surfaces for grasping the line.

3,635,442

AIR BALANCER SAFETY SYSTEM

Otmar M. Ulbing, Berkshire, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y.

Filed Oct. 8, 1969, Ser. No. 864,832

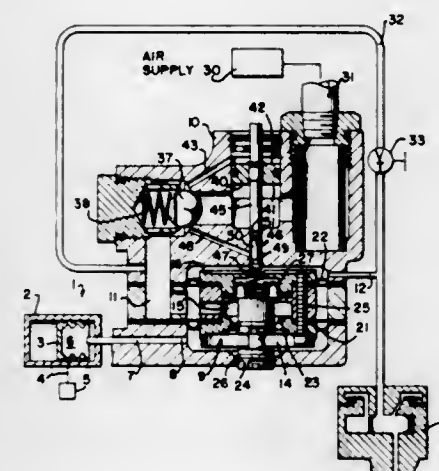
Int. Cl. B66d 1/08

U.S. Cl. 254—168

4 Claims

A balancing hoist control system including a pressure regulator valve and having a check valve located between the main air supply and the main inlet of the regulator valve and operative to close in response to a failure in the air supply, thereby preventing the air in the hoist from escaping from the main inlet. An air-operated piston member disables the regulator in the event of the loss of pressure of the air supply to prevent the regulator valve from exhausting the main balancing chamber of the hoist. This piston member also in-

terconnects the main air supply chamber of the regulator composed of different materials so related that the barrel can valve with the pilot air chamber so that an operator can use be destroyed readily, or rendered readily destructible, by



the control member to slowly lower the load after the failure of the air supply without waiting for the repair of the air supply.

3,635,443

DISPERSION HEAD FOR SOLIDS-LIQUIDS BLENDER

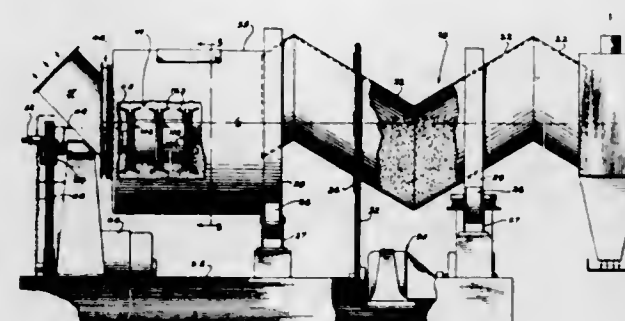
John J. Fischer, East Stroudsburg, Pa., assignor to The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

Filed Nov. 19, 1970, Ser. No. 91,107

Int. Cl. B01f 9/08

U.S. Cl. 259—3

10 Claims



A liquid dispersion head, which is supported on the end of a liquid supply shaft in a container, is rotated at high speed, so as to simultaneously introduce liquid into and effect agitation of dry material introduced into the container. The spray head includes a hub portion, which is mounted on the liquid supply shaft, and a liquid spray and agitating assembly, which is mounted concentrically of the hub portion and defines two or more mutually supporting liquid spray devices spaced axially of the hub portion.

3,635,444

STATIC MIXER

Charles Potter, Lakewood, Ohio, assignor to AMVIT, Cleveland, Ohio

Filed Sept. 8, 1970, Ser. No. 70,288

Int. Cl. B01f 5/06

U.S. Cl. 259—4

8 Claims

The static mixer has a static rigid mixing unit contained in a coaxial barrel which is mounted at its ends, respectively, in an inlet header through which materials to be mixed are fed under pressure to and through the unit, by which they are mixed, and in an outlet header through which the mixture is discharged. The unit comprises a row of vanes arranged to divide the material into separate streams, reassemble them in different combinations, and redivide and combine the combinations, repeatedly, as the material passes through the unit. The characteristic feature is that the barrel and unit are



3,635,445

WORM-TYPE CONVEYOR MIXER

Johann Schwab, and Walter Putz, both of Vienna, Austria, assignors to Semperit Oesterreichisch-Amerikamisch Gummiwerke Aktiengesellschaft, Vienna, Austria

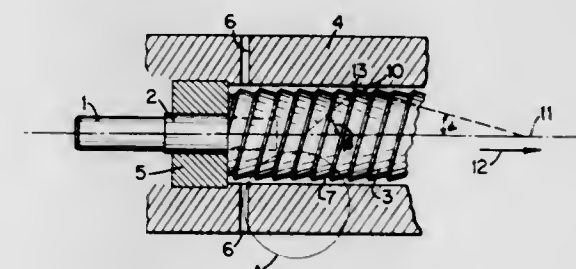
Filed Nov. 12, 1968, Ser. No. 774,784

Claims priority, application Austria, Nov. 13, 1967, 10229/67

Int. Cl. B01f 7/02, 15/02; B29f 3/02

U.S. Cl. 259—22

8 Claims



A worm-type conveyor mixer disposed in a mixing chamber and having threadlike convolution formed thereon with a working surface between adjacent crest portions, the worm-type conveyor mixer tapering in the direction of material flow.

3,635,446

LIQUIDS SHAKING DEVICE

Yoshinori Kurosawa, No. 4914, Ohaza Shiba, Kawaguchi, and Takashi Katsurawasa, No. 18, 5-chome, Noborito-cho, Koshigaya, both of Japan

Filed July 27, 1970, Ser. No. 58,250

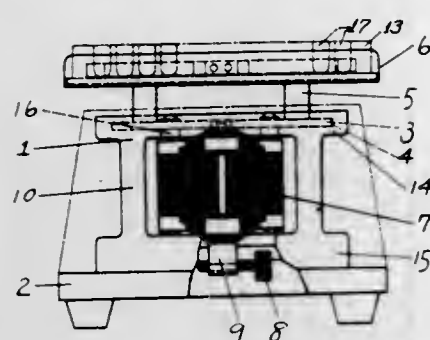
Int. Cl. B01f 11/00

U.S. Cl. 259—54

1 Claim

Liquid-shaking device comprising an elastic frame, a board held in the upper portion of the frame, a holding plate propped by supports above the board, an electric motor suspended underneath the board and an adjustable eccentric

weight at the lower end of the axis of the electric motor. Microvibration by the electric motor and the weight is effected over the holding plate to shake the liquid contained in the vessels provided on the holding plate.



3,635,447 MODULAR PLOW SYSTEM FOR MIXERS AND THE LIKE

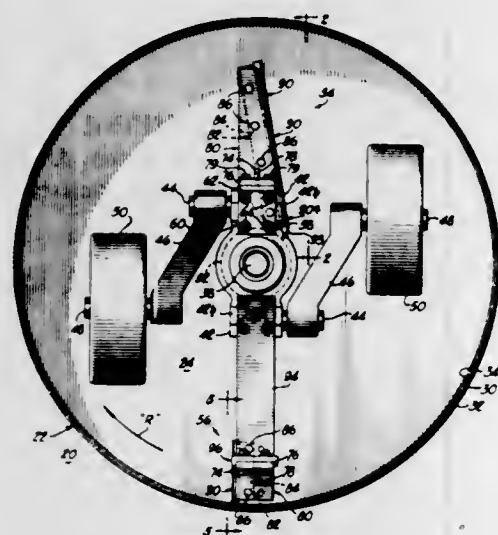
John H. Kauffman, Crystal Lake, and Ralph J. Donat, Chicago, both of Ill., assignors to National Engineering Company, Chicago, Ill.

Filed June 29, 1970, Ser. No. 50,667

Int. Cl. B01f 7/16

U.S. Cl. 259-107

8 Claims



A modular plow system for mixers and the like of the type employing a mixing chamber for holding a quantity of material wherein the chamber includes a bottom wall and a peripheral sidewall and a rotary mixing head mounted therein. The mixing head includes plow support means movable over the bottom wall, and a plow backing member is provided with an advancing face angularly disposed with respect to the bottom wall of the chamber and a lower edge spaced above the bottom wall. A planar, modular, replaceable plow member is removably mounted on the advancing face of the backing member and means are provided for securing the plow member to the backing member in a plurality of different positions whereby a selected edge of the plow may be placed in the region of most intense wear.

3,635,448 POOL WITH VORTEX GENERATOR

Hiroo Okada, Sagami-hara-shi, Kanagawa-ken, Japan, assignor to Kuritz Water Industries Ltd., Higashi-ku, Osaka, Japan

Filed June 11, 1969, Ser. No. 832,105

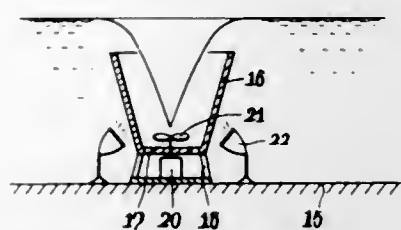
Int. Cl. B01f 7/16

U.S. Cl. 259-108

4 Claims

A pit or hollow vessel formed in the bottom of a pond or

pool with a rotor blade arrangement therein for generating a vortex in the pond or pool.



3,635,449 MIXER

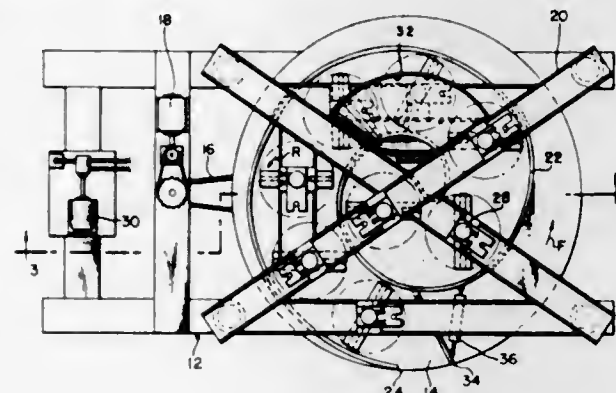
Milton W. Johnson, 6620 N. Willameter Blvd., Portland, Oreg.

Filed Oct. 5, 1970, Ser. No. 77,863

Int. Cl. B01f 7/04

U.S. Cl. 259-179

3 Claims



A mixer is comprised of a flat rotating disc over which is placed a confining wall that begins near the center of the disc and curves outwardly, generally spirallike, terminating at the outer edge of the disc. Material is supplied at the center of the rotating disc and is guided by the confining wall outwardly to the outer edge of the disc. Mixing paddles are disposed in the path of the material. An adjustable gate is provided at the exit opening defined by the terminal edge of the confining wall and is adjustably mounted for closing off or restricting the flow of material through the exit opening.

3,635,450 CONTAINER FOR CONVEYORS

Erich Schneider, Wiesensteig, Germany, assignor to Organisation Ralfs K.G., Wiesensteig (Wurtt.), Germany

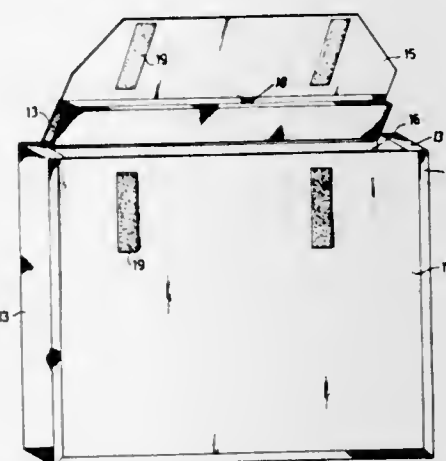
Filed July 29, 1970, Ser. No. 59,148

Claims priority, application Germany, Aug. 1, 1969, G 69 30 458.1

Int. Cl. B65d 85/30, 5/62

U.S. Cl. 229-14 C

8 Claims



A container comprising front and rear panels interconnected along the peripheral edges by a resilient wall, covered

by flexible sheet material having marginal flaps secured to the edges of the panels.

3,635,451 CORRUGATED PAPER BOARD CONTAINER HAVING SEALED FLUTED CLOSURE FLAPS

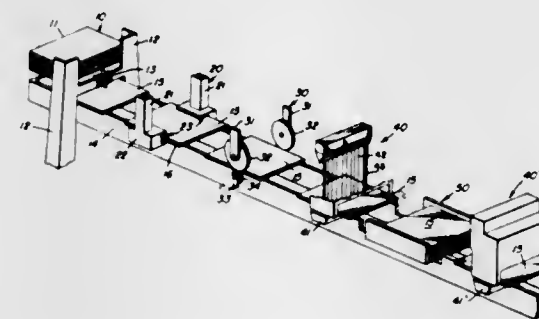
Franklin J. Wagner, Overland Park, Kana., assignor to Westvaco Corporation, New York, N.Y.

Filed May 16, 1969, Ser. No. 825,375

Int. Cl. B65d 5/02, 25/14

U.S. Cl. 229-37 R

1 Claim



Method and apparatus is disclosed for protecting a corrugated paperboard product from the deteriorating effects of high humidity or extreme dust conditions, wherein the exposed fluted edges of the corrugated paperboard stock are cut, crushed and coated with a barrier material to seal the exposed flutes thereby preventing the impregnation of water or dust into the interior of the corrugated paperboard stock.

3,635,452 WRAPAROUND CARRIER

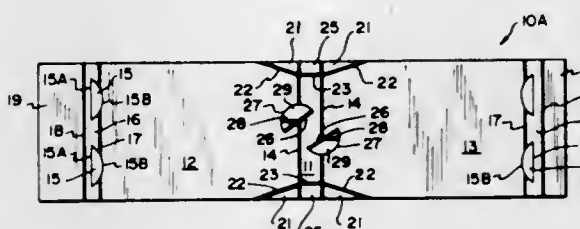
Charles Robert Helms, Barto, Pa., assignor to Container Corporation of America, Chicago, Ill.

Filed Jan. 19, 1970, Ser. No. 3,974

Int. Cl. B65d 75/06

U.S. Cl. 229-40

2 Claims



A wraparound carrier is formed from a unitary paperboard blank and is particularly adapted to transport large glass bottles. The carrier consists of a top panel with side panels extending therefrom and having flaps at the distal ends of the side flaps, these being folded about the bottom of the bottles and being secured together. The top panel overlying the tops of the bottles is scored and slit to provide a pair of finger holds, each defined by a fold down tab foldable with respect to a tab score line intersecting an upper score line connecting the top panel and correlative side panel. Each of the tab score lines has a cut line connecting the ends thereof, and the tab formed thereby has a score line therein extending at right angles to the upper score line connecting the top panel with a side panel. Upon folding of the tabs which are in facing relationship by reason of the parallel score lines forming the tabs in the top panel, the tabs are enabled to be folded against the undersides of the top and a correlative side panel. The two folded tabs thus provide a pair of finger holds, and at the same time the top panel and the side panels are strengthened for transport of the containers within the wrapper.

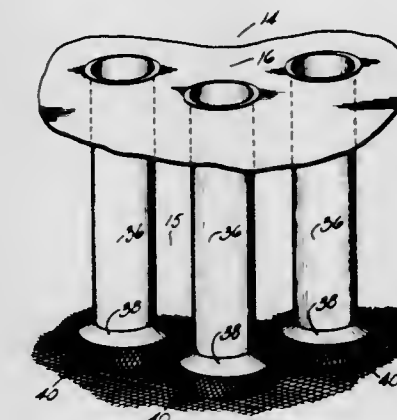
3,635,453 DIFFERENTIAL PRESSURE AIR IMMERSION WASHER-CONDITIONER

William J. Caldwell, P.O. Box 456, Independence, Mo. Continuation of application Ser. No. 745,171, July 16, 1968, now abandoned. This application June 15, 1970, Ser. No. 48,873

Int. Cl. B01f 13/02

U.S. Cl. 261-30

2 Claims



An air washer and conditioning unit comprising a primary pressure chamber communicating at its upper portion with the discharge of a fluid pressure pump and having a lower portion immersed in a body of liquid through which the air flowing in the chamber from the pump is expanded and then uniformly discharged and distributed up through the liquid into a secondary pressure chamber embracing the primary chamber.

3,635,454 APPARATUS AND PROCESS FOR THE REMOVAL OF INSULATION FROM WIRE

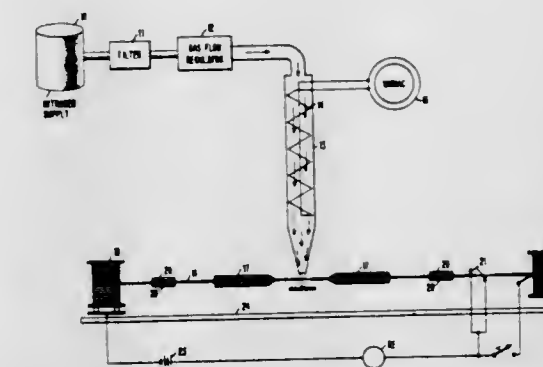
Raymond W. Angelo, Endwell, and Howard G. Houghtalen, Johnson City, both of N.J., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 7, 1970, Ser. No. 35,359

Int. Cl. F27b 9/28

U.S. Cl. 263-3

8 Claims



The apparatus and process for the rapid and effective removal of organic insulating material such as Teflon (Trademark of E. I. du Pont de Nemours & Co.) TFE, polytetrafluoroethylene, FEP, fluorinated ethylene-propylene, or the like, from fine or superfine wire by the controlled application of a stream of hot gas. The apparatus includes testing equipment to verify the proper operation of the insulation stripping apparatus.

3,635,455

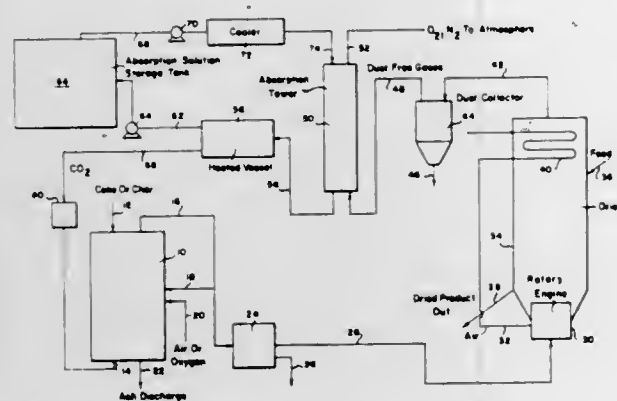
METHOD OF OPERATING A DRIER

Cecil J. Johnson, Columbia City, Ind., assignor to Total Energy Corporation, Columbia City, Ind.

Continuation of application Ser. No. 810,259, Mar. 25, 1969, now abandoned. This application July 7, 1970, Ser. No. 56,148

Int. Cl. F26b 3/00

U.S. Cl. 263-52



The method of preparing gases for use in drying particulate materials wherein hot carbonaceous materials are gasified to produce carbon monoxide. The carbon monoxide is combined with oxygen and used as fuel for driving a rotary internal combustion engine. The exhaust gases from the engine are used to dry wet, particulate materials and to heat the air used in the rotary engine. The exhaust gases are then cleaned and carbon dioxide is removed by an absorption process and is recycled for use in the carbon gasification step.

3,635,456

APPARATUS FOR DIRECT REDUCTION OF IRON OXIDE COMPACTS

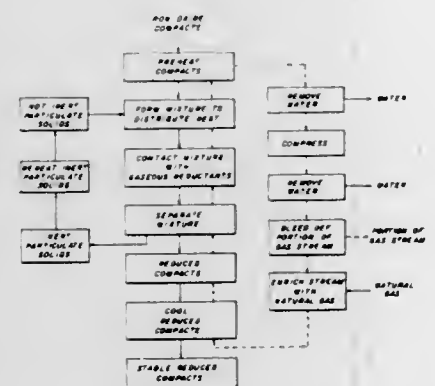
John A. Anthes, Carnegie, and Joseph Vinaty, Aliquippa, both of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Apr. 29, 1970, Ser. No. 33,002

Int. Cl. F27d 17/00

U.S. Cl. 266-19

6 Claims



Apparatus for the direct reduction of iron oxides in compact form by preheating iron oxide compacts and enveloping them in hot inert particulate solids at the top of a columnar reactor then passing the mixture downwardly through the reactor countercurrent to an upward flow of natural gas that is introduced into the reactor bottom. Contact of the natural gas and the compacts with the hot solids results in reformation of the natural gas by reaction with carbon dioxide and the production of hydrogen and carbon monoxide, which hydrogen and carbon monoxide reduce the iron oxide of the compacts. Hot gases from the reactor are passed upwardly through a preheater for incoming iron oxide pellets and are then cooled, cleaned, and a portion returned to the bottom

of the reactor. The reduced heated compacts are separated from the inert solids at the bottom of the reactor and are passed countercurrent to the natural gas that is being conducted to the reactor to heat it prior to introduction of the gas into the reactor bottom.

3,635,457

FURNACES FOR MOLTEN METAL

David W. King, Solihull, England, assignor to Morganite Thermal Designs Limited, Norton, Worcester, England

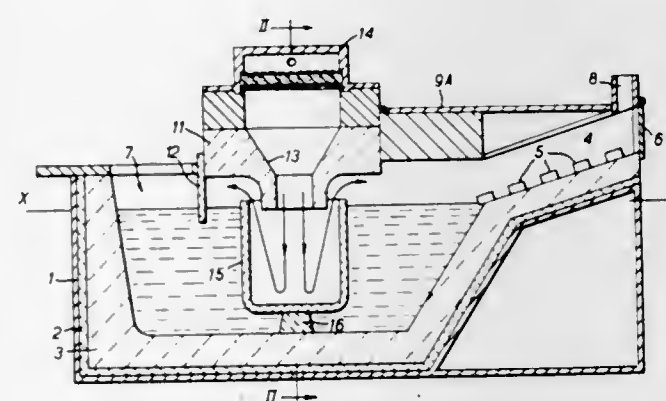
Filed July 22, 1969, Ser. No. 843,582

Claims priority, application Great Britain, July 25, 1968, 35500/68

Int. Cl. C21c 7/00

U.S. Cl. 266-33 R

4 Claims



A furnace for molten metal comprises a refractory bath to hold metal surrounding a heater which consists of a cup-shaped refractory vessel which stands in the bath and receives a high-velocity stream of hot gas directed into the mouth of the vessel from a fuel burner.

3,635,458

TILTABLE CRUCIBLE OR CONVERTER

Othmar Puhlinger, Linz, Austria, assignor to Vereinigte Österreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

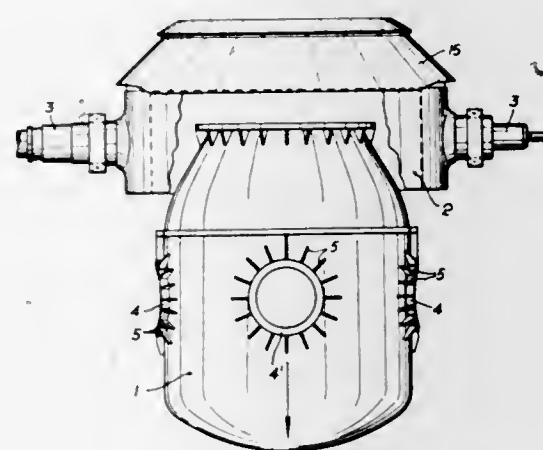
Filed Sept. 30, 1969, Ser. No. 862,274

Claims priority, application Austria, Oct. 15, 1968, A 10041/68

Int. Cl. C21c 5/50

U.S. Cl. 266-36

7 Claims



The invention provides an improvement of the converter supporting arrangement disclosed in U.S. Pat. No. 3,477,706, enabling easy dismounting of the converter from its carrying ring to allow exchange vessel operation. To this end, the supporting means mounting the converter on its carrying ring, comprising annular lugs on the converter and cylindrical

disks on the carrying ring engaging therewith, are releasable in that the disks are guided in a recess of the carrying ring to be movable into and out of engagement with said annular lugs by adjusting means.

cylinder being damped and means being provided to allow undamped return of the piston to the central position in the cylinder.

3,635,459

REFRACTORY BRICK HAVING OBLIQUE SURFACE

Arrigo Mare, Via Porta degli Archi N.3, Genoa, Italy

Filed Feb. 29, 1968, Ser. No. 709,488

Int. Cl. C21b 7/06, 9/06; C21c 5/44

U.S. Cl. 266-43

4 Claims



Bottom and wall refractory bricks for steel casting ladles are shaped to minimize penetration of slag into the lining formed by courses of the refractory bricks to prolong the life of the refractory bricks and to improve performance and lessen maintenance. The bricks have an oblique tilted midpart and end equal right parallelepipedal top and bottom socles or end surfaces. The long side of each brick is double the short side.

3,635,460

VEHICLE SUSPENSION LEVELLING VALVES

Brian R. Shilton, and Donald J. Byron, both of Lincoln, England, assignors to Clayton Dewandre Company Limited

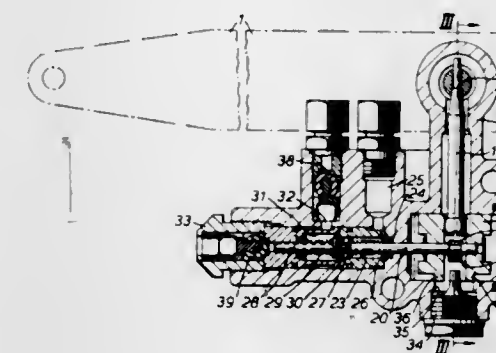
Filed Aug. 18, 1969, Ser. No. 851,029

Claims priority, application Great Britain, Aug. 21, 1968, 40,007/68

Int. Cl. B60g 17/04

U.S. Cl. 267-65 D

7 Claims



A levelling valve for use in a vehicle suspension system, said valve comprising a lever adapted to be connected at one end to the vehicle axle or to a suspension member and pivotally mounted at the other end on the body of said valve, a shaft rotatable in response to movement by said lever, an operating member connected to said shaft and adapted to act on a piston in response to rotational movement of said shaft, said piston being provided with a groove or slot in which the operating member is received, a cylinder filled with damping fluid and housing said piston, and a valve spindle movable in response to movement of said piston to connect one or more suspension units of the vehicle to a source of fluid pressure or to exhaust depending on the direction of movement of the spindle and hence the lever, wherein the piston is normally located in central position in the cylinder and is movable towards one end or other of the cylinder when the lever moves, the movement of the piston towards the ends of the

3,635,461

SURGICAL TABLE AND CONTROL

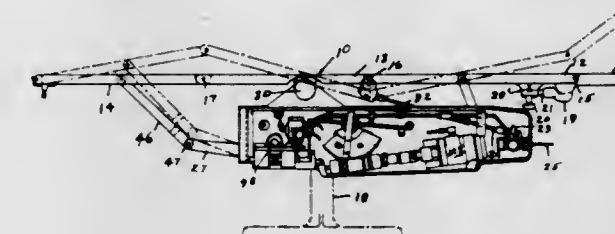
Edward A. Bellucci, Erie, and Carl J. Winchel, Fairview, both of Pa., assignors to American Sterilizer Company, Erie, Pa.

Filed Nov. 14, 1969, Ser. No. 876,690

Int. Cl. A61g 13/00

U.S. Cl. 269-325

16 Claims



A control for an apparatus, for example, an operating table, having a plurality of parts for moving the parts of the table individually and selectively to any of a plurality of selected positions. The control is carried out by a rotated shaft having spaced cams on it spaced from each other for moving the individual parts of the table. Each cam operates its table part when the camshaft is moved to a particular position. The camshaft is moved by a threaded shaft which has nuts which are driven to any one of a plurality of positions by a motor controlled by manually actuated selector switches. The selector switches are connected in the circuit with the motor in such a manner that when a selector switch is depressed, the threaded shaft will be rotated until the cam is driven to a position where it opens the corresponding one of the cam actuated switches and stops the motor. The movement of the camshaft is in proportion to the movement of the cam on the threaded shaft. The switching is carried out through a system of relays such that the motor always drives the threaded shaft in the direction to move the cam by the shaft through a minimum distance to reach any new position. The threaded shaft may also be rotated manually to move the camshaft and thus control the several functions of the table by manual control. The control has memory through a series of electrical relays which determine the direction of the motor. It also has memory in that if the control crank is stopped with the cam on the threaded shaft at an intermediate position, the electrical control can take over and move the cam to the next selected position.

ERRATA

For Class 270-86 see:
Patent Nos. 3,635,462 and 3,635,473

3,635,462

PAD-FOLDING MACHINE

Curt G. Joe, Box 1121, Boynton Beach, Fla.

Continuation of application Ser. No. 763,718, Sept. 30, 1968, now abandoned. This application Aug. 21, 1970, Ser. No. 66,117

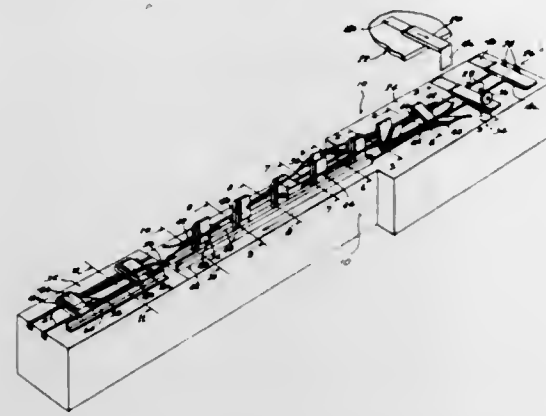
Int. Cl. B65h 45/22

U.S. Cl. 270-86

7 Claims

Disclosed herein is an apparatus for automatically folding a pad while a conveyor is moving the pad along the longitu-

dinal axis of a base. The apparatus includes a number of guides mounted on the base to fold the pad in half and to



overlap one of the end tabs of the pad across the folded ends of the pad.

3,635,463

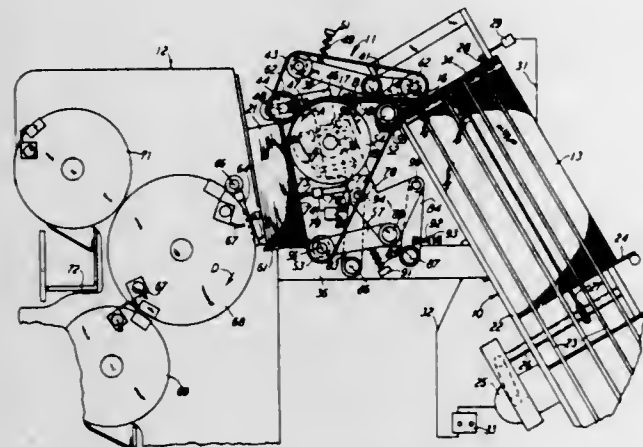
SHEET FEEDER OFF A STACK OF SHEETS

Anton R. Stobb, Pittstown, N.J., assignor to Stobb, Inc., Mountainside, N.J.

Filed May 8, 1970, Ser. No. 35,697
Int. Cl. B65h 3/04, 29/14

U.S. Cl. 271-6

10 Claims



A sheet feeder for transferring sheets from a stack of sheets and forming them in a second stack of sheets, and including two sheet pickup belts disposed to singly remove sheets from the first stack and place them in an imbricated relation and move them to a bed which strips the sheets from the belts and places them into a second stack. A motor is used for driving the belts, and a sensor is used for detecting the height of the second stack and to thereby turn the motor off and on for driving the belts to control the height of the second stack. The belts are adjustable for positioning to select the height of the second stack and also for positioning to accommodate sheets of different lengths. A rotating brush for singly feeding the sheets from the first stack and onto the belts in the imbricated or stream relation.

3,635,464

SHEET-STRIPPING DEVICE IN PRINTING PRESSES

Otto Gramlich, Mannheim, Germany, assignor to Heidelberg Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Filed Dec. 15, 1969, Ser. No. 884,970
Claims priority, application Germany, Dec. 23, 1968, P 18 16 491.5

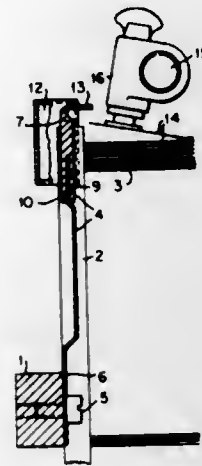
Int. Cl. B65h 3/56

U.S. Cl. 271-18 R

8 Claims

Sheet-stripping device for printing press having means for pneumatically raising the uppermost sheet of a supply stack

at a leading edge thereof includes a plurality of strippers disposed between vertically extending and horizontally spaced stop members for the supply stack, the strippers, respectively, comprising a rodlike holder having a free upper



end, and a removable cap of elastic material mounted on the free end of the holder, the cap having at least one stripper fin extending toward the supply stack and projecting over the uppermost sheet of the supply stack.

3,635,465

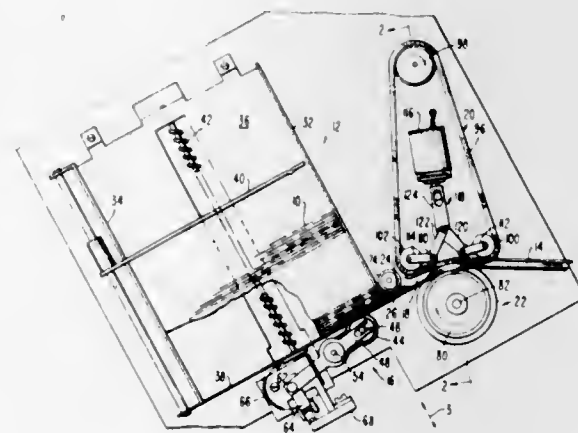
DOCUMENT SEPARATOR CONTROL SYSTEM

Jack Beery, Farmington, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Oct. 19, 1970, Ser. No. 81,808
Int. Cl. B65h 3/06

U.S. Cl. 271-41

11 Claims



There is disclosed herein a portion of a document transport system including a document feeding unit and a document separator unit. The document feeding unit dispenses a plurality of overlapping documents into a guideway upstream from the separator unit. The separator unit functions to restrict the travel of all overlapping documents allowing only the single front document to continue along the document guideway and to space the documents entering the document guideway. A control system for the document separator unit functions to maintain the forces between the documents and the separator unit to restrict the travel of the overlapping documents. In the preferred embodiment, the separator unit is an endless belt which is moving in a direction opposite to the normal direction of document travel. The control system functions according to the basic frictional equation, $F = \mu N$, to vary the normal force, N , thereby maintaining the frictional force, F , substantially constant.

3,635,466

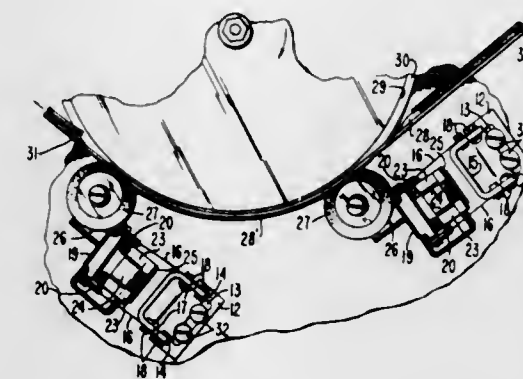
ELASTIC MOUNTING ASSEMBLY

Guy A. Townsend, Livonia, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed May 20, 1970, Ser. No. 39,004
Int. Cl. B65h 9/16

U.S. Cl. 271-52

14 Claims



An elastic mounting assembly having two sets of flexural members each set being flexible in a direction transverse with the other set. Acting in combination the flexures allow a mounted body to be movable in tension from a biased position upon a surface defined by the transverse directions of flexibility of the two sets of flexural members.

3,635,467

PAPER FEED CONTROL SYSTEM

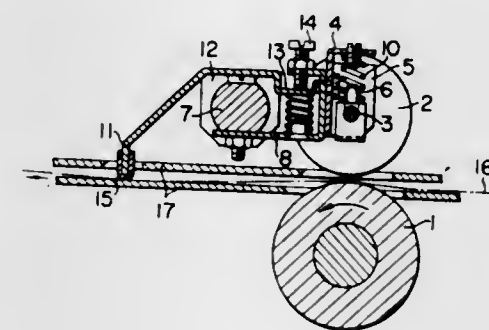
Yugoro Kobayashi, and Tsutomu Yamakami, both of Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Dec. 16, 1969, Ser. No. 885,455

Claims priority, application Japan, Dec. 25, 1968, 43/94553
Int. Cl. B65h 9/05

U.S. Cl. 271-53

5 Claims



A paper feed control system in which a braking means holds a paper sheet or the like at the instant that follower rollers are spaced apart from a feed drive roller. The paper sheet or the like may be stopped at a predetermined position regardless of feed speed.

3,635,468

SHEET CONTAINER AND FEEDING DEVICE

Shigeru Suzuki, Yokohama-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

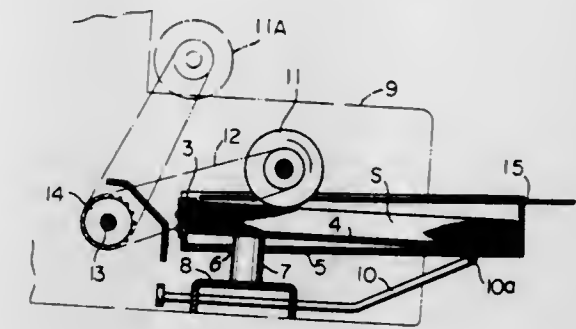
Filed Aug. 12, 1969, Ser. No. 849,333
Claims priority, application Japan, Sept. 30, 1968, 43/85058
Int. Cl. B65h 1/04

U.S. Cl. 271-61

8 Claims

A detachable copy sheet container for automatic sheet-feeding device of a copying machine, wherein the front end of a receiving plate on which copy sheets are placed is supported from the outside of the container by a guide post passing through an opening on the bottom of the container, the back end being supported by the bottom plate of the con-

tainer, and the front end of the container itself is supported by corner separators contacting the copy sheet. The corner separators are provided at upper parts of the front end of the



container. The back end of the container is supported by an outside fulcrum provided at the middle of the width of the back end.

3,635,469

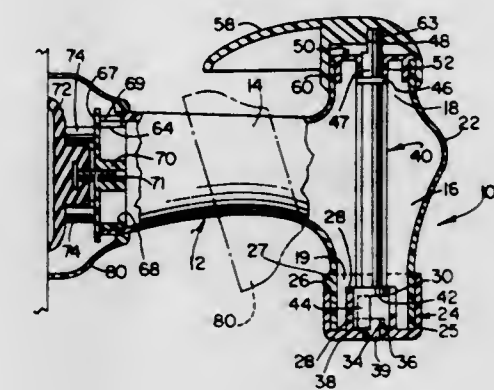
NOVELTY AND AMUSEMENT FAUCET

William A. McMillan, Los Angeles, Calif., assignor to H. Fishlove & Co., Chicago, Ill.

Filed Apr. 13, 1970, Ser. No. 28,356
Int. Cl. A63j 23/00

U.S. Cl. 272-27 N

3 Claims



A novelty and amusement device comprising a simulated faucet having a suction cup whereby the faucet can be detachably secured to any supporting surface which will retain a suction cup, to present the appearance of a conventional faucet properly supported thereon. The simulated faucet provides a container which may be filled with liquid or the like so that by turning the faucet handle the liquid in the container will flow from the faucet, simulating that of a conventional faucet. The simulated provides an unexpected result when mounted on an unconventional surface such as a dining room or bedroom wall and the above stated turning action is taken.

3,635,470

NOVELTY AND AMUSEMENT CONTAINER

William A. McMillan, Los Angeles, Calif., assignor to H. Fishlove & Co., Chicago, Ill.

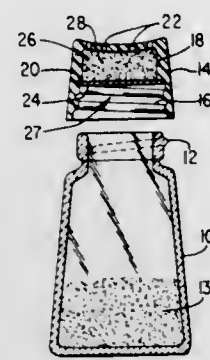
Filed Apr. 13, 1970, Ser. No. 28,357
Int. Cl. A63j 23/00

U.S. Cl. 272-27 N

5 Claims

A novelty and amusement device comprising a transparent container for containing a condiment, such as salt or the like, which is visible through the container, and providing a cap for the container of opaque material which is adapted to contain a refillable supply of another condiment, such as pepper or the like, which is invisible to the user and observers and

which when the device is inverted as in conventional use will dispense the condiment in the hidden compartment and the



condiment in the transparent container will remain within the container.

3,635,471

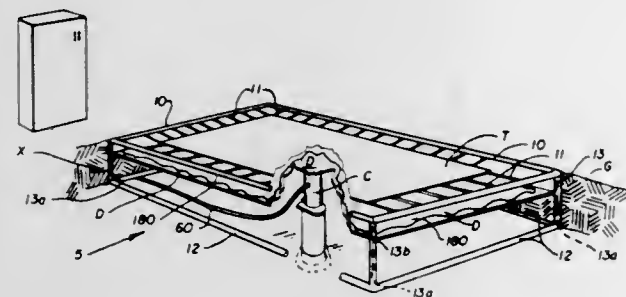
CONTROLLED TRAMPOLINE STRUCTURE

Charles D. Caron, P.O. Box 1153, Twin Falls, Idaho
Filed Feb. 17, 1969, Ser. No. 799,761

Int. Cl. A63b 5/10

U.S. Cl. 272-65

4 Claims



This invention is a trampoline net structure having means for rendering the same inoperable by placing an object in contact with a trampoline net member or loosening the support of the trampoline net member. This invention relates to a trampoline net structure having control means to render the net structure inoperative with the control means having a coin accumulator mechanism and a warning signal to inform the user to disengage from the trampoline net before the same is automatically made inoperable. More specifically, this invention relates to a hydraulic structure operable to move a support object into and out of engagement with a trampoline net structure after a predetermined time period controlled through a timer member to render the same inoperative.

3,635,472

SINGLE-STATION MULTIPURPOSE BODY-EXERCISING MACHINE

Walter Marcyan, 3055 Hollywell Place, Glendale, Calif.
Filed Apr. 21, 1969, Ser. No. 817,729

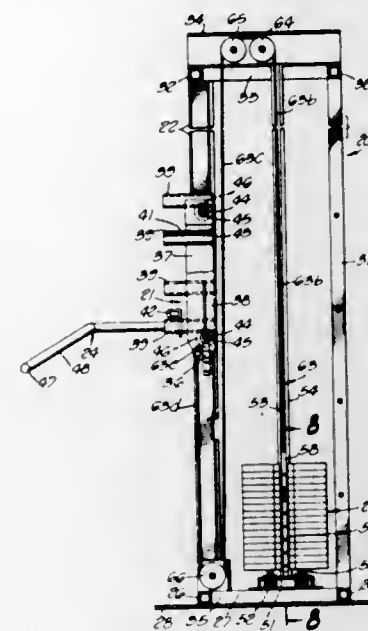
Int. Cl. A63b 21/06

U.S. Cl. 272-81

6 Claims

An exercising machine comprising an upright supporting structure, vertical tracks associated with the upright supporting structure, a carriage which slides vertically upwardly and downwardly on the vertical tracks, a lifting arm rigidly but removably connected to the carriage at any selected one of a plurality of vertically spaced connection points, and adjusta-

ble resistance means associated with the carriage to bias the carriage and lifting arm in a vertically downward direction



downward movement of the carriage being limited by stop elements.

3,635,473

TAPE CUTTER

Osamu Sasaki, Hirakata-shi, and Kiyoshi Yamakawa, Ikeda-shi, both of Japan, assignors to Sekisui Adobeya Kogyo Kabushiki Kaisha, Osaka-shi, Japan

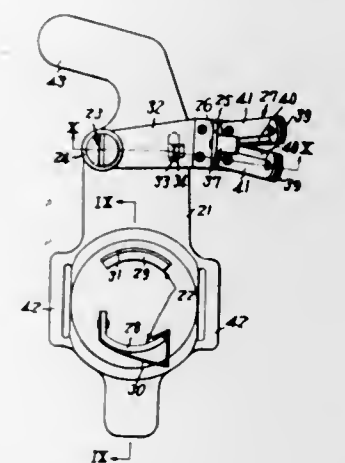
Filed Oct. 2, 1969, Ser. No. 863,283

Claims priority, application Japan, Oct. 10, 1968, 43/88234;
Mar. 14, 1969, 44/19834

Int. Cl. B65h 45/22; B26f 3/02

U.S. Cl. 270-86

2 Claims



A tape cutter comprising a support and a pair of blades fixed to said support with the cutting edges thereof facing each other, said blades being spaced apart by a distance to permit the passage of a tape at their upper ends and brought closer toward each other downward into contact with each other at their lower ends.

3,635,474

HOPPING GAME APPARATUS

Zygmund Nedwick, c/o Athletic Devices, Inc., Box 161, Glen Cove, N.Y.

Filed Sept. 19, 1969, Ser. No. 860,178

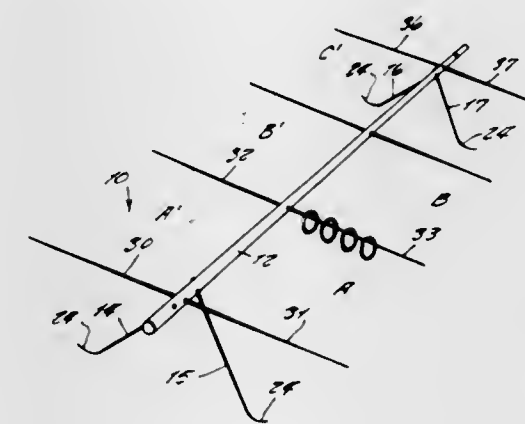
Int. Cl. A63b 5/00

U.S. Cl. 273-1 A

5 Claims

A hopping game apparatus for children having a longitudinal semiflexible tubular bar supported at each end by a pair

of semiflexible legs with each leg having a formed foot designed to prevent the lower ends of the legs from jamming into the ground, the legs being of equal length such as to maintain the longitudinal bar horizontal. Extending laterally from each side of the longitudinal bar are a plurality of pairs of semiflexible rods that are horizontal and at right angles to the longitudinal bar. The pairs of rods are equally longitudinally spaced from each other along the length of the longitudinal bar to provide between opposed rods on each side of the longitudinal bar hopping zones, or stations, for a child,



the purpose of the game apparatus being to provide and/or permit a child to hop, high-step, skip, jump, leap or twist in midair to an about face turn from one zone or station to another, from one end of the apparatus to the other, or from side to side, or along one side and back on the other side. In accordance with rules established for the game there is provided a plurality of multicolored rings that a child can move from one rod to another rod when it successfully accomplishes the desired or selected action in moving from one zone or station to another.

3,635,475

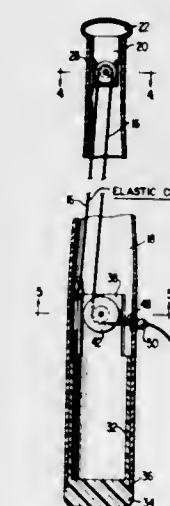
PRACTICE BAT AND BALL

Dwight C. Brown, 414 North Granada Street, Arlington, Va.
Filed Aug. 11, 1969, Ser. No. 848,999

Int. Cl. A63b 69/40

U.S. Cl. 273-26 E

7 Claims



A practiced baseball bat and ball combination in which a ball is tethered to a hollow bat by an elastic cord. The elastic cord is maintained under tension by a pair of rollers mounted within the hollow bat in order to maintain a substantial length of the elastic cord within the bat whereby if the ball is struck by the bat, it will automatically return towards the bat after flight.

3,635,476

PIVOTABLE TARGET AND BALL-STRIKING MEANS

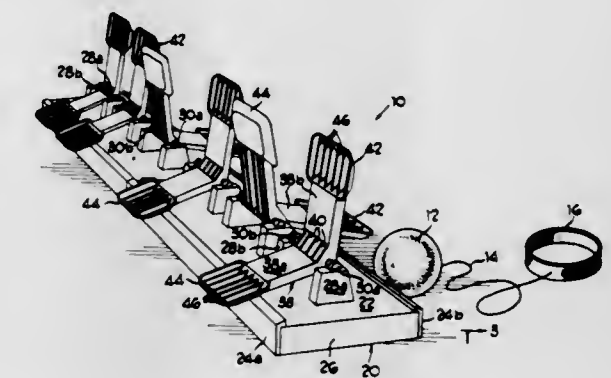
Jeffrey D. Breslow, and Marvin I. Glass, both of Chicago, Ill.,
assignors to Marvin Glass & Associates

Filed Dec. 8, 1969, Ser. No. 882,907

Int. Cl. A63b 63/04

U.S. Cl. 273-95 A

6 Claims



A simulated pitching or bowling game utilizing ball-like elements elastically tethered to a handle and a platform having pivoted L-shaped arms with ball-striking surfaces facing in opposite directions. Opposing players may face on opposite sides of the platform and attempt to knock all of the arms over by means of pitching or bowling the tethered ball.

3,635,477

BOMBING APPARATUS WHEREIN VIRTUAL IMAGES OF THE TRAJECTORY AND LAND APPEAR AND ARE SHOT AT WHEN ALIGNED

Shikanosuke Ochi, Tokyo, Japan, assignor to Sega Enterprises, Inc., Tokyo, Japan

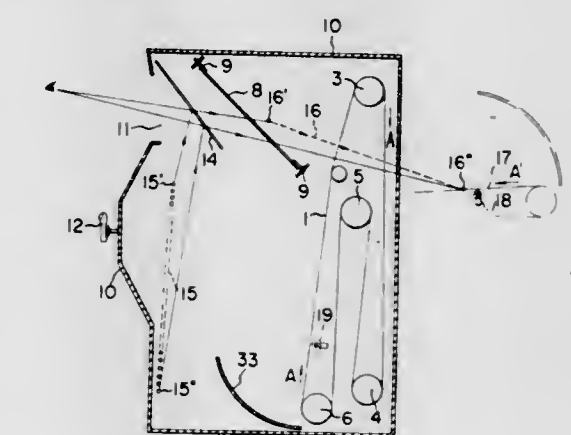
Filed Mar. 30, 1970, Ser. No. 23,726

Claims priority, application Japan, Oct. 9, 1969, 44/95859

Int. Cl. F41j 9/00

U.S. Cl. 273-101.2

4 Claims



A simulated bombing playing machine including a semitransparent map belt on which is depicted a target and the lay of the land. A first reflector is positioned for displaying a virtual image of the map belt to a player, and this reflector is rotatably adjusted by a player-operated control handle. The map belt is driven in a direction toward the first reflector. A trajectory reflector is disposed on the player's side of the first reflector. A trajectory displaying light source is so located that when a player depresses a trigger button switch, the light source is illuminated and its image is viewed through the trajectory reflector as moving from the player's side to far away. On the back side of the map belt are positioned a plurality of firing light sources so that one of them will flash at the point where the virtual image of the trajectory

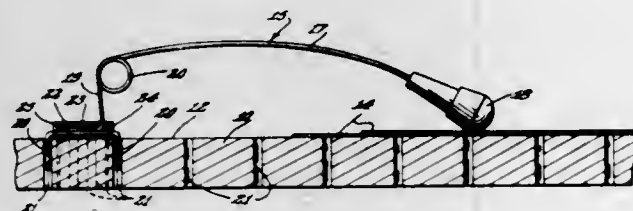
ry crosses with the virtual image of the lay of the land. In use, a player attempts to adjust the control handle and rotate the first reflector so that the virtual image, trajectory, as indicated by the trajectory light source, will cross the virtual image of the target. If he is successful, the firing light source will flash more brightly to indicate a bombing hit.

3,635,478

CARD GAME BOARD AND CARD-HOLDING MEANS
Fred J. Hatley, 818 South 2nd Avenue, Maywood, Ill.
Filed Dec. 29, 1969, Ser. No. 888,789
Int. Cl. A63f 1/06

U.S. Cl. 273-148 A

6 Claims



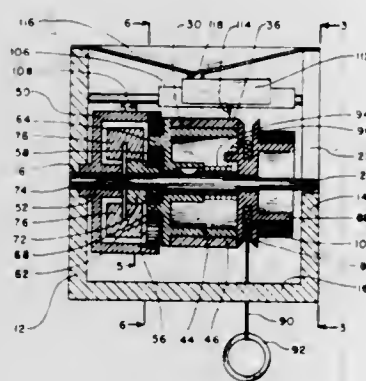
A card game board has a playing surface with pin-receiving sockets, and card-holding means have mounting pins removably engaged in the sockets. The holding means comprise spring arm press-down members and dead card trays.

3,635,479

SOUND REPRODUCING APPARATUS
Gabriel Ramirez Osante, La Florida, Mexico, assignor to Cia Industrial de Novedades Plasticas y Metalicas, S.A.
Filed Sept. 4, 1969, Ser. No. 855,200
Claims priority, application Mexico, Sept. 21, 1968, 105993
Int. Cl. G11b 3/00, 25/02

U.S. Cl. 274-17

9 Claims



A device which can be installed in a variety of toys, for reproducing sounds previously recorded in grooves on the surface of a rotatable cylinder. The device includes a drive arrangement for causing the cylinder to rotate, a clutch mechanism for limiting rotation of the cylinder to a single direction, a brake mechanism for controlling the speed of rotation of the cylinder, and a sound reproducing system for playing back a particular sound sequence recorded on the cylinder.

3,635,480

SEALED JOINT AND GASKET THEREFOR
Orville J. Bain, Culver City, and Jerry G. Jelinek, Whittier, both of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio
Filed June 4, 1970, Ser. No. 43,455
Int. Cl. F16j 15/08, 15/10

U.S. Cl. 277-180

11 Claims

A joint and gasket in which one of a pair of parts to be sealed has a recess surrounded by a clamping face, the gasket

has a resilient member to snugly fit into and fill the recess and has a metal plate embedded in the resilient member, the plate having a flat exposed portion to be clamped between the two parts. The resilient member has a relatively wide buffer portion adjacent the flat plate portion and has a sealing portion inwardly of the buffer portion. The sealing portion initially extends axially beyond the buffer portion whereby when the parts are brought together to clamp the



plate, the sealing portion is deformed into tight sealing engagement with the parts and the buffer portion remains substantially undeformed and unstressed. The plate is connected to the resilient member by embedding a conical portion of the plate therein and preferably the conical portion has a reverse bend at its free end to enhance the connection and has circumferentially spaced holes therethrough to permit resilient material on both sides of the conical portion to be integrally connected through the holes.

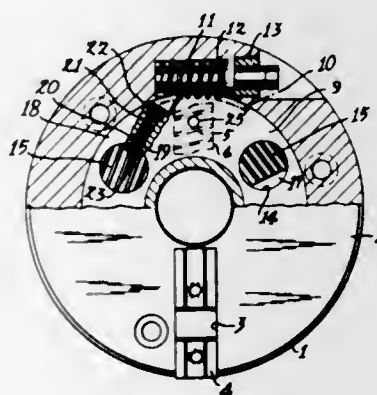
3,635,481

CHUCK FOR MACHINE TOOLS
Karl Hiestand, Pfullendorf, Germany, assignor to SMW, Spanneinrichtungen, Schneider, Manz & Weisshaupt OHG, Friedrichshafen, Germany
Filed Oct. 14, 1969, Ser. No. 866,284
Claims priority, application Germany, Oct. 16, 1968, P 18 03 262.7

U.S. Cl. 279-115

Int. Cl. B23b 31/16

4 Claims



A chuck for centrally chucking workpieces on a machine tool, comprising: a chuck body with radially extending grooves therein, tensioning jaws respectively received in the grooves and provided with gear teeth, a threaded spindle in the body, the chuck body having an angular cross section in planes through the axis of rotation thereof so as to confine a recess, a ring rotatably arranged in the recess and provided with teeth in meshing engagement with the threaded spindle, and a plurality of follower means mounted on the ring and provided with teeth respectively in meshing engagement with the teeth of the jaws for radially displacing the same upon rotation of the spindle.

ERRATUM

For Class 280-11 see:
Patent No. 3,635,854

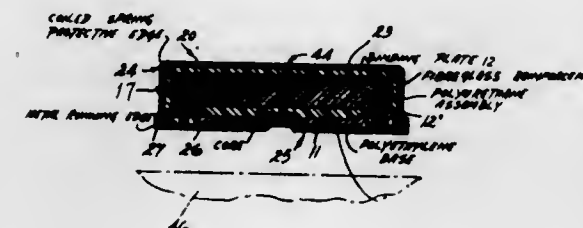
3,635,482

SKI AND METHOD OF MANUFACTURE
Rudolph G. Holman, Santa Ana, Calif., assignor to AMF Incorporated
Continuation of application Ser. No. 705,706, Feb. 15, 1968, now abandoned. This application June 29, 1970, Ser. No. 56,089

U.S. Cl. 280-11.13 L

Int. Cl. A63c 5/12

24 Claims U.S. Cl. 280-11.13 L



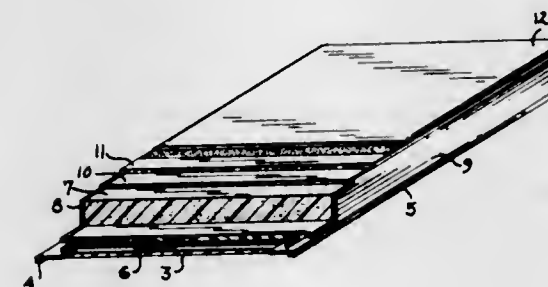
A new and improved snow ski and a method of making said ski. The ski comprises a plastic foam core surrounded by one or more fiber glass layers and a predetermined fiber glass winding. A unique top surface assembly including a coiled spring edge and a bottom surface assembly, the various embodiments of which are described hereinafter, are then mounted about the core assembly to form a finished ski.

3,635,483

ENCAPSULATED PLASTIC SNOW SKI
Richard D. Barriball, Montgomery; William T. Faris; George F. Gross, and Charles W. Walters, all of St. Peter, all of Minn., assignors to Larson Industries, Inc., Edina, Minn.
Filed Sept. 2, 1969, Ser. No. 854,544
Int. Cl. A63c 5/00

U.S. Cl. 280-11.13 L

3 Claims

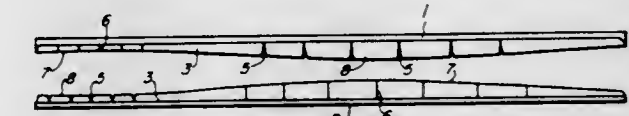


A rugged, flexible snow ski having a lightweight core (e.g., polyurethane foam) encapsulated within a shell made of a tough, resilient thermoplastic which has been reinforced with glass fibers. The ski can be manufactured by hot pressing a ski assembly which comprises a high-density polyethylene running surface, steel edges, a preformed polyurethane foam core interposed between upper and lower sheets of glass fiber reinforced thermoplastic and bounded on each side by sheets of glass fiber reinforced thermoplastic, all topped by a decorative plastic cover sheet. During the hot pressing, the four glass reinforced plastic sheets which surround the core are fused together to form a shell which encapsulates the foam core, and the entire ski assembly is firmly bonded together to form a unitized structure.

3,635,484

SKI MADE OF SYNTHETIC RESINS
Syuhel Nakamura, and Hironobu Takakamo, both of Shimodate-shi, Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan
Filed Oct. 13, 1969, Ser. No. 865,903
Claims priority, application Japan, Oct. 16, 1968, 43/89738
Int. Cl. A63c 5/12

7 Claims



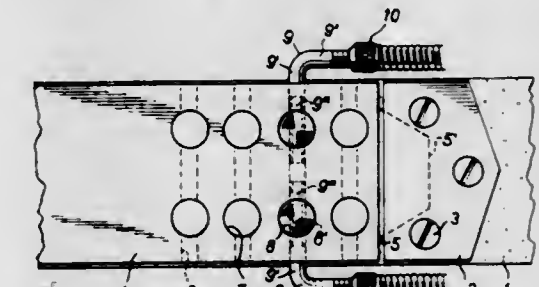
A ski made of synthetic resins composed of upper and lower plates and side plates defining the outer shape of the ski, wherein the upper and lower plates are provided with a plurality of longitudinal ribs at the inner surfaces thereof each having a cross section of a series of projection adapted to mesh with each other provided on the opposing plate, said ribs being provided with such incisions therealong that allow bending of the upper or lower plate without restriction due to the ribs, and the ribs of the upper and lower plates are bonded together to form originally curved ribs while the upper and lower plates are shaped to a required profile in a mold under a heated and compressed condition.

3,635,485

ADJUSTING DEVICE FOR A SKI-BINDING
Ernst Gertach, Sporthaus Central, Wengen, and Ulrich Gertach, 461 G, Aenderbergstrasse Matten, Interlaken, both of Switzerland
Filed Oct. 31, 1969, Ser. No. 872,905
Claims priority, application Switzerland, Nov. 7, 1968, 16606/68
Int. Cl. A63c 9/00

U.S. Cl. 280-11.35 C

4 Claims



An adjusting device for a ski-binding is used to adapt the binding to the different sizes of the ski-boots, for example to adjust a heel locking device, or a release plate or a pair of sole holding jaws. The device comprises two parts which are adjustable one relative to the other. One of these parts has one or two plug members which are guided in smooth bores of the other part. The plug members are provided with a threaded portion engaging a screwnut which is maintained against displacement longitudinally of the plug member in a recess provided in said other part. Adjustment between said two parts is effected either by turning the plug member engaging the stationary nut or by turning the nut to displace the plug member.

3,635,486

SAFETY TOE IRON FOR SKI BINDINGS

Ernst-Richard Schriewer, Garmisch-Partenkirchen, Germany, assignor to Hannes Marker, Garmisch-Partenkirchen, Germany

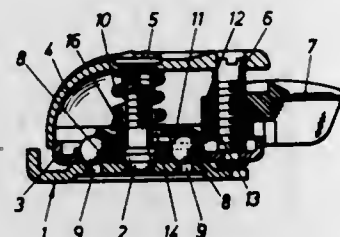
Filed Feb. 5, 1970, Ser. No. 8,974

Claims priority, application Germany, Feb. 10, 1969, P 19 06 569.1

Int. Cl. A63c 9/08

U.S. Cl. 280—11.35 T

3 Claims



The toe iron is laterally pivotally movable in response to an excessive torque and comprises a pivoted member, which is pivoted on a pivot pin, which is firmly connected to the ski and extends at right angles to the surfaces of the ski, and a soleholder, which is pivoted to the pivoted member by means of a second pivot pin, which is at right angles to the surface of the ski. The toe iron also comprises at least one ball detent device, which is biased by spring pressure and disposed between the pivoted member and a baseplate, which is fixed to the ski. The pivoted member comprises a bipartite housing, containing in its interior a prestressed spring element which acts on the detent ball or balls and on the soleholder. The spring element consists of a helical compression spring, which in known manner bears on a sheet metal abutment. The sheet metal abutment has a vertical flange, which lies opposite to the soleholder and extends transversely to the longitudinal direction of the housing, and the sheet metal abutment is movable in the vertical direction and in the longitudinal direction of the housing and has a runup ramp for each detent ball.

3,635,487

STEERING MECHANISM FOR A ONE-TRACK SLIDE VEHICLE

Ferdinand Alexander Porsche, Doffingen Kreis Boblingen, and Theodor Bauer, Leinfelden, both of Germany, assignors to Firma Dr.-Ing. h. c. F. Porsche K.G., Stuttgart-Zuffenhausen, Germany

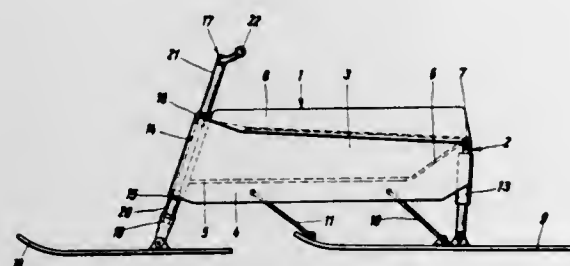
Filed July 15, 1969, Ser. No. 841,703

Claims priority, application Germany, Sept. 12, 1968, P 17 80 412.5

Int. Cl. B62b 13/04

U.S. Cl. 280—16

15 Claims



A one-track slide vehicle with a supporting frame to which a rear runner and a steering mechanism with a front runner are attached. The steering mechanism includes a steering

column and a handlebar which cooperate with each other by means of a detachable sleeve which has screw threads between the sleeve and the steering column and also between the sleeve and the handlebar, respectively. The screw threads between the sleeve and the steering column have a right-hand thread while the screw threads between the sleeve and the handlebar have a left-hand thread; the sleeve is scored on the outer surface so as to provide a good gripping surface for easy manipulation thereof.

3,635,488

ONE-TRACK SLIDING VEHICLE

Theodor Bauer, Leinfelden, Germany, assignor to Firma Dr.-Ing. h. c. F. Porsche K.G., Stuttgart-Zuffenhausen, Germany

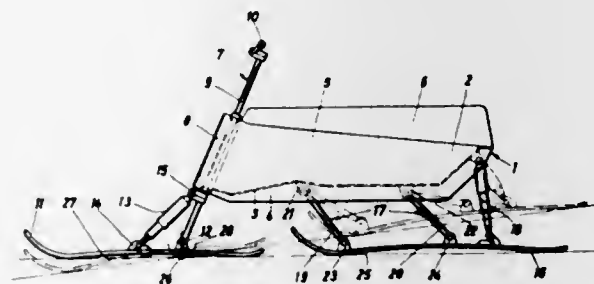
Filed Sept. 9, 1969, Ser. No. 856,382

Claims priority, application Germany, May 10, 1969, P 19 23 926.0

Int. Cl. B62b 13/04

U.S. Cl. 280—16

14 Claims



A one-track sliding vehicle or sled having a supporting frame, a steering mechanism rotatably mounted at the supporting frame, and a steering runner hingedly mounted about the horizontal axis on the steering mechanism. A sliding runner is also connected with the supporting frame by means of a bilaterally effective spring element, and guide means are provided which, together with the supporting frame and sliding runner, are approximately in the form of a parallelogram. The sliding runner and its corresponding sliding plane are mounted so that, in any operating position, they are oriented toward a base point located in the zone of the steering runner on a circular arc having a radius substantially corresponding to the shortest distance between the horizontal axis and the sliding plane of the steering runner.

3,635,489

SEAT FOR A ONE-TRACK SLIDING VEHICLE

Ferdinand Alexander Porsche, Doffingen, Germany, assignor to Firma Dr.-Ing. h. c. F. Porsche K.G., Stuttgart-Zuffenhausen, Germany

Filed Sept. 9, 1969, Ser. No. 856,442

Claims priority, application Germany, May 17, 1969, P 19 25 206.3

Int. Cl. B62b 13/04

U.S. Cl. 280—16

8 Claims



A one-track sliding vehicle or sled having a supporting frame, a steering mechanism, a front steering runner and a

rear sliding runner. The sled is also provided with a passenger seat which can either be hingedly mounted to the supporting frame or detachably connected to the supporting frame. Further, the seat is useful for storing equipment articles of the driver and/or of the sled itself. For example, the steering mechanism, which can be constructed so as to be detachable from the supporting frame, can be accommodated in recesses provided in the undersurface of the seat and held in that position under tension.

3,635,490

ONE-PIECE PLASTIC SLED

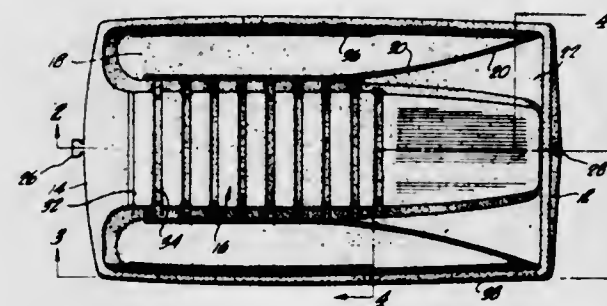
John E. Demaree, 516 Monterey Road, South Pasadena, Calif., and Michael S. Demaree, 5248 Shearin Avenue, Los Angeles, Calif.

Filed Aug. 21, 1969, Ser. No. 851,828

Int. Cl. B62d 13/06

U.S. Cl. 280—18

7 Claims



A snowsleed molded of one piece of a plastic material wherein the runners are so designed as to accommodate various types of snow conditions. The surfaces of the runners are provided with secondary ribs so that when someone is seated upon the sled, it will cause the runners to tilt outwardly so that it will run upon this secondary runner if the snow conditions are hard. Under softer snow conditions, the runners are forced inwardly so that the sled runs upon the larger flat portions of the running surfaces thereby providing a larger running surface so that the sled stays higher up in the snow. By this tilting action together with the configuration of the runners, the sled thus presents the best running surface automatically no matter what the snow conditions are. In addition, the runners are curved so as to permit the sled to be easily maneuvered.

3,635,491

CASTER JACK MECHANISM FOR PORTABLE APPLIANCES

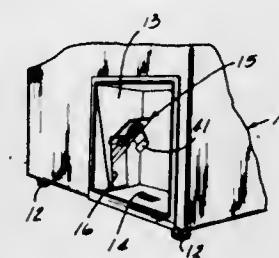
Reinhold Drews, Stevensville, and Julius J. Grau, Berrien Springs, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Apr. 17, 1970, Ser. No. 29,389

Int. Cl. B62d 21/18

U.S. Cl. 280—43.14

5 Claims



A caster jack mechanism for use with heavy appliances such as washing machines and the like employing a pair of shafts pivotally mounted to the cabinet of the appliance and

provided with drive means for transmitting rotational motion from one shaft to the other. A plurality of casters are supported in spaced relation along the two shafts such that pivotal movement of the shafts in one direction causes the casters to be pivoted into cabinet-supporting relationship so that the entire weight of the cabinet is supported by the casters and the cabinet can be freely moved in this position. The actuating mechanism includes a pedal assembly mechanically coupled to one of the shafts and being provided with a spring-biased latch mechanism for holding the casters in their floor-engaging position.

3,635,492

TRAILER

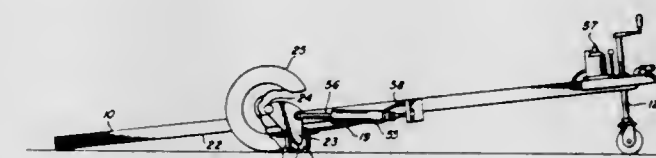
Louis D. Mauldin, 2308 Grand Avenue, Phoenix, Ariz.

Filed Dec. 5, 1969, Ser. No. 882,527

Int. Cl. B60p 3/10

U.S. Cl. 280—43.23

1 Claim



A trailer having a hydraulically operated mechanism for elevating and lowering the frame of the trailer. A unique off-set rotatable axle is operable to move the frame from the normal substantially horizontal travel position to a position in which the rear portion of the frame is lowered for ease of loading or unloading.

3,635,493

TRACTOR FRONT-END WEIGHT ASSEMBLY

Hubert Barth, Mannheim, and Klaus Hauk, Altrip, Ludwigshafen, both of Germany, assignors to Deere & Company, Moline, Ill.

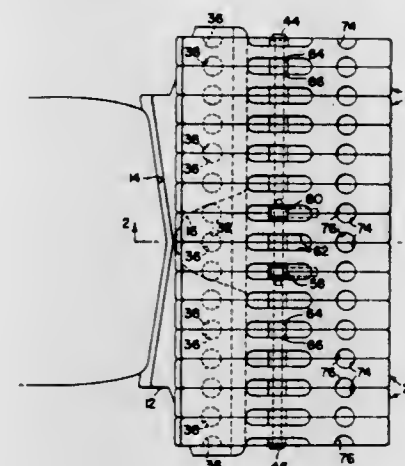
Filed Aug. 7, 1970, Ser. No. 61,991

Claims priority, application Germany, Aug. 14, 1969, P 19 41 316.2

Int. Cl. B60r 27/00

U.S. Cl. 280—150 E

16 Claims



A barlike base weight is fixed crosswise to the forward end of a tractor and includes a transverse, upturned lip over which hook-shaped portions of two or more identical plate-

shaped weights may be engaged. The mounted weights are disposed in side-to-side abutting relationship, and are centered transversely and kept from shifting sideways on the base weight by a centering pin. The weights are held tightly against each other and fixed in relation to the centering pin by a pair of clamping screws respectively inserted, from the opposite sides of the mounted weights, through upper and lower transversely aligned bores. The base weight includes a first hitch connection which may be used when none of the plate-shaped weights are mounted on the base weight, and a second hitch connection is provided by cooperating portions of the weights when they are mounted on the base weight.

3,635,494

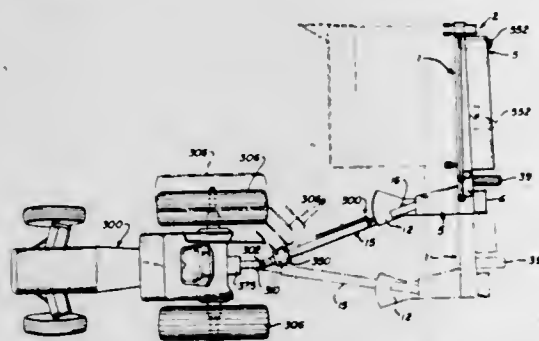
DIAL HITCH LOCK FOR SWINGABLE TRAILER TONGUE

Reynold Barkstrom, Hinsdale, and Peter J. Peacock, Western Springs, both of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Feb. 5, 1970, Ser. No. 9,021
Int. Cl. B60d 1/00

U.S. Cl. 280-462

6 Claims



A locking device for the tongue of a harvester which is pivoted at its rear end to a draft frame of the harvester for swinging movement about a vertical axis. The frame having an arcuate flange struck from the axis and overlying the tongue and having horizontal angularly spaced holes therein, a spring-loaded bolt on the tongue connected to an operating lever having a roller at one end engaging a bolt-mounting flange on the tongue to provide a fulcrum for the bolt. The lever is attached at its other end to a rope which leads to the operator's station for easy reach by the operator. The bolt is movable by the lever to withdraw from any of the openings in the flange and is spring urged into the opening selected after the operator has angled the tongue with respect to the harvester as desired.

3,635,495

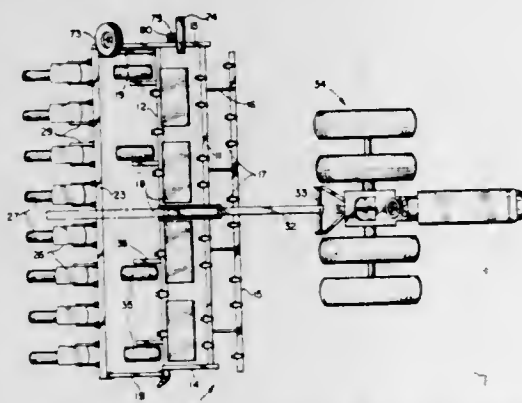
TELESCOPING IMPLEMENT TONGUE

John W. Orendorff, Downers Grove, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Nov. 28, 1969, Ser. No. 880,584
Int. Cl. B62d 53/00

U.S. Cl. 280-415

2 Claims



A transversely elongated trailing implement adapted to be endwise transported to reduce its width has an operating

draft tongue which projects forwardly from the implement frame for connection to a tractor and has a sliding association with the implement frame allowing the tongue to be telescoped rearwardly to a storage position within the front and rear confines of the frame when the implement is to be endwise transported.

3,635,496

SWAY CONTROL UNIT

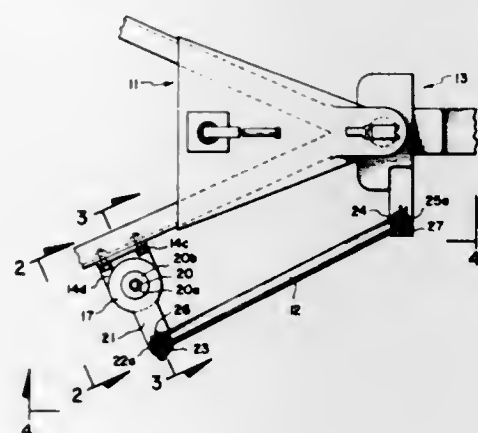
Edward B. Hedgepeth, Salt Lake City, Utah, assignor to Clifton E. Hedgepeth; Royce Doyle Hedgepeth and Jetta V. Vincent, all of Salt Lake City, Utah, part interest to each

Filed Oct. 8, 1969, Ser. No. 864,604

Int. Cl. B60d 1/00

U.S. Cl. 280-446 B

8 Claims



A sway control unit to be linked between a towing vehicle and a towed vehicle and providing a rotary frictional resistance to lateral weaving or swaying of the towed vehicle with respect to the towing vehicle, without adversely affecting free vertical or necessary horizontal angular displacement of the vehicles relative to one another.

3,635,497

STEERING RUNNER OF A ONE-TRACK SLIDING VEHICLE

Ferdinand Alexander Porsche, Doffingen, and Theodor Bauer, Leinfelden, both of Germany, assignors to Firma Dr.-Ing. h.c.F. Porsche KG, Stuttgart-Zuffenhausen, Germany

Filed Sept. 9, 1969, Ser. No. 856,319

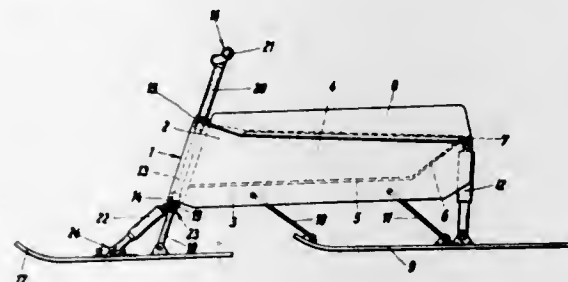
Claims priority, application Germany, Oct. 23, 1968,

P 18 04 581.3

Int. Cl. B62b 13/04

U.S. Cl. 280-16

24 Claims



A one-track sliding vehicle or sled having a supporting frame, a steering mechanism rotatably mounted at the supporting frame and a front steering runner and a rear runner connected at said supporting frame. The front steering runner is supported at the steering mechanism or at the supporting frame itself by a spring or shock-absorber leg which is adjustably mounted, thereby allowing the steering runner to be optimally adjusted to the particular driving conditions such as, for example, deep snow

3,635,498

WELD FITTING

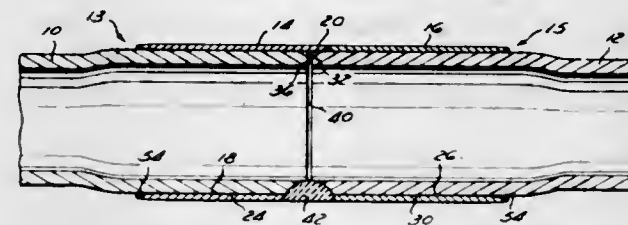
Hiralal V. Patel, Cleveland, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

Filed Dec. 15, 1969, Ser. No. 885,018

Int. Cl. F16l 13/02

U.S. Cl. 285-24

10 Claims



A coupling for use in forming a welded tube joint is disclosed along with a method for forming such joint. A thin coupling sleeve is tightly swage-fitted onto the end of a tube to form a male or female tube end assembly suitable for engagement with a tubular mating part assembly which may be a fitting or another coupling sleeve and tube assembly. The male-female interlocking arrangement provides radial and axial alignment of the joined assemblies. The structure is arranged to provide a space between the tube end face and the interior end face of the tubular mating part assembly. During the welding operation, external fusion heat is applied to form a single weld bead extending from the interior of the tube to the exterior surfaces of the assemblies. The width of the weld at its inner radial extremities is longer than the axial width of the space between the interior end faces and its width at its outer radial extremities is at least equal to twice the axial length of the male-female telescoped portion so that all the members are fused into a single unitary structure.

3,635,499

LIP SEAL

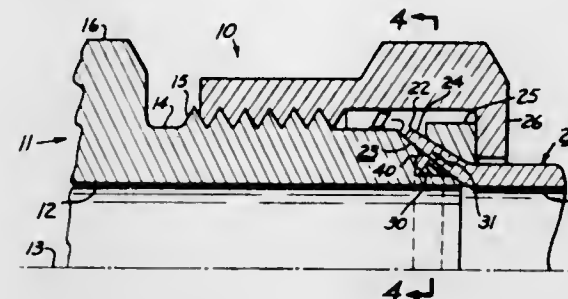
Robert R. Reddy, 1195 Michillinda Blvd., Pasadena, Calif.

Filed Feb. 24, 1969, Ser. No. 801,664

Int. Cl. F16l 17/00

U.S. Cl. 285-111

3 Claims



A lip seal for making a gastight seal between two abutting surfaces. A peripheral groove is formed in one of the abutting surfaces and has a bearing surface facing toward the direction of positive differential fluid flow. A backing lip surface forms a reentrant lip between the bearing surface and the respective abutment surface, and a relief surface joins the bearing surface to the abutment surface. A ring seal has a pair of legs joined by a central bight, one of the legs and the bight having a surface which matches and bears against the bearing surface and the backing lip surface, the other leg carrying a sealing surface and projecting beyond the groove so as to make a deflectible and fluidtight resilient seal with the opposite abutment surface.

3,635,500

UNDERGROUND DRIVE COUPLING

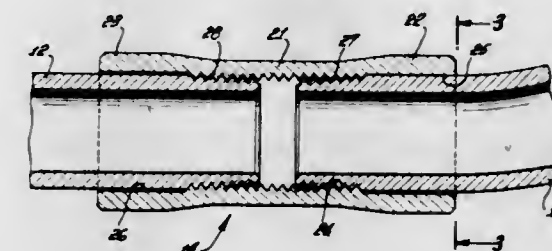
Edward J. Kirby, Manhattan Beach, Calif., assignor to Torrance Tubing Division of Cyprus Mines Corporation, Torrance, Calif.

Filed Apr. 3, 1970, Ser. No. 25,380

Int. Cl. F16l 21/00

U.S. Cl. 285-115

3 Claims



A drive coupling forming a connection for adjacent sections of pipe while the pipe is being simultaneously rotated and driven in a horizontal attitude a few feet below ground level. The coupling is provided with a flange to absorb bending stress at the end of the pipe to prevent deformation of the pipe end within the coupling. The flange engages the pipe where the pipe wall is unthreaded and at maximum thickness.

3,635,501

QUICK CONNECT-DISCONNECT HOSE COUPLING

Thomas Thorne-Thomsen, Godfrey, Ill., assignor to Olin Mathieson Chemical Corporation

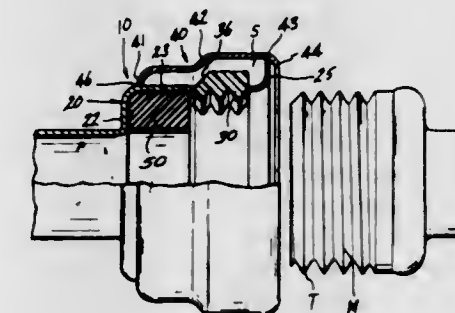
Continuation of application Ser. No. 662,533, Aug. 22, 1967, now abandoned. This application Nov. 14, 1969, Ser. No.

871,614

Int. Cl. F16l 35/00

U.S. Cl. 285-34

6 Claims



A quick connect-disconnect coupling is provided comprising an adaptor-retainer having openings therein which receive a snap ring. A resilient sealing member is held in place by the retaining adaptor. A cam-ring is also provided which in one position will allow introduction of a standard male coupling and in another position will hold the snap ring in engagement with the male coupling.

3,635,502

QUICK PIPE CONNECTOR

Robert Burkhalter, Jr., Fort Atkinson, Wis., assignor to Morton-Norwich Products, Inc., Chicago, Ill.

Filed Nov. 24, 1969, Ser. No. 879,377

Int. Cl. F16l 55/00

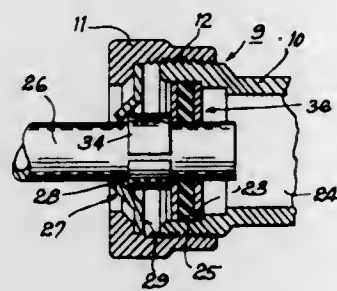
U.S. Cl. 285-177

4 Claims

This disclosure relates to a pipe and tubing connector adapted to quickly and easily connect unthreaded pipe to a hollow body with a fluidtight seal, in which a variety of dif-

ferent pipe and tubing sizes may be accommodated. The pipe or tubing is tightly clamped to resist withdrawal from the

formed on a mandrel which remains within the sleeve until it is ejected therefrom by fluid pressure at the completion of the splicing operation



connector, and electrical continuity is supplied between the pipe or tubing and the conduit.

3,635,503

BAND CLAMP WITH SERVICE OUTLET

Michael J. Rafalski, Jr., 602 S. Falcon St., assignor to Blase G. Celmer, 506 Kosciuszko St., both of South Bend, Ind.

Filed Dec. 23, 1969, Ser. No. 887,639

Int. Cl. F16l 41/02

U.S. Cl. 285-197

6 Claims



A service outlet is provided in a flexible band clamp by forming an aperture through the band. The band is inwardly depressed around the aperture and a threaded fitting is disposed in the recess formed by the depression and welded therein. The gasket of the clamp also is provided with an aperture aligned with the aperture in the band.

3,635,504

HOSE SPLICE

Clarence W. Borden, Trenton, and John R. Mills, Pennington, both of N.J., assignors to Goodall Rubber Company, Trenton, N.J.

Filed Oct. 7, 1968, Ser. No. 765,588

Int. Cl. F16l 31/00

U.S. Cl. 285-260

7 Claims

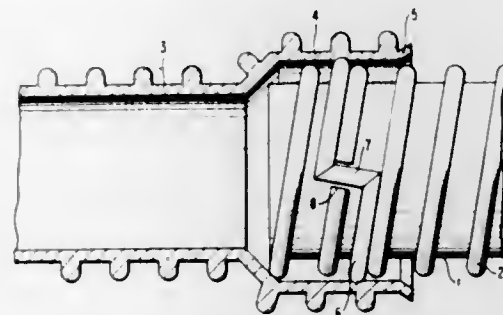


Two-hose sections are spliced together by cutting their ends diagonally; telescoping them over a fabric-reinforced uncured rubber sleeve; placing uncured rubber against the sleeve to fill a gap between the hose sections; bridging between the outer surfaces of the hose sections with a strip of uncured rubber; and, curing the uncured rubber elements while applying compressive forces thereto.

Preparatory cutting of the hose sections is guided by a template which also flattens the hose. The internal sleeve is

A clamp for coupling together two abutting end flanges of two pipes comprising a joint band fastened about the periphery of the two flanges by a tightening device. The joint band has two semicircular band segments that are identical in construction and mate together.

Each band segment has a corrugated configuration consisting of an alternate series of ridges and grooves between its out-turned ends. In each groove is symmetrically formed a double-keyhole slot having a curved middle portion and two



A plug connection for pipe with ribs, beads or the like, formed on the outside of a pipe member in a single-thread or multiple-thread fashion, with at least one annular sealing element disposed between the inserted pipe end and the overlapping pipe end or socket. The sealing element has a right-angled stepped shoulder having a dimension corresponding to the pitch. The stepped shoulder of the sealing element passes through a number of ribs corresponding to the number of threads. The ribs can be provided with grooves for the insertion of the sealing element; the sealing element can have a hollow cross section as well as having a shape, as viewed in cross section, of a semicircular external surface or a triangle with the tip thereof pointing outwardly.

3,635,506

CLAMP FOR COUPLING PIPES

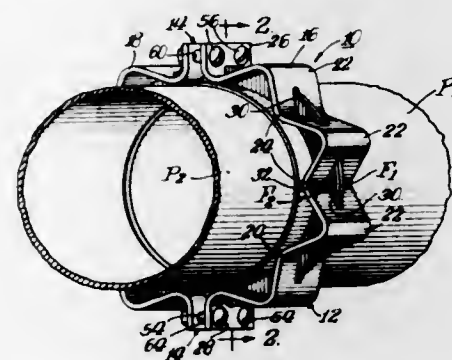
George E. Womble, and James L. Suhr, both of Kewanee, Ill., assignors to Kewanee Machinery & Conveyor Co., Kewanee, Ill.

Filed Feb. 17, 1970, Ser. No. 12,029

Int. Cl. F16l 23/00

U.S. Cl. 285-411

5 Claims



3,635,505

PLUG CONNECTION FOR PIPES WITH EXTERNAL HELICALLY SHAPED RIBS, BEADS, OR THE LIKE

Gerhard Osterhagen, Driesch; Friedhelm Krebsbach, Siegburg, and Waldemar Wissinger, Siegburg, all of Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

Filed Oct. 29, 1969, Ser. No. 872,287

Claims priority, application Germany, Nov. 9, 1968, P 18 08 056.3

Int. Cl. F16l 17/00

U.S. Cl. 285-345

46 Claims

diverging straight end portions. The straight end portions have parallel sides which are spaced apart a distance slightly greater than the combined thickness of the flanges to provide a snug fit thereon.

The tightening device comprising two fastener means which tighten together the mating ends of the band segments after they have been snugly fitted over the outer edges of the two flanges.

3,635,507

ADJUSTABLE SUPPORT FOR CYCLE SADDLE

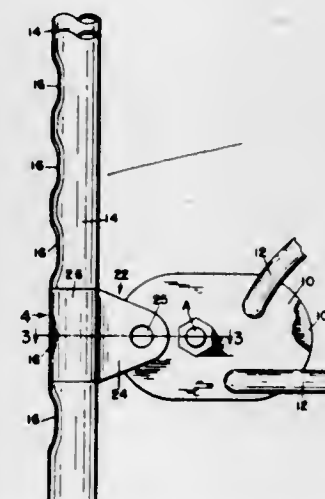
Martin J. Bird, Norwalk, Ohio, assignor to Persons-Majestic Mfg. Company, Worcester, Mass.

Filed Oct. 8, 1970, Ser. No. 79,065

Int. Cl. F16b 7/00

U.S. Cl. 287-54 C

5 Claims



An adjustable support for cycle saddles which comprises an elongated member to be connected at one end thereof, to the end plate or axle of the rear wheel of the cycle, the member extending upwardly for connection to the saddle at the rear portion thereof and having a series of holes, a one-piece clamping bracket for the member adapted to be bolted to its respective end plate, said bracket including an integral locking key in the form of a bent over tang entering into a selected hole in the respective member of the support and being self-locking thereto when connected to the end plate or axle.

3,635,508

BALL JOINT STATIC SEAL FOR HIGH-ANGLE APPLICATIONS

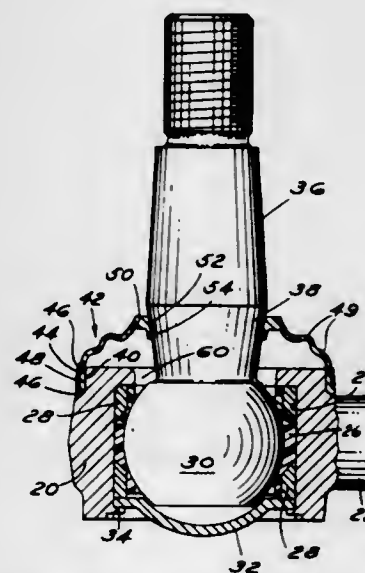
Edward A. Snidar, Ann Arbor, Mich., assignor to O & S Bearing & Mfg. Co., Whitmore Lake, Mich.

Filed Nov. 28, 1969, Ser. No. 880,645

Int. Cl. F16c 11/06

U.S. Cl. 287-87

2 Claims



A flexible, cuplike seal for a ball joint having the larger rim adapted to surround and be secured to the outer surface of a

ball joint socket and the central aperture therein in the base of the cup surrounding the stud of the ball element, the central opening having an axially extending wall directed to the ball in assembly to prevent movement of the dust seal into the area where it might be pinched in high-angle motion of the ball and stud relative to the ball socket. The walls of the seal are provided with undulations to facilitate the stretching and collapsing which results from the motion of the joint.

3,635,509

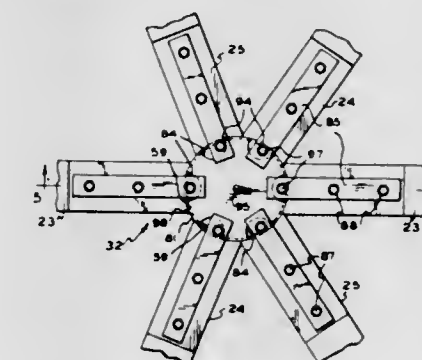
DOVE JOINT STRUCTURES

George R. Birkemeier, and Hollis C. Scott, both of Portland, Oreg., assignors to Timber Structures, Inc., Portland, Oreg. Original application May 17, 1968, Ser. No. 729,952. Divided and this application Nov. 3, 1969, Ser. No. 873,254

Int. Cl. F16b 7/04

U.S. Cl. 287-189.36C

6 Claims



A dome structure 20 (FIGS. 1 to 5) includes beams connected together in triangles by joints 31 and 32 and connected to a tension ring by joints 34. In each joint 31, bolts pass through straps connected to the beams and pass through clearance notches in stiffener plates welded to a tube and pass through and bear laterally against the inner periphery of the tube. Each joint 34 is similarly connected to the beams, has a vertical plate 63 connected to a tension ring and a base plate splined for radial movement only relative to the supporting wall. Low friction facings on the base plate and a supporting plate on the wall permit easy radial sliding. A dome structure 120 (FIGS. 6 and 7) has a double tension ring assembly 131 and has joints 134 in which bolts connect the beam straps to stiffening plates and pass through and bear against close-fitting holes in the stiffening plates, which holes are spaced inwardly from the inside faces of tubes of the joints. In a dome structure 220 (FIGS. 8 and 10), a laminated tension ring is provided. In a dome structure 320 (FIGS. 11 and 12) a series of straps welded together in the same plane connect at least three beams to a joint, and shear plates also connect the beams to the joint.

3,635,510

HEAT SEAL OF A GLASS MEMBER TO ANOTHER MEMBER

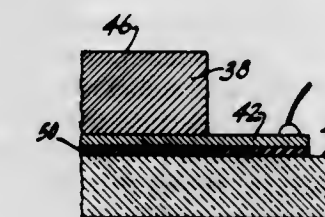
Arthur Irwin Stoller, North Brunswick, and William Henry Schlip, Jr., Flemington, both of N.J., assignors to RCA Corporation

Filed Nov. 20, 1969, Ser. No. 878,511

Int. Cl. C03c 17/30, 17/00

U.S. Cl. 287-189.365

2 Claims

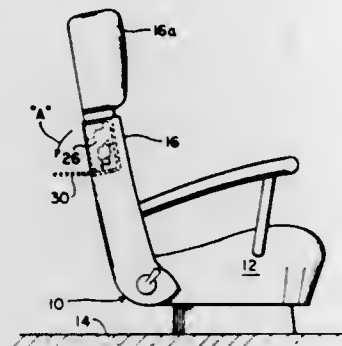


The metal or semiconductor member is provided with a coating of silicon nitride and heat sealed to a glass member. The silicon nitride coating is readily wet by hot glass to form a rugged, vacuumtight seal.

3,635,511

LATCHING ASSEMBLY WITH MAGNETIC LOCKING
Henry A. Waller, Los Angeles, Calif., assignor to Consolidated Controls Corporation, Bethel, Conn.
Filed Nov. 5, 1969, Ser. No. 874,134
Int. Cl. E05c 3/02, 17/56
U.S. Cl. 292—251.5

13 Claims



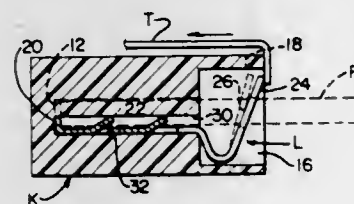
A latching assembly for a door swingable toward and away from a doorjamb or the like between a closed and an open position, comprising a pair of mechanically cooperating latch members mounted on the door and jamb, respectively, and relatively movable between an engaged latching position and a disengaged unlatched position. The latch members have latching surfaces adapted for engaged contact in a first direction generally transversely of the direction of movement of an adjacent portion of said door relative to the doorjamb. Permanent magnet holding means is provided for normally locking said latch members in latched contact, and electromagnetic means is provided for producing a magnetic force with a polarity opposing that of said permanent magnet means to unlock and relatively move the latch members out of latched engagement thereby permitting the door to be opened.

3,635,512

LOCK FOR KNOBS AND THE LIKE
Wray Carl Hansen, 8755 West 73rd Place, Arvada, Colo.
Filed June 22, 1970, Ser. No. 48,068
Int. Cl. E05b 3/04

U.S. Cl. 292—353

10 Claims

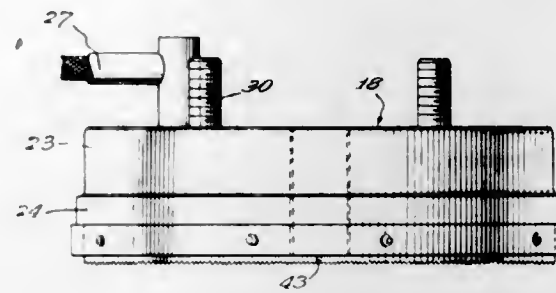


A lock for releasably securing a pushbutton, knob or the like to an actuator, such as a rod or shaft, comprising a member constructed of resilient metallic sheet material having prongs or barbs embedded into the knob for preventing its removal from same and including a resilient cantilevered locking lever having an aperture therein through which the rod extends which jams and frictionally engages the rod but which may be manually flexed to a release position. The increasing embedment or indentation of the knob by the prongs, with time and wear, is ineffective to change the resilient urge of the lever from its initial position of assembly, thereby maintaining the locking effect unchanged.

3,635,513

ELECTROMAGNET FOR MAGNETIZABLE MEMBERS
Ralph W. Edwards, 13245 Gremoor Drive, Elm Grove, Wis.
Filed Oct. 29, 1969, Ser. No. 872,125
Int. Cl. B66c 1/06
U.S. Cl. 294—65.5

3 Claims



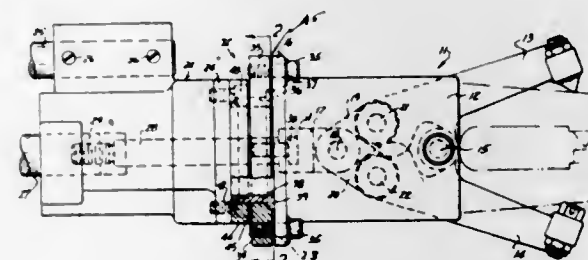
An electromagnet for removing and replacing magnetizable lids with means being provided for minimizing the tendency for lateral movement between the electromagnet and the lid including bands having teeth thereon disposed about the periphery of the electromagnet with the teeth projecting from the working face and adapted to directly engage the lid whether warped into a concave or convex configuration.

3,635,514

DUAL GRIP AUTOMATION JAW SWIVEL ASSEMBLY
Leland F. Blatt, 790 Shoreham Road, Grosse Pointe, Mich.
Filed July 18, 1969, Ser. No. 843,077
Int. Cl. B25b

U.S. Cl. 294—106

1 Claim



In combination with an automation dual grip jaw assembly having an apertured mounting flange, and a power operated actuating unit for said jaw assembly with an apertured jaw-mounting flange, a jaw swivel assembly including an apertured swivel plate secured to said jaw assembly mounting flange and a swivel body loosely mounted through and retainingly engaging one side of said swivel plate and including a collar adjacent the other side of said swivel plate, said collar being secured to said actuating unit jaw-mounting flange whereby on loosening of the fasteners between said jaw assembly and said swivel plate, the jaw assembly and said swivel plate may be rotatively adjusted.

3,635,515

CAR TOP CABIN
George H. White, Mundelein, and William J. Dunn, Libertyville, both of Ill., assignors to Moday, Inc.
Original application Oct. 25, 1967, Ser. No. 678,066, now abandoned. Divided and this application Feb. 11, 1970, Ser. No. 10,476
Int. Cl. B60p 3/32

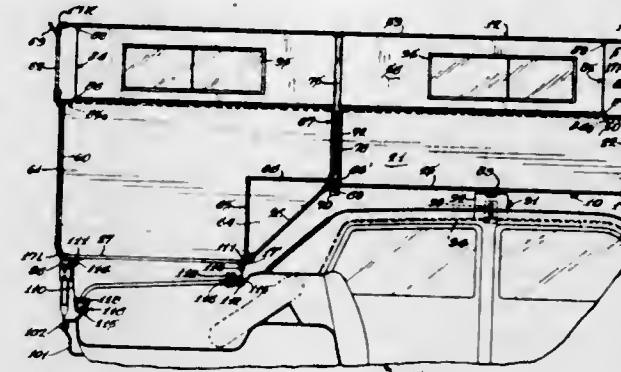
U.S. Cl. 296—23 MC

1 Claim

A traveler cabin adapted to be secured to the top of an automotive vehicle such as a passenger car, and including an upper housing mounted telescopically on a lower housing

and movable between an upper position for use and a lower position for travel, the housings being constructed of self-

recesses in such a manner that air-guide channels are formed between the walls of the recesses and the walls of the rear lights facing the walls of the recesses.



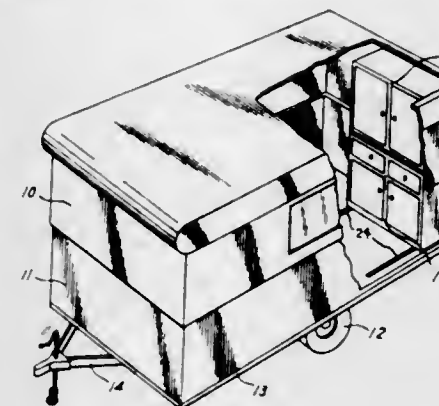
reinforced panels and having means for guiding the movement of the upper housing.

3,635,516

FIXTURES FOR TELESCOPING TRAILERS
Donald V. Commans, Lakewood, Colo., assignor to Jo Bud, Inc., Lakewood, Colo.
Filed July 30, 1970, Ser. No. 59,533
Int. Cl. B60p 3/34

U.S. Cl. 296—23

4 Claims



Interior fixtures for use in height-telescoping trailers includes a full-length cabinet. The cabinet is formed in two sections with the lower section track-mounted for selective positioning away from underneath the upper section. The lower cabinet presents a work surface and may hold heavy articles. A folding table is also provided. The folding table may selectively be used as a table or stowed at the table bench ends, providing a large cleared area.

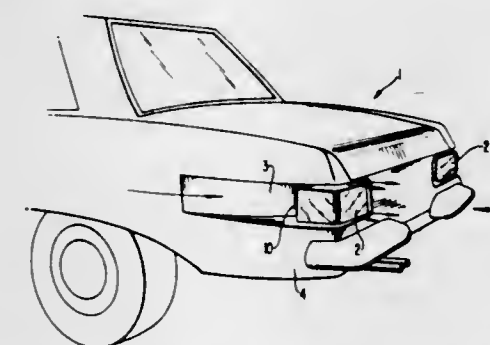
3,635,517

INSTALLATION FOR REDUCING THE SOILING OF REAR LIGHTS IN MOTOR VEHICLE BODIES
Karl Wilfert, Gerlingen-Waldstadt, and Hans Gotz, Sindelfingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Aug. 21, 1969, Ser. No. 851,842
Claims priority, application Germany, Aug. 24, 1968, P 17 80 278.7

Int. Cl. B60q 1/00

U.S. Cl. 296—28 R

17 Claims



An installation for reducing the soiling of the rear lights in motor vehicles in which the rear lights are mounted in body

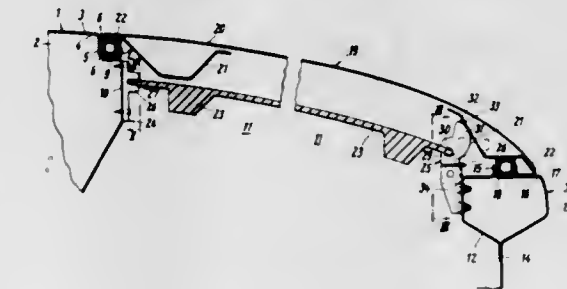
3,635,518

MOUNTING OF A ROOF ATTACHMENT IN THE FRONT OR REAR SPACE

Georg Eger, Pleidelsheim, Germany, assignor to Dr.-Ing. h.c.F. Porsche K.G., Stuttgart-Zuffenhausen, Germany
Filed Nov. 10, 1969, Ser. No. 875,111
Claims priority, application Germany, Nov. 22, 1968, P 18 10 253.9
Int. Cl. B60j 7/10

U.S. Cl. 296—76

14 Claims



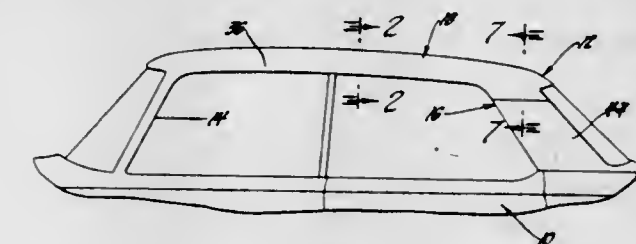
A passenger car with a detachable roof attachment which can be stored in the passenger car's front or rear space closeable by a hood. The roof attachment is mounted by devices arranged on oppositely disposed transverse fixed walls of the passenger car superstructure; the transverse walls define the front or rear space of the passenger car. The devices are provided with bearing sections for surrounding the rims of the roof attachment in a tonglike or clamplike manner. At least one of the devices is provided with an elastic section which makes possible the opening of the bearing section and a widened portion with a cam which rests against an inner portion of the hood to prevent undesired release of the roof attachment from the devices.

3,635,519

VEHICLE BODY ROOF STRUCTURE
Laverne H. Foster, Detroit; Robert M. Fox, Warren, and Charles H. Webber, Royal Oak, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Aug. 12, 1970, Ser. No. 63,094
Int. Cl. B60j 7/10

U.S. Cl. 296—137 R

7 Claims



A vehicle body roof structure includes inner and outer roof panels generally coextensive in size. The longitudinal edges of the outer panel are hem flanged over like edges of the inner panel. The lateral edges of the panels are provided with mating pinweld flanges welded to each other. The central portion of the inner panel is located immediately adjacent a like portion of the outer panel and secured thereto by a plurality of adhesive drops. The lateral and longitudinal marginal portions bounding the central portion of the inner panel and like portions of the outer panel provide the side rail and header structures. Such marginal portions are spaced a greater distance from each other than are the central portions. The inner panel is provided with longitudinally spaced rows of laterally aligned openings for receiving listing wire mounting clips. Certain of the openings and the front lateral

marginal portion are provided with outwardly embossed dams to limit flow of the uncured adhesive with respect to such openings and marginal portion during shipment of the resultant structure after assembly. The inner panel is further provided with perforations to allow for sound absorption in the space between the inner and outer panels. One or more embossed ribs may be provided in the inner panel, and a center embossment of the inner panel supports a pad of sound absorbing material in engagement with the outer panel.

3,635,520 COLLAPSIBLE CHAIR

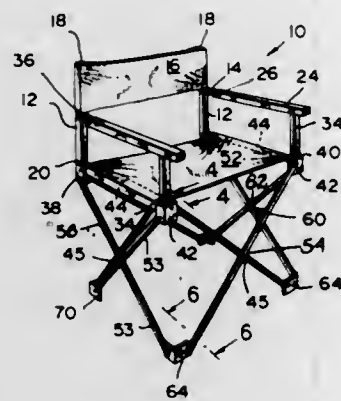
Arnold L. Roher, 933 Dana Avenue, Valley Stream, N.Y.;
Arthur Sprigman, 95-20 222nd Street, Queens Village,
N.Y., and Bertram Steinberg, 589 Green Place, Woodmere,
N.Y.

Filed Feb. 2, 1970, Ser. No. 7,870

Int. Cl. A47c 4/00; A47d 1/02; A47b 3/02

U.S. Cl. 297-45

7 Claims



The invention resides in a collapsible chair which is adapted to fold into an elongated rectangular package, the chair being collapsible in two dimensions, simultaneously. A pair of upright rigid support members are connected to a foldable arm at the center thereof. A plurality of rigid support legs are collapsible in a scissor action which supports the center or weight support material. A seat brace is connectable from the lower portion of the rigid support members to interlock with a connector plate disposed on the lower end of a front brace, when the chair is opened to its stable position. The connecting of said seat brace to said plate provides the locking means for holding the chair in its stable condition and further provides the necessary rigid crossmember construction to support the body of the user. A foldable member is connected between the lower portions of the rigid support member to maintain said support members in spaced relationship when excessive weight is positioned on the chair.

3,635,521 MODULAR FOLDING FLOOR CHAIR

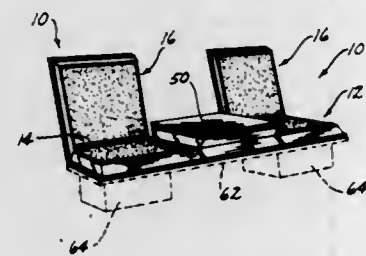
Melvin D. Shivers, 4018 University, Des Moines, Iowa

Filed Apr. 27, 1970, Ser. No. 32,163

Int. Cl. A47b 85/04

U.S. Cl. 297-125

7 Claims



A modular folding floor chair including seat and back portions substantially identical in shape and appearance. Chair

units may be used alone or in combination and may be placed on the floor or on a supporting standard. Each of the chair units may be opened or closed and when closed function as a table surface. The adjacent hinged ends of the seat and back portions taper longitudinally inwardly and abut each other to limit the opening of the chair unit to an included angle of approximately 105°. The seat and back portions have ends opposite the hinge which also taper longitudinally inwardly and present a front appearance substantially identical to the back appearance when the chair unit is closed. Magnetic means may be provided in adjacent sides of the chair units to secure them together when more than one is being used and in the back and seat portions to maintain the units in a closed condition.

3,635,522

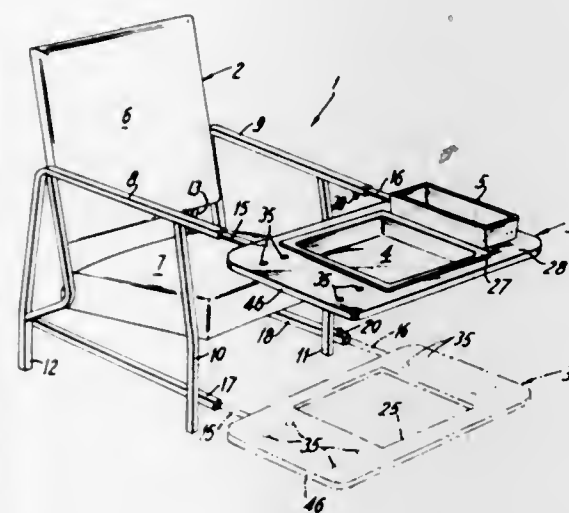
SURGICAL TREATMENT METHOD AND APPARATUS
Malcolm Kerwit, Fair Lawn, N.J., assignor to Kerwit Medical
Products, Inc., Fair Lawn, N.J.

Filed Sept. 29, 1969, Ser. No. 861,660

Int. Cl. A47b 39/02; A47c 13/00; A47b 9/00

U.S. Cl. 297-153

6 Claims



A chair is provided with an upper and lower pair of parallel, horizontally aligned, equispaced, bracket members which are secured to the chair armrests and legs, respectively, and are adapted to receive and releasably lockably secure a surgical treatment tray immediately forwardly of the chair as an integral part thereof. The surgical treatment tray removably holds a solution basin centrally thereof and also removably holds a suitable instrument tray on either side of the basin. A generally frontal anatomical wound is treated upon seating the patient in the chair, lockably securing the treatment tray to the occupied chair in the upper or lower position, and removably securing a surgical instrument tray to the treatment tray, advantageously on the side thereof opposite that of the wound being treated.

3,635,523

DISPOSABLE HEADREST COVER

Robert J. Alpert, Princeton, N.J., assignor to Blessings, Inc.,
Bound Brook, N.J.

Filed Apr. 6, 1970, Ser. No. 25,865

Int. Cl. A47c 7/62

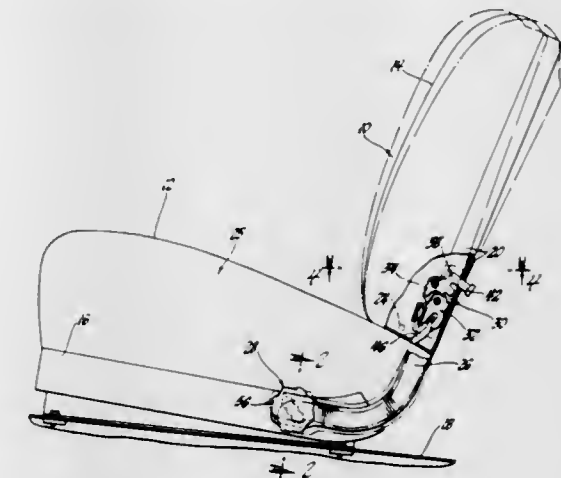
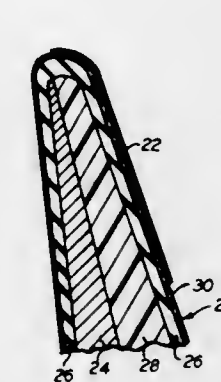
U.S. Cl. 297-220

8 Claims

This disposable headrest cover for use on airplanes, or train seats and the like, is held in place by a pressure-sealing adhesive that sticks to the upholstery of the seat. In order to prevent covers from sticking to each other when stacked prior to use, there is a release agent on the area of the front of each cover in position to contact with the area of the pressure-sealing adhesive on the back of the next adjacent cover

in the stack. This eliminates the necessity of having a release strip over the pressure-sealing adhesive area and does away

frame about first and second transverse axes which lie in an inclined plane passing through the seat cushion frame and in-



with the inconvenience of having to strip each cover before using it and having to collect the release strips for disposal.

3,635,524

**ADJUSTABLE SEAT ESPECIALLY FOR A MOTOR
VEHICLE**

Eberhard Faust, Bernhausen, Germany, assignor to Recaro
Aktiengesellschaft, Glarus, Switzerland

Filed Mar. 3, 1969, Ser. No. 803,576

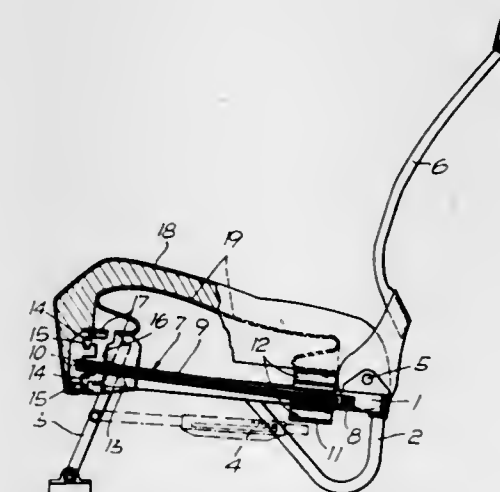
Claims priority, application Germany, Mar. 13, 1968, P 17

53 010.8

Int. Cl. A47c 3/00

U.S. Cl. 297-284

5 Claims



A seat which is adjustable longitudinally to different positions relative to the backrest so as to vary the depth of the seat, and which is also vertically adjustable near its front and rear ends so as to vary its height from the floor and also its inclination in the direction of travel.

3,635,525

VEHICLE SEAT HAVING AN ADJUSTABLE BACK
Joseph J. Magyar, Warren, Mich., assignor to General Motors
Corporation, Detroit, Mich.

Filed Aug. 25, 1969, Ser. No. 852,595

Int. Cl. A47c 3/00; B60n 1/02

U.S. Cl. 297-354

7 Claims

A seat assembly for a vehicle including a seat cushion frame and a seat back frame, the latter of which is supported for selective pivotal movement relative to the seat cushion

intersect at a point located adjacent to the longitudinal center axis of the vehicle.

3,635,526

RESTRAINING DEVICE FOR WHEELCHAIR PATIENTS

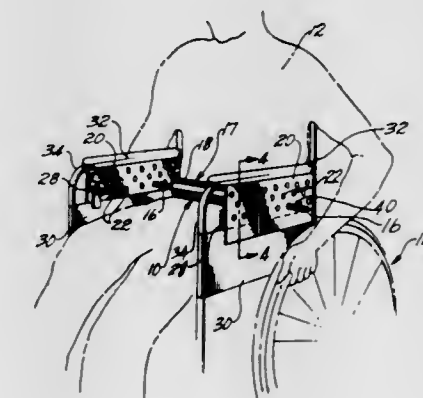
John T. Posey, 1739 Meadowbrook Road, Altadena, Calif.

Filed May 18, 1970, Ser. No. 37,989

Int. Cl. A62b 35/00

U.S. Cl. 297-390

6 Claims



Apparatus for restraining a patient in a wheelchair or the like includes a soft and resilient pad wrapped around an elongated bar. A separate perforated plate is secured to each side of the wheelchair, and each end of the bar fits through a hole in a respective plate to hold the pad comfortably and snugly against the lower torso of the patient.

3,635,527

**HEADREST AT THE BACKREST OF A MOTOR
VEHICLE SEAT**

Ludwig Weber, Boblingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterkheim, Germany

Filed Feb. 16, 1970, Ser. No. 11,476

Claims priority, application Germany, Feb. 19, 1969, P 19 08 202.1

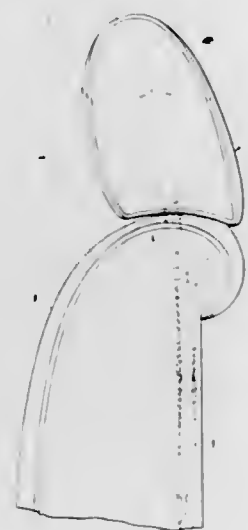
Int. Cl. A47c 1/10

U.S. Cl. 297-410

20 Claims

A headrest at the backrest of a motor vehicle which is guided in the backrest by means of two mutually parallel support rods and is adjustable in its height; the support rods are slightly bent in the direction toward the back side of the backrest and are guided in substantially rectilinear guide

members which include two guide bodies that are arranged at a distance from one another, surround the support rods and



are slightly movable transversely to the longitudinal direction of the support rods.

3,635,528

COLLAPSIBLE BASE FOR INFLATABLE FURNITURE CONSTRUCTION

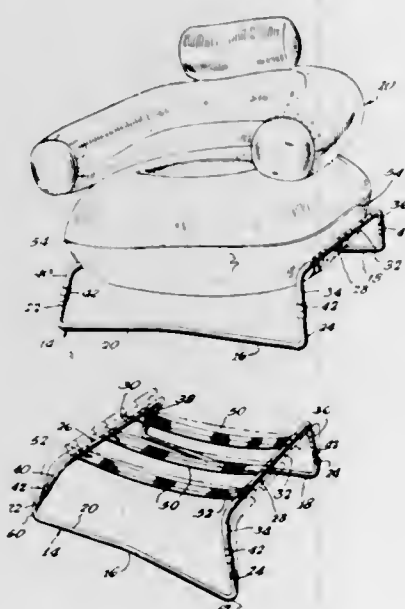
David H. Strom, Chicago, Ill., assignor to Strom International Associates Ltd., Chicago, Ill.

Filed Mar. 31, 1970, Ser. No. 24,315

Int. Cl. A47c 27/08, 7/14, 27/18, 7/20

U.S. Cl. 297-456

12 Claims



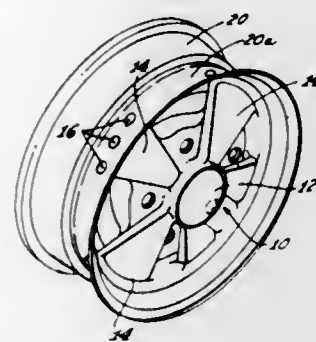
A collapsible cradle or platform for retaining an article of furniture above floor level in an inflated condition. The cradle includes a pair of base or leg members disposed parallel to each other and a pair of side support members joined to the base members to lie normal to said base members. Support straps extend between side members. The side members are bent inwardly toward each other in relaxed position for receipt of the lower surface of the uninflated article of furniture. As the article is inflated, the side members are tensed about the article's lower surface and squeezed against the article to retain the same on the cradle.

3,635,529 MOTOR VEHICLE WHEEL ASSEMBLY

Walter R. Nass, Route 3, Box 505, Escondido, Calif.
Filed June 24, 1969, Ser. No. 835,999
Int. Cl. B60b 1/08

U.S. Cl. 301-65

3 Claims



An improved wheel assembly is provided for motor vehicles, and the like, and which includes a central spider formed of any appropriate material, for example, of cast aluminum alloy or other nonferrous material, and a rim of any suitable material, such as steel or equivalent material; and in which a portion of the peripheral surface of the rim is depressed into a cavity in the outer edge of the spider so as to hold the two components of the wheel in a rigid assembly. An improved method for fabricating such a wheel assembly is also provided.

3,635,530

ANTISKID SYSTEMS AND APPARATUS FOR VEHICLES

Mervyn Brian Packer, and Gordon W. Judge, both of Leamington Spa, England, assignors to Automotive Products Company Limited, Leamington Spa, England

Filed Jan. 8, 1970, Ser. No. 1,492

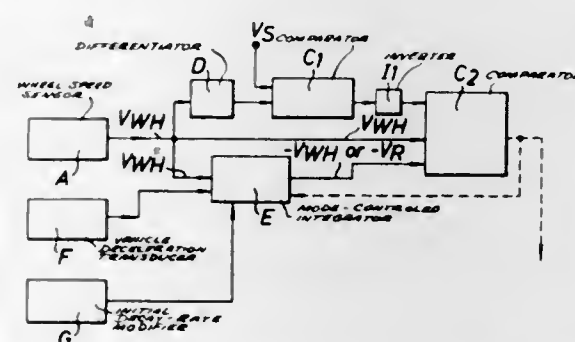
Claims priority, application Great Britain, Jan. 9, 1969,

1,429/69

Int. Cl. B60t 8/12, 8/08

U.S. Cl. 303-21 P

5 Claims



In an antiskid system for vehicles, brake control apparatus for automatically controlling the application of braking pressure to the wheels including sensing means such as a tachogenerator for producing electrical signals which are analogues of wheel speed, means for differentiating the analogue signal transducer means producing signals indicative of vehicle deceleration, means for producing a reference signal having a value determined in accordance with vehicle deceleration, dual-mode integration means responsive to said analogue and reference signals to produce output signals representative of wheel speed when the integrator operates according to one mode and to produce output reference signals representative of vehicle speed and controlled by vehicle deceleration when the integrator operates according to the second mode, a first comparator device responsive to the differentiated signals and a second comparator device being responsive to signals from the first comparator device and the integration means to produce a control signal for the actuation of antilock control valve means to reapply the braking pressure whenever the wheel speed signal is equal in magnitude to the reference speed signal.

3,635,531

ANTISKID DEVICE

Atutoshi Okamoto, Toyohashi-shi; Noriyoshi Ando, Kariya-shi; Koichi Toyama, Toyohashi-shi; Masaharu Sumiyoshi; Hisaji Nakao, both of Toyota-shi, and Hisashi Watanabe, Toyohashi-shi, all of Japan, assignors to Nippondenso Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

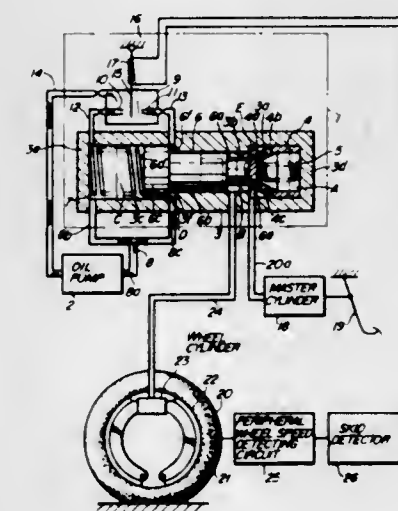
Filed Dec. 16, 1969, Ser. No. 885,469

Claims priority, application Japan, Dec. 27, 1968, 44/866

Int. Cl. B60t 8/12

U.S. Cl. 303-21 CG

6 Claims



An antiskid device comprising a skid detector composed of a peripheral wheel deceleration detecting circuit and a peripheral wheel subdeceleration detecting circuit for differentiating the output signal from said peripheral wheel deceleration detecting circuit to detect a first derivative of the peripheral wheel deceleration (referred to as the subdeceleration hereunder) which can be regarded to be inversely proportional to the adhesion coefficient of the road surface, and a braking force controlling mechanism to control the braking force to be applied to the wheel, whereby said braking force controlling mechanism is actuated when the peripheral wheel deceleration from said peripheral deceleration detecting circuits exceeds a reference value corresponding to the adhesion coefficient of road, while said reference value is varied in inverse proportion to the output from said peripheral wheel subdeceleration detecting circuit to continuously vary the operation starting point of said braking force controlling mechanism in accordance with the adhesion coefficient of road such that said braking force controlling mechanism is operated to continuously produce the braking force well suited to the adhesion coefficients of roads ranging from a dry asphalt road surface and the like where the adhesion coefficient is large to a snowy frozen road surface and the like where the adhesion coefficient is small, thereby effecting the antiskidding operation safely and efficiently.

3,635,532

HYDROSTATICALLY SUPPORTED MACHINE TOOL SLIDE

Giorgio Zerbola, Turin, Italy, assignor to RIV-SKF Officine di Villar Perosa S.p.A., Turin, Italy

Filed Feb. 4, 1970, Ser. No. 8,479

Claims priority, application Italy, Feb. 8, 1969, 50507 A/69

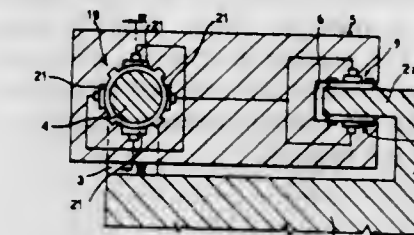
Int. Cl. F16c 17/00

U.S. Cl. 308-5

1 Claim

A hydrostatically supported machine tool slide has two spaced-apart bilateral cylindrical hydrostatic bearings for longitudinal movement of the slide along a guide shaft fixed

to a bed, together with a bilateral flat hydrostatic bearing acting on a member of the bed to prevent rotation of the slide



about the axis of the cylindrical bearing, affording a three-point isostatic support.

3,635,533

THRUST BEARING

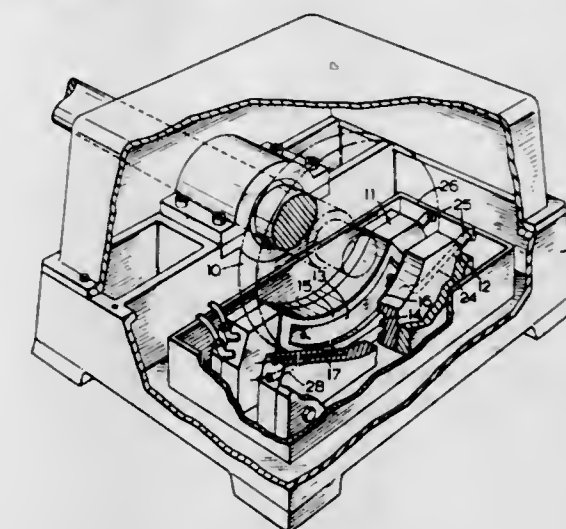
Leslie C. Galloway, Burlington, Ontario, Canada, assignor to Canadian Westinghouse Company Limited, Hamilton, Ontario, Canada

Filed May 25, 1970, Ser. No. 40,165

Int. Cl. F16c 17/16

U.S. Cl. 308-9

7 Claims



The invention relates to axial thrust bearings for rotating shafts of electrical machines wherein large end thrusts are produced. A source of hydraulic pressure is provided, coupled with a pair of hydraulic pads mounted on each side of a flange on the shaft to apply counter forces maintaining the shaft in a neutral position.

3,635,534

SELF-PRESSURIZING BEARINGS WITH RESILIENT ELEMENTS

Morris A. Barnett, Palos Verdes Estates, Calif., assignor to The Garrett Corporation

Filed Aug. 6, 1969, Ser. No. 848,053

Int. Cl. F16c 17/03, 17/06

U.S. Cl. 308-121

21 Claims



A hydrodynamic fluid bearing is disclosed having a deflectable resilient bearing element within the spacing

formed between the movable and stationary portions of the bearing. Additionally, resilient bearing stiffeners are positioned immediately adjacent the bearing element for changing in a predetermined way the deflection response of the bearing element. In order to initiate bearing element deformation a groove is formed in the bearing element. Deformation of the bearing element is controlled by support elements positioned between the resilient bearing element and the stationary portion of the bearing.

3,635,535

END THRUST PLATE OF A UNIVERSAL JOINT

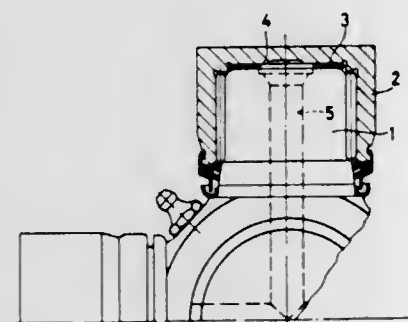
Josef Schultenkamper, Essen, Germany, assignor to Gelenkwellenbau GmbH, Essen, Germany

Filed Dec. 2, 1969, Ser. No. 881,403

Int. Cl. F16c 17/04, 33/20

U.S. Cl. 308-172

13 Claims



End thrust plate for journal pins of a universal joint cross-link wherein the end thrust plate is floatingly disposed between the end face of a journal pin and the base of a bearing bushing associated therewith includes a plate member formed of a heat-stabilized, highly crystalline and heat-resistant synthetic plastic material, and lubricant cup means molded within and integral with the plate member at opposite faces of the latter.

3,635,536

PORTABLE REFRIGERATOR UTILIZING A LIVING HINGE

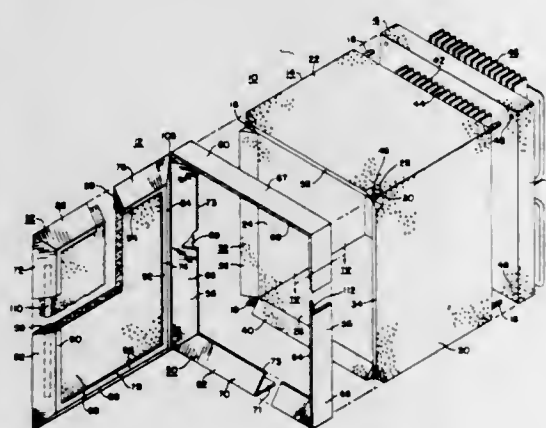
Robert S. Lackey, Pittsburgh; Jack D. Meess, Export, and Myron Svetlitz, Monroeville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 14, 1970, Ser. No. 2,850

Int. Cl. A25d 11/00

U.S. Cl. 312-214

12 Claims



This invention relates to a portable refrigerator having a low-cost cabinet of light weight and good insulating properties and includes a plastic breaker strip and plastic door which utilizes a living hinge disposed between these two elements.

ERRATUM

For Class 312-282 see:
Patent No. 3,636,548

3,635,537

MULTIPLE ANODE ARC LAMP SYSTEM

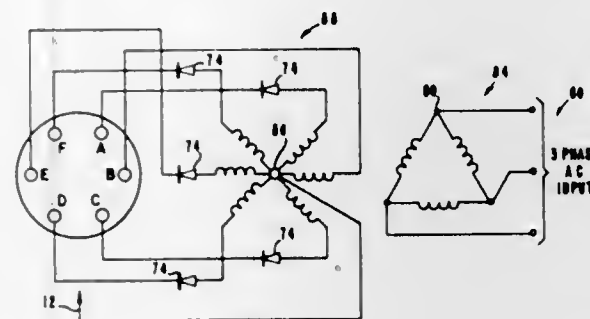
Charles G. Miller, Los Angeles, and Ralph E. Bartera, La Canada, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Dec. 29, 1969, Ser. No. 888,362

Int. Cl. H05b 41/16

U.S. Cl. 315-145

10 Claims



A high-intensity xenon arc lamp having a plurality of separate anodes axially disposed in a symmetrical pattern spaced a discharge gap from a common cathode.

3,635,538

STACKED HOLOGRAM APPARATUS

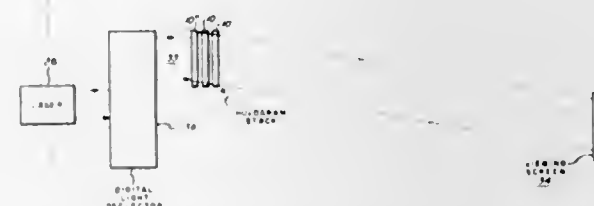
Henry John Caulfield; Donald H. McMahon, both of Carlisle, and Richard A. Soref, Chestnut Hill, all of Mass., assignors to Sperry Rand Corporation, Great Neck, N.Y.

Filed Feb. 27, 1970, Ser. No. 14,925

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

2 Claims



A data storage device including a stack of birefringent crystalline holographic plates serially disposed in the path of a playback beam and further including means cooperating with the holographic plates for selectively activating one of them to produce an image of the data recorded therein.

3,635,539

WIDE-ANGLE HOLOGRAPHIC APPARATUS

Donald H. McMahon, Carlisle, Mass., assignor to Sperry Rand Corporation

Filed Aug. 18, 1969, Ser. No. 850,791

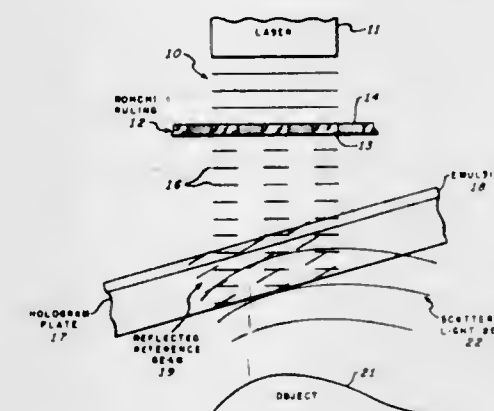
Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

14 Claims

A method and apparatus for constructing wide angle holograms. The construction apparatus comprises propagating onto a Ronchi ruling and photographic plate serially disposed in the path of the beam. An object of which a holographic recording is to be obtained is positioned on the side of the plate remote from the light source and ruling. The ruling precludes the direct light beam from impinging on various regions of the plate which is canted with respect to the propagational axis of the direct beam so that the light propagating through the plate is partially reflected from its

rear surface thereby forming a reference beam which is directed onto regions of the emulsion devoid of direct light. The light transmitted through the plate onto the object is



scattered therefrom whereupon that part of the scattered light directed back onto the plate interferes with the reflected reference beam to form the hologram.

3,635,540

HOLOGRAPHY WITH SURFACE WAVES

Heinrich Nassenstein, Leverkusen, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 2, 1969, Ser. No. 854,390

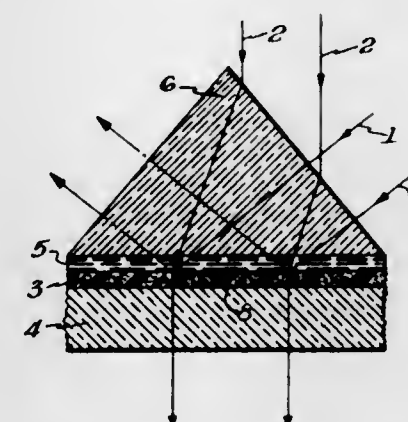
Claims priority, application Germany, Sept. 19, 1968, P 17

97 362.5

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

9 Claims



A process for the production of holograms wherein only one information carrying spatial frequency is used for recording by simultaneous exposure of a light-sensitive recording material to an imagewise modulated coherent object beam and one coherent reference beam. Further a process for the reconstruction of the hologram wherein the reference beam is the inhomogeneous surface beam which is created on total reflection in the optically thinner medium of the recording layer.

The holograms obtained by the process can be used for the production of semiconductor microcircuit images.

3,635,541

PANEL-TYPE MULTICHANNEL INSTRUMENT

Boris Abelevich Selber, ulitsa Rentgena, 15/31, kv. 53, Leningrad, U.S.S.R.

Filed May 1, 1969, Ser. No. 820,768

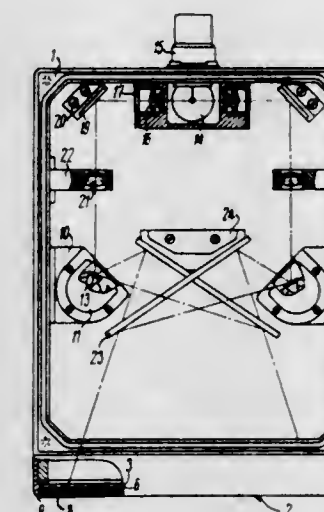
Int. Cl. G01r 13/38; G02b 17/00

U.S. Cl. 350-6

6 Claims

A panel-type multichannel instrument comprises in each measuring channel identical measuring assemblies. These measuring assemblies comprise rotating mirrors capable of being rotated under the effect of measured variables. A

device for producing on a common scale an optical indicator is provided such that the indicator is formed by light beams reflected by the rotating mirrors. Auxiliary mirrors are interposed in the path of the light beams reflected by the rotating



3,635,542

TRAFFIC WARNING DEVICE

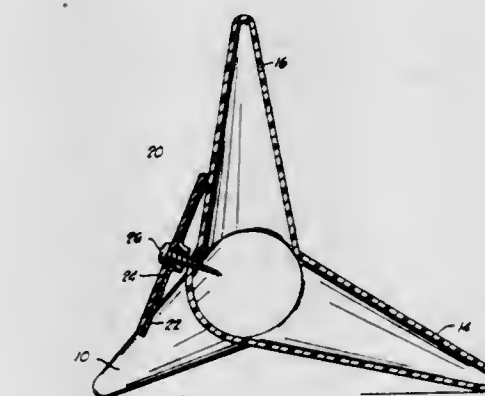
Alfred P. Parduhn, Route 2, Box 33, Oklahoma City, Okla.

Filed Apr. 24, 1969, Ser. No. 819,040

Int. Cl. G02b 5/12

U.S. Cl. 350-97

2 Claims



A traffic warning device for use in apprising oncoming vehicular traffic of the presence of an obstacle, construction zone, or other device or location to be avoided by the operators of such vehicles. The warning device is a hollow structure having four conically shaped legs each of which intersects each other leg at an angle of 120° so that the legs collectively form a symmetrical caltrop. Secured to the caltrop in a position in which it touches three of the legs at locations substantially equally spaced from the point of intersection of the axes of the legs is an annular reflector element. By virtue of the securement of the reflector element at this location, it is angled with respect to the vertical when three of the legs are placed on a flat horizontal surface, this angulation being such that light beams from the head lamps of an automobile are reflected along a line which extends substantially coincidentally with a line of vision extending from the driver of the automobile to the traffic warning device.

3,635,543

VARIABLE LIGHT TRANSMISSION DEVICE

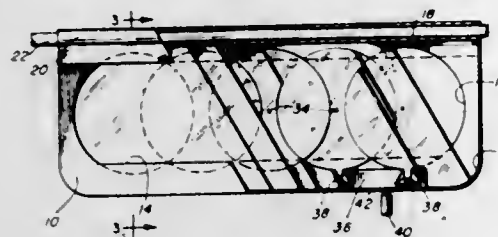
James F. Collins, 104 Westery Terrace, Hartford, Conn.

Filed Dec. 29, 1969, Ser. No. 888,676

Int. Cl. G02b 5/30

U.S. Cl. 350-159

11 Claims



At least two disks of polarizing material are pivotally mounted in a housing, along with at least one stationary sheet of light-polarizing material, to provide a variable light transmission device. The disks are mounted radially adjacent to one another with portions thereof in overlapping relationship, and the sheet of material is in superposed relationship to the disks to provide three layers of polarizing material within the area of overlap. The disks are mounted with their axes of polarization parallel, and they may be simultaneously pivoted in the same direction to vary the level of light passage therethrough. The device has particular applicability as a visor for use in vehicles.

3,635,544

PHOTOCHROMIC POLYMER MATRIX

Robert Franz Stamm; Jacob Solomon Brinen, both of Stamford; Evalyn Hosterman Tennant, Old Greenwich, and Frederick Halverson, Stamford, all of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of application Ser. No. 332,752, Dec. 23, 1963, now abandoned, Continuation-in-part of application Ser. No. 332,921, Dec. 23, 1963, now abandoned. This application Oct. 21, 1968, Ser. No. 769,028

Int. Cl. G02c 7/10; G02b 5/28

U.S. Cl. 350-160

17 Claims

A fast-acting photochromic filter—i.e., a filter whose optical density in the visible light range of 4,000 to 7,500 Angstroms—which is room temperature stable, that is from at least about 20° C. to 80° C., consists of (1) a solid optically transparent polymeric matrix, (2) essentially free from non-combined or molecular oxygen, and preferably protected from diffusion of atmospheric oxygen, in which is (3) dispersed, in solid solution, at least one light absorbing compound having a polynuclear conjugated condensed aromatic ring structure, whose molecules are capable of assuming a metastable triplet state by a process of intersystem crossing (not necessarily of the moiety which assumes the metastable triplet state) and in the triplet state, because of closer triplet states, has energy absorption bands which occur at lower energies (larger wavelengths) than the singlet-singlet absorption for such molecules. A synergic component may also be used as a physically adjacent moiety or molecule in which intersystem crossing occurs more readily than in the light absorbing compound, and which transfers triplet energy to the photochromic moiety. The absorption of singlet-singlet activating energy can be in the synergistic moiety, for single energy transfer, or in the photochromic moiety itself, with transfer of the singlet energy to the synergic moiety, intersystem crossing therein, to triplet energy, and transfer back of the triplet energy to the photochromic moiety, or double energy transfer. Two or more photochromic compounds, with different absorption spectra block "windows" to give absorption over a desired range. Protective glass

layers on each side of a photochromic matrix give physical protection, exclude oxygen, and may also be filters for desired ultraviolet and infrared ranges. Polymerization by ionizing radiation gives freedom from interferences, such as catalyst residues. Evacuation during processing, or heating in vacuum after formation of the filter aids in removal of uncombined oxygen.

3,635,545

MULTIPLE BEAM GENERATION

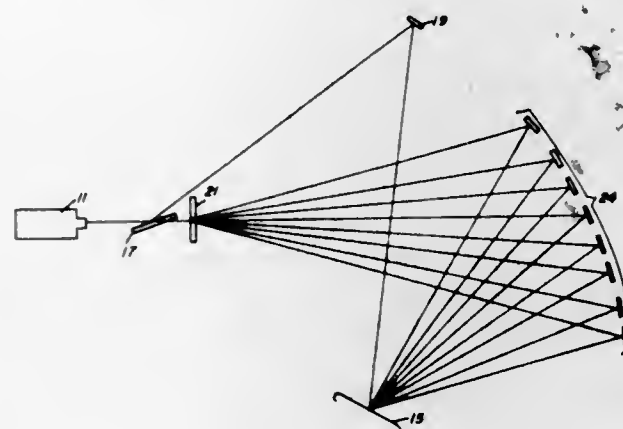
Alan P. VanKerkhove, and Roger E. Baldwin, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 14, 1967, Ser. No. 631,031

Int. Cl. G02b 27/10, 27/38

U.S. Cl. 350-163

2 Claims



Method and apparatus for generating a plurality of separate and distinct signal beams of mutually coherent radiation. The signal beams, which are of substantially equal intensity, are produced as the result of interference generated by directing a beam of coherent radiation at a radiation-impeding medium having a plurality of regularly spaced and substantially identical zones of variable impedance (e.g., a plurality of very small cylindrical lenses or mirrors). The invention is illustrated as it might be used in apparatus for recording data in the form of a plurality of diffraction gratings of individually unique spatial frequencies effectively superimposed one upon another, the individual gratings being produced as the result of further interference patterns created by the intersection of a reference beam and each of the plurality of signal beams.

3,635,546

RETROFOCUS-TYPE LENS SYSTEM

Ikuro Mori, Kawasaki-shi, Japan, assignor to Nippon Kogaki K.K., Tokyo, Japan

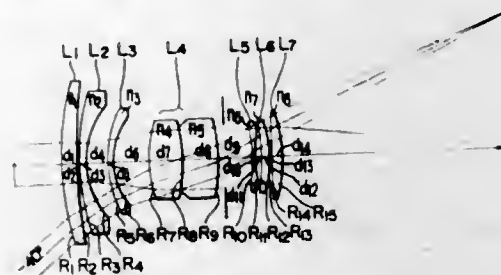
Filed Jan. 20, 1970, Ser. No. 6,821

Claims priority, application Japan, Feb. 8, 1969, 44/9006

Int. Cl. G02b 9/64, 13/04

U.S. Cl. 350-214

2 Claims



A wide angle retrofocus lens system consists of seven lenses L_1 through L_7 . Lens L_1 is a positive meniscus with its convex surface directed to an object. Lens L_2 is a first negative meniscus and lens L_3 is a second negative meniscus, and both

of the convex surfaces of these lenses L_2 and L_3 are directed to an object. Lens L_4 is a positive and lens L_5 is a negative lenses. Lens L_6 is a positive meniscus having concave surface directed to an object. Lens L_7 is a positive lens.

3,635,547

REFLECTOR CONSTRUCTION

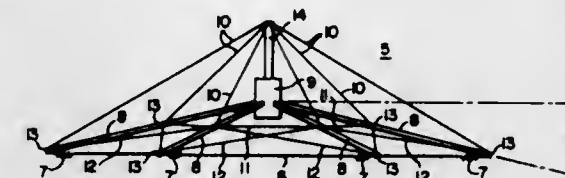
Frank C. Rushing; Lynford W. Gilbert, and Albert B. Simon, all of Ellicott City, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 8, 1969, Ser. No. 883,016

Int. Cl. G02b 5/08

U.S. Cl. 350-288

5 Claims



A lightweight reflector construction suitable for use in space, having a thin flexible reflector membrane means stretched flat between the projecting ends of a plurality of arms which extend axially and radially from a central support member about which such arms are distributed. The arms accept the reflector membrane tensioning load in compression along their length and are permitted to be of relatively slender construction by virtue of a rigidizing system of guys that constrain the arms against buckling at spaced apart locations along their length.

3,635,548

MOTION PICTURE PROJECTOR

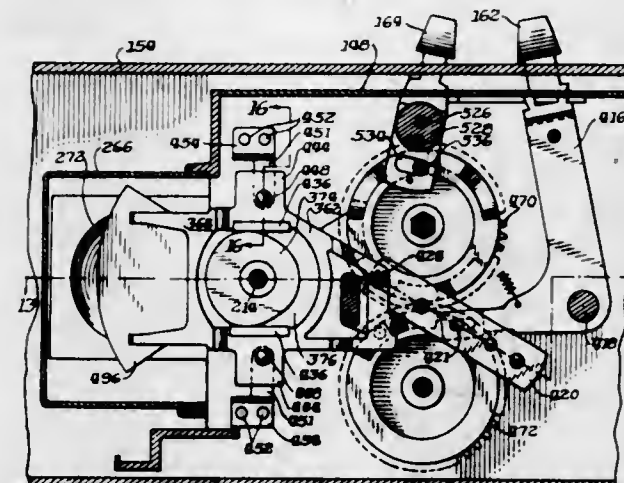
Jack W. Thomsen, La Grange Park; Arthur E. Nupnau, Chicago; Raymond W. H. Kim, Morton Grove; Jaroslav Cherniavsky, Skokie, and Kiyoshi Iha, Elk Grove Village, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Nov. 19, 1968, Ser. No. 777,018

Int. Cl. G03b 21/18, 21/48, 41/00

U.S. Cl. 352-79

16 Claims



A motion picture projector having a magazine holding a plurality of reels of film any one of which can be selected for projection. Means are provided for automatically unreeling the film from the selected roll, threading it through the projector mechanism to a takeup reel. Provision is made for re-winding the film upon the selected supply reel which re-winding is initiated either automatically at the end of the film or manually prior to that time. A claw mechanism is provided for advancing the film past the film gate in a stepwise manner for film projection. The claw is actuated in an up-and-down direction by a cam which is continuously rotated whenever the projector drive motor is operating. The claw can be

shifted with respect to the up-and-down cam thus changing the extent of up-and-down motion and the transverse location of the claw with respect to the film thus providing for two film formats such as Regular 8 and Super 8 motion picture films. The in-and-out motion of claw is provided by a cam follower selectively shiftable between two cam wheels each of which provides a different frequency of in-and-out claw motion so that two rates of projection are possible without introducing flicker in the projected picture. A third selectable position of the cam follower between the two cam wheels prevents in-and-out motion allowing still projection. Interlocks are provided so that the film format may be changed only when the projector drive motor is off, and speed may be changed only when the motor is on. A heat filter is automatically positioned between the light source and film when the projector is set for still projection.

3,635,549

METHOD AND MEANS FOR PRODUCING FADE-IN AND FADEOUT EFFECTS WITH MOTION PICTURE CAMERAS

Albert Stieringer, Calmbach, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart-Unterturkheim, Germany

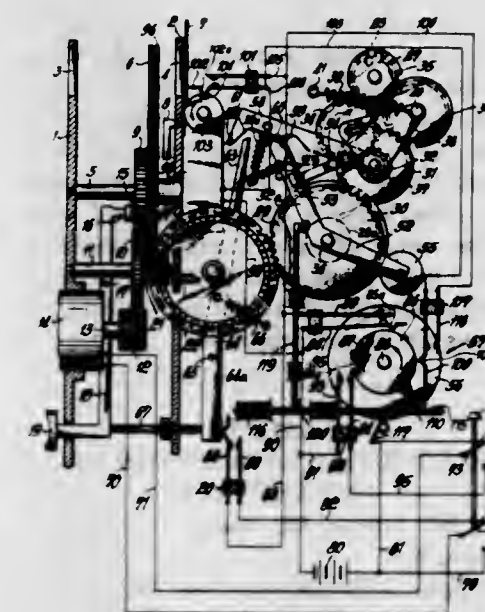
Filed Mar. 23, 1970, Ser. No. 21,677

Claims priority, application Germany, Mar. 25, 1969, P 19 14 979.2

Int. Cl. G03b 19/18, 21/36

U.S. Cl. 352-91

19 Claims



A motion picture camera with automatic dissolving shutter wherein the takeup reel for exposed film is rotated at a reduced speed for a first interval prior to and for a second interval during exposure with fadeout effect so that it collects during the two intervals only that length of film which is exposed during the first interval prior to fadeout. The film which is exposed during fadeout is stored in the space surrounding the takeup reel and is subsequently transported rearwardly to be stored in the space surrounding the supply reel. The once-exposed film is thereupon withdrawn from the space surrounding the supply reel and is exposed for the second time with fade-in effect while the takeup reel rotates at normal speed to collect such film at the rate at which it is transported by the pulldown. A timer which is started in response to reduction in the speed of the takeup reel actuates the dissolving shutter motor to start the fadeout effect after elapse of the first interval and arrests the pulldown and the drive for the takeup reel after elapse of the second interval.

3,635,550

DUAL SLIDE METHOD AND APPARATUS TO PROVIDE SIMULTANEOUS AUTOMATIC CUING AND SHOWING OF SLIDES

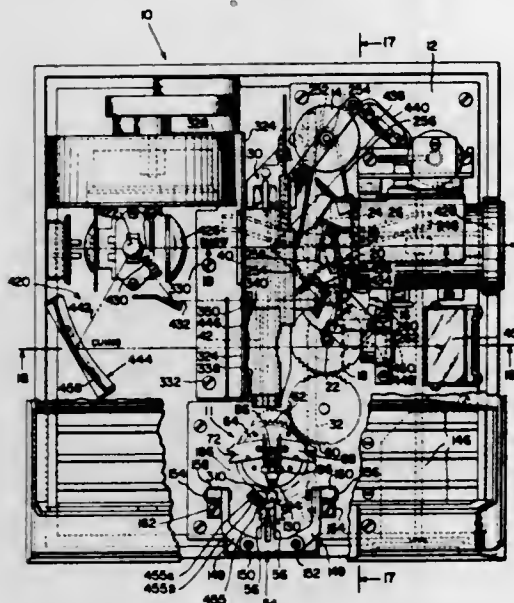
Dean M. Peterson, Littleton, Colo., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Oct. 27, 1969, Ser. No. 869,658

Int. Cl. G03b 21/26

U.S. Cl. 353—121

10 Claims



A method and apparatus to effect: 1. the simultaneous movement of a first slide from a tray into a projecting means for viewing by an audience while a second slide in the tray, that contains information relevant to the first slide, is moved into a position where it can be viewed solely by the lecturer to enable him to be automatically cued in on the subject matter of the first slide, 2. to effect the simultaneous return of the slides to the tray, 3. successive dual septum movements of the tray automatically in either a forward or reverse direction so that movement of additional pairs of slides from the tray to their associated audience viewing and lecturer viewing positions can be accomplished.

3,635,551

AUTOMATIC FOCUSING SYSTEM FOR PROJECTORS AND THE LIKE

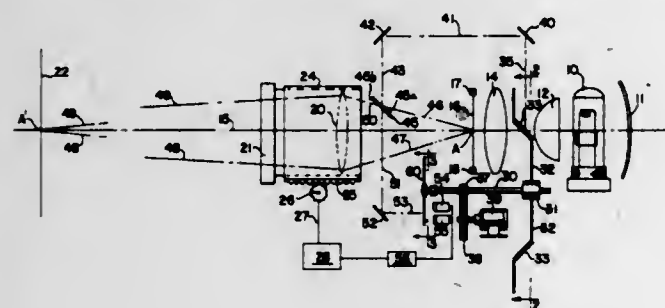
Oleg Szymber, Elk Grove, Ill., assignor to G.A.F. Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 843,311, July 22, 1969, now abandoned. This application May 18, 1970, Ser. No. 37,950

Int. Cl. G01b 3/00, 21/14

U.S. Cl. 353—101

30 Claims



Wave energy is directed from its source to detection means along paths which are defined in part by said wave energy being reflected from the transparency and from the screen. Displacement of the screen, objective lens or transparency will cause displacement of a beam of the wave energy with

respect to the detection means thereby to activate the latter. Motive means operated by the detection means moves the objective lens axially thereby to establish focus of the transparency and to reposition the beam of wave energy on the detection means.

3,635,552

OPTICAL INTERFEROMETER

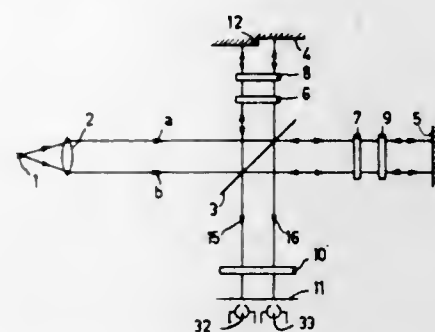
Hendrik de Lang, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of application Ser. No. 595,712, Nov. 21, 1966, now abandoned. This application Apr. 14, 1970, Ser. No. 28,195

Int. Cl. G01b 9/02; G02b 21/06

U.S. Cl. 356—106

8 Claims



An interferometer employing a beam splitter, and means for circularly polarizing the split beams into mutually opposite directions. The circularly polarized beams are redirected to an analyzer, preferably rotational, to generate a phase interference pattern which is detected by photodetection devices.

3,635,553

CASCADE DEVELOPING APPARATUS UTILIZING A ROTARY WHEEL WITH SCOOPS

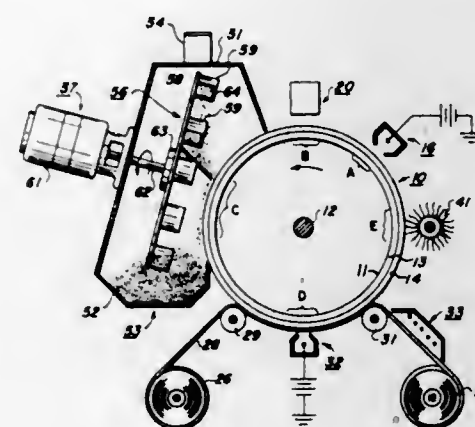
John A. Adamek; Valdevanis C. Draugelis, both of Rochester, and George J. Oriel, Fairport, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Sept. 22, 1969, Ser. No. 859,936

Int. Cl. G03g 15/00

U.S. Cl. 355—3

5 Claims



An apparatus for raising developer from a sump to an elevated position over an electrostatic plate bearing a latent image and cascading the developer over the plate to develop the image including a rotating frame having scoops fastened thereto which are filled with developer as they pass through the sump and empty the developer onto a guide member located at the elevated position which directs the developer over the plate. The scoops are independently mounted for rotation on the frame so that each can be orientated to its optimum position for emptying developer therein when at the elevated position.

3,635,554

EXPOSURE SYSTEM

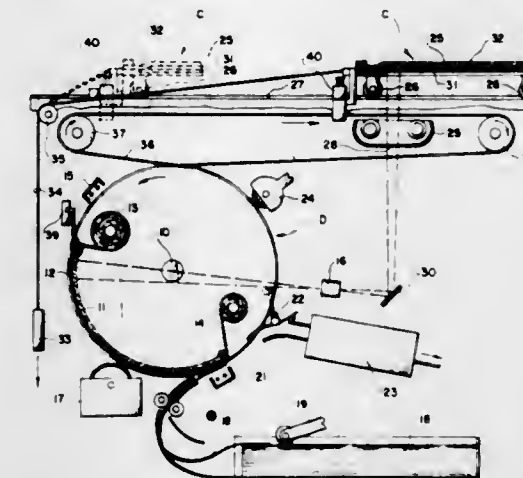
Howard T. Hodges, deceased, late of Perinton, N.Y. (by Claire F. Hodges, executrix), assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 26, 1969, Ser. No. 861,511

Int. Cl. G03g 15/00

U.S. Cl. 355—8

7 Claims



An exposure system is provided wherein a rotatable drum, having a support for an electrophotographic material, is rotatable past a series of processing stations and is connected by means of an endless belt to a carriage, which carriage is reciprocated back and forth across an exposure slit. This is accomplished by means, such as lugs or a clamp, which interlock the belt with the carriage in response to a predetermined position of the electrophotographic material to move the carriage across the exposure slit and thereafter disengage the carriage from the belt so that the carriage may be returned to its initial position by a return means for the next cycle.

3,635,555

ELECTROPHOTOGRAPHIC COPYING DEVICE

Akira Kurahashi; Hisashi Sakamaki; Yoshimasa Kimura, and Katsuo Kusunoki, all of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

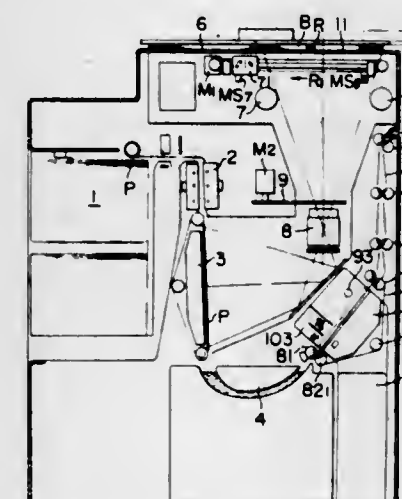
Filed Nov. 18, 1969, Ser. No. 877,673

Claims priority, application Japan, Nov. 25, 1968, 43/102728

Int. Cl. G03g 15/00

U.S. Cl. 355—8

20 Claims



A high-speed electrophotographic copying device is provided which has an original holder having a plurality of original holding surfaces so as to successively set a plurality of originals to be copied at the exposure position without

time loss to accomplish the change, means for detecting when two or more sheets of photocopying paper are fed simultaneously through a fault in the feeding means, means for diverting such papers from the exposure section in response to signals from said detecting means, means for detecting a fault in the guide means associated with the charging means, means for detecting the contrast of the original so as to control automatically the exposure, means for detecting the concentration of developing solution from the contrast of the image developed and automatically maintaining the concentration of the developing solution at an optimum level by controlling the addition of concentrated developing solution, and air-conditioning means for recovering or removing the developing solution vapor contained in the air in the device and purifying the air.

3,635,556

ELECTRODUPLICATION APPARATUS EMPLOYING A CONDUCTIVE POROUS ELASTIC PRESSURE PAD FOR PRESSING THE RECORDING MEDIUM AGAINST THE PHOTOCONDUCTOR

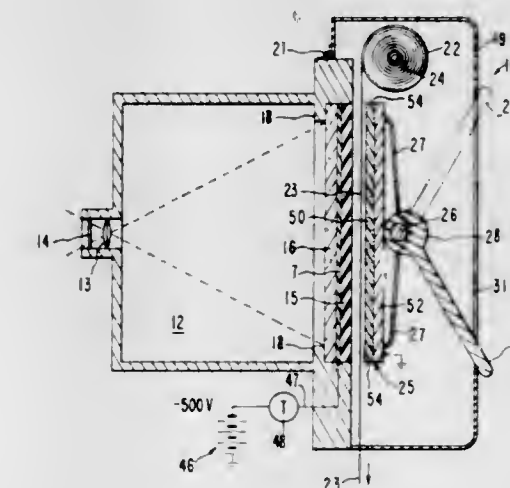
Raymond L. Levy, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Feb. 2, 1970, Ser. No. 7,653

Int. Cl. G03g 15/04

U.S. Cl. 355—16

8 Claims



In an electrophotographic apparatus having a photoconductive plate illuminated by a photon image, an elastic pressure pad holds the electrophotographic paper against the plate. The dielectric surface of the paper overlays the photoconductive plate. A potential is applied from the photoconductive plate through the paper to the pressure pad in order to form a charge image on the dielectric surface corresponding to the photon image.

The charge image is subsequently developed by conventional methods employing electrophotographic toner. During deposition of the charge image, the paper is pressed against the photoconductive plate by means of a conductive, resilient, porous pressure pad. The pad is a carbon filled plastic foam (approximately 53 percent carbon and 47 percent foam) mounted on a firm backing member. The resilience of the foam is approximately 29 p.s.i. per inch of compression and provides good mechanical and electrical contact between the paper and the photoconductive plate. The conductivity of the foam is approximately 3,000 ohms/square unit and provides electrical continuity during the charge image formation. The porous nature of the foam pad permits air bubbles between the pad and the paper to escape through the pad, thus eliminating undesirable voids in the final print.

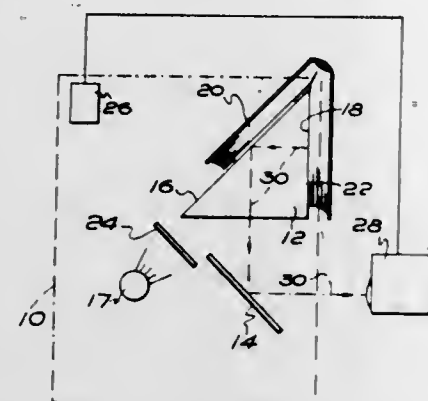
3,635,557

MEANS FOR PHOTOGRAPHICALLY COPYING BOOK PAGES

Brian Alderton, Leeds, England, assignor to The Scolar Press Limited, Menston, Ilkley, Yorkshire, England
 Filed June 2, 1970, Ser. No. 42,696
 Claims priority, application Great Britain, Dec. 24, 1969, 62,967/69

Int. Cl. G03b 27/70

U.S. Cl. 355-65



In the photographic copying of a page of a book, the book is partially opened at the page to be copied and a first plane reflective surface lies at an angle to said page and between said page and the opposite page to direct a reversed image on to a second reflective surface from which a corrected and reflected image is presented to photographic copying apparatus.

3,635,558

SLIDE PRODUCTION PROCESS AND APPARATUS

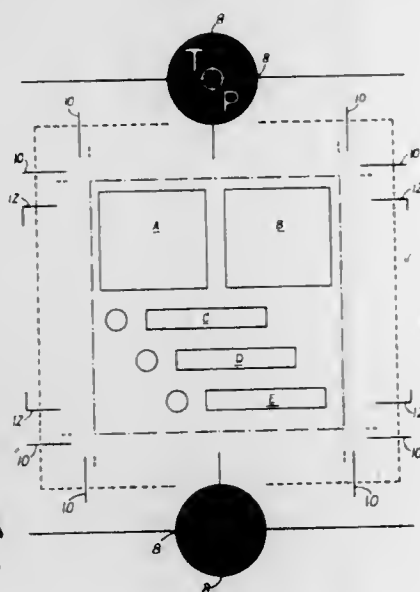
Clarence M. Le Peer, New York, and John H. Mohle, Mineola, both of N.Y., assignors to The Chartmakers, Inc., New York, N.Y.

Filed Nov. 13, 1969, Ser. No. 876,313

Int. Cl. G03b 27/62

U.S. Cl. 355-72

3 Claims



A principal embodiment of the invention disclosed herein is a process for producing photographic slides which, as a consequence thereof, can be separately projected onto a screen in an overlapping manner with images common to both slides in precise registry. The process consists of preparing artwork, such as graphs, diagrams, charts and the like on a specially prepared format and photographing the work. The resulting film is then critically positioned in a device according to markings therein which correspond with markings on

the format. The device known as a registration device constitutes another embodiment of the invention. The film is then punched and trimmed in the device, and thereafter mounted on a mask according to its markings whereupon the thusly mounted film is inserted in the usual carrier employed in slide projectors. The device, which is hereinafter designated a registration device, is deemed part of the invention. Alternatively, the invention comprehends slide carriers of unique construction in which the film that has been punched and scored for trimming in the registration device according to the process may be directly inserted into the carriers, the construction thereof being such that the step in the process of mounting the film onto a mask is eliminated.

3,635,559

PHOTOGRAPHIC PRINTING APPARATUS

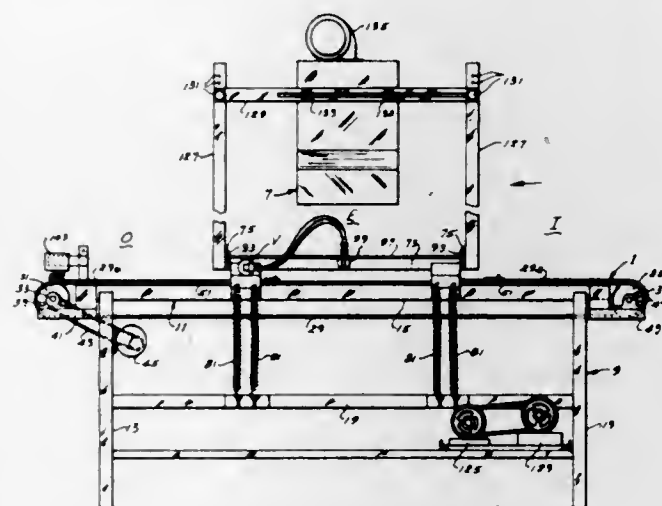
Robert E. Harrell, Manchester, and Edward H. Parker, Ballwin, both of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed Oct. 31, 1969, Ser. No. 872,867

Int. Cl. C03b 27/04

U.S. Cl. 355-85

27 Claims



A photographic printing apparatus, particularly for exposing lithographic plates to light through films, in which a plate with a film thereon is applied to a conveyor at an input station and conveyed by the conveyor to a position within a vacuum frame unit at an exposure station, after which the vacuum frame is closed and evacuated for pressurizing the plate and film, the exposure is made, the vacuum frame unit is opened, and operation of the conveyor is resumed to convey the plate and film out of the vacuum frame unit to an output station for removal of the film.

3,635,560

STEP AND REPEAT IMAGE REPRODUCTION APPARATUS

Claude K. Hulen, 7209 Virginia, Kansas City, Mo.

Filed Sept. 24, 1969, Ser. No. 860,612

Int. Cl. G03b 27/04

U.S. Cl. 355-86

9 Claims

A step and repeat image reproduction apparatus for reproduction of images onto image receiving material, such as film, photosensitive material, plates or the like, from an image bearing master. The apparatus has an exposure window and a vacuum device for holding the image receiving material and the image bearing master in firm contact with the exposure window where a time controlled exposure lamp exposes the image receiving material. The image receiving material and the image bearing master are secured to slide members which are movable at right angles with each other for precisely positioning same for exposure. The image receiving material and slide member has a single linear motion, while the image bearing master and respective slide

3,635,562

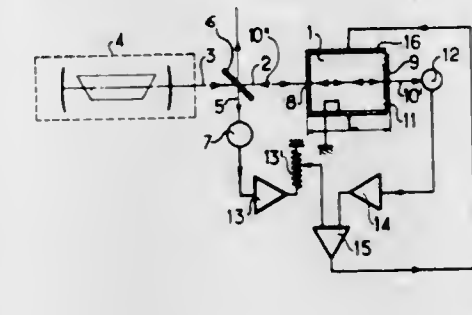
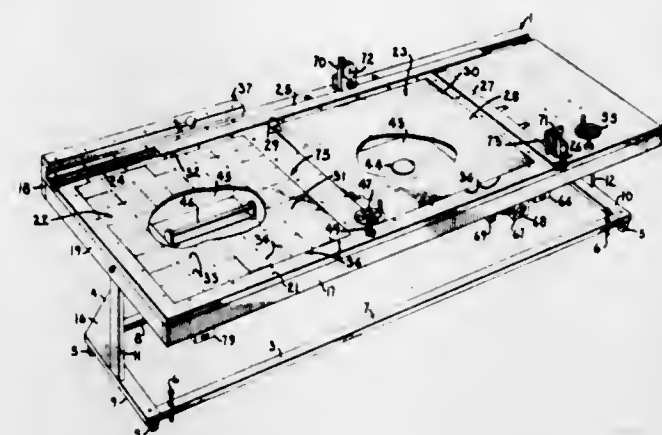
OPTICAL INTERFEROMETER FOR DETECTION OF SMALL DISPLACEMENTS

Jean-Michel Catharin, Savigny-sur-Orge, France, assignor to Compagnie Generale d'Electricite, Paris, France
 Filed Nov. 12, 1968, Ser. No. 775,069

Int. Cl. G01b 9/02

U.S. Cl. 356-112

8 Claims



the step and repeat exposures. A registry window has a grid therein for positioning an image bearing negative prior to being secured to a negative carrier to form the master.

An optical interferometer for detecting small displacements. Two mirrors form a Fabry-Perot cavity. One mirror is mounted to be subject to movement by external displacement forces. The other mirror is subjected to feedback control to reduce low-frequency variations in length of the laser cavity.

3,635,561

APPARATUS AND METHOD FOR DETERMINING THE CONTENT OF CHEMICAL ELEMENTS IN A SOLID SAMPLE

Corrado Bordonali, and Maria Antonietta Bianciffiori, both of Rome, Italy, assignors to Comitato Nazionale per l'Energia Nucleare-Cnen

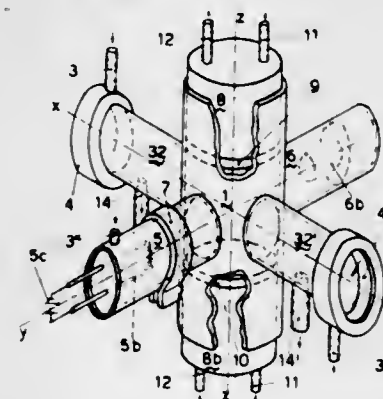
Filed Sept. 24, 1970, Ser. No. 75,188

Claims priority, application Italy, Oct. 4, 1969, 40543-A/69

Int. Cl. G01j 3/30

U.S. Cl. 356-85

4 Claims



An apparatus is disclosed, to be used in the spectrophotometric analysis of an atomized element, which can be readily shifted from the absorption technique of analysis to the fluorescence technique. In both cases the element to be analyzed is atomized, that is reduced to its basic atomic form by subjecting it to bombardment by the positive ions of a plasma produced within an analysis cell where two electrodes are introduced one of which comprises the element to be analyzed and functions as a cathode. An electric field is applied across said electrodes for producing the plasma while the same electrodes are maintained at a very low temperature by means of a cryogenic fluid and the analysis cell is maintained at a pressure in the range from 0.1 to 50 micron Hg. Some of the apparatus components are readily interchangeable for shifting from the absorption mode of analysis to the fluorescence mode of analysis.

3,635,563

APPARATUS FOR DETECTING SMALL ROTATIONS

Jacques Mouchart, L'Hay-Les-Roses, France, assignor to Compagnie Generale D'Electricite, Paris, France

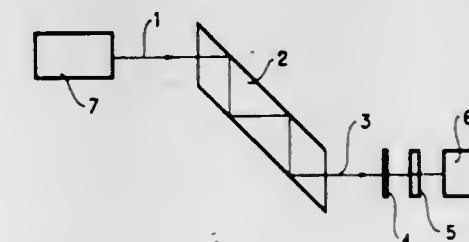
Filed Nov. 18, 1969, Ser. No. 877,724

Claims priority, application France, Nov. 18, 1968, 174,261

Int. Cl. G01n 21/40

U.S. Cl. 356-114

4 Claims



Slight rotations are detected by the variation, according to the angle of incidence, of dephasing introduced by a total reflection between the light polarized perpendicularly to the plane of incidence, and that which is polarized parallel to this plane. The apparatus includes a polarized light source, a prism with a parallelogram-shaped section in which the light undergoes four total reflections, a dephasing plate, an analyzer polarizer, and a light detector.

3,635,564

SYSTEM FOR MEASURING ORGANIC CONTENT OF WATER

Mathew M. Zuckerman, Yonkers, and Alan H. Molof, New City, both of N.Y., assignors to Envirotech Corporation, Palo Alto, Calif.

Filed July 31, 1969, Ser. No. 846,335

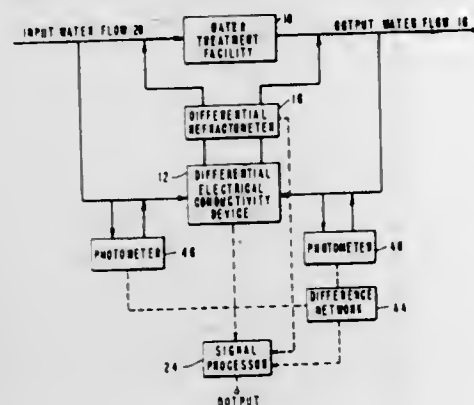
Int. Cl. G01n 21/46, 29/02

U.S. Cl. 356-128

9 Claims

A system for measuring the soluble organic content of a water sample by employing a refractometer which compares the refractive index of the water sample to the refractive index of a known or related water sample to obtain a measure of the total soluble content and then corrects this value for the content of the soluble inorganic material by use of an

apparatus which compares the electrical conductivity of the water sample to the electrical conductivity of a known or related water sample. The system has the distinct advantage over existing methods of requiring minimal supervision, and



short delay time before obtaining analytical results. Thus the system is particularly adapted for performance monitoring of a water treatment facility or for qualitatively monitoring the soluble organic content of a waterstream.

3,635,565

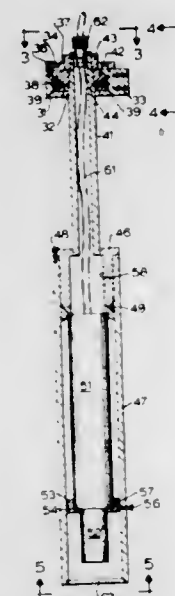
LASER VERTICAL COLLIMATOR

George P. Colson, Sonoma, Calif., assignor to Engineering Field Services, San Rafael, Calif.

Filed Feb. 16, 1970, Ser. No. 11,377

Int. Cl. G01b 11/27

U.S. Cl. 356-153



To establish as a plumb reference line for construction of buildings or shafts a laser beam is used. A laser source is mounted in a tube, the upper end of the tube is supported so that the weight of the tube and laser source makes the tube assume a vertical position. The support may be mounted on a tripod or side support. For shafts, the laser beam is directed downward. For buildings, the source may be reversed in the tube to be directed upward.

3,635,566

PIN TABLE

Italo Caroli, Westmount, Quebec, Canada, assignor to DBM Industries Limited

Filed Dec. 9, 1969, Ser. No. 883,385

Claims priority, application Canada, Mar. 25, 1969, 046,695

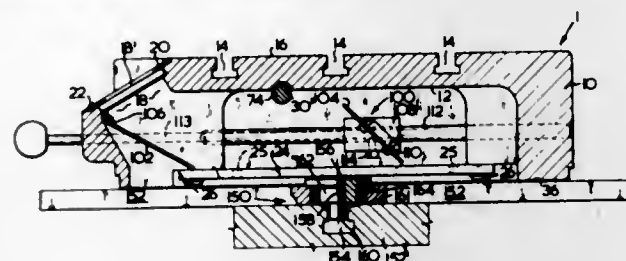
Int. Cl. G01b 11/26

U.S. Cl. 356-170

10 Claims

Positioning apparatus for use with a machine tool such as a drill press or the like. The positioning apparatus comprises a

body frame having a viewing window therein; means for enabling the pin table apparatus to be moved so that the workpiece can be placed at said selected location; and a sighting mechanism for locating the predetermined template position. The sighting mechanism includes a pair of reflective surfaces that are spaced apart and are supported by the body



frame, one of the reflective surfaces being visible through the viewing window, with the other reflective surface being optically aligned therewith and being movably supported within the body frame. These reflective surfaces facilitate locating a predetermined template position for positioning the pin table apparatus and workpiece at the location corresponding thereto.

3,635,567

PACKAGE AND APPLICATOR UNIT

Thomas F. Richardson, Jr., 45 Summit Road, Riverside, Conn.

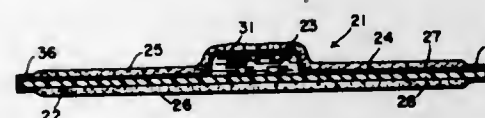
Filed Dec. 31, 1969, Ser. No. 889,536

Int. Cl. B65d 17/00; A45d 34/00

7 Claims

U.S. Cl. 401-132

4 Claims



A disposable combination package and applicator unit comprises a flexible laminated strip of moisture impervious material having at one surface a cell integrally formed within the strip and containing a fluent substance to be dispensed. The cell has a rupturable wall so disposed as to release the substance only at that one surface of said strip, and layers of soft absorbent pad material are secured in overlying relation upon both surfaces of the strip.

3,635,568

BINDER FOR OFFICE FOLDER

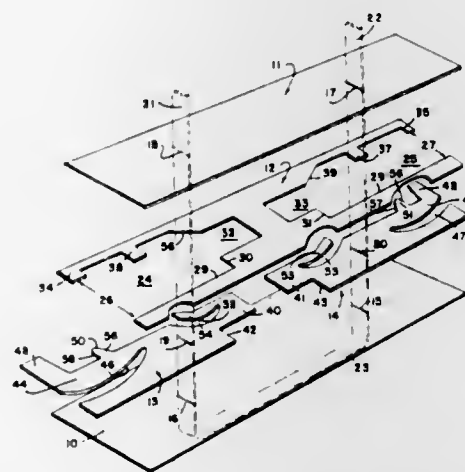
Anthony Wilmot Dallera, P. O. Box 3088, Lafayette, La.

Filed Oct. 31, 1969, Ser. No. 872,920

Int. Cl. B42f 3/00

U.S. Cl. 402-17

5 Claims



The improved binder is for use with a bail member including a base bar and the usual flexible prongs in which the

binder forms the usual offsets or bights in the prongs, the invention residing in certain slides through which the prongs pass and are given the offsets by reason of movements of the slides, having latches to retain same in the binder with limited movements.

3,635,569

AUTOMATIC TOOL-CHANGING DEVICE FOR A MACHINE TOOL

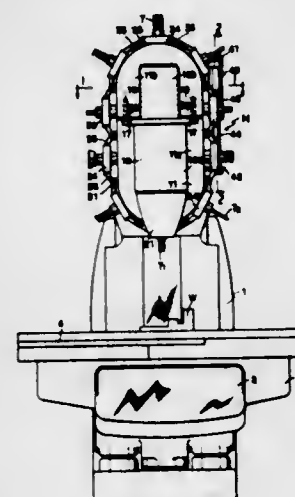
Yoshikazu Sato, No. 1,026, 4-chome, Shimotakado, Suginami-ku, Tokyo, and Tsukasa Funakubo, No. 1,767, Kizukisumiyoshi-chiyu, Kawasaki-shi, Kanagawaken, both of Japan

Filed Mar. 4, 1969, Ser. No. 804,221

Int. Cl. B23b 39/20

U.S. Cl. 408-35

9 Claims



A tool-changing device for a machine tool for selectively presenting a desired tool to the work piece. A number of supports carrying selected tools are pivoted together to form an endless belt. The belt is moved around an elliptical track to present the desired tool to the work station. A power plant engages the tool in the station to provide motive power for the machining operation. The plant is disconnected from the tool after the operation is complete and the belt is moved to present the next tool in accordance with manual or automatic instructions.

3,635,570

APPARATUS FOR DRILLING DRIVE PIN HOLES IN REWIND ROLL CORES

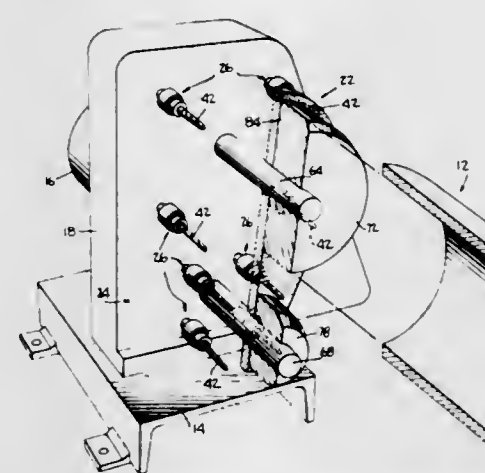
Gerrit DeGelleke, Parsippany, and Robert E. Bush, Morris Plains, both of N.J., assignors to Cameron Machine Company, Dover, N.J.

Filed June 1, 1970, Ser. No. 41,836

Int. Cl. B23b 39/16, 47/16

U.S. Cl. 408-43

10 Claims



This invention relates to a nonadjustable multispindle drilling assembly for drilling holes in rewind roll cores for

receiving drive pins for a first standard diameter rewind roll core and for a second standard diameter rewind roll core, the combination including a first group of a preselected number of spindle assemblies mounted to correspond to the first standard diameter core and a second group of a preselected number of spindle assemblies mounted to correspond to the second standard diameter cores, each of the spindle assemblies being driven by a drive pulley mounted thereon which is driven by an endless timing belt, all of the spindle assemblies being driven in the same direction and at the same rotational speed.

3,635,571

BORING JIG

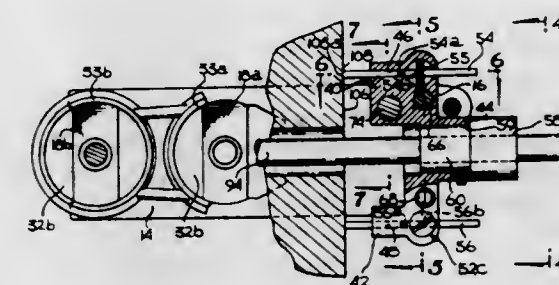
Horace R. Roberts, Huntington Beach, and Anthony F. Brizzi, Santa Ana, both of Calif., assignors to Tool Research & Engineering Corporation, Beverly Hills, Calif.

Filed Jan. 26, 1970, Ser. No. 5,676

Int. Cl. B23b 47/28; B27g 23/00

U.S. Cl. 408-97

15 Claims



A boring jig for accurately providing two intersecting holes. A typical application of the jig is for boring holes in the face surfaces and one edge of a door to receive a conventional lock set. The boring jig is in the form of a clamping device and has easily adjustable, positive locking means for accurately determining the position of one of the holes with respect to an edge of the piece being bored.

3,635,572

BORING BAR ADJUSTMENT

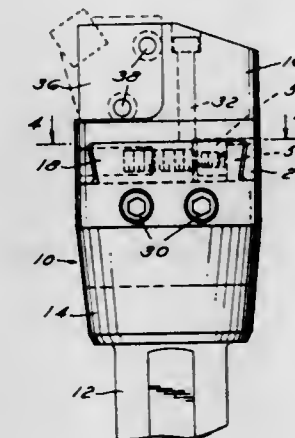
James J. Robinson, Southfield, Mich., assignor to The Valeron Corporation

Filed May 18, 1970, Ser. No. 38,392

Int. Cl. B23b 29/034

U.S. Cl. 408-181

7 Claims



A boring bar having a nose adjustment screw modified to include different pitch threads and travel nut provided on the abutment end of the screw so that the adjustment obtained is a differential and lesser amount than either would provide separately.

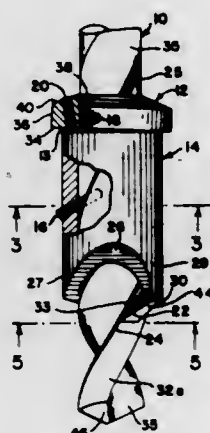
3,635,573

ADJUSTABLE CHAMFERING TOOL

William Halpern, Haviland Road, Harrison, N.Y.
Filed Dec. 22, 1969, Ser. No. 886,907
Int. Cl. B23b 51/16

U.S. Cl. 408-186

7 Claims



A chamfering tool is disclosed having adjustable locking means to hold in a selected position on a twist drill. The chamfering tool has a set screw which is tightened to hold it in place, and locking means is a collar which is then slid down onto the top of the chamfering tool. The collar has a radial set screw which is tightened to engage a flute surface of the drill. That causes the collar to cant in such a way as to lock the collar to the drill, and a second set screw is then tightened to hold the collar in its canted position.

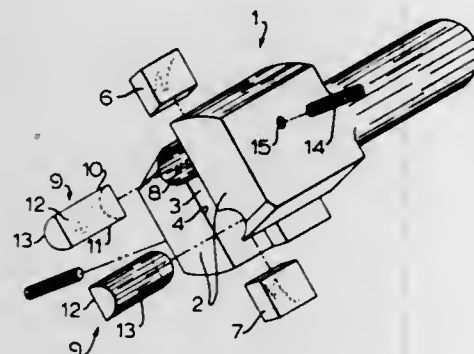
3,635,574

CUTTING TOOL WITH INSERT CLAMP AND SEAT ARRANGEMENT

Adam A. Schiller, Waukesha, Wis., assignor to Waukesha Cutting Tools, Inc., Waukesha, Wis.
Filed Apr. 2, 1970, Ser. No. 25,112
Int. Cl. B23b 29/03

U.S. Cl. 408-197

6 Claims



A rotary cutting tool having throwaway tool-bits disposed in a slot in the tool head. A semicircular clamp is mounted in a groove in the slot wall and is tightened against the bit by a screw. Slide plates are disposed in the slot and are radially adjustable by a cam screw to provide adjustable seating for the bits.

3,635,575

CONTROL MEANS FOR FLUID-OPERATED DRIVE MEMBERS

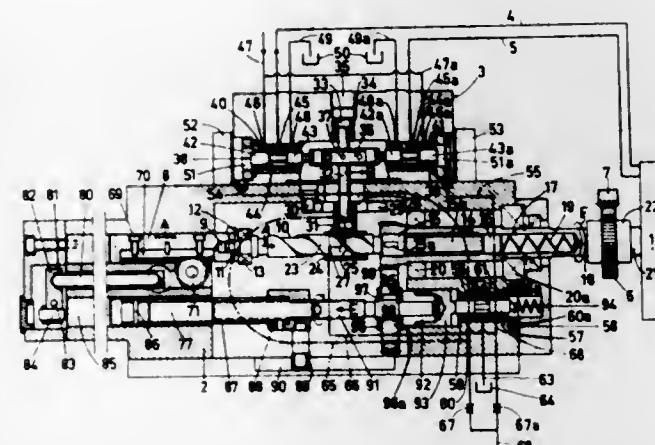
Jean Cloup, Latresne, France
Filed June 3, 1970, Ser. No. 43,132
Claims priority, application France, June 5, 1969, 6918529
Int. Cl. F01d 13/00

U.S. Cl. 415-1

6 Claims

This invention relates to methods of and means for controlling a fluid-operated drive member arranged to position a movable member, e.g., a tool rest of a machine tool, in a

predetermined position. According to the invention, the predetermined position is indicated by respective displacements of at least two members acting on control means for the drive member itself and one of these members is dis-



placed determining the number of rotations of a shaft indicating the displacement of the drive member, the displacements of the other member, fixing the fractional value of rotation of the drive shaft. The invention also provides a device for carrying out this method.

3,635,576

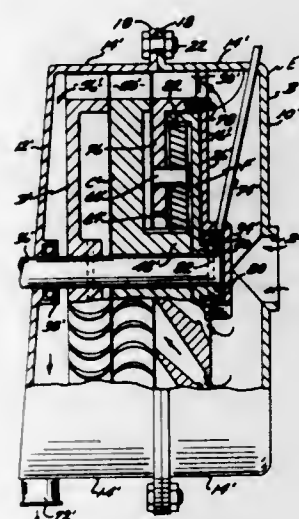
TURBINE STRUCTURE

Gerhard Wieckmann, 640 So. Orange Drive, Los Angeles, Calif.

Filed Apr. 20, 1970, Ser. No. 30,115
Int. Cl. F01d 1/24; F04d 19/00

U.S. Cl. 415-65

13 Claims



A multiple-stage turbine that may be of either the axial-flow or radial-flow-type, and is of improved efficiency in that no stationary blades or vanes are employed to direct the flow of fluid from one shaft to another. The turbine employs at least two rotating rotors that are connected by planetary gears with the rotors being sequentially subjected to the action of the pressurized fluid. The planetary gear not only cooperates with the rotors to transfer the torque generated by each to the drive shaft, but also reduces the rate of rotation of the drive shaft to a range where it is usable without recourse to an external gear reduction unit.

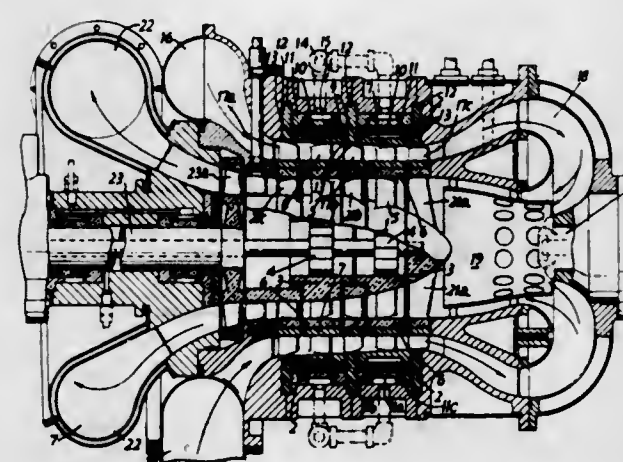
3,635,577

COAXIAL UNIT

Colin W. Dee, Wimborne, Dorset, England, assignor to Aero-static Limited, Dorset, England
Filed Apr. 7, 1969, Ser. No. 814,135
Claims priority, application Great Britain, Apr. 11, 1968, 17,551/68

Int. Cl. F01d 1/04, 5/06; F04d 29/02
U.S. Cl. 415-79

4 Claims



A turbine rotor construction, for example in a gas turbine, has in combination an outer annular member, an inner annular member disposed in coaxial radially spaced relationship to said outer annular member, and first impeller blading means disposed between said outer annular member and said inner annular member.

3,635,578

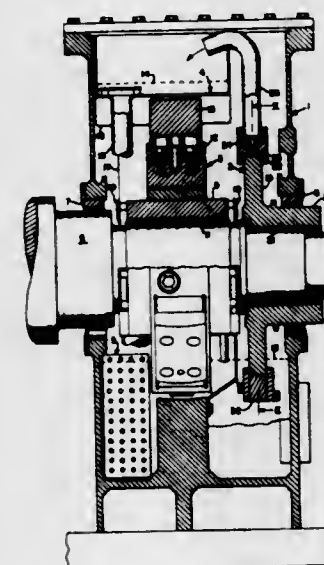
VISCIOUS PUMP FOR UNITIZED BEARING LUBRICATION SYSTEM

James B. Wagner, Lynn, Mass., assignor to General Electric Company

Filed Apr. 16, 1970, Ser. No. 29,125

Int. Cl. F01d 1/36
U.S. Cl. 415-90

4 Claims



An individual lubrication system for a bearing with a viscous pump, gravity feed tank and heat exchanger integrated within the bearing housing. The viscous pump scraper serves to support the viscous pump casing from a universal connection so that hydrodynamic alignment between the casing and the pump disk is maintained for high-speed pumping.

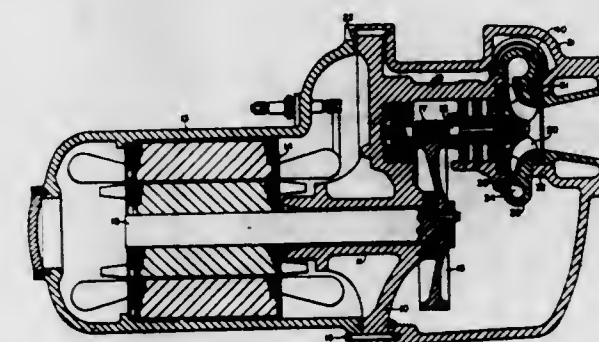
3,635,579

DISCHARGE NOZZLE ARRANGEMENT FOR CENTRIFUGAL GAS COMPRESSOR

Gary R. Wood, Waynesboro, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Feb. 26, 1970, Ser. No. 14,472
Int. Cl. F04c 29/00; F04b 39/00

U.S. Cl. 415-119

4 Claims



A centrifugal gas compressor impeller with a surrounding gas-collecting scroll is enclosed within an outer casing or housing to provide good appearance and reduced noise transmission. A discharge nozzle is detachably secured to pass through an opening of the housing with its inner end received in the discharge outlet of the gas-collecting scroll.

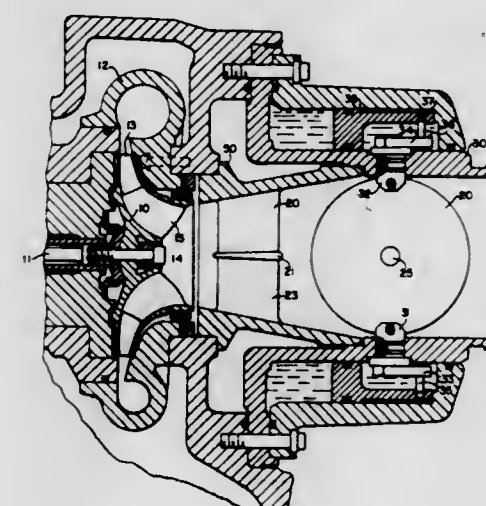
3,635,580

CENTRIFUGAL REFRIGERANT GAS COMPRESSOR CAPACITY CONTROL

Douglas K. Richardson, Staunton, and John G. Johnson, Waynesboro, both of Va., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Feb. 26, 1970, Ser. No. 14,471

Int. Cl. F04d 27/00
U.S. Cl. 415-150

2 Claims



A capacity control for a refrigerant gas compressor is comprised of a throttle disk in a throttle intake passage leading to a nozzle intake passage extending to the intake portions of a rotatable centrifugal gas impeller and gas flow directing vanes are positioned within the nozzle intake passage to properly direct the gas flow from the throttle disk to the impeller vanes.

3,635,581

HIGH-PRESSURE CENTRIFUGAL PUMP

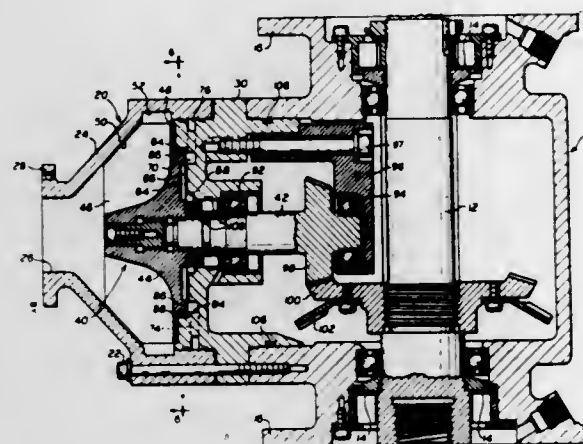
Kenneth E. Nichols, Arvada, Colo., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Filed Aug. 22, 1969, Ser. No. 852,285

Int. Cl. F04d 29/00; F01d 11/00

U.S. Cl. 415-169

8 Claims



This centrifugal pump for high-pressure service has novel sealing means for preventing the fluid being pumped from reaching the bearings of the impeller shaft. The back of the impeller on the side opposite the pumping vanes has shallow vanes that run close to a confronting face of the pump housing for displacing leakage fluid back to the pump inlet. Leakage is maintained at a low value by a generally cylindrical portion on the back of the impeller running with close running clearance in a plastic sleeve in the backwall of the pump housing. The impeller shaft bearings are in a gear housing secured to the pump and have their own means of lubrication.

3,635,582

SEALS FOR HYDRAULIC MACHINES

Robert Stanley Sproule, Montreal, Quebec, Canada, assignor to Dominion Engineering Works, Limited, Lachine, Quebec, Canada

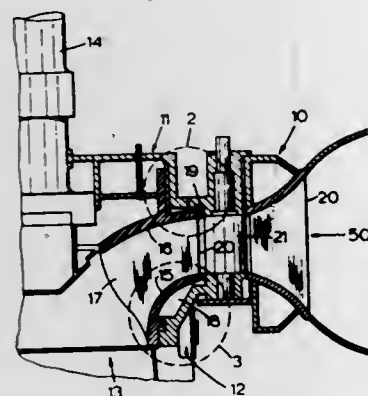
Filed Mar. 16, 1970, Ser. No. 19,769

Claims priority, application Canada, Mar. 19, 1969, 46,107

Int. Cl. F04d 29/08

U.S. Cl. 415-170

10 Claims



A pump, turbine or pump turbine having a runner with a crown and a band shroud is provided with annular cartridge seals which may be released from the machine housing, to permit disassembly of the machine even though the seals are seized to the runner. The seals each include an air separator and seal water provision, to permit efficient operation of the machine as an aerated machine having air admitted so as to exclude water from the annular zones external of an adjacent to the runner shroud outer surfaces.

3,635,583

RAM-AIR TURBINES

John Alfred Chilman, Painswick, and Richard James Wall, Churchdown, both of England, assignors to Dowty Rotol Limited, Gloucester, England

Filed Nov. 7, 1969, Ser. No. 874,800

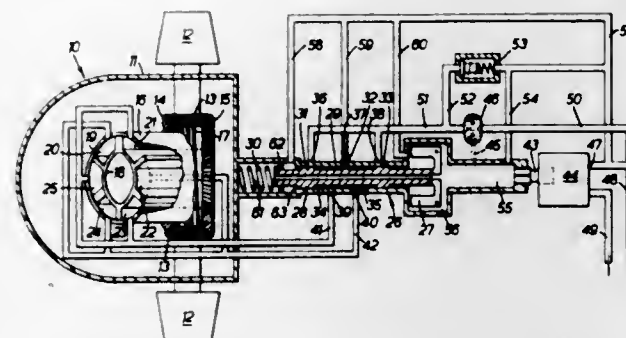
Claims priority, application Great Britain, Nov. 15, 1968,

54,236/68

Int. Cl. F01d 7/02

U.S. Cl. 416-48

13 Claims



A ram-air turbine includes a rotor having blades whose pitch is variable, a governor responsive to the rotational speed of the rotor, and an actuator for effecting pitch variation of the blades. A valve is provided whose position is controlled by the governor for directing fluid under pressure to at least one part of the actuator to effect pitch variation in one direction and for directing fluid under pressure to at least one other part of the actuator to effect pitch variation in the other direction when the rotational speed of the rotor is above a predetermined value. The valve is also arranged to connect all the parts of the actuator to a source of low pressure when said speed is below the predetermined value.

3,635,584

RAM-AIR TURBINES

John Alfred Chilman, Painswick, and Richard James Wall, Churchdown, both of England, assignors to Dowty Rotol Limited, Gloucester, England

Filed Nov. 7, 1969, Ser. No. 874,802

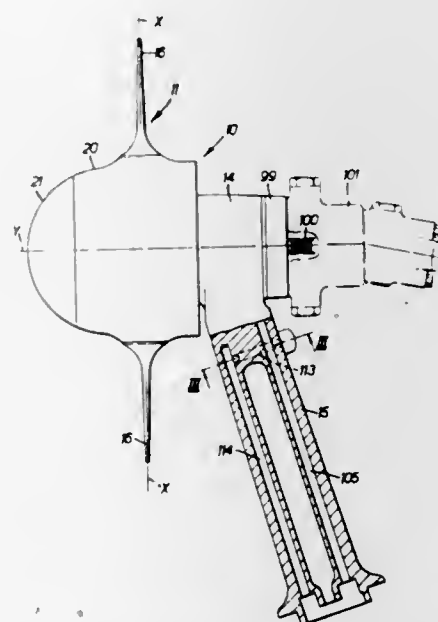
Claims priority, application Great Britain, Nov. 15, 1968,

54,284/68

Int. Cl. F01d 7/02

U.S. Cl. 416-48

10 Claims



A ram-air turbine comprises a variable-pitch bladed rotor, a hydraulic actuator for effecting pitch variation of the blading of the rotor, and a pump driven by the rotor to supply fluid for operation of the actuator. A rotary speed-sensitive

flyweight governor is provided to control the supply of fluid to the actuator whereby to cause the rotor automatically to rotate at constant speed, and the arrangement includes a machine driven by the rotor. The rotor, hydraulic actuator, pump, governor and driven machine are all coaxially arranged.

3,635,585

GAS-COOLED TURBINE BLADE

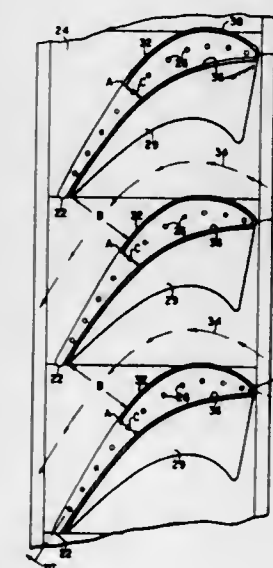
Charles Walter Metzler, Jr., Springfield, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 23, 1969, Ser. No. 887,544

Int. Cl. F01d 5/18

U.S. Cl. 416-96

4 Claims



A cooled turbine blade for gas turbines and the like having passageways for conducting a relatively cool fluid through the blade to its tip and incorporating a walled cavity at the tip of the blade. The wall of the cavity has a cutaway portion which permits the cooling fluid to discharge into a main gas stream through the turbine at the area of lowest pressure on the blade surfaces. This permits the flow of fluid from the discharge orifices of the passageways to be more uniform from the leading to the trailing edge of the blade and reduces the required gas pressure on the entire cooling system.

3,635,586

METHOD AND APPARATUS FOR TURBINE BLADE COOLING

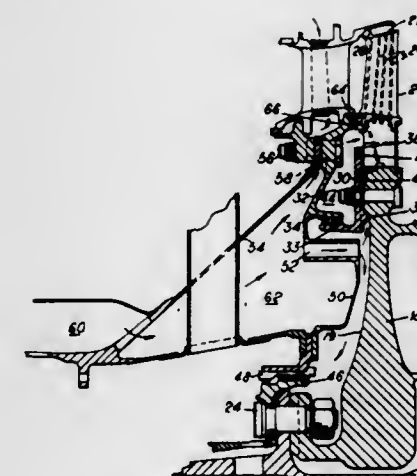
Nelson H. Kent, Derby, and Keith P. L. Fullagar, Spondon, both of England, assignors to Rolls Royce Limited, Derby, England

Filed Apr. 6, 1970, Ser. No. 25,740

Int. Cl. F01d 5/18; F02c 7/12

U.S. Cl. 416-97

10 Claims



A method of cooling turbine blades of a fluid flow machine in which relatively low-temperature air is bled from a rela-

3,635,587

BLADE COOLING LINER

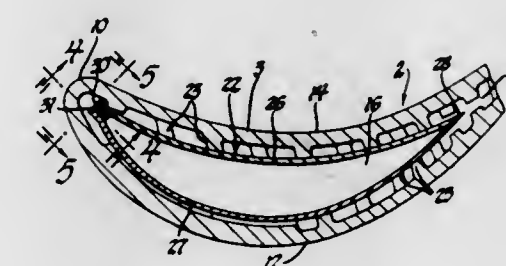
Richard C. Giesman, and Ronald P. Schwedland, both of Indianapolis, Ind., assignors to General Motors Corporation

Filed June 2, 1970, Ser. No. 42,677

Int. Cl. F01d 5/18

U.S. Cl. 416-97

6 Claims



A sheet metal liner for an internally air-cooled turbine blade is of generally airfoil shape and is spaced from the interior of the hollow blade by bosses extending from the blade wall. The liner is closed at its edge toward the trailing edge of the blade and is partially closed at its forward edge. At the forward edge, a row of nozzles to jet cooling air against the interior of the leading edge of the blade is defined by two strips of sheet metal bonded together having grooves etched into their abutting faces, which grooves are registered to define nozzles of converging configuration.

3,635,588

DETENT MECHANISM FOR RETAINING VANES IN A CIRCULARLY DRIVEN IMPELLER

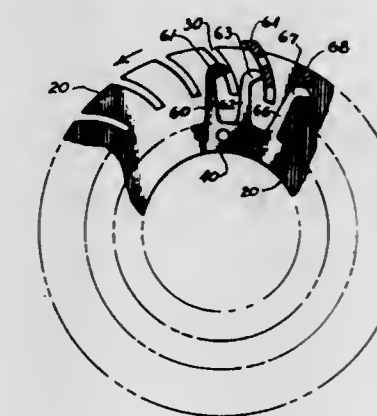
Robert W. Lester, 54 George Street, Manhasset, N.Y., and Thomas Rockson, 1920 Railroad Ave., Holbrook, N.Y.

Filed Feb. 16, 1970, Ser. No. 11,687

Int. Cl. F04d 17/00

U.S. Cl. 416-187

2 Claims



An air impeller is assembled on a group of vane holder end plates having slots therein, of somewhat crescent shape, to receive the ends of vanes held in alignment symmetrically around an axis, each vane holder end plate having coordinated therewith a spider spring which is fastened to the face of the vane holder plate, the spider spring having a plu-

ality of circumferentially located resilient detent extensions, suited to engage each vane when it is slipped into place, the engagement being positive in a groove or notch in the vane, thereby to form a positively unitary assembled device for use in the blower.

3,635,589

DOUBLE IMPELLER WHEEL

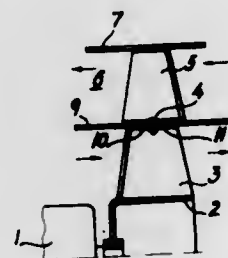
Svend Helge Kristiansen, Naestved, Denmark, assignor to Nordisk Ventilator Co. A/S, Naestved, Denmark
Filed Mar. 13, 1970, Ser. No. 19,182

Claims priority, application Denmark, Mar. 31, 1969, 1790/69

Int. Cl. F04d 19/00

U.S. Cl. 416-193

8 Claims



A double impeller wheel for axial flow fans comprising a set of inner impeller blades surrounded by an intermediate ring, a set of outer impeller blades secured to the ring, the width of the ring in an axial direction being less than that of the impeller blades.

3,635,590
PROPELLER

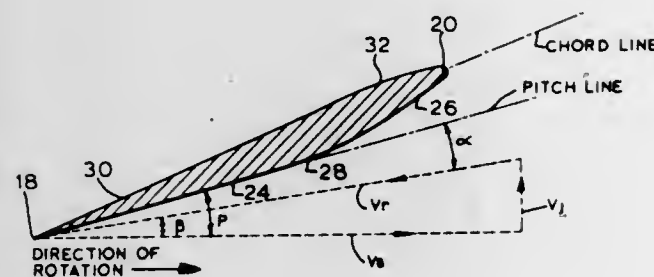
Adrian Phillips, 14 Deer Park Crescent, Toronto, 7, Ontario, Canada

Filed Feb. 16, 1970, Ser. No. 11,382

Int. Cl. B63h 1/26

U.S. Cl. 416-223

6 Claims



A marine propeller having a convex shape on the blade rearward surface extending from the blade leading edge and terminating intermediate the blade leading edge and trailing edge, and a substantially planar forward blade surface, whereby the major portion of thrust from the blade is derived from the convex rearward surface of the blade.

3,635,591
BARGE PUMP

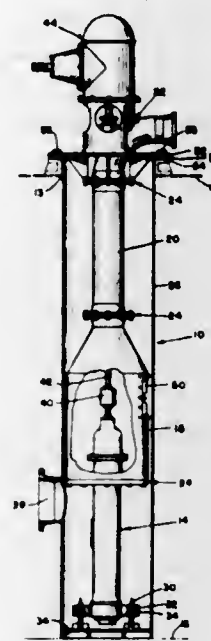
Jesse J. Wilkinson, Greensboro, N.C., assignor to Gilbert & Barker Manufacturing Company, New York, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,104

Int. Cl. F04b 17/00; B67d 5/40; F03c 3/00

U.S. Cl. 417-410

10 Claims



A pump unit is suspended from a barge deck and located within a large diameter sealed tube positioned on the bottom wall of the barge. Pin and flange members position the lower end of the pump unit against lateral movement while permitting the unit to be readily removed from the barge.

3,635,592

ELECTRICALLY OPERATED DOUBLE-DIAPHRAGM PUMP

Erwin Kolfertz, Turnerstrasse 22, Solingen-Merscheid, Germany

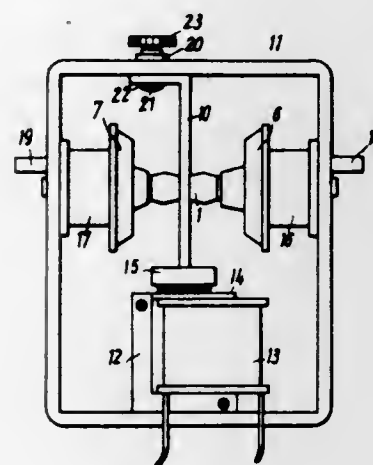
Filed May 6, 1970, Ser. No. 34,999

Claims priority, application Germany, July 29, 1969, P 19 38 430.6

Int. Cl. F04b 43/00, 45/00

U.S. Cl. 417-413

4 Claims



An electrically operated double-diaphragm pump of the kind in which two diaphragms are actuated by a common oscillating arm situated between them, the arm being oscillated by an alternating current vibrating armature motor, has each diaphragm connected to the oscillating arm directly through a resilient coupling member made of rubber or rubberlike plastics material. The coupling member consists of a tube with a solid part in its middle to which the arm is fixed

and the diaphragms are fixed, one to each end of the tube, by means of pins, one of which is fixed to each diaphragm and which fit one in each end of the tube. The pins may have heads which fit in internal sockets within the tube to hold the pins in the tube as the arm oscillates.

3,635,593

DEVICE FOR BODY CARE

Michel A. Moret, Geneva, Switzerland, assignor to Institut de Recherche et de Diffusion Industrielle P.G.E. Woog, Geneva, Switzerland

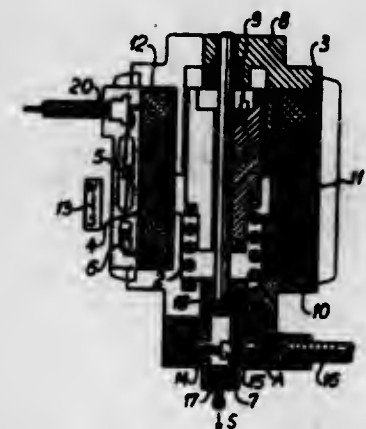
Filed Dec. 15, 1969, Ser. No. 885,221

Claims priority, application Switzerland, Dec. 13, 1968, 18573/68

Int. Cl. F04b 35/04, 49/00

U.S. Cl. 417-417

4 Claims



An electromagnetic pump for supplying liquid pressure pulses to oral hygiene devices imposing different loads thereon includes a plunger-core driven in one direction by an electromagnetic circuit supplied with constant frequency pulses at power line frequency, a spring providing a restoring force so that the plunger-core reciprocates. The plunger-core drives a pump for producing the liquid pressure pulses, advantageously by using one end of the plunger-core as the piston of a pump. The mechanical resonant frequency of the plunger-core and spring is higher than the applied pulse frequency, and predetermined to yield an approximately constant amplitude of reciprocation for different loads imposed on the pump.

3,635,594

ELECTRIC MOTOR AND IMPELLER-TYPE PUMP ASSEMBLY

Gunter Eheim, Ploching Str. 32, 7301 Deizisau, Germany

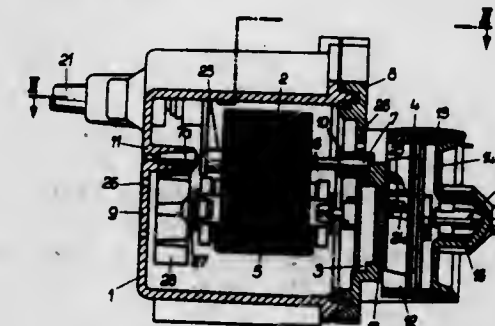
Filed Feb. 26, 1970, Ser. No. 14,557

Claims priority, application Germany, Oct. 17, 1969, P 19 52 353.6

Int. Cl. F04b 17/00, 35/04; H02k 17/10

U.S. Cl. 417-420

14 Claims



The drive motor for an impeller-type pump is retained in a housing, the motor having its shaft coaxial with the pump shaft. The housing is hollow and tubular and closed at the side remote from the pump housing, the motor housing having in the interior thereof motor holding and locating stubs, for example to retain resilient (rubber) bushings secured to projecting bolts from the motor, so that the motor can be axially inserted in its housing, and the pump assembly forming the cover for the tubular housing and retaining the bolts, and thus the motor in position. Motor and pump are preferably

interconnected by means of a magnetic coupling, so that the pump chamber can be sealed from the motor housing. Electrical connections by means of pins and plugs avoid soldering of wires internally of the housing.

3,635,595

DUAL PUMP AND FLUID MOTOR SYSTEM

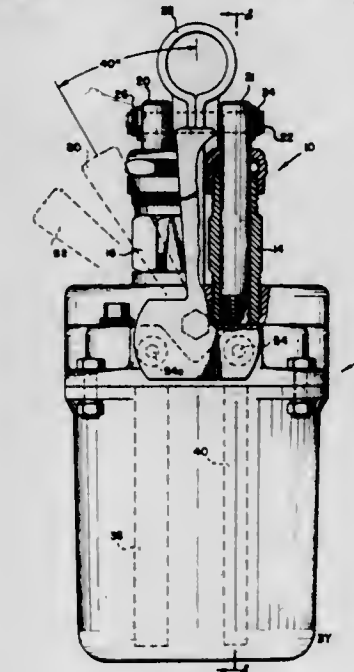
Gordon H. Allard, Menomonee Falls, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.

Filed Jan. 16, 1970, Ser. No. 3,267

Int. Cl. F04b 23/04; B62d 5/40

U.S. Cl. 417-426

9 Claims



A dual pump and fluid motor system comprising two pumping chambers, two hydraulic cylinders with pistons, a reservoir and dual conduit means to communicate the reservoir to the pumping chambers and the pumping chambers to the cylinders. Suitable inlet and outlet check valves are positioned between the reservoir and the chambers and between the chambers and the cylinders respectively in each conduit. The check valves are normally in a position permitting simultaneous charging of both cylinders but may be selectively unseated by a single lever means to charge only one cylinder while holding the other in a fixed position, or to release both cylinders at the same time or to release one cylinder while charging the other.

3,635,596

VALVED TWIN-PISTON

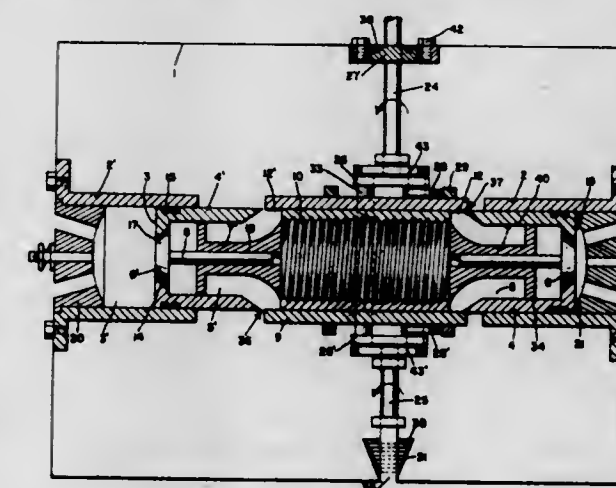
Lewis Richter, 2nd & Walnut St., Des Moines

Filed Jan. 13, 1970, Ser. No. 2,980

Int. Cl. F04b 21/00, 39/00

U.S. Cl. 417-459

16 Claims



A compressor having a valved twin-piston reciprocating in a cylinder disposed in an air container. Part of the air compressed is used to power auxiliary drive means for the compressor.

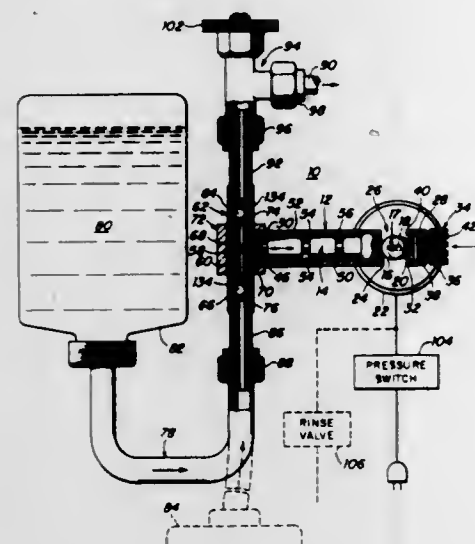
3,635,597 INJECTION PUMP

Donald J. Marten, Plymouth, Mass., assignor to W. C. Bonner Company, Inc., Watertown, Mass.

Filed Sept. 4, 1969, Ser. No. 855,322
Int. Cl. F04b 21/02, 49/00

U.S. Cl. 417-568

4 Claims



An injection pump including an inlet valve, an outlet valve, a pump chamber communicating with the volume between the inlet and outlet valves, a piston movable in the chamber, means for driving the piston between a zero displacement volume position and a maximum displacement volume position, and means for adjusting the maximum displacement volume of the piston.

3,635,598 DIAPHRAGM PUMP

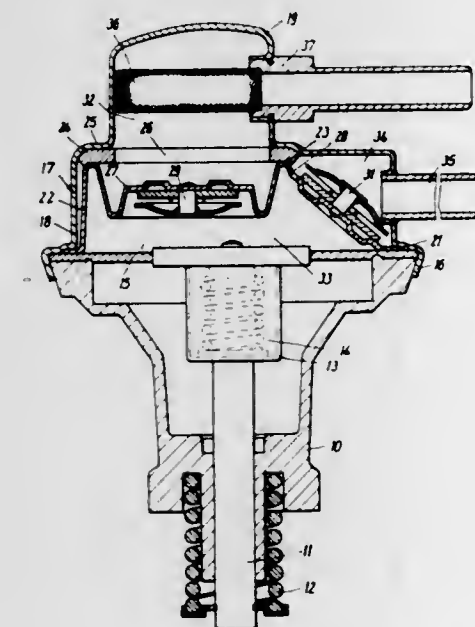
Horst Sjeper, Neuss/Rhine, Germany, assignor to A. Pierburg Auto.-und Luftfahrt-Gerätebau KG, Neuss/Rhine, Germany

Filed Aug. 28, 1969, Ser. No. 853,666
Claims priority, application Germany, Sept. 5, 1968, P 17 28 171.9

Int. Cl. F04b 39/10, 37/00

U.S. Cl. 417-571

8 Claims



A diaphragm pump intended particularly for use as a fuel pump for internal combustion engines has inner and outer housings separated by a diaphragm. The space contained between the diaphragm and the outer housing forms the working space of the pump through which the fluid is sucked

in and discharged. This space is divided by a single unitary separating wall into three separate chambers. This is effected by clamping the edge of the separating wall between the diaphragm and the rim of the outer housing and forming the separating wall so that it also forms a second seal against the outer housing. This second seal extends round a closed path and the space between the outer housing and the separating wall within this seal forms a suction chamber and the space outside this seal is divided by a further part of the separating wall into a working chamber partly defined by the diaphragm and a pressure chamber. The separating wall is provided with a suction nonreturn valve between the suction chamber and the working chamber and an outlet nonreturn valve between the pressure chamber and the working chamber.

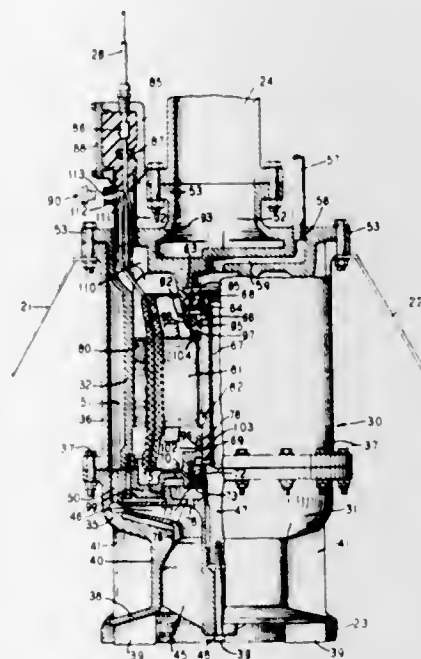
3,635,599 FLAME-ARRESTING VENT VALVE

Gerald T. Bryant, Corona, and James L. Mayfield, Garden Grove, both of Calif., assignors to Air Reduction Company, Incorporated, New York, N.Y.

Filed Apr. 4, 1969, Ser. No. 813,574
Int. Cl. F04b 17/00, 35/04; H02k 5/10

U.S. Cl. 417-53

16 Claims



This invention relates to a flame-arresting vent valve which is positioned to communicate with the uppermost portion of the motor casing of a submersible pump. The vent includes a pressure-actuated valve member and a flame arrester made of porous material to prevent the propagation of flame across the valve. This invention is especially suited for use in pumps which deliver combustible fluids.

3,635,600 DEVICE FOR FEEDING PRESSURIZED FLUID

Pierre A. Praddaude, Crepy-en-Valois, France, assignor to Societe Anonyme Poclair, Le Plessis-Belleville, France

Filed Feb. 25, 1970, Ser. No. 14,067

Claims priority, application France, Mar. 7, 1969, 6906559

Int. Cl. F04b 23/04, 23/08

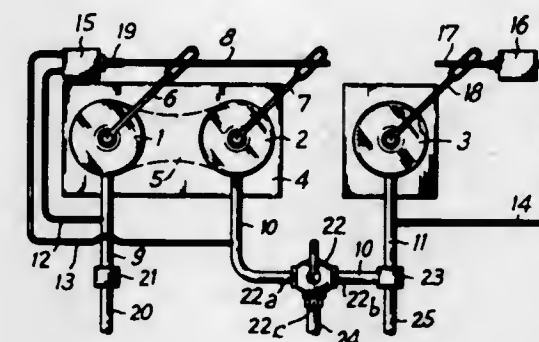
U.S. Cl. 417-62

5 Claims

This invention relates to a device for feeding pressurized fluid to at least two supply circuits by two groups of variable discharge pumps, the first group of pumps comprising two distinct delivery conduits and a first power regulator being coupled with the member for controlling the discharges of said first group of pumps, while a second power regulator is coupled with the member for controlling the discharge of the second group of pumps, wherein the first power regulator is of the pressure summation type, the second group of pumps

comprises a single delivery conduit and the first delivery conduit of the first group of pumps and the single delivery conduit

Means are provided to move the seal block away from the



duit of the second group of pumps are connected to the first supply circuit, while the second delivery conduit of the first group of pumps is connected to the second supply circuit.

3,635,601

FAIL-SAFE MULTIPLE PRODUCT ASPIRATOR

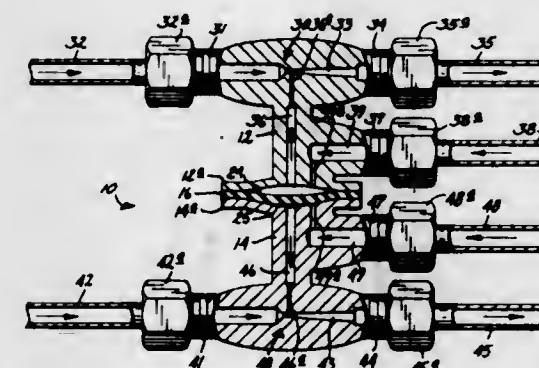
Spencer B. Larson, New Brighton, and Carl A. Miller, St. Paul, both of Minn., assignors to Economics Laboratory, Inc., St. Paul, Minn.

Filed Aug. 10, 1970, Ser. No. 62,359

Int. Cl. F04f 5/48; G05d 11/00

U.S. Cl. 417-191

10 Claims



Apparatus including a dual product venturi aspirator and a fail-safe diaphragm valve. A first venturi aspirator is utilized to draw a first additive (e.g. an alkaline cleanser) into a carrier liquid (e.g. water) flowing therethrough and, similarly, a second additive (e.g. a chlorinating agent) is drawn by a second venturi into a carrier liquid flowing therethrough. A fail-safe elastic diaphragm centrally mounted between the two aspirators and in communication therewith is operable thereby for automatically terminating the aspiration of either one of the two additives upon the exhaustion of the supply of the other additive, thereby assuring simultaneous injection of the two additives into a cleansing system. Fail-safe apparatus for providing simultaneous injection of three additives is also disclosed.

3,635,602

LIFTING TIP SEAL PUMP

Charles W. Grennan, Newington, and Evert von Moltke, Hartford, both of Conn., assignors to Chandler Evans Inc., West Hartford, Conn.

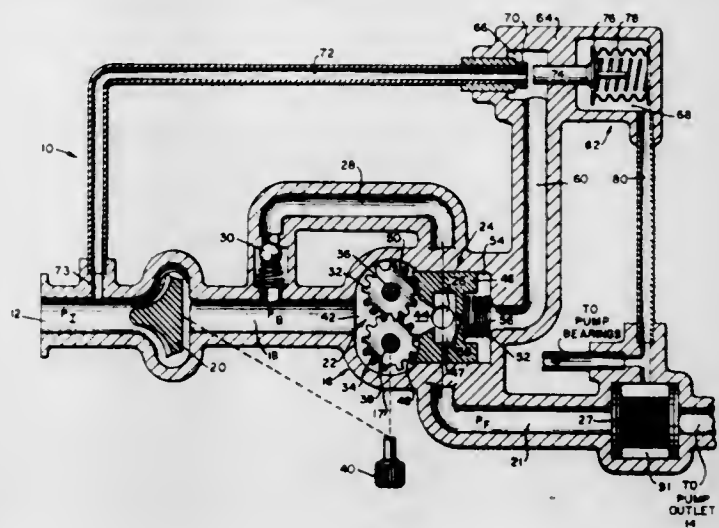
Filed Sept. 17, 1970, Ser. No. 73,378

Int. Cl. F04b 23/14, 23/08, 49/00

U.S. Cl. 417-201

8 Claims

A pumping system has a centrifugal pump and a tip seal-type positive displacement pump which includes a seal block.



gears of the tip seal pump at a predetermined centrifugal pump discharge pressure.

3,635,603

RPM REGULATOR FOR FUEL INJECTION PUMPS

Franz Eheim, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

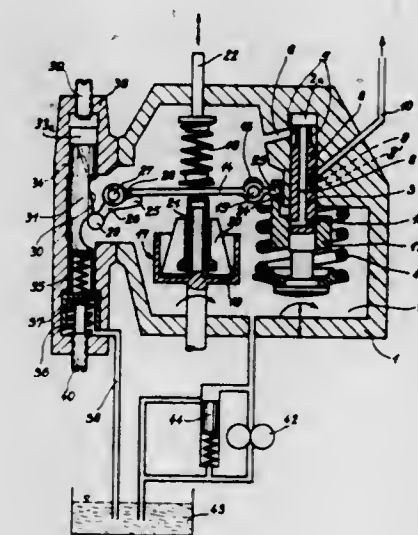
Filed Mar. 6, 1970, Ser. No. 17,199

Claims priority, application Germany, Mar. 14, 1969, P 19 12 919.2

Int. Cl. F04b 49/00, 7/04

U.S. Cl. 417-282

6 Claims



In an r.p.m. regulator for fuel injection pumps, the adaptation of full load fuel quantities to the maximum quantities combustible in a smokefree manner is effected by the r.p.m.-dependent pressure of a regulator fluid against the force of an adapter spring. The said adaptation does not interfere with the r.p.m. regulation proper.

3,635,604

EQUIPMENT FOR DELIVERING LIQUID, PARTICULARLY OIL BURNERS

Jorgen Hartvig Petersen, and Gunnar Lyshøj Hansen, both of Nordborg, Denmark, assignors to Danfoos A/S, Nordborg, Denmark

Filed Dec. 2, 1969, Ser. No. 881,437

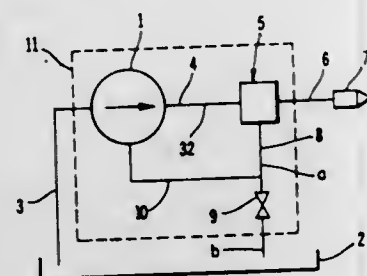
Int. Cl. F04b 49/00; F01c 1/10; F04c 1/06

U.S. Cl. 417-304

2 Claims

The invention relates to an oil pump unit for oil burners which includes a known assembly of a geared pump, a sump

at a lower level, and a pressure regulator valve. Air vent means are provided which includes apparatus for feeding back to the pump pressurized liquid from the pressure regu-



lator. The pump proper has novel passage means for receiving the fed back pressurized liquid to the pumping chambers to effect a venting of pressurized air from the chambers.

3,635,605

CONTROL MEANS FOR REVERSIBLE FLUID PRESSURE OPERATED MOTORS

Raymond John Hall, High Wycombe, and Derek James Webb, Sonning, both of England, assignors to Broom and Wade Limited, Buckinghamshire, England

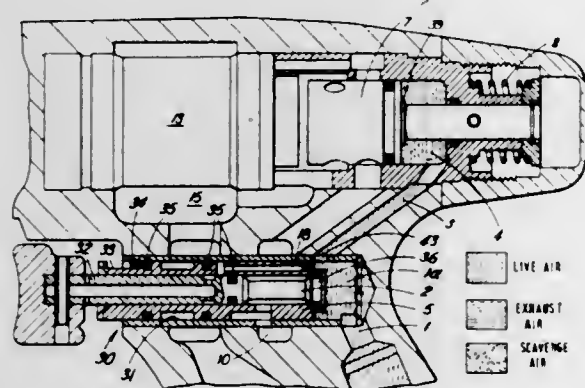
Filed Mar. 10, 1970, Ser. No. 18,177

Claims priority, application Great Britain, Mar. 17, 1969, 13,910/69

Int. Cl. F04b 49/02; H01b 11/16

U.S. Cl. 417—315

5 Claims



A control means for a reversible fluid pressure operated power tool comprising an on/off valve to control the flow of fluid to the motor and a reversing valve for changing the path of the fluid through the motor. A single manually operable control is provided for the valves, which control is movable from a first position in which the motor is inoperative to a second position in which the motor runs in one direction, and then to a third position in which the motor runs in the other direction.

3,635,606

SUBMERSIBLE PUMP ASSEMBLY

Albert Blum, Scheidehohle (Siegkreis), Germany

Filed Dec. 22, 1969, Ser. No. 887,186

Claims priority, application Germany, Dec. 24, 1968, P 18 16 852.0

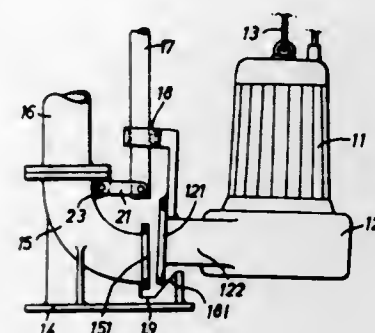
Int. Cl. F04b 17/00; G01f 11/36

U.S. Cl. 417—360

5 Claims

A submersible electric motor-pump assembly having a drive motor and a pump connected therewith which is lowerable into a body of fluid. The assembly includes means for guiding same having at least one guide element; the guide element guiding the assembly in its descending movement and is connectable in the lowered position with the inlet of a

conveying pipe. The guide element serves for the guidance of a guide sleeve connected with the pump assembly, and the



guide sleeve in its movement acts upon intermediate elements which control the connection of the pump outlet with the inlet of the conveying pipe.

3,635,607

VACUUM PUMP

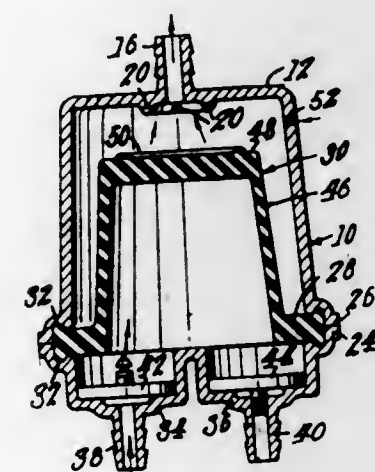
Frederick G. J. Grise, North Brookfield, Mass., assignor to Novelty Tool Co., Inc., Spencer, Mass.

Filed Apr. 20, 1970, Ser. No. 29,989

Int. Cl. F04b 43/10, 45/00

U.S. Cl. 417—394

3 Claims



A vacuum pump comprising a closed housing, an elastomeric diaphragm in the form of a cup therein, said diaphragm having a rim, said rim being sealed into the wall of the housing, said diaphragm dividing the housing into two chambers one including the interior of the diaphragm and the other being at the exterior thereof, a constant vacuum outlet for the latter chamber and a pair of check valves which are substantially the same but reversed for the chamber at the interior of the diaphragm.

3,635,608

MAGNETIC DISK ASSEMBLY

Howard S. Crouch, Chancellors Ford; Hugh G. Dickie, North Baddesley; Albert H. Metcalfe, Fareham, and Leo J. Rigbey, Winchester, all of England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 18, 1970, Ser. No. 20,780

Claims priority, application Great Britain, Mar. 26, 1969, 15,818/69

Int. Cl. B65d 21/02, 45/00; G11b 11/02, 17/26, 23/04, 25/04

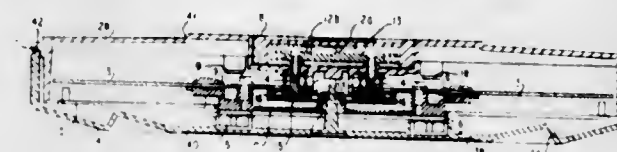
U.S. Cl. 206—62 R

15 Claims

A cartridge for a magnetic disk assembly includes a cover for enclosing a multiplicity of magnetic disks, the assembly

having top, side, and bottom portions, wherein the side portion has an aperture for permitting the insertion of a mag-

netic transducer, the bottom portion has means for connecting the enclosed disk assembly to a drive unit and a removable base for covering the aperture in the side portion.



3,635,609

APPARATUS FOR EMBOSING OF MATERIALS WITH HIGH-FREQUENCY VIBRATIONS

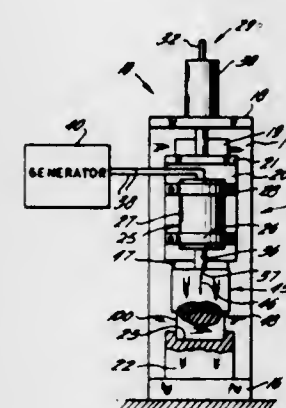
Lewis Balamuth, Washington Square West, New York, N.Y., assignor to Cavitron Corporation, Long Island, N.Y.

Continuation of application Ser. No. 572,064, Aug. 12, 1966, now abandoned. This application July 26, 1968, Ser. No. 751,008

Int. Cl. B30b 15/00

U.S. Cl. 425—3

12 Claims



pressure. This removes the stresses and permits the tire to assume its normal shape.

3,635,611

LOCKING DEVICE FOR TIRE MOLD CLAMPING BAND

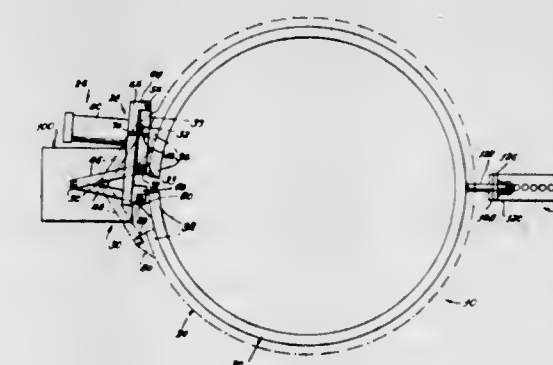
William S. Mapel, Niles, Mich., assignor to National-Standard Company, Niles, Mich.

Filed Mar. 30, 1970, Ser. No. 23,589

Int. Cl. B29c 11/16

U.S. Cl. 425—47

17 Claims



A workpiece which is to have a raised pattern applied to at least one surface thereof is positioned in the apparatus between a support member and a die member, the surface of the die member being a reverse image of the desired pattern. While the die member and workpiece are held in contact by a static force, high-frequency vibrations are applied to impress the pattern on at least one surface of the workpiece. Several alternate embodiments involve rotating dies or relative movement between the source of vibrations and the die and workpiece in a plane perpendicular to the direction of the high-frequency vibrations.

3,635,610

TIRE CONDITIONING APPARATUS

Walter Dennis Hall, and Malcolm Jean Charles, both of Lodi, Calif., assignors to Super Mold Corporation

Filed Dec. 3, 1969, Ser. No. 881,841

Int. Cl. B29b 3/00, 21/00

U.S. Cl. 425—11

9 Claims

Tire conditioning apparatus is provided for removing flat spots and other surface irregularities from tires preliminary to recapping or truing them. The apparatus comprises a frame, drive rolls mounted in the bottom of the frame for supporting and rotating the tire, pressure assembly arranged to press the tire against the drive rolls with a predetermined

A locking device for securing a clamping band in locking engagement around a tire mold including a power cylinder assembly for opening and closing the opposite ends of the band and a guiding assembly for urging the ends of the band towards the tire mold as they are spread apart by a piston and cylinder assembly and simultaneously urging the portion of the band diagonally opposite to the ends away from the tire mold to completely disengage the band from the tire mold.

3,635,612 MOLDING MACHINE

Michael J. Fortin, Stouffville; Joseph T. Latchford, Toronto, and Marius T. Vanden Heuvel, King City, all of Ontario, Canada, assignors to Fortin-Latchford Limited, Ontario, Canada

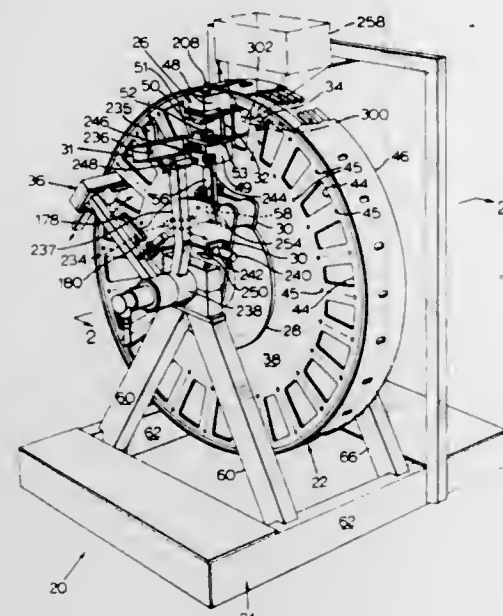
Filed Nov. 19, 1969, Ser. No. 878,004

Claims priority, application Canada, Oct. 29, 1969, 53008

Int. Cl. B29c 3/02

U.S. Cl. 425—60

19 Claims



An automatic molding machine primarily for encapsulating small components. The molding machine consists of a wheel mounted for rotation, and a plurality of radially attached molding stations coupled to the wheel adjacent its periphery. Each station includes a mold cavity defined by inner and outer mold halves, and a radial cam follower cooperates with a fixed mold cam to move the inner mold half between open and closed positions. An injector piston is reciprocally journaled inside a tube in the mold cam follower. A charge of molding material is heated in the tube and upon closing the mold, a radial injector cam follower and fixed injector cam cooperate to move the piston radially outwards to inject the charge into the mold cavity. The stations are serviced as the wheel rotates by a parts feeder, a material feeder, and a parts stripper. The mold is heated by a hot oil system and a vacuum system evacuates the mold cavity as injection commences.

3,635,613 DEVICE FOR FORMING AND HANDLING CONCRETE PIPE

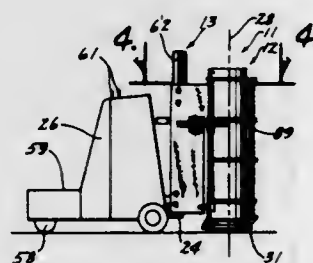
Richard P. Marsh, 103 Maple Street, Vernon, Mich., and Ralph F. Whannel, 1101 Rachael, Waterloo, Iowa

Filed June 3, 1969, Ser. No. 829,885

Int. Cl. B28b 21/00

U.S. Cl. 425—62

3 Claims



This disclosure relates to a device for forming and handling concrete pipe which is suitable for attachment to a vehicle

having a lifting mechanism. The device comprises a concrete pipe mold formed in hingeably attachable, longitudinal sections and a mold handling apparatus, attachable to the lifting mechanism of the vehicle, for handling the mold and for stripping the mold from the concrete pipe. The mold is stripped from the concrete pipe by rotating two of the longitudinal mold sections about the hinges outwardly of the concrete pipe.

3,635,614 APPARATUS FOR PRODUCING EMBOSSED PLASTIC ARTICLES

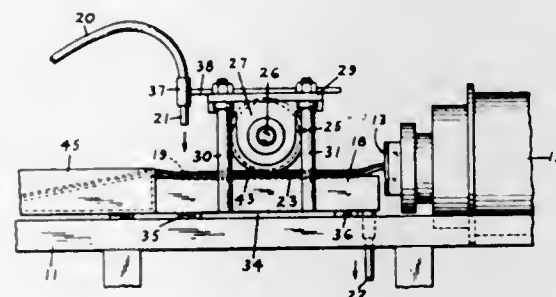
Alfred R. Long, Acton, Ontario, Canada, and George A. Viehmann, New Providence, N.J., assignors to Construction Specialties, Inc., Cranford, N.J.

Original application Jan. 4, 1968, Ser. No. 695,800, now Patent No. 3,496,262. Divided and this application Nov. 14, 1969, Ser. No. 876,696

Int. Cl. B29d 7/14

U.S. Cl. 425—71

4 Claims



An apparatus for making embossed strips of extruded thermoplastic resins such as vinyl resins to close manufacturing tolerances in which heated plastic is extruded in the form of a strip with an undercut portion or rib which must be controlled closely in its cross-sectional dimensions, the rib and adjacent surfaces of the strip being cooled by immersion in a bath of liquid while the remainder of the strip, in a plastic state, is passed in contact with an embossing roll to apply a pattern to it, the entire strip thereafter being cooled by immersion in a bath of liquid to prevent flow or recovery of the plastic from marring the pattern applied by the embossing roll.

3,635,615 APPARATUS FOR JACKETING TUBULAR STOCK

Franz-Josef Hartmann, Paderborn, and Wilhelm Lachenmayer, Berlebeck Nr. 392, both of Germany, assignors to Benteler-Werke AG, Paderborn, Germany

Filed Dec. 15, 1969, Ser. No. 884,919

Claims priority, application Germany, Dec. 16, 1968, P 18 14 886.2

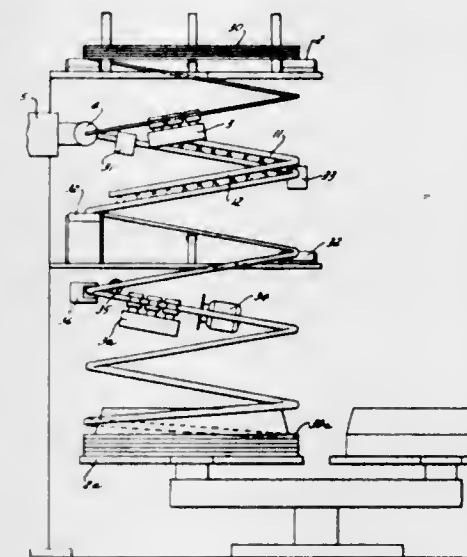
Int. Cl. B29f 3/10

U.S. Cl. 425—71

14 Claims

Upper and lower advancing means advance tubular stock in downward direction and in a predetermined path which comprises at least some superimposed helical convolutions of low pitch. A feed device is arranged at the upper end of the path and a takeup device is arranged at the lower end of the path for the tubular stock. Extruding means is arranged adjacent one of the convolutions for extruding onto the outer circumferential surface of the advancing tubular stock a circumferentially complete jacket of cellular synthetic plastic. Forming means is arranged adjacent a second convolution downstream of the extruding means forming the peripheral

surface layer of the obtained jacket into a continuous smooth skin. Cooling means is arranged adjacent still a further con-



volution downstream of the forming means and cools the resulting jacketed tubular product.

3,635,616 PRESSURE VESSEL

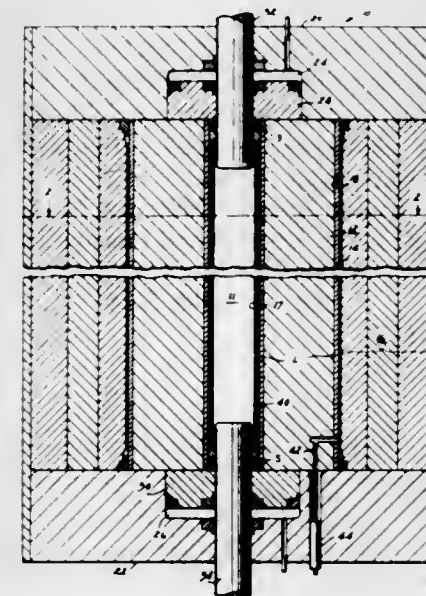
Peruvemba Swaminathan Venkatesan, Norrisville, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Sept. 18, 1969, Ser. No. 858,970

Int. Cl. B29c 3/00; B30b 1/32

U.S. Cl. 425—77

28 Claims



A pressure vessel providing more efficient use of constituent material for containing fluid pressurized to a predetermined operating level, and being provided with infinite cycle life. The vessel may include an array of radially disposed segmented blocks supplied with compressional axial and tangential support forces such that when the contained pressurized fluid is pressurized to its operating level, the working stress across the array of segmented blocks does not exceed the fatigue or endurance stress of the material of which the blocks are made, and/or the vessel may include a multiring assembly wherein the radial interferences between adjacent rings are chosen such that at each radius except the outermost, the working stresses are made substantially equal to each other and made equal to, or below, the fatigue or endurance stress of the material of which the rings are made.

3,635,617 PLATEN LOCKING DEVICE IN POWDERED MATERIAL COMPACTING PRESSES

Ei Hara, Tokyo, and Takashi Watanabe, Urawa, both of Japan, assignors to Tamagawa Kikai Kinzoku Kabushiki Kaisha, Tokyo-to, Japan

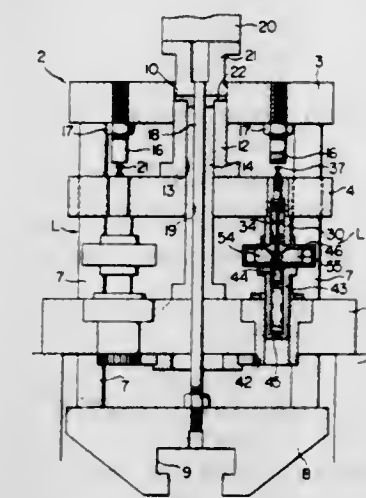
Filed July 14, 1970, Ser. No. 54,779

Claims priority, application Japan, Mar. 13, 1970, 45/21314

Int. Cl. B29c 3/00; B30b 11/02, 15/00

U.S. Cl. 425—78

12 Claims



In a press for compacting powdered materials into shaped articles between upper and lower punches within a cavity of a die platen, platen locking devices are provided to hold or lock a movable platen during the compacting process. Each of the locking devices comprises a wedge driving member depending from the movable platen and having a pair of downwardly converging wedging bottom end faces adapted to cooperate with a pair of oppositely arranged wedge members slidably carried on a stationary platen below said platen. The wedge members are urged toward each other by means of springs and are adapted to be locked in mutually closest positions to prevent downward movement of the wedge driving member by means of a locking key engaging or entering from below aligned bottom grooves in the wedge members. Unlocking of the device is effected by lowering the locking key to disengage it from said grooves in connection with a predetermined downward movement of the die platen above the movable platen.

3,635,618 SHOE VULCANIZING MACHINE

Albertos Hernandez, Carretera de Salamanca 1 Penguanda, Candido De Bracamonte, (Salamanca), Spain

Filed Apr. 22, 1969, Ser. No. 818,251

Claims priority, application Spain, May 24, 1968, 354,305

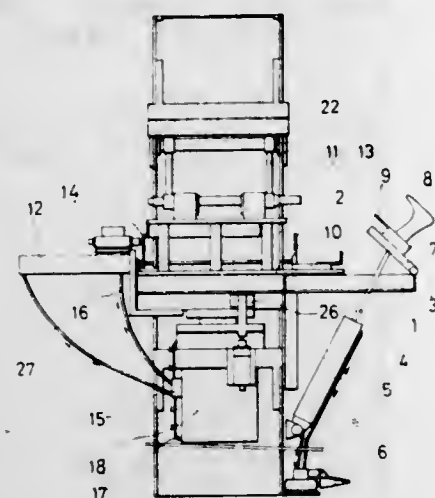
Int. Cl. B29h 5/12

U.S. Cl. 425—109

5 Claims

A vulcanizing machine for shoes having a frame with a last pivotally mounted upon which is mounted the upper and the vamp to be vulcanized. A mold has two movable pieces and a fixed piece in which the last is subjected to the pressure of a press during vulcanization. A guide is supported by the frame having an independent front section and a sliding base is mounted on the independent section on which the last is mounted. The base is located automatically upon the pressure plate of the press and a mounting on the slide supports the two movable pieces of the mold. Means are provided for reciprocating the mounting and movable pieces towards and away from the fixed piece which encloses the last during vulcanization. The reciprocating means includes a piston of the press for raising and placing the last at the interior of the mold. The fixed piece has recesses and engraved designs for the sole of the shoe, and the two movable pieces have en-

graved designs for the welt and projecting portions to extend into the recesses when the mold is closed. Timing means con-



trol the operation with pedal means for starting the operation.

3,635,619

ELECTRICALLY HEATED COMPOUND MOLDING MACHINE

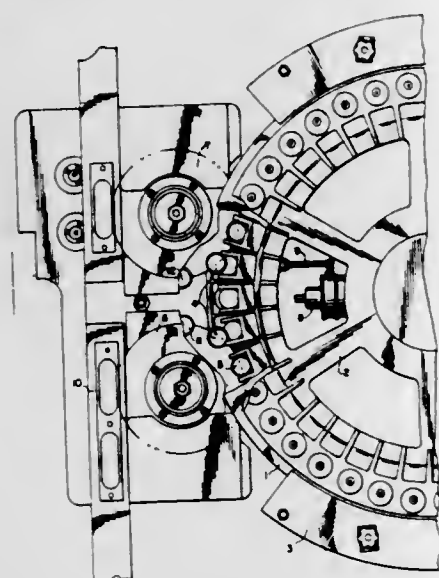
Thaddeus J. Armstrong, Elmwood Park, and Jon Ohlhaber, Deerfield, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Mar. 24, 1969, Ser. No. 809,898

Int. Cl. B29c 3/02

U.S. Cl. 425-112

10 Claims



An electrically heated compound molding machine for molding cap liners in place. The machine has an electrically heated ring for controlling the temperature of an upper die element within narrow limits. The particular thermostat control element limits the upper die temperature to within narrow confines. Radiant heat is used to heat the lower die members.

3,635,620

APPARATUS FOR CONTROLLING THE DIMENSIONS OF MULTIPLE LAYERS OF EXTRUDED INSULATION

Charles A. Brown, Newark, Del., assignor to General Cable Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 615,598, Feb. 13, 1969, now Patent No. 3,502,752. This application June 16, 1970, Ser. No. 22,188

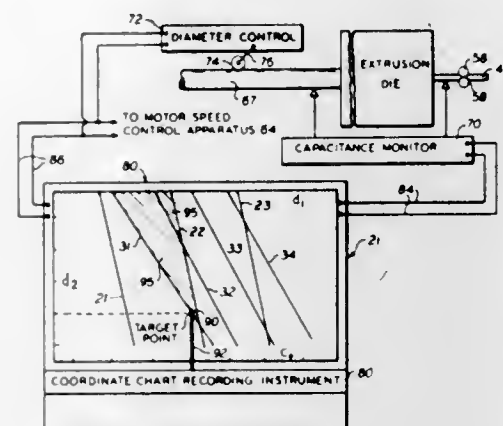
Int. Cl. B29c 3/06

U.S. Cl. 425-113

7 Claims

The dimensions of the inner and outer layers of plastic coatings, extruded over an electrical conductor, are con-

trolled automatically in a system having a die that extrudes two layers from the same die. The control means include a monitor for the diameter of the combined coatings, and another monitor that determines the electrical capacitance per unit length of conductor. The layers are made of material having different dielectric constants, but when each layer is of the intended thickness, its capacitance and that of the



combined layers have a known value so that, with the data from the monitors, graphs for existing conditions can be traced automatically adjacent to another graph of intended conditions to indicate any variations. The graph producing instrument can also be used to control automatically the thickness of the layers and the overall diameter of the coated cable.

3,635,621

APPARATUS FOR CROSSLINKING IN CURABLE RUBBER OR PLASTIC ELECTRIC WIRE AND CABLE

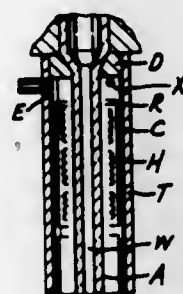
Hirokazu Miyauchi, Higashi Osaka, and Yasuo Wakabayashi, Settsu, both of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Original application June 7, 1967, Ser. No. 644,329, now Patent No. 3,513,228. Divided and this application Oct. 28, 1969, Ser. No. 871,912

Int. Cl. B29h 5/28

U.S. Cl. 425-113

5 Claims



An apparatus for curing an insulated conductor which consists basically of a treating chamber sealed from ambient atmosphere and which is divided respectively into a radiant heating zone, a precooling zone and a liquid cooling zone, through which the covered conductor is sequentially passed. The radiant heating zone and the precooling zone are supplied with an inert gas atmosphere under pressure.

3,635,622

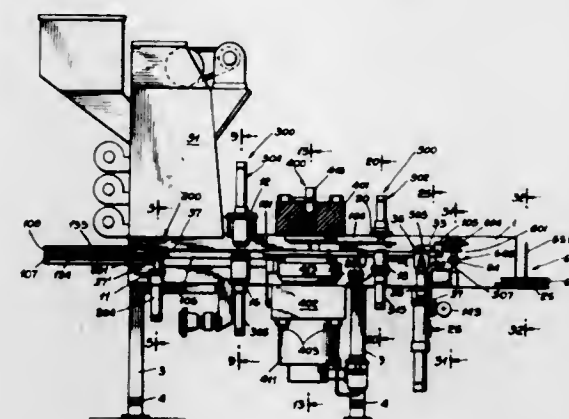
AUTOMATIC RECORD PRESS

Paul H. Wechsler, Glendale, Calif., assignor to Capitol Records, Inc., Hollywood, Calif.

Filed Jan. 8, 1969, Ser. No. 789,829

Int. Cl. B29d 17/00

U.S. Cl. 425-116



There is disclosed a machine for manufacturing articles requiring a plurality of successive operations. The machine includes a plurality of work stations equidistantly spaced from each other in the line of progression of the successive operation and each work station is equipped with operation performing instrumentalities suitable for those particular stations. A reciprocable workpiece transport means periodically and simultaneously transports all workpieces in their various stages of completion to the next work station so that at each cycle of operation the machine is performing the required operations on a plurality of articles. The illustrated embodiment is a machine for the automatic production of phonograph records.

3,635,623

MOLD FOR GLOVE HEATER

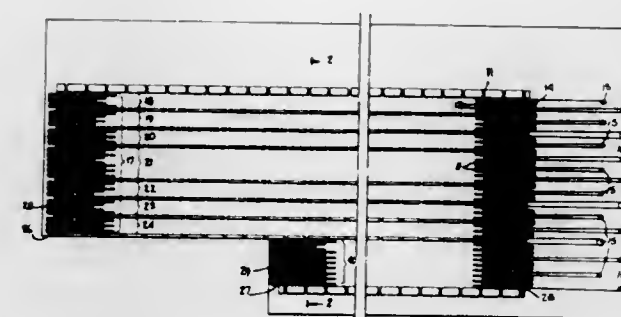
Mark W. Olson, Allendale, and Walter F. Silva, Riverdale, both of N.J., assignors to Uniroyal, Inc., New York, N.Y.

Filed May 23, 1969, Ser. No. 827,209

Int. Cl. B29d 3/00

U.S. Cl. 425-123

3 Claims



An electrical heater, a mold for making the heater and the method of making the heater. The heater comprises a flexible lattice structure of plastic material having an electrical heater wire embedded therein for heating the hand and the finger regions of a glove. The mold comprises a base with ribs and grooves for molding plastic material in the grooves and with pins for positioning electrical heater wire in the grooves. The method comprises moving portions of a sheet of plastic material into the grooves of the mold, positioning a heater member in the grooves and moving portions of a second sheet of plastic material into the grooves. The heater has the advantage of uniformly heating the hand and uniformly heating the fingers, and of being flexible, durable and reliable.

3,635,624

BLOW-MOLDING APPARATUS

Yoshio Nakakoshi, No. 9-1, 5-chome, Minamioyama, Minato-ku, Tokyo, and Senkichi Nakakoshi, No. 1-7-403, 1-chome, Sakurajoshi, Setagaya-ku, Tokyo, both of Japan

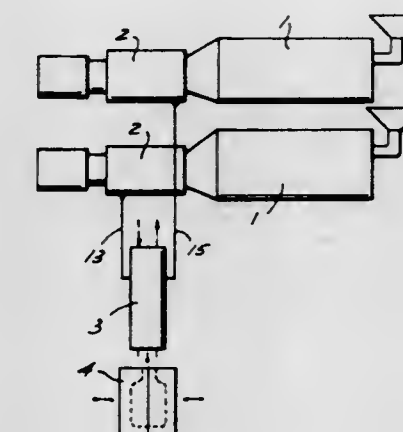
Filed Aug. 29, 1969, Ser. No. 854,065

Claims priority, application Japan, Oct. 22, 1968, 43/76527

Int. Cl. B29c 5/08

U.S. Cl. 425-133

3 Claims



A blow-molding apparatus involving a die, an annular port for delivering material formed in the lower portion of said die, a first annular feeding passage formed in said annular port at the inside, a second annular feeding passage formed in said die in a manner to communicate with said annular port at the outside, a heat-resistant barrier coaxially disposed between said feeding passages, and means for full heating of the material in the respective feeding passages. The synthetic resinous material in the feeding passages are of various or different kinds.

3,635,625

APPARATUS FOR CARVING A MATERIAL SHEET

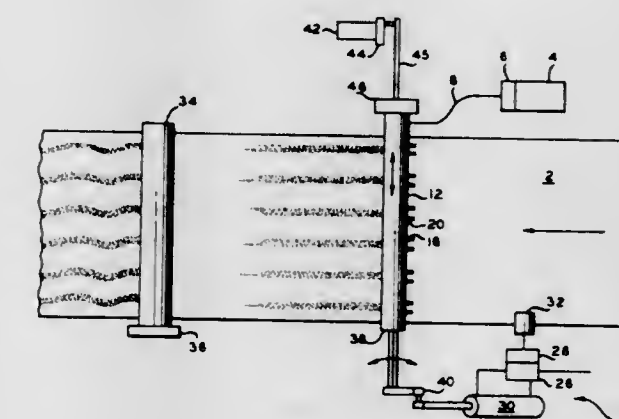
Raymond G. Voss, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Jan. 12, 1970, Ser. No. 2,312

Int. Cl. B29c 23/00

U.S. Cl. 425-135

6 Claims

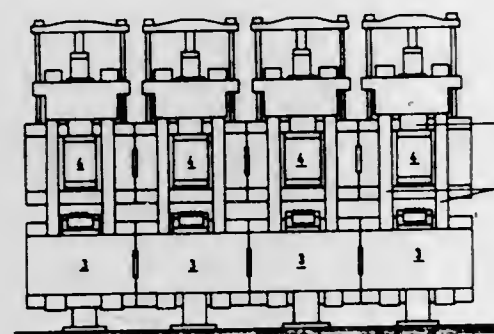


An apparatus for passing heated fluid onto a material sheet and moving said fluid along the sheet to carve a pathway on said sheet.

3,635,626 HEATING PLATEN PRESS

Heinrich Pfeiffer, Eppingen Baden, Germany, assignor to F. Dieffenbacher, GmbH Maschinenfabrik, Eppingen Baden, Germany

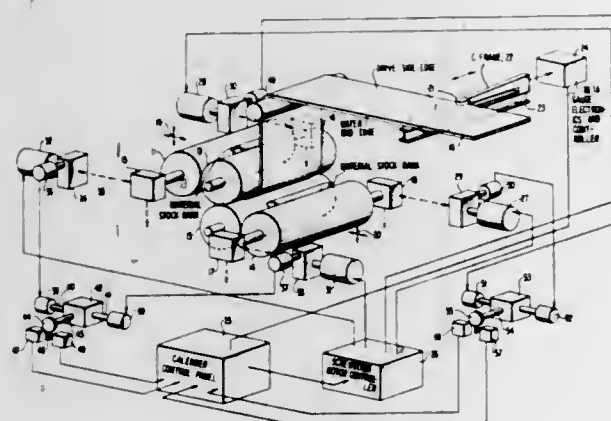
Filed Oct. 25, 1968, Ser. No. 770,526
Claims priority, application Germany, Oct. 28, 1967, P 16 53 186.5
Int. Cl. B29c 3/06
U.S. Cl. 425-136 14 Claims



Heating platen presses provided with spacer structure for determining the thickness to which the work material is pressed. Such platen press normally includes a stationary base and a movable press assembly coacting with the base to compress the work material. In order to determine the thickness to which the work material is compressed, so as to form chipboard, shavings board, fiberboard, or other composition board of selected thickness, spacer means of a suitable thickness is provided. In order that there may be no error in the use of a particular spacer means a testing means is provided for testing the thickness of the particular spacer means which is used.

3,635,627 CALENDER SHEETING THICKNESS CORRECTION CONTROL SYSTEM

Franklin E. Palmer, 4821 Ranchwood Road, Akron, Ohio
Filed Sept. 5, 1969, Ser. No. 855,482
Int. Cl. B29c 3/06
U.S. Cl. 425-141 7 Claims

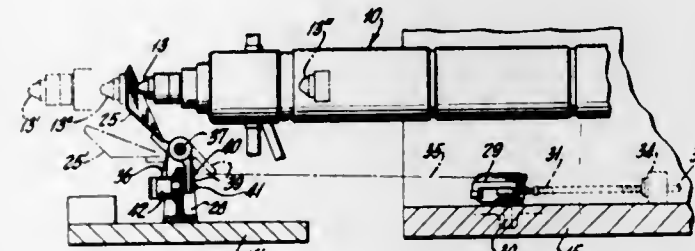


There is disclosed an automatic control system for maintaining the thickness of a multilayer or multilaminar flowsheet of rubber or plastic material. The system includes a plurality of screwdown motors for controlling calender roll separation and a plurality of selsyn systems responsive to screwdown movement and connected in a feedback control system to selectively deenergize the screwdown motors to control correction of laminae thickness. The laminae thickness feedback control system is operable with a beta

gauge sheet thickness maintenance control, where the latter control operates to maintain total sheet thickness at a predetermined value.

3,635,628 PURGING GUARD FOR PLASTICS INJECTION-MOLDING MACHINES

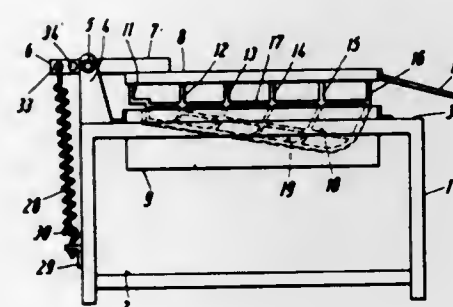
Francis W. Cook, Jr., Newington, Conn., assignor to The New Britain Machine Company, New Britain, Conn.
Filed Mar. 19, 1969, Ser. No. 808,417
Int. Cl. B29f 1/03
U.S. Cl. 425-151 7 Claims



In a plastics injection-molding machine, wherein injection mechanism is reciprocated into and out of a mold-injection position, the invention provides a protective guard which is movable, as by pivot action, into and out of the path of the nozzle of the injector mechanism. The reciprocation of the injector and the movement of the guard are coordinated so as to place the guard in front of the nozzle when the injector is retracted from molding position.

3,635,629 DEVICE FOR MANUFACTURING SHAPED ARTICLES FROM FABRIC SECTIONS

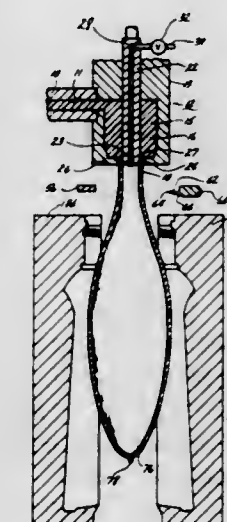
Benno Saladin, Sirmach, Switzerland, assignor to Saladin A.G., Switzerland
Filed Jan. 27, 1969, Ser. No. 793,978
Claims priority, application Germany, Apr. 1, 1968, P 17 78 135.0
Int. Cl. B29c 17/04
U.S. Cl. 425-173 7 Claims



A shaped article, such as a floor covering for a vehicle, is made from a plurality of interconnected sections of fabric having a pile and including a thermosetting or thermoplastic plastics material. During forming of the article on a two-part press, in order to prevent the pile from being flattened, the pile surface of the joined together and properly oriented sections is engaged by a gridlike press part only in the regions of the joints between the section. The press includes a trough-shaped receiving press part and a pivotally mounted top press part which is movable to engage over the article which is positioned in the trough-shaped part. The top press part is favored as a grid with projecting portions such as tubes which engage the article being formed at least at the junctures of

3,635,632 APPARATUS FOR BLOW MOLDING PLASTIC ARTICLES

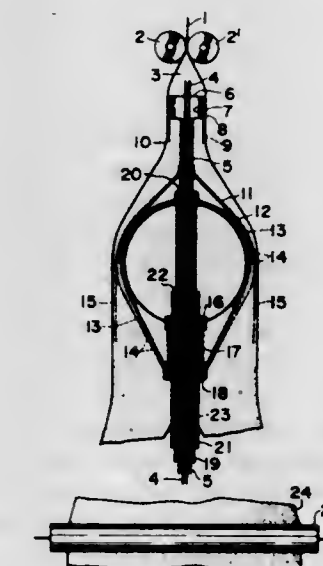
Charles H. Shaw, Bloomfield, and Robert G. Strauss, West Hartford, both of Conn., assignors to Monsanto Company, St. Louis, Mo.
Original application Oct. 17, 1966, Ser. No. 587,255. Divided and this application Apr. 10, 1969, Ser. No. 839,745
Int. Cl. B29d 23/03
U.S. Cl. 425-297 2 Claims



An apparatus for blow molding articles by preinflating a tubular parison prior to final expansion within the blow mold. The apparatus includes a clamping assembly for sealing a leading end of the extruding parison, and a specially configured mandrel tip which is axially movable against a shoulder in the extrusion head to at least partially sever the parison situated therebetween after preinflation.

3,635,633 APPARATUS FOR BIAXIALLY STRETCHING A TUBULAR FILM

Masahide Yazawa, and Setsuya Tsuyama, both of Tokyo, Japan, assignors to Polymer Processing Research Institute Ltd., Tokyo, Japan
Filed Oct. 8, 1970, Ser. No. 79,186
Claims priority, application Japan, Nov. 26, 1969, 44/94776
Int. Cl. B29d 7/24, 23/00
U.S. Cl. 425-302 4 Claims

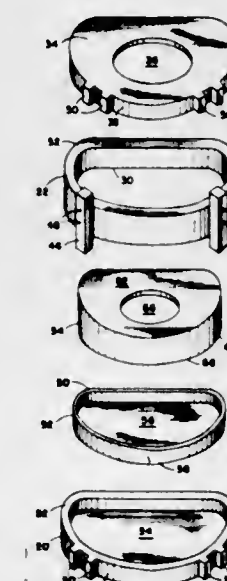


An apparatus for biaxially stretching a tubular film, by the use of a heated pressurized fluid supplied in the inside of the

sections or portions of the article which are to be arranged at an angle to one or more other portions. The tubes advantageously carry means for selectively cooling or heating the article to apply a desired thermal treatment for permanently forming the article.

3,635,630 DENTURE MOLDING APPARATUS INCLUDING FLASK MEMBERS WITH REMOVABLE PLASTIC INSERTS

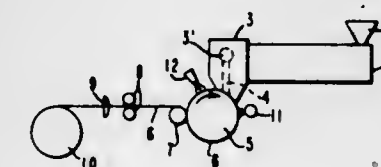
James S. Greene, 49 Gail Drive, Waterbury, Conn.
Filed Apr. 28, 1970, Ser. No. 32,625
Int. Cl. A61c 13/22
U.S. Cl. 425-175 5 Claims



Apparatus and method for forming dentures wherein plastic inserts are placed within metal flask members to hold a dental mold therein. Acrylic plastic is then inserted in place of the mold to form the denture within the plastic inserts, the insert unit is then removed from the metal flask and held by plastic clamping means, and the plastic denture cured in an ultrahigh frequency oven.

3,635,631 CONTINUOUS MOLDING OF THERMOPLASTIC RESIN

Reuben Thomas Fields, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed June 10, 1970, Ser. No. 45,166
Int. Cl. B29d 7/10
U.S. Cl. 425-223 8 Claims



Molten thermoplastic resin, e.g., polyethylene is forced into a pattern on the surface of a rotating roll to form a web of the resin, the resin being forced into the pattern through a die having a zigzag upstream edge.

expanding tubular film and allowing to leak a part of the fluid through a thin layer clearance between the expanded tubular film and an inserted mandrel at the outside thereof and the difference of speeds between the feed side and takeup side, which is characterized by cylindrical nets of variable diameter, whose upper ends are fixed and on which a positive tension is applied vertically downwards, and which are provided at a leakage section of a heating pressurized fluid filling a thin layer clearance between the outer periphery of an umbrella-like insulating membrane and an expanded tubular film and at the discharge section of a cooling liquid along the outer periphery of an inserted bag mandrel and the expanded tubular film, respectively, to give a uniform and sufficient discharging resistance to the fluid at the entire outer periphery of the bag mandrel and thereby to reduce the leakage of the heating pressurized fluid, and to attain the facilitation of the pressure maintenance in the stretching section above the insulating membrane as well as the uniform discharge of the cooling liquid around the entire outer periphery of the bag mandrel.

3,635,634

APPARATUS FOR MANUFACTURING TUBULAR FILMS OF THERMOPLASTIC RESINS

Hiroshi Nagano; Hideo Tomioka; Akira Yamataka, and Hirohiko Yoshida, all of Nagahama-shi, Japan, assignors to Mitsubishi Jushi Kabushiki Kaisha, Tokyo-to, Japan

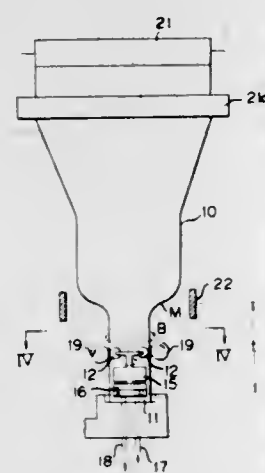
Filed Aug. 5, 1968, Ser. No. 730,036

Claims priority, application Japan, Nov. 13, 1967, 42/72587; Aug. 11, 1967, 42/51185; Oct. 12, 1967, 42/65203

Int. Cl. B29d 23/04

U.S. Cl. 425—325

2 Claims



In an apparatus for manufacturing a tubular resinous film wherein a tubular film of a thermoplastic film is extruded from an extrusion nozzle, cooled, heated, expanded and wrapped into a roll, a circumferential twist is intermittently imparted to the tubular resinous film after it is cooled but before it is heated and expanded, or circumferential twists in the opposite directions are imparted alternately, by means of cooperating inner and outer rollers which are revolved in the circumferential direction of the tubular resinous film. Means to cool the extruded tubular resinous film comprises a first stationary cooling cylinder having a diameter slightly smaller than the inner diameter of the tubular resinous film, a second rotary cooling cylinder having a diameter slightly larger than that of the first cooling cylinder and adapted to contact and cool the inner surface of the extruded tubular resinous film, and means to form a layer of cooling gas between the inner surface of the extruded tubular resinous film and the periphery of the first cooling cylinder.

3,635,635 BLOW MOLDING MACHINE WITH PRESSURE MEANS FOR HOLDING NECK AND BODY MOLD SECTIONS TIGHTLY TOGETHER DURING MOLDING OPERATIONS

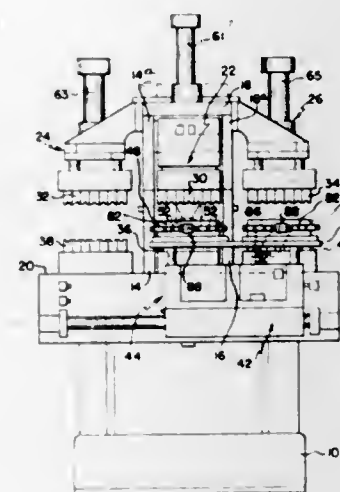
Ernest P. Moslo, 12700 Lake Avenue, Lakewood, Ohio

Filed June 11, 1970, Ser. No. 45,437

Int. Cl. B29d 23/03

U.S. Cl. 425—326

12 Claims



A blow molding machine for producing for instance, plastic bottles, and wherein the machine molds the bottles on horizontally arranged parison and blow molds comprising a central parison mold and a pair of blow molds disposed generally on either side of the parison mold. The molds comprise upper and lower neck section mold halves and upper and lower body section mold halves with the halves being relatively movable with respect to one another for opening and closing the molds in a general vertical direction. The mold halves when closed define the mold cavity of the respective mold, and the neck mold sections are adapted for longitudinal abutting relation with the body sections during molding operations. Pressure-applying means are provided coaxing with the mold sections to urge the latter longitudinally together for maintaining a tight abutting relationship between the neck mold sections and the body mold sections in the closed condition of the molds, so that leakage can not occur between the body and neck mold sections, while providing in the deactuated condition of the pressure-applying means, for ready opening and closing movement of the mold sections without interference between the neck mold sections and the body mold sections.

3,635,636

APPARATUS FOR FORMING HOLLOW BODIES

Serge Lagoutte, Chalon-sur-Saone, France, assignor to Societe d'Etudes Verrieres Appliquees, Neuilly-sur-Seine, (Seine), France

Filed Nov. 8, 1968, Ser. No. 774,385

Claims priority, application France, Nov. 9, 1967, 127539

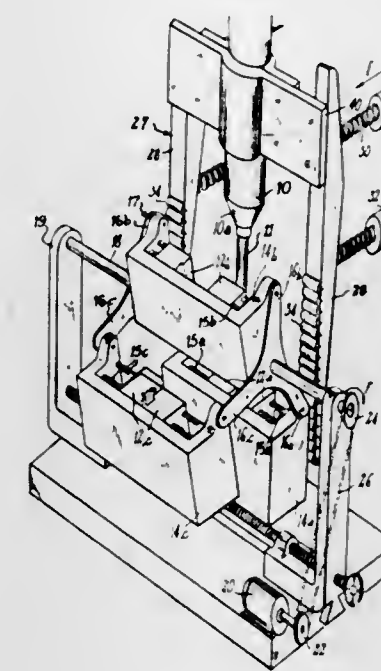
Int. Cl. B29c 17/07

U.S. Cl. 425—326

3 Claims

Hollow bodies such as bottles are blow molded from tubular plastic material produced along an axis defined in an extruder therefor. A plurality of molds supported on a mold carrier are driven by that carrier successively through a closed path which intersects that axis. As each mold is carried to the position where it intersects the axis of the extruder, the mold closes on a section of the plastic material to

permit blowing thereof to the shape defined by the mold. At this time moreover that mold engages against an abutment fixed with respect to the extruder and imposes a relative mo-



3,635,637 SEGMENTED ROLLER BRIQUETTE PRESS WITH COOLED MOUNTING RINGS

Hans-Georg Bergendahl, Langehorst 23, Hattingen (Ruhr), Germany

Filed June 2, 1970, Ser. No. 42,695

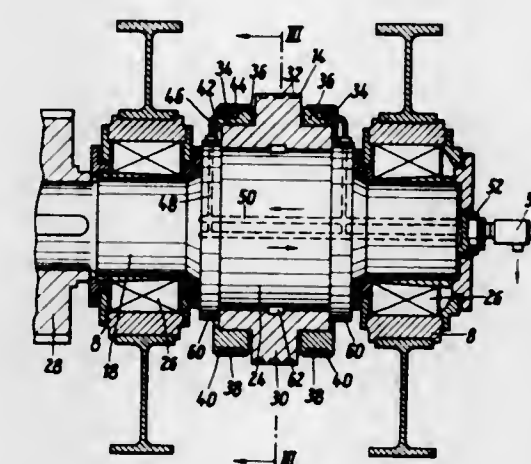
Claims priority, application Germany, June 3, 1969, P 19 28

176.6

Int. Cl. B29c 3/02

U.S. Cl. 425—363

8 Claims



An improved roller-type briquette press for the hot pressing of coal, ores and similar substances, wherein a cylindrical roller core carries a plurality of segments, equipped with molds and forming together an annulus, wherein the improvement comprises that the segments may be easily and reliably mounted on the valve core even at the high temperatures encountered during the pressing by using cooled, shrink fit mounting rings.

3,635,638 ROLL-FORMING MACHINE

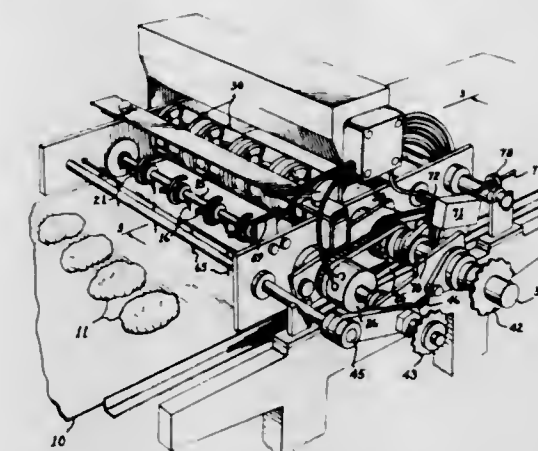
William Roy Bryan, Glendale, Ariz., assignor to H. B. P. Manufacturing Incorporated

Filed Jan. 9, 1970, Ser. No. 1,802

Int. Cl. A21c 11/04

U.S. Cl. 425—373

9 Claims



A machine is provided for attachment to a conveyor system utilized to transport raw dough rolls. A stop gate is movably positioned in the path of the rolls and, when placed in an interfering position, temporarily stop the rolls while the rolls maintain sliding contact with the conveyor. A roll imprinting drum is positioned above the conveyor and adjacent the stop gate; the stop gate is subsequently moved to a noninterfering position to permit the rolls to pass to the imprinting drums where the rolls are formed into a desired shape.

3,635,639

HEATING APPARATUS FOR PRODUCING FORM CONFIGURATIONS IN TUBULAR PIECES

Friedhelm Krebsbach, Troisdorf; Gerhard Osterhagen, Driesch near Eitorf, and Gunter Oettel, Siegburg, all of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Germany

Filed Dec. 24, 1968, Ser. No. 786,701

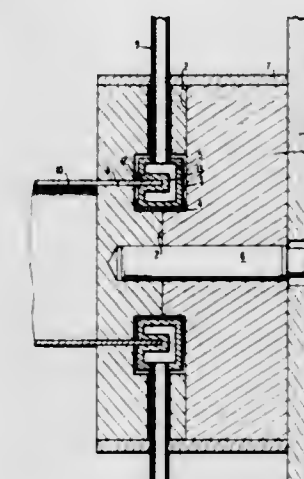
Claims priority, application Germany, Dec. 20, 1967, P 17 04

011.8

Int. Cl. B29b 3/00

U.S. Cl. 425—384

20 Claims



The present disclosure is directed to a process and a heating apparatus for permitting the production of crimped, compressed, and beaded sections in tubular pieces made of a synthetic material which comprises a means adapted to receive a tubular piece, said means provided with a heating means for selectively heating a portion of said tubular pieces and cooling means associated with at least one of the marginal areas surrounding said heated portion thereby preventing distortion of the tubular pieces in said marginal areas.

3,635,640

APPARATUS FOR STRETCHING SHEET MATERIAL

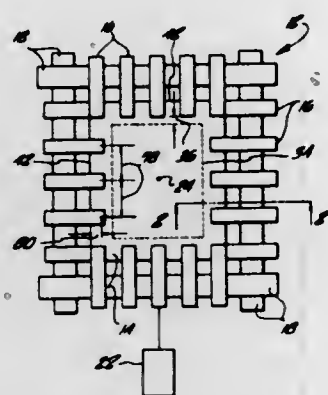
Edward C. Wood, Portola Valley, Calif., assignor to The Sierracin Corporation, Sylmar, Calif.

Filed Oct. 17, 1968, Ser. No. 768,245

Int. Cl. B29c 17/02; D06c 3/08

U.S. Cl. 425-445

10 Claims



A sheet material stretching arrangement having a plurality of clamps holding the sheet, wherein the clamps are spaced and shaped so as to achieve substantially maximum recovery of usable stretched material. By the use of properly spaced, elongated clamping surfaces, of the order of 85 percent of the stretched material may be substantially undistorted and usable.

3,635,641

SPINNERETTE FOR PRODUCING HOLLOW FILAMENTS

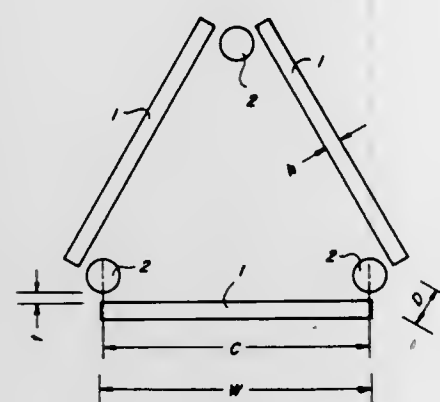
Garland L. Turner, Chesterfield County, Va., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Dec. 3, 1969, Ser. No. 881,806

Int. Cl. D01d 3/00

U.S. Cl. 425-461

8 Claims



A spinnerette for spinning hollow filaments having a maximum amount of hollow space in relation to the outer dimensions of said filaments. The filaments are extruded from a group of preferably three slots and corresponding three round openings or dots. The polymer occluding area defined by the arrangement of the slots forms substantially an equilateral triangle. The round openings are arranged near or at the ends of the slots, but not in communication with the slots. Filaments melt spun from the nested embodiment of this spinnerette consistently have above 35 percent hollow space. The spinnerette is much less subject to breakage than similar designs. Specific parameters for spinning with such an orifice configuration are set forth.

3,635,642

MOLDING DEVICE

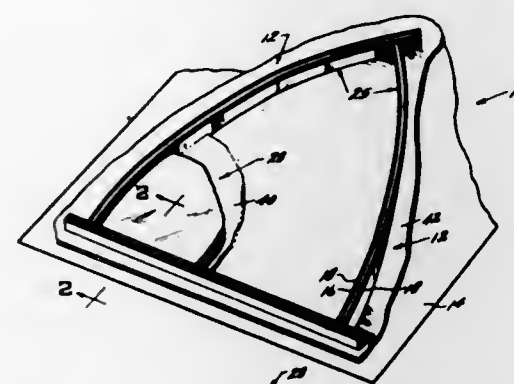
Ralph C. Mueller, 7000 Summit Avenue, Cincinnati, Ohio

Continuation-in-part of application Ser. No. 709,548, Mar. 1, 1968, now Patent No. 3,530,540. This application Sept. 28, 1970, Ser. No. 76,136

Int. Cl. B29c 1/00

U.S. Cl. 425-470

4 Claims



An assembly of flexible strip articles, flexible metallic bands, and metallic surface all of which being magnetically fixedly held together for providing a stable molding apparatus about a form. One of the strip articles of the assembly comprises an elongated strip of magnetic material sandwiched between a pair of coextensively extending metal members one of which may include a base flange. An additional strip article composed of the magnetic material may be included as part of the assembly. The metallic bands are magnetically secured to the first strip article which in turn is magnetically secured to the metallic surface whereby such assembly constitutes a molding device.

3,635,643

FEEDING DEVICE FOR SHEET AND PLANULAR BLANKS IN MULTILAYER PRESSES

Rolf Bertil Reinhall, Lidings, Sweden, assignor to Defibrator Aktiebolag, Stockholm, Sweden

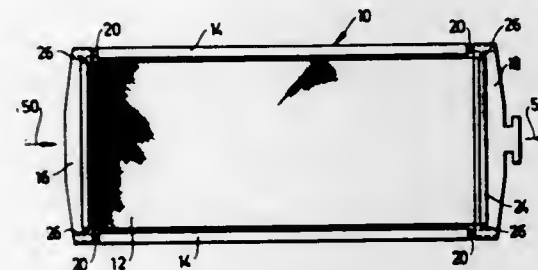
Filed June 23, 1966, Ser. No. 559,854

Claims priority, application Sweden, Feb. 10, 1966, 1720/66

Int. Cl. B29g 7/02; B29c 3/04

U.S. Cl. 425-470

2 Claims



A feeding device for use in multipresses for the production of sheets or boards of fibrous vegetable material by pressure between superimposed press plates. The sheet or board blank is pressed between flexible foraminous metallic sheets such as sheets of wire cloth which are individually stretched in frames and held in their stretched condition therein while being inserted between the press plates; the frames being each of such dimensions as to be located outside of the press plates so that pressure is not imposed on them and they receive a minimum of heat during the pressing operation and the flexible metallic sheets being secured in the frame only at the opposite ends of the frame.

3,635,644

INFRARED BURNER AND METHOD OF INCREASING THE HEAT FLUX RADIATED THEREFROM

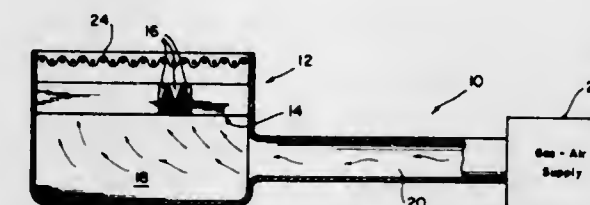
Edward A. Reid, Jr., Columbus, Ohio, assignor to Columbia Gas System Service Corporation, New York, N.Y.

Filed Jan. 19, 1970, Ser. No. 3,943

Int. Cl. F23d 13/36

U.S. Cl. 431-9

4 Claims



In an infrared burner having orifices through which a combustible mixture of air and a combustible gas passes, each orifice is provided with a throat portion of relatively small cross-sectional area extending from an inlet for the air-gas mixture to an expanding or diverging outlet portion into which, particularly when the air-gas mixture is supplied to the burner at a relatively high-mass flow rate, a substantially laminar flow or jet established in the throat portion of the orifice is projected centrally and separates from the surface of the diverging outlet portion to create a turbulent recirculating flow around the laminar flow or jet for substantially increasing the infrared radiation produced by the burner when the air-gas mixture is ignited within such outlet portion.

3,635,645

PNEUMATIC CONTROL SYSTEM FOR A FUEL-BURNING APPARATUS OR THE LIKE

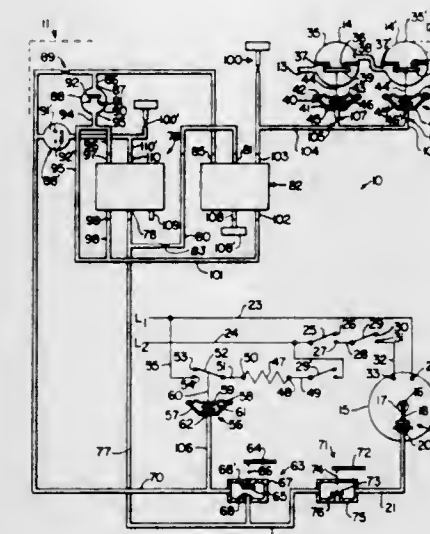
Douglas R. Scott, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jan. 26, 1970, Ser. No. 5,709

Int. Cl. F23h 5/00

U.S. Cl. 431-67

8 Claims



This disclosure relates to a pneumatic control system for a clothes dryer wherein the flow of fuel to the main burner means is pneumatically controlled in such a manner that the ignition means for the main burner means must be first pneumatically actuated before the pneumatic control system will pneumatically open the fuel supply means to the main burner means, the control system including a pneumatically operated logic "memory" unit to assure that the ignition means is always pneumatically operated before the main burner can be pneumatically operated to its on condition by

a pneumatically operated NAND unit each time there is a requirement to turn on the main burner means. The "memory" unit is prevented from transmitting atmosphere therethrough when being switched by its setting signal.

3,635,646

GAS BURNER

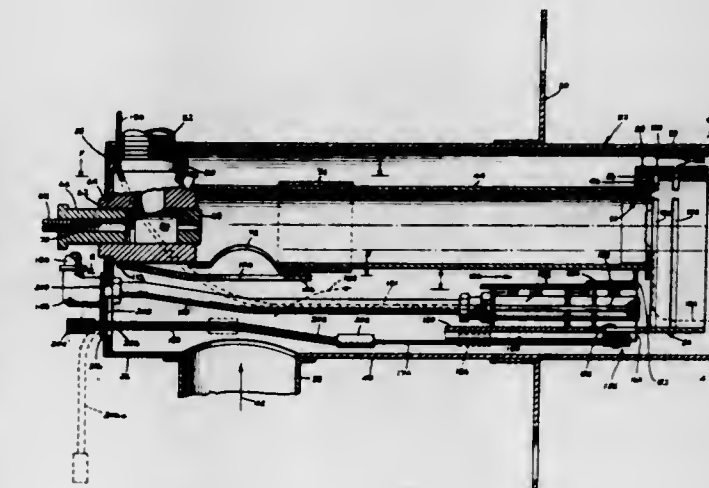
Paul D. Cox, Ridgeville, Ind., assignor to Cox Manufacturing Co., Inc., Ridgeville, Ind.

Filed Aug. 27, 1970, Ser. No. 67,307

Int. Cl. F23n

U.S. Cl. 431-89

14 Claims



A gas burner of the type having a blast tube and a blower for supplying air to the blast tube adjacent its rear end. A gas and air mixing tube is longitudinally supported in the blast tube with its forward end spaced rearwardly from the forward end of the blast tube, and a nozzle injects gas into the rear end of the mixing tube. The mixing tube has an air inlet opening adjacent its rear end for admitting primary air thereto for forward flow therein and mixture with the gas, the secondary air flowing forwardly over and around the mixing tube. The relationship of the primary and secondary airflow is controlled by a gate for selectively varying the area of the air inlet opening in the mixing tube. A burner drum is mounted in the forward end of the blast tube by a partition extending between the rear end of the drum and the forward end of the mixing tube, the drum extending longitudinally forwardly from the partition with its forward end spaced rearwardly from the forward end of the blast tube, the secondary air flowing forwardly over and around the drum and a flame being formed within the drum upon ignition of the fuel-air mixture exiting from the mixing tube. The drum has elongated, circumferentially extending slots formed in its wall forwardly of the mixing tube so that the secondary air flowing forwardly over the drum and the slots creates a partial vacuum adjacent the inner surface of the drum wall so as to spread the flame in the drum.

3,635,647

ELECTRICAL RESISTOR CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS

Sang-chul Kim, Cleveland Heights, Ohio, assignor to General Electric Company

Filed June 3, 1970, Ser. No. 42,952

Int. Cl. F21k 5/02

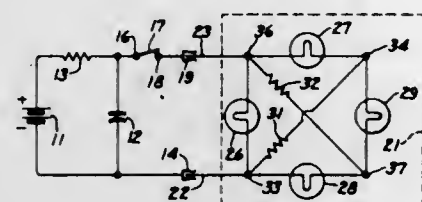
U.S. Cl. 431-95

14 Claims

A simplified resistance-type of circuit for causing sequential flashing of photoflash lamps from firing pulses of electrical energy. The basic circuit consists of four flashlamps connected in series in a closed electrical loop. Two resistors are connected "crisscross" between diagonally opposite lamp

junctions of the series loop, and the circuit is adapted for connection to a source of firing pulses across one of the

manner at such time as freezing temperatures have caused an elongation of an actuator associated with the cartridge-triggering mechanism. Alternatively, the actuator for causing a



flashlamps. Circuit modifications are disclosed for different numbers of flashlamps.

3,635,648

ANNULAR INFRARED BURNER

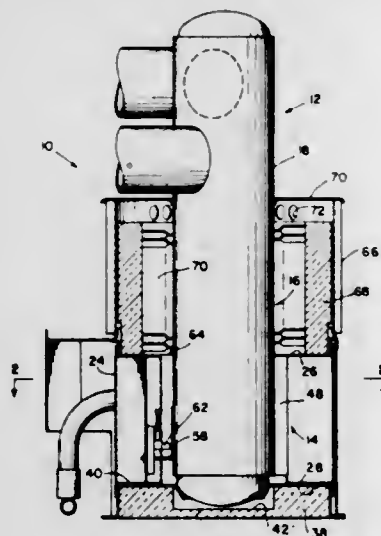
William F. Morse, Upper Arlington, and Edward A. Reid, Jr., North Columbus, both of Ohio, assignors to Columbia Gas System Service Corporation, New York, N.Y.

Filed Apr. 20, 1970, Ser. No. 30,102

Int. Cl. F23d 13/12

U.S. Cl. 431-170

8 Claims



An annular gas heating unit which surrounds the peripheral sidewall of the generator unit in an air-conditioning system to provide radiant heat to the generator. A combustible gas mixture is introduced tangentially into two separate plenum chambers of the heating unit to create a generally circular flow of gas therein to provide an even distribution of gas within the combustion chamber of the unit. The products of combustion are discharged through an annular exhaust section which also surrounds the generator unit of the air-conditioning system to provide additional heat by conduction and convection heat transfer to the generator unit.

3,635,649

DEPENDABLE PERFORMANCE IGNITER

Robert S. Kafka, Maitland, Fla., assignor to Paul B. Tweed and Andrew T. Lance, part interest to each

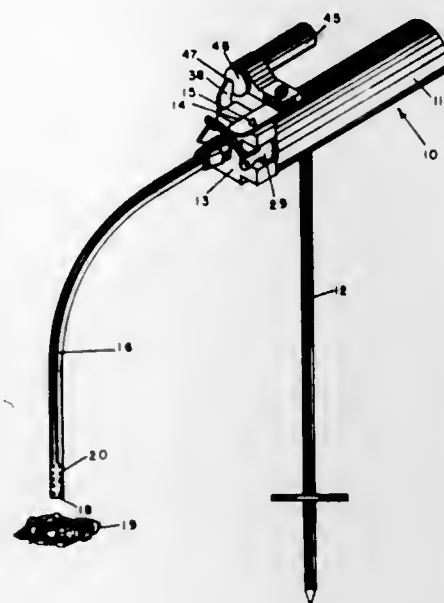
Filed Oct. 27, 1969, Ser. No. 869,503

Int. Cl. F23q 1/06

U.S. Cl. 431-269

22 Claims

An igniter such as may be utilized in agriculture for providing abundant quantities of hot gas and/or hot particles to ignite burners and/or combustible material in the event of low temperature. Involved are a novel cartridge-containing housing and easily operated breech mechanism, with the cartridge arranged to be fired in a very dependable and repeatable



triggering of the cartridge may be caused to elongate by fuel pressure being supplied to the burners to be ignited by the igniters.

3,635,650

MOUNTING MEANS FOR GAS BURNER

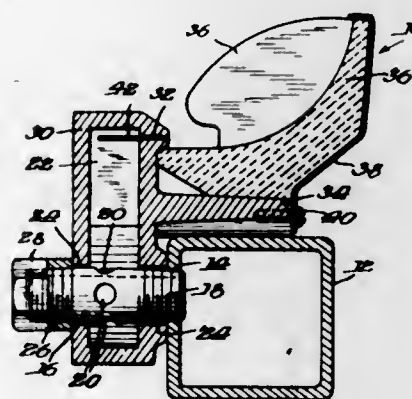
Carlo A. Lentini, La Grange, Ill., assignor to X-trad Corporation, La Grange, Ill.

Filed Aug. 17, 1970, Ser. No. 64,492

Int. Cl. F23q 9/00

U.S. Cl. 431-278

10 Claims



The invention provides an improved gas burner assembly and gas-connecting means for connecting the burner assembly to a manifold. The manifold generally has a plurality of gas outlet openings, each of which has an outwardly projecting gas delivery pipe connected thereto. Each gas delivery pipe has a gas delivery opening in the side. The burner assembly has a gas plenum chamber with axially aligned apertures in opposite sides, through which the gas delivery pipe is passed. When the gas delivery pipe is passed through the apertures, the gas delivery opening communicates with the plenum chamber. Attaching means is also provided for attaching the gas delivery pipe to the burner unit, and for preventing leakage of gas to the atmosphere. In one embodiment, the invention includes valve means on the gas delivery pipes, which permit the burner units to be individually adjusted.

3,635,651

BURNER

Denis Henry Desty, Weybridge, England, assignor to The British Petroleum Company Limited, Moor Lane, London, England

Filed Mar. 31, 1970, Ser. No. 24,221

Claims priority, application Great Britain, Apr. 28, 1969, 21,541/69

Int. Cl. F23d 13/12

U.S. Cl. 431-328

13 Claims

A burner, preferably of rigid material such as metal foam which is pierced by airholes for the passage of combustion air and arranged to carry fuel across the combustion zone. Conveniently the burner has an evaporator in which the airholes are situated and a feeder for lifting fuel to the level of the

evaporator. In the preferred configuration gravity assists fuel transfer. For example, the evaporator comprises two sloping



portions joined together at their lowest portions and each joined to a feeder at its highest portion.

CHEMICAL

3,635,652

PROCESS FOR DYEING POLYURETHANE FOAM IN NONAQUEOUS DYE BATH

Clemens Streck, Loudonville, N.Y., assignor to GAF Corporation, New York, N.Y.

Filed July 5, 1968, Ser. No. 742,523

Int. Cl. D06p 3/24

U.S. Cl. 8-4

6 Claims

A composition of matter comprising polyurethane foams and articles foamed therefrom, having applied thereto an essentially water-insoluble dyestuff of the class known as spirit or solvent-soluble dyestuffs; particularly those dyestuffs of this class which are formed by the reaction of water-soluble dyes which contain water-solubilizing sulfonic or carboxylic acid groups with water-insoluble amines which are free from such solubilizing groups. In addition to the amine-salt-type of spirit or solvent-soluble dyestuffs, the metallized O,O'-dihydroxy azo-type of spirit or solvent soluble-dyestuffs may be used. The invention is also concerned with a method for the production of dyed polyurethane foams which comprises applying to the polyurethane foam or article a solution of a water-insoluble, spirit or solvent-soluble dyestuff in a volatile organic solvent.

3,635,653

POLYESTER POLYAMIDE BLEND FIBER DYED WITH AZO DISPERSE DYE

Orville E. Snider, Petersburg, Va.; James E. Loughlin, Charlotte, N.C., and Hans Orthell, Spartanburg, S.C., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Nov. 13, 1967, Ser. No. 682,572

Int. Cl. D06p 3/82

U.S. Cl. 8-21

8 Claims

Fibers are prepared which are comprised of 4-50 parts by weight of a substantially linear fiber-forming polyester having recurring cyclic structure in the polymer backbone dispersed in a continuous body of 50-96 parts by weight of a linear fiber-forming polyamide, said fiber having at least 5,000 polyester microfibrils per 1,000 square microns cross section and is dyed with an azo disperse dye having a solubility of less than 0.1 gram in 100 cc. of water and which has an apparent electron affinity of greater than 3 electron volts, said azo disperse dye having one or more electron attracting substituent moieties, and there may be simultaneously present electron repelling substituent moieties, provide the sum of the charges of the electron attracting moieties at least 0.5 electron volts greater than the sum of the electron repelling moieties. The fibers may be blended with other fibers to form fabrics having novel effects.

A process for producing said dyed polyblend fibers or fabric therefrom comprising dyeing in an aqueous medium at a temperature of at least 150° F. as the sole fiber in the textile article or in combination with at least one other fiber selected from the group consisting of polyamide, polyester,

polyacrylonitrile, polypropylene, cotton, silk and wool, said dye being solely an azo disperse dye having an electron affinity of at least 3.0 electron volts and alternately there may be simultaneously present, for multicolor effects, one or more dyes selected from the group, acid dyes, acid metallized dyes, direct dyes, basic dyes, and anthraquinone disperse dyes.

3,635,654

MULTISIZED REVERSIBLE RATCHET WRENCH

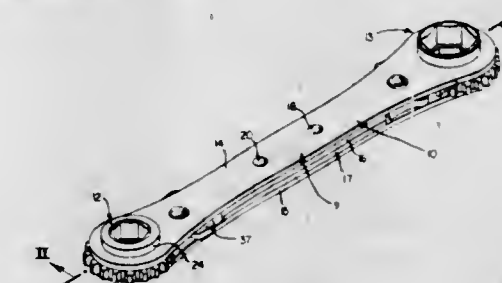
Frederick R. McFarland, Lancaster, Pa., assignor to K-D Manufacturing Company, Lancaster, Pa.

Filed Dec. 8, 1969, Ser. No. 883,199

Int. Cl. B25b 13/46

U.S. Cl. 81-63

1 Claim



A ratchet wrench is provided, with sockets at each end, wherein a novel ratchet arrangement permits an increased number of permanent nut-receiving sockets.

3,635,655

MINERAL TANNED LEATHER TREATED WITH DIALDEHYDE STARCH AND BENZENE POLYCARBOXYLIC ACID COMPOSITIONS

Richard Nathan Williams, Slonaburg, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 15, 1968, Ser. No. 705,634

Int. Cl. C14c 3/28

U.S. Cl. 8-94.26

8 Claims

Mineral tanned leather is stabilized against degradation due to warm or hot alkaline washings by applying thereto during tanning or retanning an aqueous solution of from about 5 parts to about 1 part dialdehyde starch and from about 1 part to about 5 parts of a benzene polycarboxylic acid or alkali metal salt thereof based on the weight of the leather. A 5 percent solution based on the weight of the hide of a 1:1 composition of dialdehyde starch and sodium isophthalate is preferred.

ERRATUM

For Class 8-142 see: Patent No. 3,635,667

3,635,656

DRYCLEANING METHOD

Joseph A. Piepmeyer, Cincinnati, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio
Continuation-in-part of application Ser. No. 717,466, Mar. 29, 1968, now abandoned. This application Jan. 11, 1971, Ser. No. 105,671
Int. Cl. D06I 1/00

U.S. Cl. 8—142

13 Claims

A process for drycleaning fabrics such as garments and other drycleanable materials, particularly highly soiled garments, by using hydrocarbon and chlorinated hydrocarbon solvents. The process includes a plurality of phases in a cleaning cycle wherein soiled garments are agitated in drycleaning solvent in each of the phases by mixing the solvent of a first phase with a detergent having a substantivity for the garments, removing the solvent of the first phase from the garments while the detergent is substantively retained by the garments and combining the solvent of a second phase with the garments containing the detergent for continued cleaning.

3,635,657

PROCESS FOR THE REMOVAL OF NITRIC OXIDE FROM INDUSTRIAL GASES

Giancarlo Bressan, Milan, and Salvatore Gafa, Ferrara, both of Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
Filed Aug. 29, 1969, Ser. No. 854,319
Claims priority, application Italy, Aug. 31, 1968, 20709 A/68
Int. Cl. B01d 53/34

U.S. Cl. 23—2 R

13 Claims

Nitric oxide is removed from industrial gases, more particularly from gases formed in the cracking of hydrocarbons, by absorption in an aqueous solution containing at least one ferrous salt, at least one ammonia salt and free ammonia, under conditions such that the nitric oxide, which is usually present in the cracking gases in an amount of 50 to 200 p.p.m., is either totally removed or reduced to less than 0.5 to 1.0 p.p.m., in a single stage or step.

3,635,658

RARE EARTH OXIDE PROCESS

John L. Ferri, Towanda, and James E. Mathers, Ulster, both of Pa., assignors to Sylvania Electric Products, Inc.
Filed Apr. 2, 1969, Ser. No. 812,913
Int. Cl. C22b 59/00

U.S. Cl. 23—19 R

8 Claims

A process for increasing the particle size of rare earth oxides is disclosed comprising: forming an aqueous mineral acid solution containing a rare earth source dissolved therein, reacting the rare earths in said solution with oxalic acid to form an insoluble rare earth oxalate, separating the rare earth oxalate from the reaction medium, contacting the rare earth oxalate with an aqueous oxalic acid solution having a concentration of oxalic acid of from about 1 to about 40 percent by weight and heating the rare earth oxalate to a sufficient temperature and time to convert said rare earth oxalates into rare earth oxides having a particle size of at least 3 microns.

3,635,659

PROCESS FOR THE PRODUCTION OF $(\text{NH}_4)_2\text{AlF}_6$

Gustave E. Kidde, 294 California Terrace, Pasadena, Calif.
Continuation-in-part of application Ser. No. 839,096, July 3, 1969, now abandoned, Continuation-in-part of application Ser. No. 575,205, July 18, 1966, now abandoned, Continuation-in-part of application Ser. No. 483,241, Aug. 27, 1965, now abandoned, Continuation-in-part of application Ser. No. 328,126, Dec. 4, 1963, now abandoned.
This application Mar. 25, 1970, Ser. No. 22,671
Int. Cl. C01f 7/50; C01c 1/16

U.S. Cl. 23—88

1 Claim

This invention relates to a process for the production of $(\text{NH}_4)_2\text{AlF}_6$, comprising reacting together hydrated alumina

and a compound selected from the group consisting of ammonium bifluoride and ammonium fluoride and recovering $(\text{NH}_4)_2\text{AlF}_6$.

3,635,660

PHOSPHATE AND PHOSPHORS PREPARED THEREFROM

Joseph A. G. Bruce; Henry M. Levy, and Pyllis Oborn, all of London, England, assignors to Thorn Electrical Industries Limited, London, England
Filed Feb. 5, 1969, Ser. No. 796,813
Int. Cl. C01b 25/32; C09k 1/36

U.S. Cl. 23—108

1 Claim

A new form of γ -calcium pyrophosphate having a rhombohedral crystal shape and regular particle size, more especially in the range 8–8½ microns, is prepared by controlled heating of anhydrous calcium hydrogen phosphate having a similar crystal form and particle size. The latter phosphate is prepared by precipitation of brushite and dehydration in an aqueous medium such as aqueous phosphoric acid at an elevated temperature. When the new pyrophosphate is employed as a source of calcium and phosphate ions in the preparation of luminescent phosphors, the products have enhanced luminescent brightness as compared with those produced from conventional calcium hydrogen phosphate.

3,635,661

SOLVENT EXTRACTION PROCESS FOR SEPARATING IONIC COMPOUNDS

Leland J. Beckham, Pasco County, Fla., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Nov. 17, 1967, Ser. No. 683,878
Int. Cl. C01b 25/28, 25/30

U.S. Cl. 23—107

12 Claims

Metathesis reactions between water-soluble ionic compounds are carried out by means of a liquid extraction process using water and a water-miscible organic solvent. The separation of mixtures of water-soluble salts are also carried out using water and a water miscible organic solvent.

3,635,662

KAOLIN PRODUCT AND METHOD OF PRODUCING THE SAME

Sanford C. Lyons, Bennington, Vt., assignor to Georgia Kaolin Company
Continuation-in-part of application Ser. No. 565,346, July 6, 1966, now abandoned, Continuation-in-part of application Ser. No. 227,488, Oct. 1, 1962, now abandoned. This application Dec. 5, 1969, Ser. No. 882,806
Int. Cl. C09c 1/42

U.S. Cl. 23—110 R

3 Claims

A new kaolinite product and method of producing it are provided in which the kaolinite consists predominantly by weight of the 2 to 10 microns (e.s.d.) fraction of washed kaolin originally and prior to delamination including a major percentage of coarse particles greater than two microns (e.s.d.) said washed kaolin having been extruded under pressure of at least 350 pounds per square inch through holes having a diameter of one-sixteenth to seven-sixteenths inches, said fraction having a whiter color than the source material of the same size, a greater diameter thickness ratio than the source material of the same size and substantially better makedown characteristics than those of the fines fraction from the same source.

3,635,663

REDUCTION OF THE ALKALI METAL CONTENT OF CRYSTALLINE ALUMINOSILICATES OF THE FAUJASITE TYPE

Leo Moscos, Castricum, Netherlands, assignor to Koninklijke Zwavelzuurfabrieken Voorheen Ketjen N.V., Amsterdam, Netherlands

Filed Nov. 26, 1969, Ser. No. 880,438

Claims priority, application Netherlands, Dec. 6, 1968, 6817493

Int. Cl. C01b 33/28

U.S. Cl. 23—112

8 Claims

In the reduction of the alkali metal content of a crystalline aluminosilicate of the faujasite type by subjecting the latter to a plurality of base exchanges with an aqueous solution containing ions of rare earth metals, there is a treatment of the crystalline aluminosilicate intermediate the base exchanges by which the subsequent base exchange can achieve increased reduction of the alkali metal content. Such intermediate treatment involves adding, to the moist aluminosilicate derived from a prior base exchange, an organic liquid which together with water forms a mixture capable of being azeotropically distilled, heating the suspension thus obtained to boiling temperature, and separating the azeotropically over-distilling water, whereupon the aluminosilicate, which still may be moistened with at least some of the organic liquid, can be subjected to the base exchange following such intermediate treatment.

3,635,664

REGENERATION OF HYDROCHLORIC ACID PICKLING WASTE BY H_2SO_4 ADDITION, DISTILLATION AND FeSO_4 PRECIPITATION

Yasuo Morimoto, Osaka, Japan, assignor to Daido Chemical Engineering Corporation, Osaka-shi, Japan

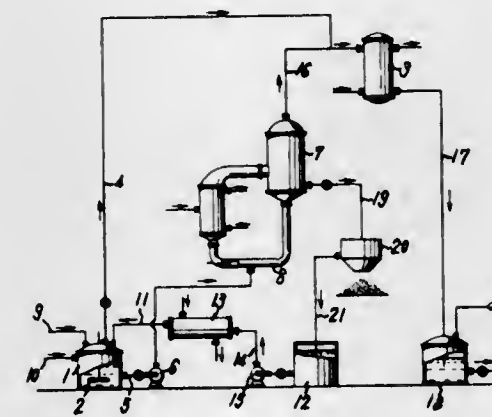
Filed May 6, 1970, Ser. No. 35,199

Claims priority, application Japan, Aug. 20, 1969, 44/66243; Nov. 8, 1969, 44/89523

Int. Cl. B01d 3/34; C01g 49/14; C01b 7/08

U.S. Cl. 23—126

4 Claims



In recovering hydrochloric acid from a spent hydrochloric acid pickle liquor the process is characterized by adding sulfuric acid to hydrochloric acid waste to convert FeCl_2 in said waste to HCl and FeSO_4 , and to obtain a mixture containing at least 38 percent by weight of free sulfuric acid, distilling said resultant mixture to vaporize substantially all of the HCl therefrom together with water and to precipitate ferrous sulfate, condensing said HCl and water thus vaporized to recover hydrochloric acid, separating the precipitated ferrous sulfate from the residual liquid and circulating the resultant liquid free of ferrous sulfate as a sulfuric acid source.

3,635,665

PROCESS FOR THE RECOVERY OF MAGNESIUM OXIDE AND SULFUR DIOXIDE

Konrad Mattern, Bad Homburg, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt (Main), Germany

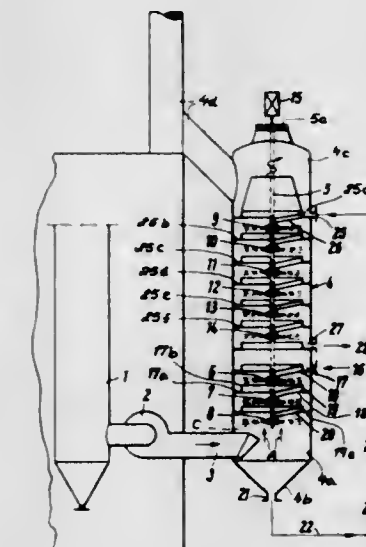
Filed Aug. 21, 1969, Ser. No. 852,027

Claims priority, application Germany, Aug. 22, 1968, P 17 94 009.9

Int. Cl. C01f 5/42, 5/02; C01b 17/48

U.S. Cl. 23—129

1 Claim



A method of recovering MgO and SO_2 from the flue gases of a combustion process and for producing a digestion liquor for use in a pulp plant wherein the gases containing MgO and SO_2 are passed upwardly through outwardly dispersed atomized sprays of liquid. The liquid droplets are collected outwardly of the atomizing disks and passed to successively lower atomizing units where the process is repeated. Water introduced above the lower (wet precipitator) set of atomizing disks strips the MgO fly ash from the gas to form a suspension which is used in the upper stages to react with SO_2 (absorption stage) and produce the digestion liquor.

3,635,666

PROCESS FOR THE PURIFICATION OF ALKALI METAL SULFIDES

George S. Fujieka, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed July 1, 1970, Ser. No. 51,679

Int. Cl. C01b 17/22

U.S. Cl. 23—134

10 Claims

Disclosed is a process for the purification of alkali metal sulfides which involves contacting the sulfide as a melt with solid aluminum, aluminum oxide, silica or mixtures thereof.

3,635,667

DRYCLEANING WITH HYDROGEN PEROXIDE

Robert E. Keay, Hightstown; Harry M. Castrantas, Trenton, both of N.J., and Donald G. MacKellar, Yardley, Pa., assignors to FMC Corporation, New York, N.Y.

Filed July 23, 1970, Ser. No. 57,817

Int. Cl. D06I 1/00

U.S. Cl. 8—142

3 Claims

Drycleaning of white garments is carried out by including, in conventional solvent-detergent baths, hydrogen peroxide, water, and sufficient volatile alkali (e.g. ammonia) to make the water phase slightly alkaline, using limiting ratios of the ingredients to insure adequate bleaching without damage to the fabric.

3,635,668

COPPER HYDRATE PRODUCTION

James Barker, Freehold, N.J., assignor to Cities Service Company, New York, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,413
Int. Cl. C01g 3/02; A01n 11/04

U.S. Cl. 23—147

25 Claims

Copper sulfate, sodium hydroxide and aqueous ammonia are mixed at a pH of 10 to 12.5, the reaction mixture containing 3 to 10 grams of ammonia per liter of reaction mixture. The reactants may be fed to the reaction zone as separate streams or, if desired, the copper sulfate solution and the aqueous ammonia may be initially mixed and fed together to the reaction zone for mixture with the sodium hydroxide. The reaction temperature is maintained at less than 112° F. and the retention time is controlled so as to avoid the undesired decomposition of the cupric hydroxide product to copper oxide. The product thus obtained comprises an essentially pure cupric hydroxide product suitable for use as a chemical intermediate. In addition, the product obtained at a pH of above about 11.7 has a particle size sufficiently small so as to make the product highly suitable for use as a fungicide.

3,635,669

METHOD OF PRODUCING CONCENTRATED PHOSPHORIC ACID COMPOUNDS FROM PHOSPHATE ROCK

Allen G. Rubin, Walnut Creek, Calif., assignor to B. D. Bohna & Company, Inc., San Francisco, Calif.

Filed Dec. 26, 1968, Ser. No. 786,877
Int. Cl. C01b 25/18, 25/28, 25/30, 25/32

U.S. Cl. 23—165

7 Claims

Phosphate rock is digested with molten ammonium bisulfate and between 5 and 16 percent by weight of water to form a solid reaction product. The water is added to the mixture of phosphate rock and ammonium bisulfate either before, during or after the digestion reaction between the phosphate rock and molten ammonium bisulfate. Concentrated phosphoric acid is extracted from the ground, solid reaction product with a nonaqueous, polar, oxygen-containing organic solvent having between one and ten carbon atoms. A phosphoric acid compound or in other words a phosphate is then separated from the solvent either in the form of concentrated phosphoric acid by evaporating the solvent, or in the form of a phosphate salt by adding a base to the extract and precipitating the phosphate salt.

3,635,670

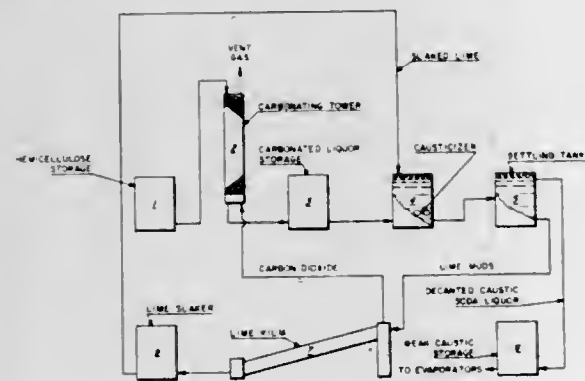
RECOVERY OF DILUTE CAUSTIC SODA SOLUTIONS FROM SPENT LIQUORS CONTAINING HEMICELLULOSE

David K. Kennedy, Clay, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.

Filed June 11, 1969, Ser. No. 832,234
Int. Cl. C01d 1/00; D21c 11/00

U.S. Cl. 23—185

7 Claims



Caustic spent liquor, from the processing of pulp material such as wood and cotton pulp in the purification of cellulose,

may contain up to 10 percent caustic soda along with significant amounts of both inorganic salts and organic matter made up of hemicellulose, pentosans, hexosans, galactans, and the like, which are extracted from the pulp by the action of the caustic solution.

3,635,671

CONTINUOUS PREPARATION OF TITANIUM DIOXIDE SEED SUSPENSIONS

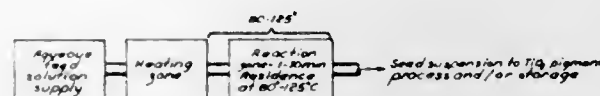
Elmer C. Tveter, deceased, late of Walnut Creek, Calif. (by Cora Belvin Judd Tveter, executrix), and Joseph P. Suris, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of application Ser. No. 694,213, Dec. 28, 1967, now abandoned. This application May 7, 1970, Ser. No. 35,487

Int. Cl. C01g 23/04

U.S. Cl. 23—202 R

15 Claims



A continuous process is provided for preparing an opalescent seed suspension of colloidal TiO₂ particles, i.e. seed suspension. In this method a stream of an aqueous feed solution having certain chloride, titanium, hydrogen and multivalent ion concentrations is conducted through a heating zone where it is heated to a temperature of between 80° to 125° C. and then the stream is continuously conducted through a reaction zone while maintaining the temperature of the stream within said range. The total period of time (reaction time) during which the stream is maintained within said temperature range is from about 1 to about 30 minutes. The heating and reaction zones are designed and the flow rate of the stream is controlled to prevent back mixing of portions of the flowing stream which differ substantially as to the degree of reaction attained therein.

3,635,672

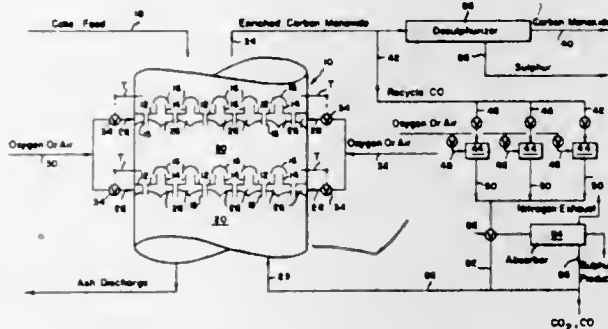
METHOD OF GASIFYING CARBONACEOUS MATERIALS TO A CARBON MONOXIDE FUEL GAS PRODUCT

Cecil J. Johnson, Columbia City, Ind., assignor to Total Energy Corporation, Columbia City, Ind.

Filed Mar. 25, 1969, Ser. No. 810,101
Int. Cl. C01b 31/18; C10b 1/04

U.S. Cl. 23—204 M

9 Claims



A method of gasifying coke, carbon, char or other carbonaceous materials by passing a mixture of carbon dioxide, carbon monoxide and oxygen or oxygen containing gases through a bed of the carbonaceous materials. The temperature of the gasification process is regulated and maintained by adding additional carbon monoxide and oxygen or oxygen containing gases at selected points in the process.

3,635,673

FLUORINATION OF BORIC ACID AND PHOSPHOROUS ACID

Robert A. Wiesboeck, Atlanta, Ga., assignor to United States Steel Corporation

Filed July 31, 1970, Ser. No. 60,147
Int. Cl. C01b 7/22, 9/08

U.S. Cl. 23—205

10 Claims

A method of producing boron trifluoride or phosphorus trifluoride using a metal fluorosulfonate fluoride, MF(FSO₃), as the fluorinating agent is disclosed. Boric acid, H₃BO₃, and phosphorous acid, H₃PO₃, respectively, are employed as the boron or phosphorus source.

3,635,674

PROCESS FOR RECOVERING REFRACTORY CARBIDE PARTICLES FROM PIECES OF CEMENTED CARBIDES

Warren M. Shwayder, Hill House, Goodhue Road, Bloomfield Hills, Mich.

Filed Mar. 12, 1969, Ser. No. 806,706
Int. Cl. C01b 31/34, 31/30; C01g 51/12

U.S. Cl. 23—208

8 Claims

Recovering refractory carbide from cemented carbide pieces by immersing the pieces in an amine solution in a sealed vessel, introducing oxygen into the vessel under pressure, while autogenously milling the pieces, thereby dissolving the binder and leaving the carbide in particulate form and thereafter physically separating the particles from the solution.

3,635,675

PREPARATION OF GRAPHITE YARNS

Herbert M. Ezekiel, Dayton, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force

Filed May 28, 1968, Ser. No. 732,555
Int. Cl. C01b 31/07

U.S. Cl. 23—209.1

13 Claims

A method of making graphite fibers with high-tensile strength, high modulus of elasticity and, in many instances, fibers of improved graphitic character is described. The method of producing such fibers, generally in the form of yarn, comprises rapidly bringing a stabilized synthetic polymer yarn to a temperature within the range of 1800°–3200° C. Stabilization of the synthetic polymer yarn, when necessary, is usually effected by heating the yarn at a selected temperature in the range of about 200°–500° C. in an oxidizing atmosphere. Among the preferred polymers are the acrylonitrile polymers and polymers of nitrogen-containing polycyclic organic compounds.

3,635,676

METHOD FOR INCREASING THE STRENGTH OF CARBON FOAM

Arthur E. Sands, Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 5, 1969, Ser. No. 874,380
Int. Cl. C01b 31/02

U.S. Cl. 23—209.4

1 Claim

Carbon foam of increased strength is produced by incorporating a fine particulate carbonizable material in the carbon foam ingredients including urethane foam producing components and a binder of partially polymerized furfuryl alcohol prior to the foam producing reaction. The carbonizable material provides cell forming nuclei for the urethane reactants to form a fine-celled structure. This material, on carbonization, shrinks essentially the same amount as the other foam components including the binder to obviate deleterious differences in shrinkage rates. Suitable carbonizable materials include synthetic resins, pitch, wood flour, wheat flour, sugar, and cornstarch.

3,635,677

GLYCOL DETECTION IN OIL

Harry N. Drake, Jr., Yardville, N.J.; Leo A. Fabbro, Morrisville, Pa., and Ronald E. Fanucci, Yardville, N.J., assignors to Cities Service Oil Company, Tulsa, Okla.

Filed Apr. 30, 1970, Ser. No. 33,537
Int. Cl. G01n 33/26, 21/06

U.S. Cl. 23—230 R

9 Claims

A sample of engine oil is taken from a crankcase and introduced into an aqueous oxidizing solution. The mixture is shaken and allowed to separate into the oil and aqueous phases. A sample of the aqueous phase is then introduced onto a chromogenic aldehyde reagent adsorbed on a suitable supporting media. The sample and reagent are contacted and the presence or absence of glycol in the engine oil is observed by chromogenic determination. The method allows the observation of as little as several parts per million of glycol in oil.

3,635,678

CLOT-TIMING SYSTEM AND METHOD

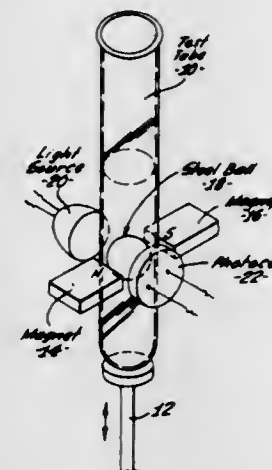
Lamont J. Seitz, Huntington Beach, Calif., and John G. Bowen, Mundelein, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Continuation-in-part of application Ser. No. 738,382, June 17, 1968, now abandoned. This application June 13, 1969, Ser. No. 846,992

Int. Cl. G01n 11/16, 33/16; H01h 9/00

U.S. Cl. 23—230 R

40 Claims



A system and method is provided which has the general capabilities of measuring the speed of coagulation, congealing or solidification of a fluid sample, and which has particular utility in the measurement of the time required by a sample under test to increase viscosity to a particular level. The system and method to be described is predicated on a viscosity principle, and it includes a member suspended in the fluid sample and which changes position when the sample achieved a predetermined degree of viscosity. The change in position of the aforesaid member is sensed, and the time at which the change occurs, is used in the determination of the time required, for example, for the sample to form a fibrin clot, in a blood or plasma sample or to effect a particular reaction causing solidification or congealing of the sample.

3,635,679

METAL ION DETECTING MEMBRANE

Rene Bloch, Savion, Israel; Robert Bauer, Bristol, and Ben F. Phillips, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Nov. 20, 1969, Ser. No. 878,544
Int. Cl. G01n 33/00

U.S. Cl. 23—230 R

9 Claims

Metal ions can be determined colorimetrically by using a semipermeable polymeric membrane containing a chelating

agent and a solvent therefor, which chelating agent changes color upon contact with the metal ions being determined.

3,635,680

AUTOMATIC METHOD AND APPARATUS FOR THE SEQUENTIAL TYPING OF BLOOD SAMPLES

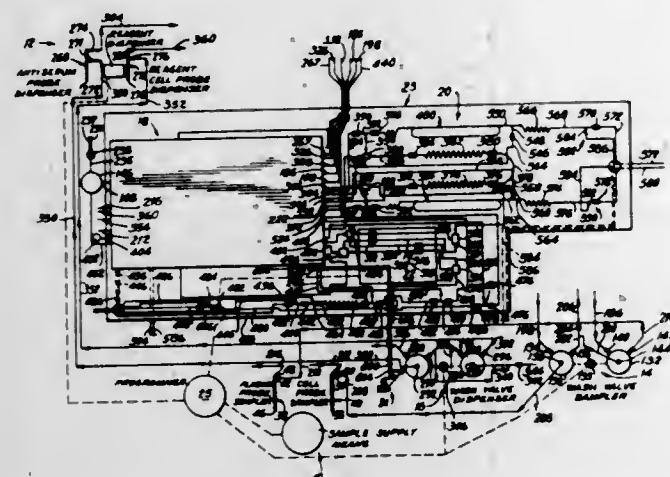
John C. A. Peoples, Nanuet, and Stanford L. Adler, Monsey, both of N.Y., assignors to Technicon Corporation, Tarrytown, N.Y.

Filed Sept. 22, 1969, Ser. No. 864,263

Int. Cl. G01n 31/00, 33/16

U.S. Cl. 23—230 B

8 Claims



Method and apparatus for the automatic, sequential typing of blood samples are provided and comprise the supply from blood sample supply means of said blood samples in the form of a stream of successive blood sample plasmas and a concomitant stream of successive blood sample cells, the supply from reagent dispensing means of a successive stream of different antisera, as spaced by a separating fluid, and a successive stream of different reagent cells, as spaced by a separating fluid, the division of said blood sample cells stream into quotients by the introduction of a separating fluid at spaced points therein, the merger of a different one of said antisera with each of the blood sample cells quotients from each of said blood samples, the merger of said different reagent cells with the blood sample plasma from each of said blood samples, the incubation of said antisera-blood sample cells stream and of said reagent cells-blood sample plasma stream to promote reaction therebetween, and the provision of readily readable and reproducible results of the blood-typing procedure.

3,635,681

DIFFERENTIAL CONDUCTIVITY-MEASURING APPARATUS

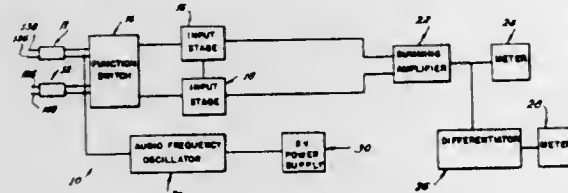
Robert Wayne Rogers, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Nov. 13, 1969, Ser. No. 876,350

Int. Cl. B01k 3/00; C12k 1/10; G01n 31/14

U.S. Cl. 23—253 R

8 Claims



Apparatus for measuring the change and rate of change in electrical conductivity in a test system due to a chemical

reaction between a substance to be detected and a test reagent, as, for example, in an enzyme-substrate reaction, said apparatus including a pair of probes each of which has a pair of electrodes, the electrodes of one of said probes having the test reagent associated therewith by matrix means, preferably in fixed form, such that when said probes are placed in contact with an ionic medium containing the substance to be detected, the conductivity between the electrodes is dependent upon the conductivity of the matrix means and/or said ionic medium, and conductivity-measuring circuit means connected to both probes which electronically subtracts the background conductivity caused by the ionic medium and provides a differential measurement of the change and rate of change in conductivity caused by the reaction of the substance to be detected with the test reagent and thereby provides a measurement of the concentration of the substance to be detected in the ionic medium.

3,635,682

FUEL CELL REACTOR-BURNER ASSEMBLY

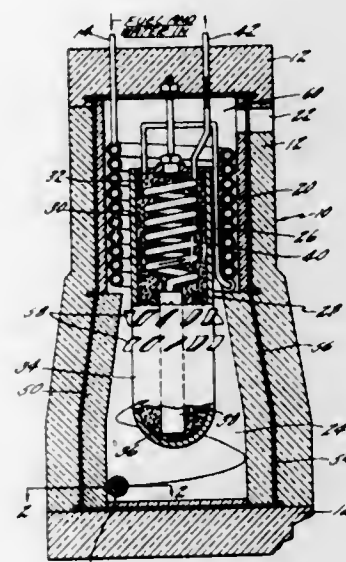
Raymond W. Vine, Bolton; Paul R. Watson, Marlborough, and Warren L. Luoma, East Hartford, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed June 13, 1969, Ser. No. 833,109

Int. Cl. B01j 9/04, 7/00

U.S. Cl. 23—288 R

6 Claims



An improved temperature distribution reactor-burner assembly, consisting essentially of a burner insert having a straight section and an inwardly tapering section serving to choke the flow of hot combustion gases in the vortex burner at the location where increased heat transfer to the reactor can be desired. Heat-transfer fins are disposed on the external wall of the reactor can to increase the area exposed to the swirling exhaust gases. The fins function to absorb and block radiation from the swirling combustion flames and the hot burner walls.

3,635,683

METHOD OF CRYSTAL GROWTH BY VAPOR DEPOSITION

James Reneau Harrison, Plano, and James Wayne Gilpin, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 5, 1968, Ser. No. 734,759

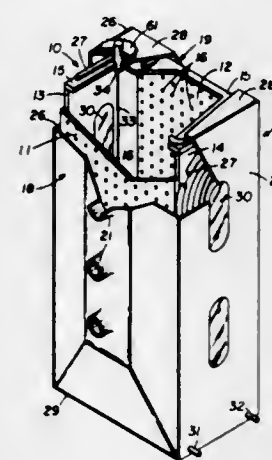
Int. Cl. B01j 17/26

U.S. Cl. 23—294

6 Claims

A method for growing elongated rods of silicon or the like by positioning an elongated silicon filament within a reaction chamber, directing the gas from which material is to be

deposited over the filament in a direction transverse to the longitudinal axis of the filament at a relatively uniform flow rate along the length of the filament, and while the gas is



3,635,684

COMPOSITE FUEL ARTICLE

Donald E. Seymour, P.O. Box 3161, Madison, Wis.

Filed Aug. 11, 1969, Ser. No. 849,196

Int. Cl. C10f 5/00

U.S. Cl. 44—10 R

2 Claims

A composite fuel article comprised of particulate consumable material, such as ground corn cobs and husk material; a petroleum derivative, such as paraffin slack wax; a lignosulfonate; and a corn starch. The lignosulfonate is heated and mixed with the corn starch, the wax is heated to melting and then all the constituents are mixed together, compressed under very moderate pressure in a mold, and cooled to form the solid fuel article in the shape of a log or briquette.

3,635,685

POUR POINT DEPRESSANT

Richard J. Sonnenfeld, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed July 24, 1969, Ser. No. 844,618

Int. Cl. C10f 1/22

U.S. Cl. 44—62

13 Claims

Depression of the pour point of a normally liquid hydrocarbonaceous material is obtained by adding to the liquid a hydrogenated butadiene/styrene copolymer which contains a terminal group selected from the group consisting of hydroxy, carboxy and pyridyl, said copolymer having prior to hydrogenation a vinyl unsaturation corresponding to the proportion of styrene in the copolymer, and having a percent unsaturation subsequent to hydrogenation in the range of 1 to 15 percent.

3,635,686

MINERAL OIL COMPOSITIONS CONTAINING METAL ALKYL ESTER TETRAPROPENYLSUCCINATES

Paul Y. C. Gee, Woodbury, and Harry J. Andreas, Jr., Pittman, both of N.J., assignors to Mobil Oil Corporation

Continuation-in-part of application Ser. No. 427,181, Jan. 21, 1965, now abandoned. This application May 19, 1969, Ser. No. 826,012

Int. Cl. C01l 1/14

U.S. Cl. 44—68

7 Claims

Mineral oil compositions are provided containing a small amount sufficient to inhibit corrosive deterioration of metal surfaces of a member of the group consisting of metal alkyl

ester tetrapropenylsuccinates and alkoxy metal alkyl ester tetrapropenylsuccinates, the metal component of said tetrapropenylsuccinates being selected from the class consisting of Groups I, II and III of the Periodic Table of the Elements.

3,635,687

DOWNDRAWING METHOD FOR PRODUCING VERY THIN GLASS SHEETS

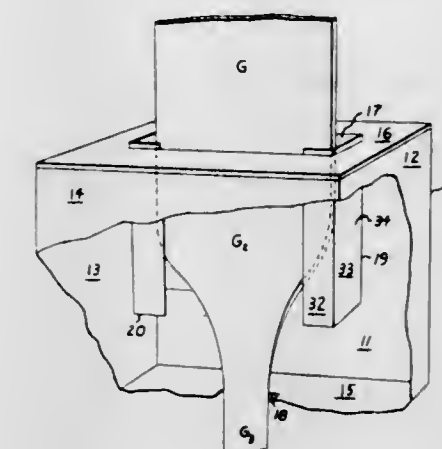
Glenn H. Dunlap, Maumee; Anthony M. Kobylak, Rossford, and John E. Miller, Toledo, all of Ohio, assignors to Owens-Illinois, Inc.

Filed May 26, 1970, Ser. No. 40,616

Int. Cl. C03b 17/00

U.S. Cl. 65—106

4 Claims



A method for the production of thin glass from preformed glass blanks by heating the glass to attenuation temperature, maintaining the edge portions of the glass at a temperature above attenuation temperature but lower than the center portion of the glass and attenuating the deformable glass to produce a very thin sheet with a larger useable, planar area and closely controlled, dimensional tolerances. The heating furnace is improved by a pair of channel members disposed within the furnace and forming a path of travel from the glass and reducing the temperature of the glass edge portions. This process provides a method of increasing the total useable area of the preformed blank and permitting close control of the dimensional thickness of the attenuated glass sheet. The prior art methods produced glass sheets having areas of thin dimensions where the area and the thickness dimension is a constant ratio of the width to the thickness of the sheet. This process produces sheets having a width to thickness ratio three times that of the prior art sheet.

3,635,688

GLASS BULB BLOW-MOLDING APPARATUS

Takaaki Kurokawa, Kanagawa-ken, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha also known as Tokyo Shibaura Electric Co., Ltd., Kanagawa-ken, Japan

Filed Aug. 13, 1969, Ser. No. 849,729

Claims priority, application Japan, Aug. 19, 1968, 43/58537

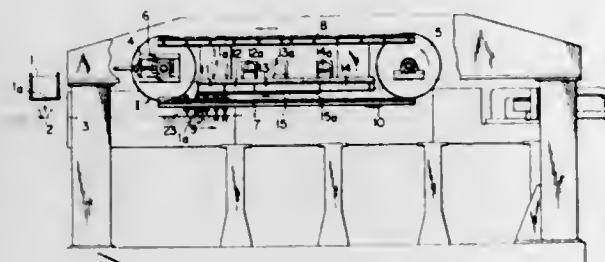
Int. Cl. C03b 9/12

U.S. Cl. 65—183

1 Claim

A vacuum tank is provided in a glass bulb blow-molding machine of the ribbon-type to rapidly impart a negative pressure to the interior of each parison which is initially formed by blowing without a mold, thereby contracting the neck por-

tion of the parison so that same may be clasped by a pair of mold halves without clipping the surface of the parison by



the edges of the mold halves thereby preventing deformations and/or formation of casting fins in the final product.

3,635,689

COOLING DEVICE IN A GLASS BULB BLOWING APPARATUS

Takaaki Kurokawa, Chigasaki-shi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha a/k/a Tokyo Shibaura Electric Co. Ltd., Kanagawa-Ken, Japan

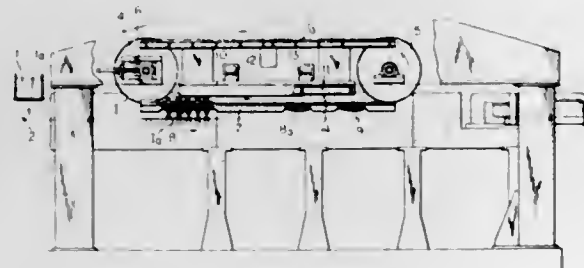
Filed July 28, 1969, Ser. No. 845,391

Claims priority, application Japan, July 31, 1968, 43/54082

Int. Cl. C03b 9/28

U.S. Cl. 65—185

6 Claims



A cooling device in a glass bulb blowing apparatus usually called "Ribbon Machine" for manufacturing electric lamp bulbs or glass bulbs, in which apparatus molten glass discharged from an orifice of a glass-melting furnace is pressed into ribbon shape by means of a pair of feed rollers and is positively fed thereby to a plate link device, a blow-head link device and a mold-operating link device operating synchronously with said feed rollers said devices blowing said ribbon-shaped glass into electric lamp bulbs or glass bulbs, said cooling device comprising a blow-head link device surrounding a pair of sprockets, cams provided on a guiding rail for shifting upward and downward the blow head of said blow-head link device, and forming air and cooling air reservoirs for supplying air forming and cooling respectively into said blow head successively and compulsorily, whereby said glass bulb blowing apparatus is simplified without employing independently provided cooling devices.

3,635,690

SOIL TREATING METHOD AND COMPOSITION FOR CONSERVING NITROGEN IN SOIL BY ADDITION OF A PYRAZOLE THERETO

Jeffrey D. Griffith, Lafayette, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 16, 1968, Ser. No. 739,582

Int. Cl. C05 1/100

U.S. Cl. 71—1

1 Claim

The present invention relates to crop culture and is particularly concerned with practices for conserving soil nitrogen and for supplying the soil nitrogen requirements for plant nutrition. These practices involve the employment, as

an active agent, of a pyrazole compound which may be pyrazole itself or a compound wherein the pyrazole is substituted by a total of not more than two halo, nitro or lower aliphatic radicals, together with the mineral acid addition salts of these compounds.

3,635,691

METHOD FOR PRODUCING PELLETIZED AMMONIUM SULFATE-AMMONIUM NITRATE MATERIAL

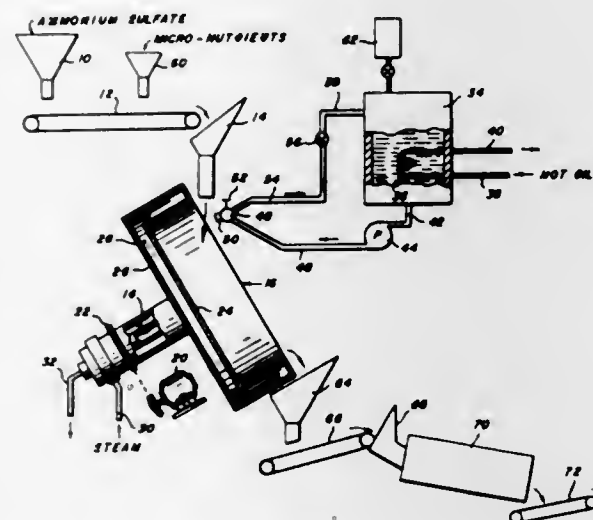
Alma L. Earl, American Fork, Utah, assignor to United States Steel Corporation

Filed Jan. 1, 1969, Ser. No. 820,839

Int. Cl. C05c 1/02, 3/00

U.S. Cl. 71—59

4 Claims



A method for improving an ammonium-sulfate fertilizer material comprising feeding ammonium sulfate and liquid ammonium nitrate to a pelletizing pan, rotating said pan until pellets of a predetermined size are formed and separating from said pan the so-formed pellets of improved fertilizer material comprising ammonium sulfate and ammonium nitrate. So-called trace elements or micronutrients may be incorporated in the pellets.

3,635,692

HALOGENATED ARYLOXYACETYL CYANAMIDES AS HERBICIDES

Herman Breuer, Regensburg, Germany, assignor to Olin Chemical Co., Inc.

Original application Oct. 9, 1967, Ser. No. 674,008, now Patent No. 3,524,607, Continuation-in-part of application Ser. No. 566,480, July 20, 1966, now abandoned. Divided and this application Aug. 29, 1969, Ser. No. 872,796

Int. Cl. A01n 9/20

U.S. Cl. 71—97

15 Claims

A series of halogenated aryloxyacetyl cyanamides has been provided. These compounds are characterized by unique biological properties, and it has been found that members of the series provided herein are outstanding herbicides.

3,635,693

METHOD OF PRODUCING TANTALUM OR NIOBIUM POWDER FROM COMPACT BODIES

Hans Joachim Friedrich, and Horst Meyer, both of Goslar, Germany, assignors to Hermann C. Starck, Berlin, Germany

Filed Jan. 27, 1969, Ser. No. 793,993

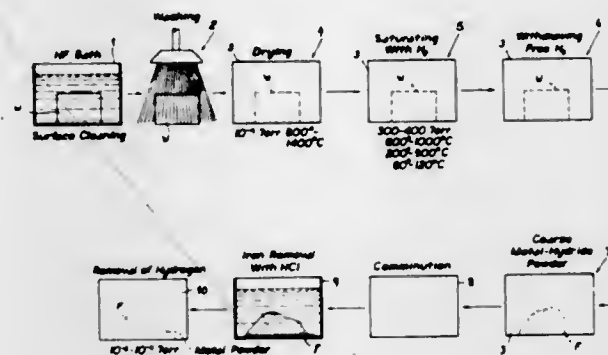
Int. Cl. B22f 9/00

U.S. Cl. 75—0.5 BB

5 Claims

A block of tantalum or niobium is first stripped of superficial impurities by immersion in an acid bath, for instance hydrofluoric acid. Thence it is dried in a vacuum and satu-

rated with hydrogen under high pressure and heat. This embrittles the body which is fragmented into coarse metal-hydride particles. The brittle fragments are crushed to a



powder of the desired fineness and the powder is cleaned in boiling acid then degassed in a vacuum under heat to transform the interstitial hydride to the pure-metal powder.

3,635,694

METHOD OF MANUFACTURING MANGANESE OXIDE PELLETS

Vincent H. K. Chu, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

Original application May 29, 1967, Ser. No. 642,182, now abandoned. Divided and this application July 7, 1969, Ser. No. 839,679

Int. Cl. C01g 45/02

U.S. Cl. 75—3

8 Claims

Manganese oxide pellets are produced by forming a finely divided mixture of manganese ore, a carbonaceous fuel such as coke, and an addition agent which will form gaseous products on heating, and heating the balls at a temperature and for a time sufficient to partially reduce the manganese ore and obtain the required porosity. The pellets may be subjected to an additional step of heating the partially reduced pellets in the presence of a reducing gas at a temperature and for a time sufficient to reduce a major portion of the manganese content to manganous oxide.

3,635,695

DESULFURIZING WITH MANGANESE OXIDE PELLETS

Vincent H. K. Chu, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

Original application May 24, 1967, Ser. No. 642,182, now abandoned. Divided and this application Aug. 26, 1969, Ser. No. 853,196

Int. Cl. B01J 11/32; C01g 45/02; C21b 1/04

U.S. Cl. 75—6

2 Claims

Pellets of manganese ore and having a porosity of not less than 45 percent are disclosed. In a preferred form the major portion of the manganese content is present as manganous oxide. The balls are produced by forming a finely divided mixture of manganese ore, a carbonaceous fuel such as coke, and an addition agent which will form gaseous products on heating, and heating the balls at a temperature and for a time sufficient to partially reduce the manganese ore and obtain the required porosity. The preferred form of pellets is produced by the additional step of heating the partially reduced pellets in the presence of a reducing gas at a temperature and for a time sufficient to reduce a major portion of the manganese content to manganous oxide. The so reduced pellets are useful as sulfur acceptors for removing sulfur from solid sulfur-containing materials such as coke pellets and metallized-iron-ore pellets.

3,635,696

TREATMENT OF MOLTEN METAL USING ARC HEAT AND VACUUM

Charles W. Finkl, Chicago, Ill., assignor to A. Finkl & Sons Company, Chicago, Ill.

Filed May 21, 1968, Ser. No. 739,586

Int. Cl. C21c 5/52; C22d 7/00; C21c 7/10

U.S. Cl. 75—11

15 Claims

Hydrogen and oxygen are removed from molten steel by simultaneously subjecting molten steel to agitation, an alternating current heating arc, and two successive levels of vacuum, one level of vacuum being relatively low and above the glow range and of relatively long duration to substantially decrease the oxygen content of the molten steel; the other level of vacuum being relatively high and below the glow range and of relatively short duration to substantially decrease the hydrogen content of the molten steel.

3,635,697

RECOVERY OF GOLD

Bernard J. Scheiner, Sparks, and Ronald E. Lindstrom, Reno, both of Nev., assignors to The United States of America as represented by the Secretary of the Interior

Filed Sept. 30, 1969, Ser. No. 862,445

Int. Cl. C22b 11/04

U.S. Cl. 75—101 R

5 Claims

Gold is recovered from dilute solution by complexing with malononitrile, followed by sorption on, and elution from, an anion-exchange resin having both weakly basic and strongly basic groups.

3,635,698

HIGH-STRENGTH, HIGH-TOUGHNESS (IRON-CARBON-NICKEL-MOLYBDENUM) STEEL WELD METAL

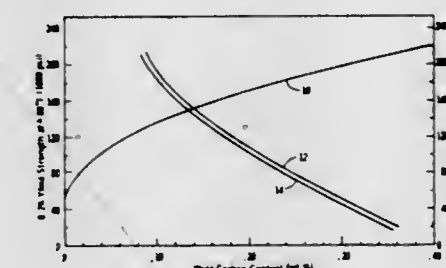
Julius Heuschkel, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 7, 1970, Ser. No. 26,230

Int. Cl. C22c 37/00

U.S. Cl. 75—123 J

5 Claims



An alloy is described which is suitable for use as a weld-filler material and which is characterized by having controlled strength and toughness. The composition includes about 4.5 percent nickel, 2 percent molybdenum, up to 0.35 percent carbon, low impurity and interstitial content, and the balance iron. The strength is controlled in accordance with the relationship:
0.2 percent yield strength = 52 K.s.i. + 268.4 K.s.i. C
where C is the carbon content of a weldment made from the alloy in weight percent.

3,635,699

METHOD OF PRODUCING SIZED PARTICLES OF LOW-CARBON FERROCHROMIUM

Cecil G. Chadwick, Lewiston, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,340

Int. Cl. C22c 33/00, 35/00; B22f 9/00

U.S. Cl. 75—130.5

4 Claims

Method for producing sized particles of high-purity low-carbon ferrochromium by heating under vacuum an ag-

glomerated mixture of finely divided high-carbon ferrochromium, oxidized ferrochromium containing sufficient oxygen to react with the carbon in the high-carbon ferrochromium, and a slag-forming material such as silica whereby a reaction product is obtained comprising low-carbon ferrochromium in a matrix of slag. The agglomerated reaction product thus produced is crushed and the crushed material given a leaching treatment to remove the slag constituent.

3,635,700

VANADIUM-BASE ALLOY

Peter Wincierz, Oberurse, Taunus; Manfred Ruhle, Frankfurt am Main; Bernhard H. Reddemann, Werdohl-Barenstein; Manfred Schirra, Leopoldshafen, and Horst Otto Bohm, Karlsruhe, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 26, 1969, Ser. No. 828,112

Claims priority, application Germany, May 24, 1968, P 17 58 397.0

Int. Cl. C22c 27/00

U.S. Cl. 75—134 V

6 Claims

An alloy contains 0.1–2.8 percent of at least one of the elements titanium, zirconium, and hafnium, traces to 2 percent silicon, traces of 4 percent germanium, balance vanadium, traces of usual metallic impurities which are due to the manufacturing process and, based on the vanadium content, 400–4,000 p.p.m. oxygen, 100–1,500 p.p.m. nitrogen, and 100–1,500 p.p.m. carbon, the total of oxygen, nitrogen, and carbon being not in excess of 5,000 p.p.m.

3,635,701

PROCESSES FOR REFINING THE GRAIN SIZE OF METALS

Peter W. Davies, 127 Summerland Lane, Caswell, and John P. Dennison, 1 Channel View, Sketty, both of Swansea, Wales, England

Filed Nov. 13, 1969, Ser. No. 876,587

Claims priority, application Great Britain, Nov. 21, 1968, 55,328/68

Int. Cl. C22c 1/00

U.S. Cl. 75—135

8 Claims

In the grain refining of metals and alloys by introducing oxide particles into the molten metal to act as nuclei while it solidifies, the nuclei are introduced as internally oxidized particles of a metal carrier. Examples of such metal carriers are copper alloys containing 90 percent or more copper, the oxides in them being of nickel, cobalt or iron.

3,635,702

COPPER-NICKEL ALLOYS OF HIGH-YIELD STRENGTH
Frank A. Badia, Ringwood, N.J., and Frank J. Ansuini, Suffern, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

Filed July 1, 1968, Ser. No. 741,780

Int. Cl. C22c 9/06

U.S. Cl. 75—159

15 Claims

Corrosion-resistant, cast (and wrought) copper-nickel alloys containing special amounts of nickel, chromium and silicon are characterized by high-yield strengths—e.g., from about 40,000 and upwards of 50,000 p.s.i. This compares with substantially less than 40,000 p.s.i. for conventional copper-nickel alloys in commercial use. Heat treatment not required to develop strength; thus, associated problems are obviated.

3,635,703

ORNAMENTAL WATCH CASE

Gregory J. Pissarevsky, 5535 Netherland Ave., Riverdale, N.Y.

Filed Mar. 14, 1969, Ser. No. 807,398

Int. Cl. C22c 19/00

U.S. Cl. 75—171

3 Claims

An ornamental watch case is disclosed having unique properties of hardness and brilliance, permitting its functional use and its use as an ornament of jewelry. At the same time, the watch case is made of a cobalt chromium alloy which readily lends itself to precision casting at greatly lesser expense than the technique presently used for watch manufacture.

3,635,704

IMAGING SYSTEM

Frank M. Palermi, 5 Framingham Lane, Pittsford, N.Y.; Stephen F. Royka, 265 Howell Road, Fairport, N.Y.; William A. Sullivan, Jr., 638 Harriswood Drive, Webster, N.Y., and Robert L. Emerald, 182 C Brambury Drive, Rochester, N.Y.

Continuation-in-part of application Ser. No. 511,242, Dec. 2, 1965, now abandoned. This application Feb. 1, 1968, Ser. No. 702,194

Int. Cl. G03g 9/00, 13/00

U.S. Cl. 96—1

13 Claims

Toner image degradation due to excessive buildup of thick deposits of a solid stable hydrophobic metal salt of a fatty acid on the surface of electrostatic imaging members during successive imaging operations with development material containing the metal salt is prevented by continuously or intermittently maintaining the thickness of the buildup below about 10 microns by vigorous rubbing contact with a wiping member.

3,635,705

MULTILAYERED HALOGEN-DOPED SELENIUM PHOTOCONDUCTIVE ELEMENT

Anthony J. Cluffini, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed June 3, 1969, Ser. No. 830,031

Int. Cl. G03g 5/00

U.S. Cl. 96—1.5

5 Claims

A xerographic plate having a two-layer photoconductive segment comprising a highly doped vitreous selenium transport layer of from about 20 to 200 microns in thickness and an overlying control layer of at least about 5 microns thickness which comprises selenium. The plate is characterized by low residual potential as well as exhibiting a minimum ghosting effect.

3,635,706

SENSITIZED ELECTROPHOTOGRAPHIC LAYERS

Helmut Kampfer; Hans Ohlchlager, both of Cologne, Stammheim, and Wolf Geslerich, Leverkusen, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed May 18, 1966, Ser. No. 551,033

Claims priority, application Germany, May 29, 1965, A 49348

Int. Cl. G03g 5/08

U.S. Cl. 96—1.7

6 Claims

This invention relates to the optical sensitization with styryl dyes of electrophotographic materials, preferably containing zinc oxide as the photoconductor.

3,635,707

DIFFUSION TRANSFER PRODUCTS ADAPTED FOR MULTIPLE APPLICATION OF PROCESSING COMPOSITION AND/OR OPACIFIER AND PROCESSES FOR THEIR USE

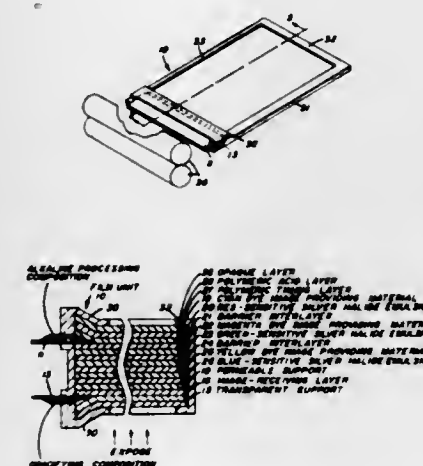
Harold E. Cole, 8 Cottonwood Lane, Pittsford, N.Y.

Filed July 24, 1970, Ser. No. 58,017

Int. Cl. G03c 1/48, 5/54, 7/00

U.S. Cl. 96—3

65 Claims



An integral negative-receiver film unit is disclosed which is adapted for one-step processing. The film unit comprises a transparent support coated with an image-receiving layer and having thereon a photosensitive element comprising at least one, and preferably three, silver halide emulsion layers having associated therewith nondiffusible dye image-providing materials capable of reacting with oxidized developing agent to produce diffusible dyes, and a top sheet which can be transparent or opaque. Two rupturable containers or one container with two compartments containing either a processing composition or an opacifier or both are positioned (a) adjacent the top layer of the photosensitive element and sheet and (b) adjacent the image-receiving layer or a contiguous reflective layer and the bottom layer of the photosensitive element. The film unit is placed in a camera, exposed and then passed between a pair of pressure-applying members in the camera as it is being removed therefrom. The pressure-applying members rupture the containers and spread processing composition and/or opacifier over and underneath the photosensitive element to render it light insensitive. The processing composition develops the exposed silver halide layers and diffusible dye images are formed as a result of development which diffuse to the image-receiving layer to provide a positive, right-reading image which is viewed through the transparent support on an opaque reflecting layer background which is present initially in the film unit or formed by opacifier in a rupturable container. Several embodiments of the film unit may be interchangeably employed cameras either with or without an image-reversing optical system.

3,635,708

VESICULAR IMAGING PROCESS

Alan R. Monahan, East Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Continuation-in-part of application Ser. No. 553,040, May 26, 1966, now abandoned. This application Mar. 28, 1969, Ser. No. 811,672

Int. Cl. G03c 5/04, 5/24

U.S. Cl. 96—27

21 Claims

A vesicular imaging method is employed wherein a poly(alkyl acrylate) or a poly(alkyl carbamate) produces a gas upon exposure to actinic light enabling the production of a visible image in the exposed areas of a vesicle-retaining film upon development.

3,635,709

LIGHT-SENSITIVE LITHOGRAPHIC PLATE

Kesano Kobayashi, Kanagawa, Japan, assignor to Polychrome Corporation, Yonkers, N.Y.

Continuation of application Ser. No. 601,847, Dec. 15, 1966, now abandoned. This application June 5, 1969, Ser. No. 833,878

Int. Cl. G03f 7/02; G03c 1/52; C07c 113/00

U.S. Cl. 96—33

18 Claims

Light-sensitive compositions and positive-acting lithographic printing plates made therewith comprising an ester of 2-diazo-1-naphthol-4(or -5)-sulfonic acid with a polyhydroxy-phenyl that is a condensation product of acetone and pyrogallol.

3,635,710

METAL HEXACYANOFERRATE COATED SILVER HALIDE ELEMENTS AND PROCESS FOR MAKING LITHOGRAPHIC IMAGES

Ralph Kingsley Blake, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 4, 1969, Ser. No. 847,399

Int. Cl. G03f 7/02

U.S. Cl. 96—33

8 Claims

An element suitable for preparing a long lived gelatin lithographic printing plate is prepared by coating a gelatin-silver halide emulsion layer with a hexacyanoferrate. In process of use, the element is exposed to actinic radiation, developed in a conventional developer, and activated with a cupric ion solution to form a lithographic image which accepts ink in the exposed areas and water in the unexposed areas. Novel activating solutions for the silver halide are provided. The resulting printing plates are capable of yielding many thousands of impressions.

3,635,711

METHOD AND AUTOMATED APPARATUS FOR PHOTOCOMPOSING

Wesley W. Miller, Wyncote; Gerold Litschi, Lansdale, and Warren A. Bixler, Warminster, all of Pa., assignors to W. R. Grace & Co., New York, N.Y.

Filed June 6, 1969, Ser. No. 830,972

Int. Cl. G03c 5/00

U.S. Cl. 96—35.1

5 Claims

The disclosed invention is for an automated photocomposing apparatus and improvements in a method of operating such a photocomposing apparatus. The apparatus includes (A) means for storing and supplying severed sheets of plastic film; (B) means for dispensing and leveling a liquid photocurable composition on a sheet of plastic film; (C) a housing having at one end an actinic light source and at the other end a support adapted to receive thereon a supported liquid photocurable composition which on exposure to actinic light through an image bearing transparency becomes selectively insolubilized in the exposed portions thereof; (D) a vertically disposed posterior photocuring station; (E) an etching bath energized by ultrasonic energy; (F) a washing bath; (G) an air-drying station disposed adjacent the washing bath; and (H) a horizontally disposed posterior photocuring station for finally curing the processed plate. A plurality of conveying means transfer sheets from location (A) to location (H) in automated sequence. The invention is especially useful in preparing a developable printing plate from a liquid photocurable composition.

3,635,712

UPDATING RECORD MEMBER

Peter L. Pfluke, Acton, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Feb. 28, 1969, Ser. No. 803,152

Int. Cl. G03c 5/24, 5/04

U.S. Cl. 96—48

10 Claims

A data storage record such as an Itek RS microfiche is updated by delineating an area to be processed, dark-adapting

at least this area and exposing to input data, and processing in the delineated area. In one embodiment, desensitization or dark adaptation is accomplished by treatment with hydrogen peroxide, followed by resensitization by the application of a reactive material such as a silver salt.

ERRATUM

For Class 96—67 sec:
Patent No. 3,635,782

3,635,713

MANUFACTURE OF PHOTOGRAPHIC PAPER

August Jean Van Praeschen, Antwerpen, and Jan Jozef Priem, Mortsel, both of Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium

Continuation-in-part of application Ser. No. 637,903, May 12, 1967, now abandoned. This application July 6, 1970, Ser. No. 52,675

Int. Cl. G03c 1/86

U.S. Cl. 96—85

7 Claims

As a binder for pigment, e.g. baryta layers in photographic materials, about 0-75 percent of a conventional protein binder, e.g. gelatin, casein or zein, and about 100-25 percent of a latex of a graft copolymer of 80-99.5 percent of a C₃₋₄ alkyl acrylate and 0.5-20 percent acrylonitrile, which latex is obtained by emulsion polymerization of such monomers in the presence of 5-15 percent of PVP and 0.5-2 percent of an anionic surface active emulsifying agent. The binder is used in an amount equal to about 5-25 percent of the pigment. All percentages are by weight and those of the PVP and surface-active agent are with respect to the total weight of monomers present.

3,635,714

PHOTOGRAPHIC FILMS CONTAINING ANTI-STATIC SCRATCH-PREVENTING BACKING LAYERS

Koji Oshibuchi, and Masayoshi Mayama, both of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed July 7, 1970, Ser. No. 53,014

Int. Cl. G03c 1/82

U.S. Cl. 96—87 A

2 Claims

A photographic film having successively on the backside of the support a polyvinyl acetal resin layer containing a matting agent and a polyvinyl acetal resin layer containing a phosphoric acid ester of a higher alcohol or amine salt thereof.

3,635,715

GELATINE-CONTAINING PHOTOGRAPHIC LAYERS WHICH HAVE IMPROVED PHYSICAL PROPERTIES

Herbert Grabhofer; Wolfgang Himmelmann, both of Koeln, and Dieterich Glabich, Opladen, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 28, 1969, Ser. No. 871,950

Claims priority, application Germany, Nov. 7, 1968, P 18 07 450.5

Int. Cl. C08f 15/40

U.S. Cl. 96—87 B

8 Claims

A photographic gelatine layer, which contains as plasticizer copolymers of (1) ethylene, (2) a half ester of an α,β -unsaturated dicarboxylic acid, the alcohol component of which is preferably aliphatic or cycloaliphatic and which contains up to eight C-atoms, preferably maleic acid half esters, (3) vinyl chloride, and (4) a vinyl ester of saturated carboxylic, preferably an aliphatic carboxylic acid which has up to five C-atoms.

3,635,716
PHOTOGRAPHIC MATERIAL FOR THE SILVER DYE BLEACHING PROCESS

Heinrich Bruenger, Basel, and Carlo Boragine, Fribourg, both of Switzerland, assignors to CIBA Geigy AG, Basel, Switzerland

Filed Aug. 21, 1969, Ser. No. 852,075

Claims priority, application Switzerland, Aug. 26, 1968, 12771

Int. Cl. G03c 1/10

U.S. Cl. 96—99

10 Claims

Photographic material for the silver dyestuff bleaching process is provided which contains in at least one silver halide emulsion layer a bleachable azo dyestuff as image dyestuff and an asymmetrically substituted thiocarbocyanine as red sensitizer. Unexpectedly high relative sensitivities are achieved with these sensitizers which may have a betainelike structure, especially in the presence of polyazo dyestuffs.

3,635,717

SILVER HALIDE EMULSION SENSITIZED WITH NOBLE METAL AND SUGAR MERCAPTO COMPOUND

Reichi Ohi; Tokiharu Kondo; Mitsunori Sugiyama, and Shiguro Sjoji, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed July 8, 1969, Ser. No. 840,021

Claims priority, application Japan, July 8, 1968, 43/47701

Int. Cl. G03c 1/28

U.S. Cl. 96—108

15 Claims

The present invention is directed to an improved sensitizer for silver halide light-sensitive emulsions which comprises a mixture of a noble metal sensitizer and a sugar derivative such as sugar alkyl mercaptals, sugar aryl mercaptals, alkyl thioglycosides and aryl thioglycosides. Particularly preferred are the combination of gold sensitizers and sugar derivatives. Specific examples of such derivatives are glucose dimethylmercaptal, xylose diethylmercaptal and lactose dimethylmercaptal.

3,635,718

PROCESS FOR HARDENING WATER-SOLUBLE POLYMERS

Alfred Froehlich, Marty-le-Grand, and Carlo Rossi, Bottmingen, both of Switzerland, assignors to CIBA Geigy AG, Basel, Switzerland

Continuation-in-part of application Ser. No. 709,881, Mar. 4, 1968, now abandoned. This application Jan. 22, 1970, Ser. No. 5,158

Claims priority, application Switzerland, Mar. 6, 1967, 3237/67

Int. Cl. G03c 1/30

U.S. Cl. 96—111

3 Claims

The present invention relates to a process for hardening water-soluble polymers, especially gelatine in the form of photographic emulsions with bis-acryloylimide. This hardener combines low molecular weight with a very great hardening capacity.

3,635,719

HEAT DEVELOPABLE LIGHT-SENSITIVE ELEMENTS

Kinji Ohkubo; Junpei Noguchi, and Takao Masuda, all of Ashigara-Kumigun, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan

Filed Aug. 8, 1966, Ser. No. 570,768

Claims priority, application Japan, Dec. 13, 1965, 40/76578

Int. Cl. G03c 1/02, 1/76, 3/00

U.S. Cl. 96—114.1

12 Claims

A heat developable supported light-sensitive element wherein at least one layer thereon contains the silver salt of benzotriazole, a silver halide, or an inorganic halide capable of forming a silver halide by reaction with the silver salt of benzotriazole, a compound which decomposes upon heating to yield a basic material, and a reducing agent. In another embodiment, the layer further contains a compound capable of releasing water by heating.

Further described is a process for obtaining a print wherein the heat developable light-sensitive element(s) described above are heated for 1-30 seconds at 120°-170° C.

3,635,720

LIGHT-SENSITIVE FILM ELEMENT COMPRISING A POLYESTER OF A POLYHYDRIC ALCOHOL AND β -SUBSTITUTED- α -CYANACRYLIC ACID

Hartmut Steppan, Wiesbaden; Albrecht Moschel, Kelheim Taunus, and Walter Luders, Neu-Isenburg, all of Germany, assignors to Kalle Aktiengesellschaft, Rheingautrasse, Germany

Filed Mar. 19, 1969, Ser. No. 808,666

Claims priority, application Germany, Mar. 20, 1968, P 17 72 003.5

Int. Cl. G03c 1/68

U.S. Cl. 96—115

9 Claims

Manufacture of a light-sensitive layer of polymers capable of being cross-linked under the action of light. Polymers of this type are esterification products of polyhydric alcohols with unsaturated carboxylic acids having at least one carbon-carbon double bond conjugated with the carboxyl group. The light-sensitive layer is especially suitable for the manufacture of printing plates and etch resists.

3,635,721

SPECTRALLY SENSITIZED PHOTOGRAPHIC SILVER HALIDE EMULSIONS

Akiro Sato; Hiroshi Miso; Katsuke Shiba, and Masanao Hinata, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 4, 1967, Ser. No. 687,469

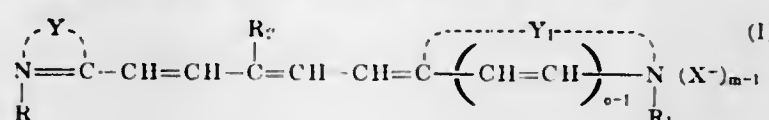
Claims priority, application Japan, Dec. 3, 1966, 41/79255

Int. Cl. G03c 1/28, 1/20

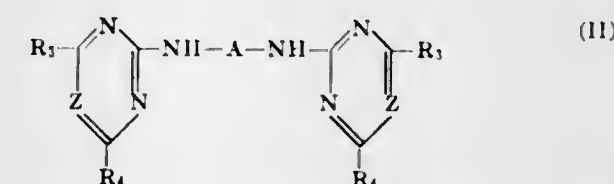
U.S. Cl. 96—126

6 Claims

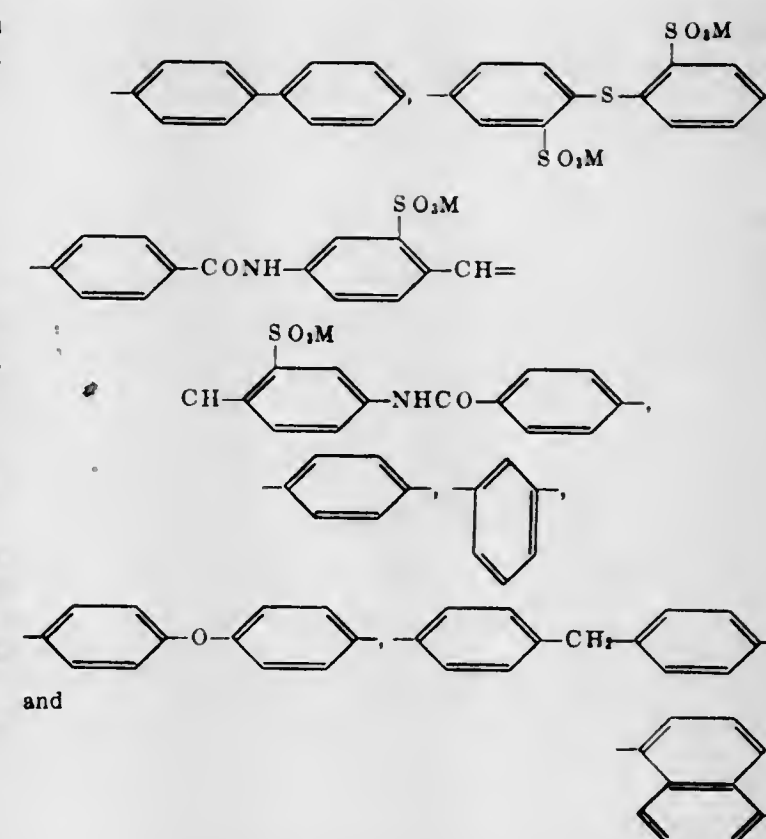
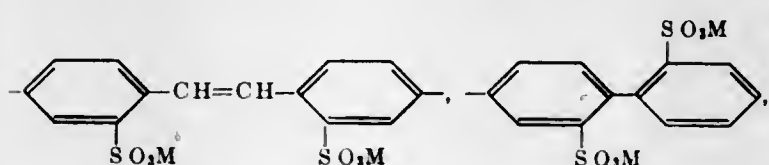
A photographic silver halide emulsion composition comprising a sensitizing dye shown by general formula (I)



wherein Y and Y₁ each represents a nonmetallic atomic group necessary for forming a heterocyclic ring; R and R₁ each represents a member selected from the group consisting of an alkyl group, a substituted alkyl group, an aryl group, an allyl group and an aralkyl group; R₂ represents a member selected from the group consisting of a halogen atom and an alkyl group; X represents an anion, n stands for 1 or 2; and m stands for 1 or 2, and a compound shown by general formula (II)



wherein Z represents a member selected from the group consisting of CH and N; R₂ and R₄ each represents a member selected from the group consisting of a halogen atom, a hydroxyl group, an alkoxy group, an aryloxy group, an arylthio group, an aryl group, an amino group, an alkylamino group, an arylamino group and an aralkylamino group; and A represents a member selected from the group consisting of:



wherein M represents a member selected from the group consisting of a hydrogen atom, an alkali metal, ammonium, and an amino group.

3,635,722

METHOD OF PRESSURE COOKING FOODS

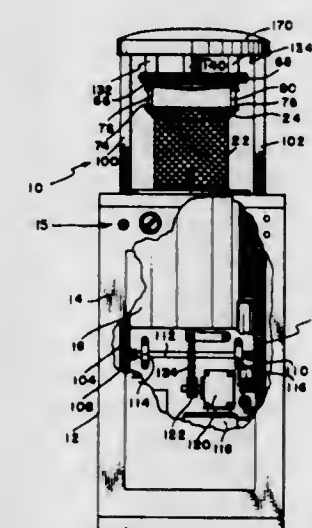
George A. Moore, 843 North Dellrose, Wichita, Kans.

Continuation-in-part of application Ser. No. 480,998, Aug. 19, 1965, now abandoned. This application Jan. 9, 1967, Ser. No. 608,168

Int. Cl. A22c 21/00

U.S. Cl. 99—1

2 Claims



Deep fat pressure cooker apparatus including a power-driven cover that coacts with the cooking vessel in the manner of a piston and a cylinder to enable both the closure of the vessel and also the compression of the contents of the vessel to pressurize the latter. The apparatus also includes a food basket that is releasably coupled to depend from the cover, and which basket, if previously positioned in the vessel, is automatically coupled to the cover on the subsequent lowering of the latter.

The apparatus can be employed to practice several novel cooking methods. In one of these methods, the cover and the basket (the latter containing the foods to be cooked) coupled thereto are simultaneously lowered to simultaneously im-

merge the foods in a preheated cooking oil or fat while closing and compressing the contents of the vessel to pressurize such contents. In another method, the basket with foods therein are placed in the vessel and immersed in the preheated cooking oil or fat, and the cover is thereafter lowered to close and to pressurize the contents of the vessel, with the basket being then automatically coupled to the cover. In yet another method, the basket is initially immersed in the preheated cooking oil or fat, with the food then being dropped into the basket and immersed, with the cover thereafter being lowered and coupled to the basket.

3,635,723

ANIMAL RATION

Damon C. Shelton, St. Louis, and Curtis E. Blankenship, Manchester, both of Mo., assignors to Ralston Purina Company, St. Louis, Mo.

Filed Aug. 30, 1968, Ser. No. 756,405

Int. Cl. A23k 1/00

U.S. Cl. 99-2 R

6 Claims

A method of caring for axenic animals is disclosed. The animals are fed a ration containing their entire requirements of water and nutritional materials packaged in a container which can be opened by the animal and which is sterilized before being introduced to the animals. The ration is in the form of a stable gel containing 70-80 percent water.

3,635,724

NIPPLE CONTAINERS WITH STERILE OPENING DEVICES

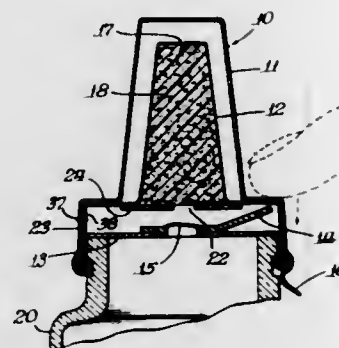
Charles H. Schaar, Libertyville, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Aug. 12, 1964, Ser. No. 389,085

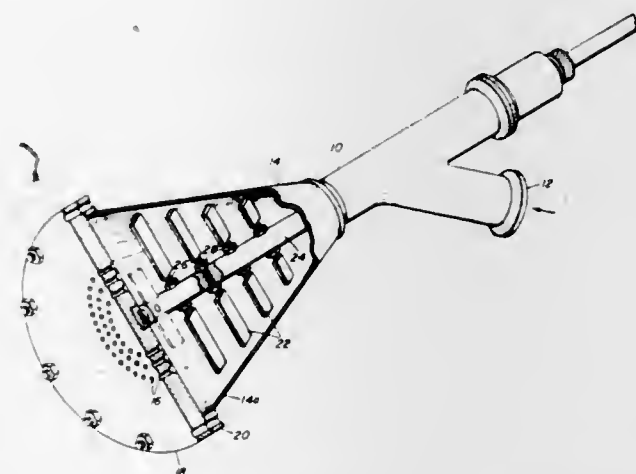
Int. Cl. B65b 25/02; A61J 9/04, 11/04

U.S. Cl. 99-171 ND

7 Claims



Nursing unit for use in the feeding of liquid foods to infants wherein the unit has at least two separate and sterile compartments sealed from each other, one of which contains a liquid food, and an opening means located in either of the two compartments which can be actuated to create an opening between the two compartments without violating the sterility of either compartment. The nursing unit comprises in combination a sealed container enclosing liquid food in a sterile condition forming a first compartment and a nipple attached to the top of the sealed container to form with the top a second sterile compartment. The opening device acts upon a section of the top surface of the container to create an opening therein to provide a passageway for the liquid food from the container to the second compartment and the interior of the nipple. Nipple structures having venting means incorporated therein are provided for permitting venting of the unit during feeding, when necessary. Inexpensive nipples composed of a thin film shaped in the form of a teat and filled with a porous foam for use in the nursing unit are disclosed. An overcap for the nipple on the container is also provided to maintain the outer surface of the nipple sterile.



The ice crystals in a partially frozen concentrated coffee extract slush are uniformly distributed throughout the un-

3,635,725

UREA GRAIN PRODUCT

Herbert A. Baskin, Covington, and Andrew B. Funk, Memphis, both of Tenn., assignors to W. R. Grace & Co., New York, N.Y.

Filed Nov. 17, 1969, Ser. No. 877,437

Int. Cl. A23k 1/00

U.S. Cl. 99-2

5 Claims

This invention is directed to the process of mixing molten urea with starch-containing material, e.g., grain, in the absence of added moisture and at atmospheric pressure to provide an improved feed product for ruminants. In the process, the starch of the grain becomes at least partially gelatinized. By processing of the urea and grain after admixture thereof, much higher relative amounts of urea may be combined with the grain without toxic effects on the ruminant upon feeding thereof and with more efficient utilization of the urea. A novel feature is that the product solidifies as it is cooled, and if this is solidification is accomplished with continued mixing, a semigranular product results, which requires grinding of only the oversize portion to yield a desirable product.

3,635,726

METHOD OF PRODUCING SOY PROTEIN CONCENTRATES

Louis Sair, Evergreen Park, Ill., assignor to The Griffith Laboratories, Inc., Chicago, Ill.

Filed Sept. 20, 1968, Ser. No. 761,282

Int. Cl. A23j 1/14

U.S. Cl. 99-17

12 Claims

A method of producing or recovering improved, soy protein concentrate compositions, suitable for use in food products for humans, consisting essentially of an edible, nutritious, uniformly palatable, debittered, bland, proteinaceous composition free of undesired, characteristic beany taste or flavor, which involves combining (a) highly proteinaceous, soy protein isolate recovered from a liquid extract from an extraction of soybean material at a pH above the vicinity of the isoelectric pH of the glycinin content, with (b) fibrous residue recovered from said last-mentioned extraction, to produce an improved, soy protein concentrate.

3,635,727

UNIFORMLY DISTRIBUTING ICE CRYSTALS IN A PARTIALLY FROZEN COFFEE EXTRACT SLUSH

Charles Warren Ehrgott, Rumson, N.J., assignor to General Foods Corporation, White Plains, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,407

Int. Cl. A23f 1/08

U.S. Cl. 99-71

3 Claims

frozen matrix and the apparent viscosity of the slush is reduced by an agitation procedure which facilitates extruding the slush into a cooling zone wherein the slush extrudates of uniform composition are subdivided and frozen to rigid solids. The method includes subjecting the slush to increasing amounts of mixing and shearing forces to uniformly distribute the ice crystals and then extruding the slush through an extruder die block under shear forces lower in magnitude than the shear forces before extrusion such that the slush reverts to a consistency at which the extrudates can be subdivided into pellets.

3,635,728

QUICK-COOKING SOYBEAN PRODUCTS

Louis B. Rockland, Pasadena, Calif., assignor to The United States of America as represented by the Secretary of Agriculture

Filed Mar. 26, 1968, Ser. No. 716,232

Int. Cl. A23i 1/20

U.S. Cl. 99-98

6 Claims

Process for treating soybeans to remove bitterness and other undesirable taste qualities, and to tenderize the beans so that they can be cooked in a short time, all the while retaining the integrity of the beans. The procedural steps include a conditioning of the beans by a brief contact with boiling water, followed by soaking in an aqueous solution containing sodium chloride, a chelating agent, and an alkaline agent. The hydrated beans are then dried, for example, by contact with air at 130°-170° F. Alternatively, the hydrated beans may be preserved by freezing, or by partial dehydration followed by holding at refrigeration or even ambient temperatures.

3,635,729

INSTANT DEHYDRATED HASHED-BROWN POTATOES

William J. Englar, Idaho Falls, and Donald C. Dew, Shelley, both of Idaho, assignors to Western Farmers Association, Seattle, Wash.

Filed Oct. 30, 1969, Ser. No. 872,774

Int. Cl. A23b 7/03, 7/16; A23i 1/12

U.S. Cl. 99-207

7 Claims

A potato product in the form of strips, shreds or other pieces which are precooked and dehydrated into a form which may be readily rehydrated in water and browned in oil to form hashed-brown type potatoes. The method of producing the dehydrated hashed-brown potatoes comprises peeling fresh raw white potatoes, trimming and cutting the potatoes into strips, shreds, slivers or other pieces, blanching or precooking the cut potatoes, partially drying the precooked potato pieces, coating the precooked, partially dried potato pieces with starch and dehydrating the coated pieces in a nonagglomerated mass to a moisture content of 20 to 50 percent of the moisture contained in the fresh raw potatoes. The starch serves as a binding agent which upon rehydration of the potatoes causes the pieces to stick together for cooking in the manner of freshly made hashed-brown potatoes to form a cohesive mass which browns uniformly and is pleasing in taste and appearance.

3,635,730

METHODS FOR SELECTIVELY COATING FERROMAGNETIC ARTICLES

Stanley E. Sweltzer, Laureldale, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Dec. 3, 1969, Ser. No. 881,652

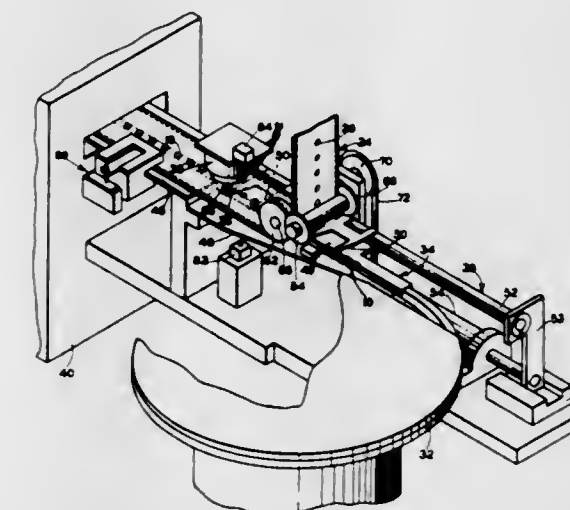
Int. Cl. B44d 1/18, 1/02

U.S. Cl. 117-38

8 Claims

Ferromagnetic articles to be selectively coated are conveyed through a coating station by a belt which also serves to mask areas of the articles where coating material is not desired. The belt is in the form of an endless tape and coating material is continuously removed from the tape so that each article to be coated is presented with clean tape mask. Auto-

matic apparatus is provided to magnetically lift the articles into engagement with the mask and a support track in coor-



dination with feeding and indexing devices. A step near the end of the track permits the coated articles to drop free of the mask and accumulate in a magazine.

3,635,731

PROCESS FOR TENDERIZING MEAT

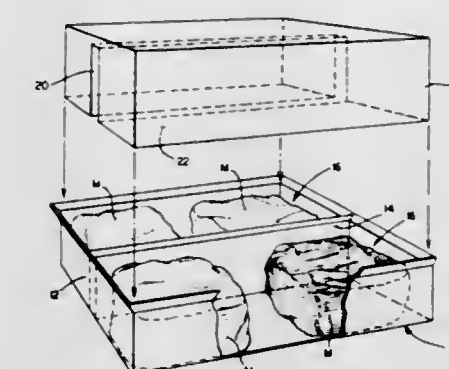
Charles W. Korten, Cinnaminson, N.J., assignor to Campbell Soup Company, Camden, N.J.

Filed Mar. 18, 1969, Ser. No. 808,276

Int. Cl. A22c 18/00; A23b 1/06

U.S. Cl. 99-107

2 Claims



A process for mechanically tenderizing meat for human consumption after the carcass has been separated into primal cuts which have muscle fibers arranged substantially in the same direction, by applying pressure within the range of 50 to 100 pounds per square inch against two opposing surfaces of the meat cut perpendicularly to the direction of the muscle fibers, and preventing expansion of the cut in a direction across the fibers while permitting deformation in the direction of the muscle fibers. This invention provides apparatus for accomplishing the above process which includes a container having a width substantially the same as that of the meat cut measured across the grain and a length greater than the length of the cut measured in the direction of the fibers. A compressing plug presses the meat in the container causing the meat to deform in the direction of the fibers but not across the grain thereby disrupting and separating the connective tissue from the muscle fibers and rendering the meat more tender for human consumption. A pair of compressing rolls forming a nip is advantageously used on cuts having a thickness less than 2 inches.

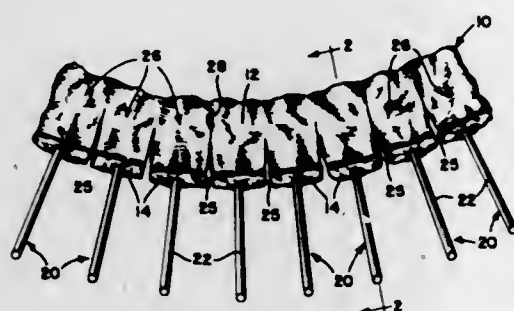
3,635,732

METHOD OF PREPARING A MEAT PRODUCT

Joseph L. Blissett, 1410 N. Main St., Dayton, Ohio
Filed May 16, 1969, Ser. No. 825,150
Int. Cl. A22c 18/00

U.S. Cl. 99—107

5 Claims



A strip of lean meat is cut from a loin so that the width of the strip is substantially greater than its thickness, and a plurality of generally parallel skewers are inserted into the strip at longitudinally spaced intervals and provide handle portions projecting from one of the edge surfaces of the strip. Transverse slits are formed within the strip between the skewers and extend from one edge surface toward the other edge surface to provide connected strip sections on the skewers.

3,635,733

PREPARATION OF PROCESS CHEESE

Thomas P. Kichline, Chesterfield, and Lewis G. Scharpf, Kirkwood, both of Mo., assignors to Monsanto Company, St. Louis, Mo.
Continuation-in-part of application Ser. No. 639,306, May 18, 1967, now abandoned. This application July 22, 1969, Ser. No. 843,849
Int. Cl. A23c 19/00

U.S. Cl. 99—115

14 Claims

Pasteurized process cheese is prepared by forming an intimate mixture containing natural cheese, water, an emulsifying agent and a proteolytic enzyme; pasteurizing the mixture, and cooling. Reworked pasteurized process cheese may comprise a portion of the mixture.

3,635,734

MANUFACTURE OF BLUE-VEINED CHEESE

Wayne T. Williamson, Des Plaines, and Myro Purko, Evanston, both of Ill., assignors to Kraft Corporation, New York, N.Y.

Filed Aug. 19, 1968, Ser. No. 753,712

Int. Cl. A23c 19/02

U.S. Cl. 99—116

3 Claims

A method for producing blue-veined cheese wherein a suitable culture of a gas producing micro-organism is selected and is grown in a suitable media. The culture is then concentrated and added to the milk from which the blue-veined cheese is to be manufactured. The gas-producing micro-organism is selected to provide a desired level of gas during curing of the cheese.

3,635,735

PREPARATION OF CONFECTION COATED CHEWING GUM

Arvind Shankar Patil, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Apr. 8, 1970, Ser. No. 26,760

Int. Cl. A23g 3/30

U.S. Cl. 99—135

6 Claims

Preparing confection coated gum balls by admixing water-containing saccharides with hot molten gum base, evapora-

tively cooling gum mass, forming balls, applying confection coatings to gum balls, vacuum drying coated gum balls, applying a finish coating to coated gum balls and thereafter vacuum drying the finish coated gum balls.

3,635,736

FLAVORING FOOD WITH A SUGAR DIALKYL DITHIOACETAL

Marvin L. Oftedahl, Warson Woods, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 11, 1968, Ser. No. 766,954

Int. Cl. A231 1/26; C07c 149/00

U.S. Cl. 99—140 R

25 Claims

Method of imparting flavors and/or enhancing the flavors of food products by the addition of a small amount of a sugar dialkyl dithioacetal to said food products.

3,635,737

PARTICULATE CHEESELIKE COMPOSITIONS

Allen Baron, 187-D Mayhew Way, Walnut Creek, Calif.

Filed Apr. 25, 1969, Ser. No. 819,422

Int. Cl. A231 1/22; A23c 19/02, 19/12

U.S. Cl. 99—140 R

11 Claims

Cheeselike solids are produced by incorporating a minor amount of one or more of the C_4 - C_8 monocarboxylic aliphatic acids into dry casein coagulate. The novel product is a free flowing palatable food.

3,635,738

PACKAGED MEAT PRODUCT AND PROCEDURE FOR MAKING IT

Robert G. Hofmann, 9362 Springfield Drive, Allison Park, Pa., and Richard E. Hofmann, 504 Wilmer Circle, Pittsburgh, Pa.

Filed Sept. 2, 1969, Ser. No. 854,566

Int. Cl. A22c 13/00

U.S. Cl. 99—169

8 Claims



Process meat and the like is provided with an outer edible, ply, layer or enclosure of a desired color that protects the meat, retains moisture therein, and provides a pleasing display package for the food product. Procedure is used in which a relatively thin, paperlike open end casing, membrane or bag is filled or stuffed with a ground meat type of food mixture, the open end of the bag is securely closed off, the mixture is cooked in the casing and cooled, the casing is then dipped within or covered with a somewhat viscous emulsion or mix which adheres thereto, and the article or food product is cooled to solidify the emulsion as a snowy white outer ply, layer or enclosure for the food product.

3,635,739

SILICA-FREE CALCIUM ALUMINATE GLASS-CERAMIC ARTICLES

John F. MacDowell, Painted Post, and Hermann L. Rittler, Horseheads, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed June 4, 1969, Ser. No. 830,523

Int. Cl. C04b 33/00

U.S. Cl. 106—39 DV

10 Claims

This invention relates to the manufacture of translucent-to-transparent glass-ceramic articles in the BaO - CaO - Al_2O_3 composition field which are nucleated with ZrO_2 and/or V_2O_5 and/or Ta_2O_5 . Such articles are thermally stable to temperatures up to about 1,400° C., exhibit good dielectric properties, are resistant to attack by alkali metal vapors, and transmit well in the infrared portion of the spectrum.

3,635,740

BASIC REFRACTORY SHAPES

Ben Davies, Pittsburgh, and George R. Henry, Bethel Park, both of Pa., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 1, 1970, Ser. No. 24,871

Int. Cl. C04b 35/42

U.S. Cl. 106—59

4 Claims

Fired basic refractory shapes made from refractory brickmaking size-graded batches consisting of magnesite and chrome ore, the improvement being the inclusion of fireclay in the batch in amounts up to about 5 percent, by weight, and the two stage burning of resulting shapes to obtain high hot strength.

3,635,741

NOVEL CONVERTING STARCH

Chester D. Szymanski, Martinsville, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

Filed Oct. 14, 1969, Ser. No. 866,386

Int. Cl. C08b 27/26

U.S. Cl. 106—213

5 Claims

A novel converting starch product comprising a starch base which is admixed with a modifying agent, aqueous dispersions of which product display a high viscosity when first gelatinized but upon being cooked at retort temperatures are converted resulting in a dispersion exhibiting a substantially reduced viscosity. Such starch products find a particular use in the commercial preparation of foods.

3,635,742

CALCINING ALKALINE EARTH METAL CHLORIDES WITH CELLULOSE AND ADMIXING WITH PORTLAND CEMENT

Jiro Fujimasa, Tokyo, Japan, assignor to Fujimasa Industries International

Filed Aug. 14, 1969, Ser. No. 850,219

Int. Cl. C04b 13/22

U.S. Cl. 106—287

15 Claims

A hydraulic composition for stabilizing soils comprising about 75 to about 95 parts by weight of a Component A and about 5 to about 25 parts by weight of a Component B. Component A comprises a calcined blend of 10-15 parts by weight of an alkaline earth metal chloride, 15-20 parts by weight of a vegetative or cellulosic material to produce carbon when component A is calcined, and 65-80 parts by weight of an alkaline earth metal hydroxide. Component B comprises 5-90 parts by weight of Portland cement and 1-2 parts by weight of a lignin material derived from sulfite paper process waste, together with up to about 20 parts by weight of silica and/or up to about 60 parts by weight of an alkaline earth metal hydroxide such as slaked lime.

3,635,743

REINFORCING SILICA FILLER

Alfred H. Smith, Jonesville, N.Y., assignor to General Electric Company

Filed Jan. 6, 1969, Ser. No. 789,352

Int. Cl. C08h 17/04; C09c 1/28

U.S. Cl. 106—288 Q

10 Claims

An improved reinforcing silica filler is made by first treating a reinforcing silica filler with ammonia and then treating the filler with hexamethyldisilazane. The treated filler when used in a composition containing a silanol end-stopped polydimethylsiloxane curable to a silicone rubber, provides improved shelf stability of the curable composition and also provides improved strength in the cured composition.

3,635,744

TREATMENT OF CLAY

Peter James Malden, Cornwall, England, assignor to English Clays Lovering Pochin & Company, Limited, Cornwall, England

Filed June 11, 1969, Ser. No. 832,230

Claims priority, application Great Britain, June 14, 1968, 28,592/68

Int. Cl. C09c 1/42

U.S. Cl. 106—288 B

11 Claims

A method of bleaching a clay which comprises forming an aqueous suspension of the clay and contacting said aqueous suspension of the clay with a gas comprising ozone.

3,635,745

PROCESS FOR CONVERTING DYESTUFFS OF THE ARYL-PARAROSANILINE SULFONIC ACID SERIES INTO VALUABLE PIGMENTS HAVING A HIGH TINCTORIAL STRENGTH

Heinz Rentel, Schomburg/Taunus, and Ernst Spietschka, Oberauroff, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed July 25, 1969, Ser. No. 845,094

Claims priority, application Germany, Aug. 3, 1968, P 17 69 912.6

Int. Cl. C09c

U.S. Cl. 106—288 Q

11 Claims

Process for converting dyestuffs of the aryl-pararosaniline sulfonic acid series into coloristically valuable pigments by dissolving the dyestuffs in water with the addition of alkalis, mixing the aqueous-alkaline solution of the dyestuff with an aqueous-alkaline solution of such natural resinic acids or acid modified products thereof which can be precipitated from their alkaline solution by the addition of acids, and precipitating the dyestuff product from its solution by addition of an acid. The products obtained according to the present invention are easily dispersible pigment powders having a high tinctorial strength and a soft grain.

3,635,746

DRY TRANSFER AND METHOD

Mac Karlan, 1700 Grand Concourse, Bronx, N.Y.

Filed Oct. 19, 1966, Ser. No. 857,751

Int. Cl. B41m 5/02; C08c 11/70

U.S. Cl. 117—3.1

8 Claims



A nontacky adhesive coating composition for use over indicia on a surface of a dry transfer sheet, the adhesive comprising by weight 50 to 90 percent wax, 1 to 10 percent of a

pentaerythritol ester of rosin, 5 to 30 percent of a pressure-sensitive adhesive, from 0.5 to 5 percent of an amino-substituted alkanol and from 0.5 to 5 percent of an alkaline hydroxide.

3,635,747

DONOR-RECEPTOR COPY PAPER

Hugh B. Skees, Arlington Heights, and John D. Mays, Dayton, both of Ohio, assignors to The Standard Register Company, Dayton, Ohio

Filed July 11, 1969, Ser. No. 841,153

Int. Cl. B41m 5/10

U.S. Cl. 117—36.3

4 Claims

A pressure-responsive image transfer system of the donor-receptor manifold variety comprising a web-carried donor coating composed of an aqueous dispersion of a major weight proportion of kaolin or aluminum silicate, a minor proportion of carbon black and/or nominal amounts of a water-soluble dye and a dispersing agent admixed with a binder consisting of a dispersion of polyethylene in an aqueous solution of polyvinyl alcohol for use in combination with a juxtaposed web-carried receptor coating such as a hot-melt mixture of a major weight proportion of paraffin and a minor proportion of ethylene vinyl acetate copolymer or an aqueous dispersion of a major weight proportion of polyethylene and a minor weight proportion of ethylene vinyl acetate copolymer.

ERRATUM

For Class 117—46 see:
Patent No. 3,635,730

3,635,748

METHOD FOR TREATING A FLUX COATING

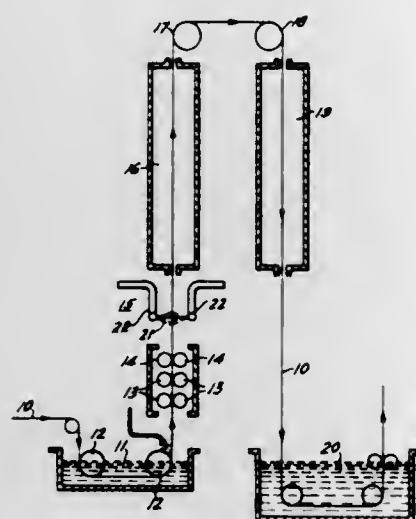
Richard A. Peoples, Hamburg, N.Y., assignor to Bethlehem Steel Corporation

Filed Nov. 29, 1968, Ser. No. 780,062

Int. Cl. C23c 13/02; 3/00

U.S. Cl. 117—46 FA

5 Claims



A method for providing a smooth coating of flux material uniformly distributed on a metal surface comprising directing a flame onto the flux-coated surface. The apparatus comprises a flame distributor adapted to contact the surface of the flux coating with a high-heat flame. The impingement of the flame on the flux surface causes an initial set in the flux surface which is smooth and evenly distributed.

3,635,749

PROCESS FOR IMPROVING ADHESION OF VINYL RESINS TO A POLYAMIDE AND RESULTANT PRODUCT

William P. Eaddy, Columbia, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 18, 1969, Ser. No. 808,307

Int. Cl. B44d 1/14; B32b 27/34, 27/30

U.S. Cl. 117—76 T

11 Claims

A process, and the resulting products, of treating polyamide structures to improve their bonding characteristics to vinyl resins wherein a surface of the polyamide structure is coated with a first coating of a polyalkylenimine compound and the coating is treated to substantially fully react the coating with the polyamide structure, and thereafter a second coating of a polyalkylenimine compound is applied thereto and dried or partially cured thereon to provide improved adhesion of the polyamide structure to a vinyl resin.

3,635,750

PHOTOPOLYMERIZED COPOLYMER FILMS

Archibald N. Wright, Schenectady, N.Y., assignor to General Electric Company

Continuation-in-part of application Ser. No. 530,950, Mar. 1, 1966, now abandoned. This application Dec. 29, 1969, Ser. No. 888,372

Int. Cl. B44d 1/50; C08f 1/18

U.S. Cl. 117—93.31

5 Claims

Copolymer films are provided which are made by the surface photopolymerization of vaporous mixture of a diene such as butadiene and a vinyl monomer, for example acrylonitrile. The copolymer films exhibit valuable insulating properties and have a dielectric constant over the range of from about 2.65 to about 5.9.

3,635,751

LITHIUM SILICATE GLARE-REDUCING COATING AND METHOD OF FABRICATION ON A GLASS SURFACE

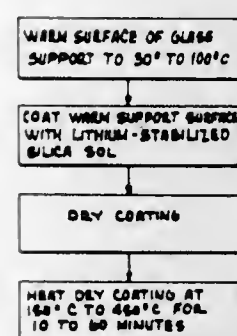
George E. Long, III, Lititz; Francis D. Grove, Felton, and Donald W. Barch, Columbia, all of Pa., assignors to RCA Corporation

Filed Apr. 3, 1969, Ser. No. 813,043

Int. Cl. B44d 1/46, 1/08

U.S. Cl. 117—94

7 Claims



A novel optical screen comprises, as its viewing surface, a hard, abrasion-resistant coating having a rough, glare-reducing surface and composed of a lithium silicate material. The screen may be prepared by a novel method comprising: (a) warming the surface of a glass support to about 30° to 100° C., (b) coating the warm surface with an aqueous solution containing about 1 to 10 weight percent of a lithium-stabilized silica sol, (c) drying the coating, and then (d) heating the dry coating at about 150° C. to 450° C.

3,635,752

PROCESS FOR THE PREPARATION OF GLASS-CONCENTRATE CAPSULES IN A POLYVINYL CHLORIDE MATRIX

Mamimo Baer, Longmeadow, and Joseph O. Campbell, Agawam, both of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 4, 1969, Ser. No. 873,805

Int. Cl. B44d 1/02; C08f 1/84

U.S. Cl. 117—100 S

12 Claims



Disclosed herein is a process for the preparation of glass-concentrate capsules which comprise a plurality of strands of glass fibers encapsulated in a collimated array within a vinyl chloride polymer matrix which process comprises:

1. Forming a suspension of strands of glass fibers in a vinyl chloride monomer/water mixture containing a critical amount (viz., from 0.05 to 2.0 percent by weight based on the total weight of monomer and glass) of protective colloid;
2. Agitating the suspension using a low-shear type of agitation which moves the whole suspension pass while avoiding localized high-shear agitation;
3. Polymerizing the monomer; and
4. Recovering the glass-concentrate capsules.

3,635,753

GROWTH OF NEEDLELIKE VLS CRYSTALS

John R. Arthur, Jr., Murray Hill, and Richard S. Wagner, Bernardsville, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Original application Sept. 21, 1967, Ser. No. 669,535, now Patent No. 3,505,127, dated Apr. 7, 1970. Divided and this application Sept. 24, 1969, Ser. No. 862,156

Int. Cl. C23c 11/00

U.S. Cl. 117—106 A

2 Claims

Single crystal material of needlelike form may be obtained by means of the vapor-liquid-solid crystal growth technique, growth parameters of the growing crystalline material being controlled so as to result in the removal of the impurity agent and the concomitant decrease in the volume of the liquid solution and growth of crystalline materials evidencing sharp terminations.

3,635,754

ADHESIVE PRODUCT

Charles H. Beede, East Brunswick, N.J., assignor to Johnson & Johnson

Continuation-in-part of application Ser. No. 522,037, Jan. 21, 1966, now abandoned. This application Feb. 10, 1969, Ser. No. 798,110

Int. Cl. C09f 7/04

U.S. Cl. 117—122 H

16 Claims

Heat-activated temporary pressure-sensitive adhesives are prepared which are activated through heating and on activation take on all of the characteristics of conventional pressure-sensitive adhesives which characteristics they maintain over substantial periods of time after cooling back to their initial temperature prior to the heat activation. The pressure-sensitive adhesives after activation are pressure sensitive in character exhibiting internal strength and the other characteristics of good pressure-sensitive adhesives and in this way they differ substantially from thermoplastic or hot melt adhesives which generally have substantial loss in internal strength becoming stringy and leggy in character when heated to a

temperature at which they will bond to other surfaces. The temperature-activated pressure-sensitive adhesives obtain their temperature activation characteristics through the presence of an organic polymer or polymers having in balance at room temperature, prior to heat activation, an ordered or crystalline phase and a disordered or amorphous phase and having a first-order transition temperature or melting point of 35° C. or higher and a second-order transition temperature or glass temperature of 5° C. or lower. The organic polymer or polymers have little to no tack at room temperature and remain in this state until activated by heating and on activation becoming aggressively tacky, exhibiting good pressure-sensitive adhesive characteristics and maintaining such aggressive tackiness and good pressure-sensitive adhesive characteristics for an extended period of time after cooling back to room temperature after which period of time the organic polymer or polymers return to a state of little or no tack.

3,635,755

PRESSURE-SENSITIVE ADHESIVE POLYOLEFIN COMPOUNDS

Ivan J. Balin, Cranford, and Charles H. Beede, East Brunswick, both of N.J., assignors to Johnson & Johnson

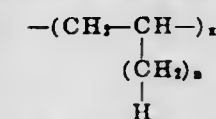
Continuation-in-part of application Ser. No. 483,344, Aug. 27, 1965, now abandoned. This application Feb. 10, 1969, Ser. No. 798,152

Int. Cl. C09f 7/02

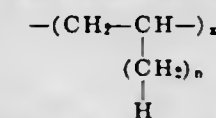
U.S. Cl. 117—122 P

10 Claims

Pressure-sensitive adhesive sheets including adhesive tapes, adhesive drapes, adhesive bandages and the like are prepared by coating onto a flexible backing a polyolefin polymer having an intrinsic viscosity of 2.0 to 5.0, a molecular structure in which 40 to 75 percent is isotactic with the remainder containing no more than 20 percent atactic or random and a Williams' plasticity after aging on the backing of 1.5 to 3. The polyolefin polymer is prepared by polymerizing olefin monomers of two to 16 carbon chain length in the presence of a Ziegler-Natta type catalyst formed through the reaction of a transition element compound containing metal of Group IV through VI of the Mendeleff Periodic Table with an organometallic compound of a metal of Group I through III. Some of both compounds are present at the initiation of the polymerization reaction with further transition element compound being periodically added during polymerization. In an example given titanium tetrachloride is used as the transition element compound and triisobutylaluminum used as the organometallic compound in preparing the catalyst. The olefinic polymer may be a homopolymer in which instance it would be prepared from olefin monomer of six to 11 carbons and could be represented by the general formula:



when n is an integer of 3 to 8 and x represents a repetition of the group to a molecular weight sufficiently high to give a polymer within the intrinsic viscosity range indicated or the polymer may be an interpolymer formed through the interpolymerization of two or more olefin monomers of carbon chain length of two to 16 carbons. In such case a representative formula may be shown as follows:



in which n has a numerical value of 3 to 14. The designation x represents interpolymerization with sufficient unit buildup to a polymer of molecular weight sufficiently high to give an interpolymer with an intrinsic viscosity within the range indicated. Thus, for example, where ethylene is used as one of the monomers it would be used with other olefin monomer or monomers of sufficiently long side chain to give in the monomer mix a value to n of at least 3.

3,635,756

NONFOGGING TRANSPARENT MATERIAL

Thomas H. Shepherd, Hopewell, and Francis E. Gould, Princeton, both of N.J., assignors to National Patent Development Corporation, New York, N.Y.

Original application June 21, 1968, Ser. No. 738,887, now Patent No. 3,448,215, which is a continuation-in-part of application Ser. No. 567,856, July 26, 1966, now Patent No. 3,520,949, and a continuation-in-part of 650,259, June 30, 1967, now abandoned, and a continuation-in-part of 654,044, July 5, 1967. Divided and this application July 28, 1969, Ser. No. 845,283

Int. Cl. C03c 17/28

U.S. Cl. 117—124 D

6 Claims

A transparent nonfogging coating is applied to a normally fogging transparent or reflecting substrate. The nonfogging coating preferably comprises a hydrophilic acrylate or methacrylate polymer. The polymer can be modified by copolymerization with a monobasic or polybasic unsaturated carboxylic acid or partial ester thereof. The polymer can be cross-linked with a polyepoxide to increase its hardness.

Typical substrates include automobile, train and airplane windows, sunglasses, camera lens, microscope lens, binocular lens, telescope lens, meat wrappers, diving masks, ski glasses, mirrors.

3,635,757

EPITAXIAL DEPOSITION METHOD

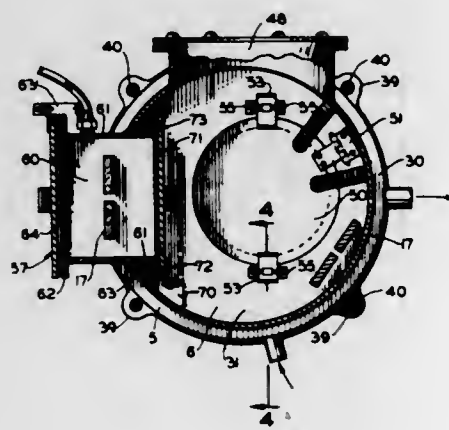
Darrell M. Harris, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Original application July 29, 1965, Ser. No. 475,722, now Patent No. 3,491,720. Divided and this application Apr. 1, 1969, Ser. No. 841,167

Int. Cl. H01b 1/06; H01l 7/36

U.S. Cl. 117—201

3 Claims



A method for the epitaxial deposition of epitaxial coatings on a semiconductor member. The method comprises the supporting of semiconductor members on a bridge-type element and introducing the bridge element into a reactor housing having three chambers. The bridge is placed in a first chamber where a purging gas is introduced for purposes of purging the semiconductor member. The bridge is then placed in a second chamber which is isolated from the first chamber and a purging gas is introduced into the second chamber for further purging the semiconductor member. Finally, the bridge is passed into a third chamber which is isolated from the first and second chambers. Feed gases are introduced into the third chamber for causing an epitaxial coating material to be deposited on the semiconductor member. The bridge is then removed from the third chamber and through the first and second chambers to the atmosphere external to each of said chambers.

3,635,758

ELECTROLESS METAL DEPOSITION

Frederick W. Schaeble, Jr., Oyster Bay, L.I.; John F. McCormack, Roslyn Heights, and Rudolph J. Zeblosky, Hauppauge, all of N.Y., assignors to Photocircuits Corporation, Glen Cove, N.Y.

Continuation-in-part of application Ser. No. 523,902, Feb. 1, 1966, now abandoned. This application Aug. 4, 1969, Ser. No. 847,421

Int. Cl. B44d 1/18; C23c 3/02

U.S. Cl. 117—212

9 Claims

An improved method for enhancing the ductility of electroless metal deposits is provided in which an electroless metal bath contains an extraneous ion which has a preferential capacity for being coulombically adsorbed at the outer layer of an electric double layer present on an interface in contact with such bath on which said metal is electrolessly depositing, such ion being present in an amount sufficient to reduce the inclusion of hydrogen in the electrolessly deposited metal.

3,635,759

METHOD OF ELIMINATING VOIDS IN CERAMIC BODIES

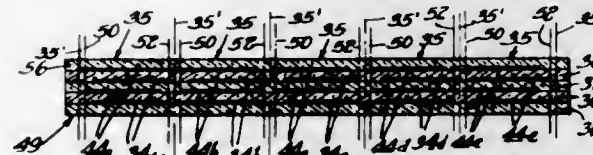
Glenn N. Howatt, Metuchen, N.J., assignor to Gulton Industries, Inc., Metuchen, N.J.

Filed Apr. 4, 1969, Ser. No. 813,472

Int. Cl. H01g 13/04

U.S. Cl. 117—212

11 Claims



A method of making a high-density monolithic ceramic body where the body comprises a multiplicity of ceramic layers with one or more metallic coatings or layers on predetermined ceramic layers inside the body, each coated layer being initially separately formed by applying a flowable mixture of raw ceramic particles, binder and solvent upon a support surface or subjacent dried metal coated ceramic layer, drying the same, applying a metallic coating to the previously dried layer of ceramic material, drying the same, and repeating these operations until a lamina of desired thickness is formed having the appropriate number of interleaved metallic coatings. During the formation of the lamina, gross voids caused by the dripping of solvent into the subjacent layer or layers and replacement thereby by air are eliminated by providing the support surface with small air suction openings through which flowable ceramic cannot pass and drawing air through the one or more dried layers to eliminate the formation of air pockets in the uppermost flowable ceramic material by preventing air from within the porous dried subjacent layer from displacing the solvent in the flowable layer. Voids formed in the process of firing raw ceramic bodies with metallic coatings or layers therein, whether formed by the above or other processes, are reduced or eliminated after the raw ceramic firing operation by a process involving the initial complete encasement of the metallic coatings or layers by raw ceramic material before the firing operation so that after the firing operation the metallic coatings are completely encased by a gastight shell or cured ceramic material. The fired bodies of ceramic material are then placed in a pressure chamber and heated therein to a temperature which softens the ceramic body so that pressure on the shell compresses and compacts the body of ceramic material to increase its density.

3,635,760

FORMATION OF PLANES FACILITATING THERMIONIC EMISSION

Laurence Van Someren, Wayland, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.

Filed Nov. 18, 1968, Ser. No. 776,763

Int. Cl. C23c 13/00

U.S. Cl. 117—213

4 Claims

A method for improving emission from the surfaces of cathodes in electron-emission devices such as thermionic converters in which a large flux of atoms or molecules of material is condensed upon a substrate to produce a surface bounded primarily by crystallographic planes of maximum atom density. The flux may be produced by evaporation from a source which need have no particular crystal orientation and which is held at a higher temperature than the substrate, the substrate being at a temperature which is a fraction of the melting point of the material being evaporated. In the case of body-centered cubic metals such as tungsten the planes produced are (110) planes. In some instances, it is desirable to roughen the surface of the substrate as by abrasion or sand blasting to facilitate the development of the planes of high atom density and accordingly, favorable work function.

3,635,761

ELECTROLESS DEPOSITION OF METALS

Werner O. Haag, Trenton, and Darrell Duayne Whitehurst, Titusville, both of N.J., assignors to Mobil Oil Corporation

Continuation-in-part of application Ser. No. 647,222, June 19, 1967, now abandoned. This application May 5, 1970, Ser. No. 34,863

Int. Cl. C23c 17/02

U.S. Cl. 117—227

20 Claims

This specification discloses a method for electroless deposition of a metal upon a substrate. The substrate is one that has a catalytic surface capable of influencing deposition of the metal. The method involves mixing the substrate with a solution comprising a π -complex of the metal to be deposited on the substrate dissolved in a nonaqueous solvent. There is also added to the solution a reducing agent such as hydrogen. The reducing agent effects reduction of the complex thereby decomposing the complex to form elemental metal. The elemental metal then deposits on the substrate.

3,635,762

ULTRASONIC CLEANING OF A WEB OF FILM

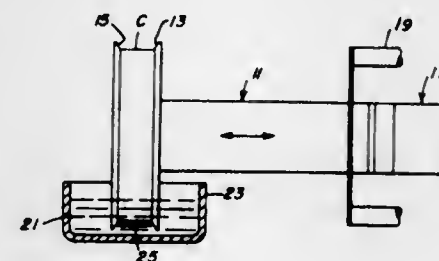
Howard F. Ott, Victor, and Jerry Carmen, Spencerport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of application Ser. No. 879,680, Nov. 25, 1969. This application Sept. 21, 1970, Ser. No. 73,994

Int. Cl. B08b 7/02

U.S. Cl. 134—1

9 Claims



Dirt particles are cleaned from a web of flexible material, such as photographic film or paper, by applying ultrasonic vibrations to a web in a direction transversely of the web while applying a solvent liquid to the web. The liquid can be applied by immersion of the web and ultrasonically vibrating apparatus in a pool, or by spraying the liquid onto the web as it passes over the apparatus in air. Vibrations are imparted by

passing the web between a pair of shoulders defining a circular channel for the films.

3,635,763

FUEL CELL ELECTRODE

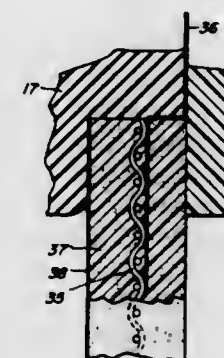
Leonard W. Niedrach, and Willard T. Grubb, both of Schenectady, N.Y., assignors to General Electric Company

Filed Dec. 26, 1967, Ser. No. 693,635

Int. Cl. H01m 27/04, 13/00

U.S. Cl. 136—86 D

12 Claims



Fuel cell electrodes are composed of a mixture of catalytic and gas adsorbing materials which consist of a chromium-tungsten oxide and a metal dispersed on a support, the metal selected from the class consisting of noble metals and alloys of noble metals, with a current collector, and a binder bonding the materials together and to the current collector in electronically conductive relationship. An adhesive binder is employed which is not chemically attacked by the electrolyte or the reactant fluid of the cell in which the electrode is used. Such an electrode is particularly useful in a fuel cell employing a fuel containing carbon monoxide, such as reformer gas, an acid electrolyte, and under various operating conditions.

3,635,764

COMBINED WASTEWATER TREATMENT AND POWER GENERATION

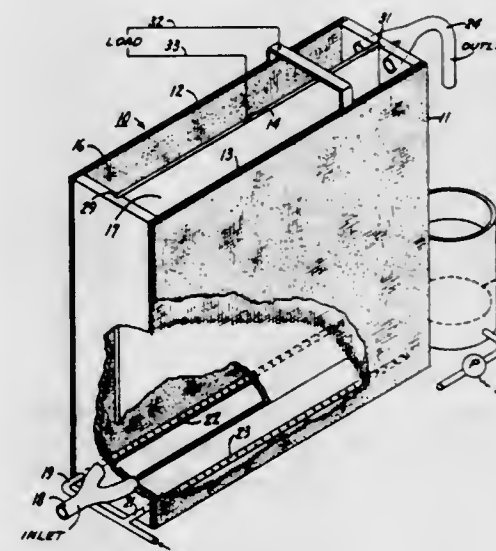
James L. Setser, Schenectady, and Eugene P. Schneider, Jr., Webster, both of N.Y., assignors to General Electric Company

Filed Jan. 2, 1969, Ser. No. 788,579

Int. Cl. H01m 29/04

U.S. Cl. 136—86 A

6 Claims



Both apparatus and a method for the treatment of domestic wastewater are described. A substantial reduction

in refractory nutrient content of such waters is effected by the addition of an electrolyte, if needed, and passage of the wastewater through battery-cell structure having as one electrode thereof a metal the oxide of which, when formed in water, acts as a flocculent. Air introduced into the cell prevents suspended sludge from settling in the cell and provides (or supplements) the depolarizing oxidant. Conduct of the process simultaneously produces direct current electrical power, as well, which may be employed to release chlorine from an aqueous chloride solution for combating pathogenic organisms in the wastewater.

3,635,765

METHOD OF MAKING E M F CELL

Jacob Greenberg, Pepper Pike, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Original application Dec. 30, 1968, Ser. No. 787,911. Divided and this application June 5, 1970, Ser. No. 57,399

Int. Cl. H01m 31/00

U.S. Cl. 136—83 R

2 Claims

A heat-activated electromotive force (e.m.f.) cell having an anode formed of aluminum and a cathode comprising an oxidizing material such as sulfur. The cathode material is supported in a container or in a matrix such as porous carbon. An aluminum salt layer electrolyte such as $AlCl_3$ separates the anode from the cathode. To minimize vaporization of the aluminum salt, an alkali halide salt may be mixed therewith. The cell may be operated at temperatures up to a point where either the cathode material or the electrolyte is molten.

3,635,766

ELECTROCHEMICAL BATTERIES

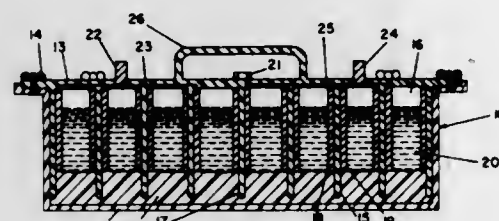
Sverre Quisling, 1240 Sherman Ave., Madison, Wis.

Filed June 25, 1969, Ser. No. 836,384

Int. Cl. H01m 17/00

U.S. Cl. 136—100

1 Claim



A multicell battery having nonconductive, replaceable cell partitions having a closed configuration such as cylindrical and being coated both inside and outside with conductive material to provide an electrode in each of two adjacent cells. The cell partitions are set in a nonconductive yieldable sealing material forming the bottom of the cells and are united by a bridging element for withdrawal and replacement as a unit.

3,635,767

METHOD OF IMPLANTING IMPURITY IONS INTO THE SURFACE OF A SEMICONDUCTOR

Takashi Tsuchimoto, Kodaira-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sept. 24, 1969, Ser. No. 860,583

Claims priority, application Japan, Sept. 30, 1968, 43/70129

Int. Cl. H01L 7/54

U.S. Cl. 148—1.5

7 Claims

Disclosed is a method of implanting impurity ions wherein such ions are implanted into the surface of a semiconductor

partially exposed by a hole in two layers, one being made of



silicon oxide and the other being made of a metal such as aluminum.

3,635,768

MOLTEN SALT CARBURIZING PROCESS AND REPLENISHING SALT FOR SAME

Johannes Mueller, Frankfurt am Main, Germany, assignor to Deutsche Gold-und Silber-Scheidanstalt vormals Roessler, Frankfurt am Main, Germany

Filed Apr. 29, 1969, Ser. No. 820,337

Int. Cl. C23c 9/12

U.S. Cl. 148—15.5

1 Claim

Carburizing of metals is effected by using molten cyanide baths containing activators. In the operation of such baths, due to consumption of the cyanide, it is necessary to add replenishing materials. The replenishing material is a mixture of activator and cyanide salt only, wherein the activator cyanide salt proportion is identical to that of the starting salt.

3,635,769

NICKEL-CHROMIUM EUTECTIC ALLOY

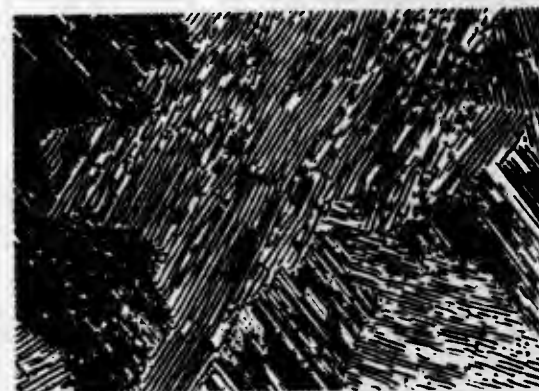
Bevil J. Shaw, Turtle Creek, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 21, 1969, Ser. No. 851,859

Int. Cl. C22c 19/00

U.S. Cl. 148—32

4 Claims



A nickel-chromium alloy consisting of about 50 percent of nickel and 50 percent of chromium and having an oriented lamellar microstructure which is obtained by directional solidification.

3,635,770

ALLOY STEELS FOR USE AT LOW TEMPERATURES

Ryoichi Sasaki, and Toru Irino, both of Hitachi-shi, Japan, assignors to Hitachi, Ltd. and Hitachi Metals, Ltd., Tokyo, Japan

Continuation-in-part of application Ser. No. 457,167, May 19, 1965, now abandoned. This application Aug. 29, 1969, Ser. No. 854,265

Claims priority, application Japan, May 20, 1964, 39/28148; Mar. 31, 1965, 40/18294

Int. Cl. C22c 39/20

U.S. Cl. 148—36

8 Claims

An alloy steel for use in a low-temperature region consisting of C in the range from 0.02% to 0.2% Ni in the range

from 3% to 8%, Cu in the range from 0.8% to 4%, Al in the range from 0.005% to 0.3%, Si in the range from 0.05% to 0.15%, Mn in the range of 0.2% to 1.2%, and the balance iron and impurities, of which the transition temperature is lower than $-196^{\circ}C$, a Charpy impact value is greater than 2.1 Kg.-m. at said temperature and a tensile strength greater than 73 kg./mm.² at $20^{\circ}C$.

3,635,771

METHOD OF DEPOSITING SEMICONDUCTOR MATERIAL

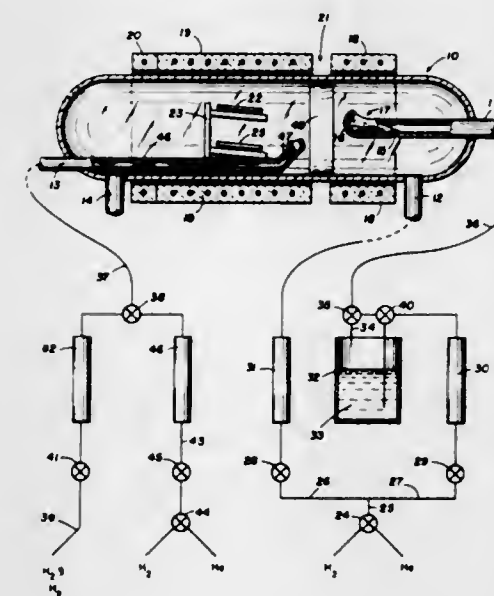
Don W. Shaw, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed May 21, 1968, Ser. No. 730,804

Int. Cl. H01L 7/36; C23c 11/00; H01L 3/00

U.S. Cl. 148—175

10 Claims



An improved method of depositing a semiconductor material from a gaseous reactant stream containing unwanted contaminants onto a substrate by contacting the gaseous reactant stream from which the semiconductor material is to be deposited with a solid form of the same semiconductor material before the gaseous reactant stream is passed over the substrate. The solid semiconductor material, for example, gallium arsenide, may take the form of a layer of gallium arsenide coated on the wall of a reactor within which the deposition of gallium arsenide is to be made, the coating being formed at a point between the source of the gaseous reactant stream and the substrate so that the gaseous reactant stream will pass over the coating before encountering the substrate. Impurities in the gaseous reactant stream will be absorbed by the coating of gallium arsenide thus reducing the level of impurities in the gaseous reactant stream before it reaches the substrate.

3,635,772

METHOD OF MANUFACTURING SEMICONDUCTOR COMPONENTS

Jean-Pierre Pestie, Orsay, and Jean Belmas, Massy, both of France, assignors to Compagnie Generale D'Electricite, Paris, France

Filed Apr. 10, 1969, Ser. No. 815,140

Claims priority, application France, May 8, 1968, 151075

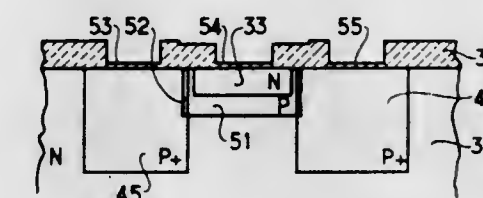
Int. Cl. H01L 7/44

U.S. Cl. 148—187

1 Claim

With a view to carrying out successive treatments on the semiconductor component, the insulating layer of the said component is removed during a preliminary litho-engraving operation on the parts to be opened up later. The procedure

can be applied to great advantage to plane structure high-frequency components in which the active base is prolonged



by a peripheral part having an increased concentration of impurities, on which electrical connection is easier.

3,635,773

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE COMPRISING A ZENER DIODE AND SEMICONDUCTOR DEVICE MANUFACTURED BY USING THIS METHOD

Jacques Thire, Caponiere-Caen, France, assignor to U.S. Philips Corporation, New York, N.Y.

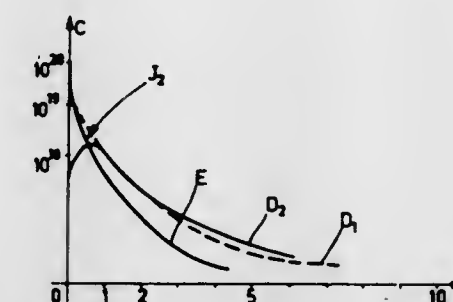
Filed Dec. 13, 1968, Ser. No. 783,620

Claims priority, application France, Dec. 14, 1967, 132205

Int. Cl. H01L 7/36

U.S. Cl. 148—191

8 Claims



A method for the manufacture of a Zener diode having a breakdown voltage in the range of 2.5 to 6 volts is described. This is obtained by using diffusion processes to form an abrupt PN-junction. The abrupt PN-junction results from out-diffusion of first impurities causing a reversed concentration gradient in a surface layer and in-diffusion of second impurities into that surface layer producing large concentration gradients that are opposite to one another. The method described is especially useful for the incorporation of Zener diodes in monolithic integrated circuits.

3,635,774

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE AND A SEMICONDUCTOR DEVICE OBTAINED THEREBY

Manaya Ohta, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

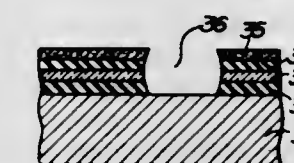
Filed May 1, 1968, Ser. No. 725,641

Claims priority, application Japan, May 4, 1967, 42/28090

Int. Cl. H01L 7/50, 7/00

U.S. Cl. 156—17

8 Claims



A method of manufacturing a semiconductor device comprising selective etching of a phosphorus glass layer covering

the surface of a semiconductor substrate using a silicon nitride film selectively formed on said glass layer as a mask.

3,635,775

APPARATUS FOR THE MANUFACTURE OF FIBER GLASS REINFORCED PLASTIC TUBES AND SIMILAR BODIES

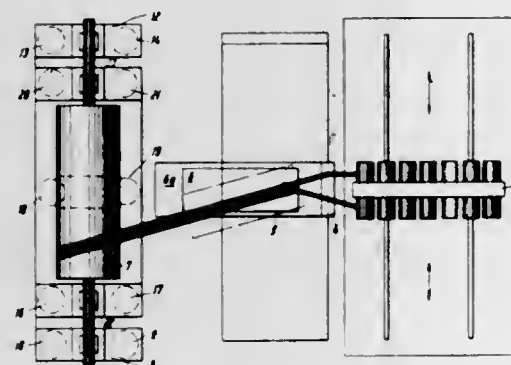
Ludwig Wesch, Heidelberg, Germany, assignor to Mancar-Truist, Vaduz, Liechtenstein

Original application Mar. 17, 1967, Ser. No. 624,065, now Patent No. 3,586,561. Divided and this application Oct. 29, 1969, Ser. No. 871,803

Int. Cl. B31c 3/00, 13/00, 9/00

U.S. Cl. 156—429

7 Claims



An apparatus for manufacturing reinforced fiber glass tubes including the step of spooling a plurality of roving strands impregnated with liquid synthetic resin onto a rotatably mounted and vertically adjustable winding cylinder drum. The roving strands are either first passed through at least one impregnating bath prior to being spooled onto said drum, or they are passed through at least one heating installation where the synthetic resin of the already impregnated roving strands is softened prior to the spooling of the impregnated roving strands onto said drum, onto which said roving strands are directly guided from said impregnating path, respectively heating installation; thereafter the roving strands pass through other means forming part of the overall apparatus.

3,635,776

PRODUCTION OF BONDED NONWOVENS BY THE WET METHOD

Rudolf Stephan, Ludwigshafen; Gerhard Weizel, Mannheim; Hans Reinhard, Limburgerhof, and Hans-Ulrich Frank, Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany

Filed June 27, 1969, Ser. No. 837,312

Claims priority, application Germany, June 29, 1968, P 17 69 700.6

Int. Cl. C09j 5/04

U.S. Cl. 156—315

8 Claims

Bonded nonwovens can be produced with particular advantage by the wet method by treating the textile fibers prior to the addition of the binder polymers with water-soluble cationic polycondensation products which have been prepared from carbamides, formaldehyde, dicyanodiamide and salts of ammonia or of amines.

3,635,777

APPARATUS FOR EMPLACING FILAMENT-SHAPED MATERIALS INTO THERMOPLASTIC MATERIALS, METHODS FOR USING SAID APPARATUS AND PRODUCTS PRODUCED THEREBY

Walther Bethge, CH 4053, Bruderholzstr. 40, Basel, Switzerland

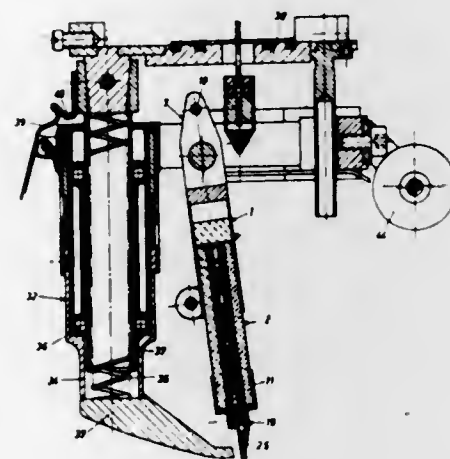
Filed May 20, 1968, Ser. No. 730,236

Claims priority, application Germany, May 20, 1967, B 92630

Int. Cl. B30b 5/00; B32b 31/00

U.S. Cl. 156—499

27 Claims



Apparatus and techniques for inlaying or emplacing filament-shaped materials such as wires or the like into a thermoplastic base material wherein the thermoplastic base material is heated to locally and temporarily soften the same following which the filament-shaped material is impressed thereinto. The apparatus includes a distributor having guide means thereon which receives the filament-shaped material from a source of the same, the lower portion of the guide means defining a sliding foot which is heated to soften the base material immediately before impressing the same with the filament-shaped material. The distributor is positioned at an angle with respect to the upper surface of the base material, the inclination of which may be adjusted to maintain the sliding foot portion in alignment with an axis of rotation about which the distributor may be turned 180° for reverse movement of the apparatus. The base material is supported in a manner whereby it may be offset stepwise on reversal of the distributor. Sensing means are provided to automatically raise and lower the sliding foot portion of the distributor in response to changes in the level of the upper surface of the base portion. The distributor may be lifted and latched in a position spaced from the base material during temporary interruptions in emplacing the filament-shaped material into the base material.

3,635,778

APPARATUS FOR MAKING PICTORIAL PARALLAX PANORAMAGRAM UNITS

Harold D. Rice, Leawood, Kans., and Sam L. Leach, St. Louis, Mo., assignors to Pld Corporation, Beverly Hills, Calif.

Original application May 14, 1962, Ser. No. 202,930, now Patent No. 3,241,429, dated Mar. 22, 1966. Divided and this

application Jan. 6, 1965, Ser. No. 436,976

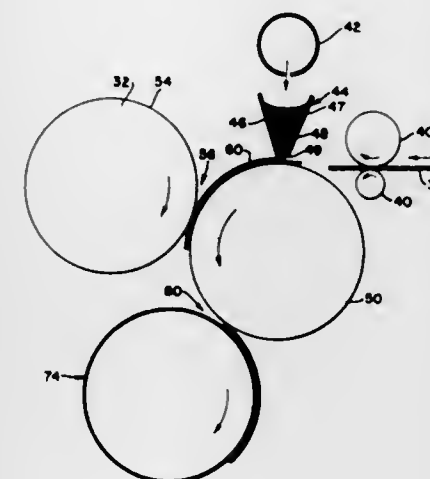
Int. Cl. B29b ; B32b 31/00

U.S. Cl. 156—500

3 Claims

Apparatus for making pictorial parallax panoramagram units wherein a coating roll, a pressure roll and a forming roll are mounted in parallel relationship to form a pair of spaced-apart nips, the first such nip being formed between the coating roll and the pressure roll and the second such nip being formed between the pressure roll and the forming roll. The

coating roll is heated and a metering means cooperates therewith to form a predetermined thickness of plastic material which is fed to the first nip. A backing sheet is fed by suitable means through the first and second nips, and at



the first nip, the metered layer of plastic is applied to the backing sheet. The forming roll is chilled so that as the backing sheet with the plastic thereon passes through the second nip, the plastic material is set to conform to the configuration of the surface of the forming roll.

3,635,779

LABELING MACHINE

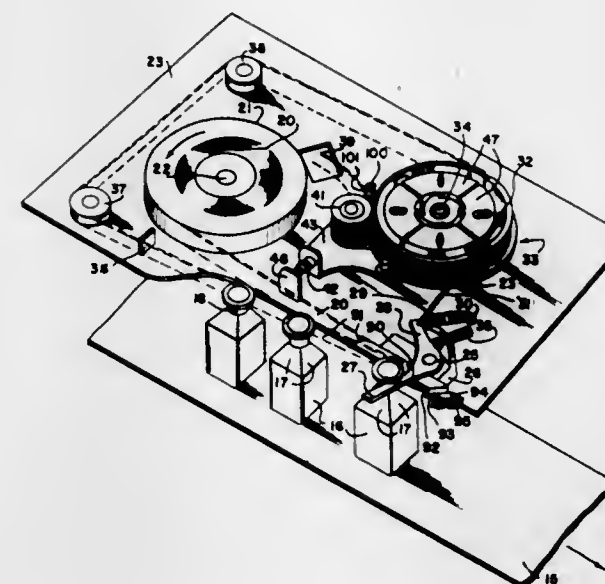
Mose Coleman Cooper, 1257 Gurr Avenue, Columbus, Ga.

Filed Nov. 19, 1969, Ser. No. 877,899

Int. Cl. B65c 9/18, 9/42

U.S. Cl. 156—542

5 Claims



Pressure-sensitized labels on a carrying tape are brought stepwise to a label-affixing zone through which filled containers are moved, such containers having curved or flat surfaces for receiving the labels, means being provided for stripping the labels from the tape and simultaneously directing the labels to the container surfaces, thereupon affixing such labels by pressure means to such surfaces and means being provided for activating the label supply means by action of the containers in moving through the label-affixing zone.

3,635,780

BONDING MACHINE FOR FABRICS WITH LOCATING AND AUXILIARY BONDING MEANS

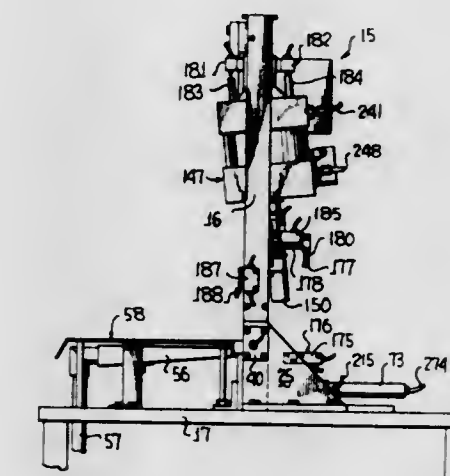
Richard V. Griggs, Palatine, and John G. Attwood, Oak Park, both of Ill., assignors to Union Special Machine Company, Chicago, Ill.

Filed Feb. 12, 1968, Ser. No. 704,840

Int. Cl. B30b 15/34; B32b 31/20

U.S. Cl. 156—583

16 Claims



This invention relates to an apparatus for bonding textile fabrics or similar sheet material by utilizing heat-activatable adhesives of the thermoplastic or thermosetting type, the apparatus being of the type including a pair of relatively movable presser bars between which adhesively coated lapped portions of the sheets are subjected to heat and pressure during a bonding operation. A retractable locating mechanism is provided adjacent the lowermost, stationary presser bar for accurately positioning an edge portion of a first sheet relative to a second sheet carried by the upper, movable presser bar. Releasable clamping means secure the second sheet to the movable presser bar, and the clamping means are preferably of an adjustable nature for securing different mixed ones of the second sheets to the movable presser bar. The movable presser bar also carries means for heat-pressure securing a third sheet, such as a label, to the second sheet which may, for example, be the waistband of a garment, prior to bonding the waistband to the sheet supported by the stationary presser bar, the latter sheet being, for example, the "developed" length of a pair of trousers, shorts or similar garments.

Piston-cylinder mechanisms are provided for exerting the necessary pressure during a bonding operation, and means are provided for preventing the operative positioning of the piston-cylinder mechanisms relative to the movable presser bar and the actuation thereof when an operator's hand or other obstructions are positioned between the presser bars.

In a preferred form of the invention each of the various means and mechanisms heretofore described is controlled by and under the influence of a fluid circuit system.

3,635,781

ADHESIVE PAPER

Niles F. Guichet, 320 Olympic Place, Anaheim, Calif.

Continuation-in-part of application Ser. No. 681,785, Nov. 9,

1967, now Patent No. 3,490,146, Continuation-in-part of

application Ser. No. 348,013, Feb. 28, 1964, now Patent No.

3,431,649. This application Sept. 2, 1969, Ser. No. 854,627

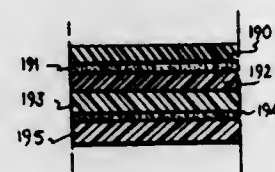
Int. Cl. B44f 1/00; B41m 5/00

U.S. Cl. 161—6

10 Claims

The invention comprises pressure-sensitive recording papers comprising in successive layers, a backing paper carrier, a releasable adhesive, a pressure-sensitive coating and a

clear protective overlay on a second carrier with a releasable adhesive. This recording paper is suitable for use in any



recording device and is particularly suitable for use with the dental pantograph described herein.

3,635,782

METHOD OF PREVENTING CONVERSION OF PHOTOGRAPHIC FILM USED FOR MAKING IMAGES OF A SINGLE OBJECT

Roger J. Kuhns, Lincoln, Mass., assignor to Avant Incorporated, Lincoln, Mass.

Filed Nov. 10, 1969, Ser. No. 875,492
Int. Cl. G03c 1/76, 3/00

U.S. Cl. 96-67

5 Claims

A method of preventing the home use of photographic film by employees which entails recording elongated marks thereon which are positioned between separate subareas of a film format, the subareas bearing multiple images of a single object to be photographed, such marks also aiding in the cutting steps which separate the multiple images from each other after the film is developed.

3,635,783

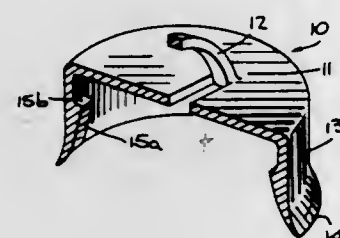
CHRISTMAS ORNAMENT STRUCTURE

William F. Rimmer, York, Pa., assignor to Eckman Corporation, Oak Brook, Ill.

Filed Dec. 18, 1969, Ser. No. 886,055
Int. Cl. A47q 33/08

U.S. Cl. 161-7

2 Claims



A cap for securing the neck of a Christmas ornament is disclosed as including a hollow cylindrical member being enclosed on one end. Gripping means including a plurality of gripping elements extend from the inside of the cylindrical member towards the interior of the cylindrical member to grip the neck of the ornament that may be press fit inside the cylindrical member.

3,635,784

SOLID COMPOSITE BOARDS HAVING A COMPACT CORE OF ADHESIVE BINDER AND 85-98 PERCENT BY VOLUME OF POROUS, NONABSORBING GRANULATES SELECTED FROM THE GROUP CONSISTING OF CORK BARK, AND VERMICULITE

Jens C. Saitker, 4, Finlandsgade, Haslev, Denmark
Filed Mar. 16, 1967, Ser. No. 623,613

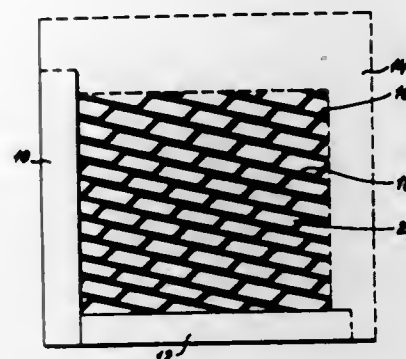
Claims priority, application Denmark, Mar. 17, 1966, 1384/66; Nov. 4, 1966, 5751/66; Dec. 14, 1966, 6480/66
Int. Cl. B32b 3/12, 21/02

U.S. Cl. 161-43

10 Claims

A solid board, such as a door plate, comprising a solid core having a first and second core face and a frame surrounding

said core adhesively connected thereto and having a first and second frame face flush with said first and second core face respectively. The first and second surface sheets are uniformly adhesively secured to the first core and frame face and to the second core and frame face respectively; the core consists of a compact core mass-produced from porous



nonabsorbing granulates, which have been brought mutually to adhere to each other by adhesive means. There are reinforcement means embedded in the core mass which consist of a number of strips made of fibrous material each having a width equal to the frame thickness and extending between the two surface sheets.

3,635,785

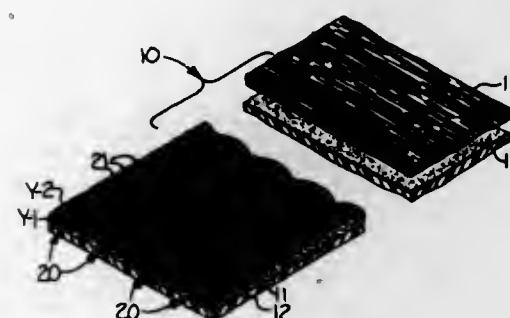
STITCHED NONWOVEN FABRIC UTILIZING A FOAM LAYER AND A FIBROUS LAYER

George H. Hughes, Asheville, N.C., assignor to Beacon Manufacturing Company, Swannanoa, N.C.

Filed Jan. 19, 1970, Ser. No. 3,755
Int. Cl. B32b 7/08

U.S. Cl. 161-50

9 Claims



A stitched, multilayer, nonwoven fabric adaptable for use as bed coverings, garments and the like and characterized by providing different outer surface characteristics. The fabric comprises a first layer of nonwoven textile fibers oriented in the widthwise direction of the fabric and forming one outer face of the fabric for providing textile fiber characteristics, a second layer of a compressible, resilient foam material superimposed on and contiguous with the first layer and forming the other outer face of the fabric for providing foam characteristics, and elongate, spaced-apart rows of stitches penetrating the superimposed layers for stitch-bonding together the fibers of the first layer and for stitch-bonding together the superimposed layers and extending in the lengthwise direction of the fabric. The stitched, nonwoven fabric may include outer treated surfaces for providing desired surface finishes thereon.

3,635,786

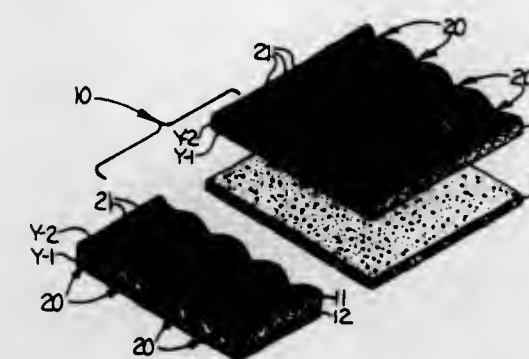
LAMINATED NONWOVEN FABRIC UTILIZING A FOAM LAYER AND A STITCHED FIBROUS LAYER

George H. Hughes, Asheville, N.C., assignor to Beacon Manufacturing Company, Swannanoa, N.C.

Filed Jan. 19, 1970, Ser. No. 3,777
Int. Cl. B32b 3/06

U.S. Cl. 161-50

10 Claims



A laminated, multilayer, nonwoven fabric adaptable for use as bed coverings, garments and the like and characterized by providing different outer surface characteristics. The fabric comprises a first layer of nonwoven textile fibers oriented in the widthwise direction of the fabric and forming one outer face of the fabric for providing textile fiber characteristics, elongate, spaced-apart rows of stitches penetrating the first layer for stitch-bonding together the individual fibers thereof and extending in the lengthwise direction of the fabric, and a second layer of a compressible, resilient foam material superimposed on, contiguous with and laminated to the first layer and forming the other outer face of the fabric for providing foam characteristics thereto. The laminated, multilayer, nonwoven fabric may include outer treated surfaces for providing desired surface finishes thereon.

3,635,787

MOLDING STRIP

Victor Shanok, and Jesse P. Shanok, both of Brooklyn, N.Y., assignors to Glass Laboratories Company, Brooklyn, N.Y.

Filed Nov. 7, 1967, Ser. No. 681,144
Int. Cl. B32b 3/00, 15/08

U.S. Cl. 161-121

8 Claims



A molding strip suitable as a decorative strip or member provided with a back piece characterized by having notches along at least a portion of the back. The molding strip is useful on outside and inside corners and on other arcuate surfaces.

3,635,788

DEINKING AND REMOVAL OF CERTAIN CONTAMINANTS FROM RECLAIMED PAPER STOCK-HEAVYING

Harry J. Braun, 923 Carolina Street, Neenah, Wis., and Stanley A. Dunn, 310 Plympton Street, Verona, Wis.

Filed Jan. 22, 1971, Ser. No. 108,834
Int. Cl. D21b 1/08, 1/32; D21c 5/02

U.S. Cl. 162-4

15 Claims

In centrifugal cleaning and deinking of reclaimed defibered paper stock, a material is introduced into a slurry of the

stock, which contains certain contaminants of about the same specific gravity as the fibers, so as to treat those contaminants selectively and cause them to assume the characteristics of heavier solids so that they are retained in the outer part of the vortex of the cleaner while the fibers migrate to the inner part of the vortex.

3,635,789

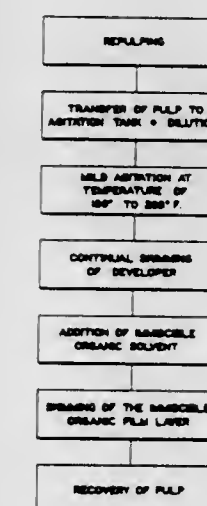
DEINKING OF WASTE XEROGRAPHIC COPY PAPER

Charles J. Green, Jr., Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed May 2, 1969, Ser. No. 821,375
Int. Cl. D21c 5/02

U.S. Cl. 162-5

9 Claims



A flotation process for the removal of toner from waste xerographic copy paper which comprises adding a thin film of an immiscible organic solvent to an aqueous bath of repulped waste xerographic paper, mildly agitating the stock suspension, and skimming off the accumulated toner contained in the immiscible organic layer.

3,635,790

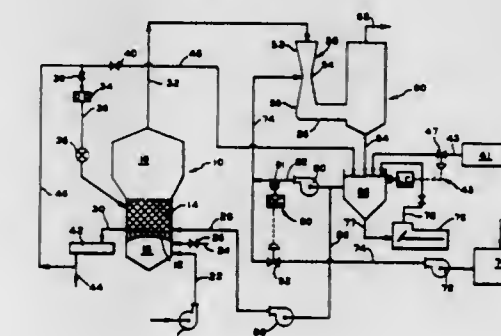
PROCESS FOR THE THERMAL OXIDATION OF SPENT LIQUOR

Thomas K. Heath, Westport, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn.

Filed July 2, 1969, Ser. No. 838,522
Int. Cl. D21c 11/12

U.S. Cl. 162-30

16 Claims



A partially concentrated spent liquor is introduced into a venturi-type scrubber-evaporator along with combustion gases containing entrained solids from a fluidized bed reactor. From the scrubber-evaporator, the combustion gases are removed with a cyclone separator and the remaining concentrated spent liquor and entrained solids are passed through a comminuting device. Preferably the comminution device is a

comminution pump. The comminution device grinds the entrained solids into very fine particles by continuous recycling. The resulting concentrated spend liquor containing finely ground solids can be partially recycled to the venturi-type scrubber-evaporator by mixing a portion of the fine solid containing liquor with the original spent liquor feed to the venturi. The amount of solids fed to the venturi-type scrubber-evaporator can be controlled by varying the amount of fine solid containing liquor feed. The remainder of the fine solid containing concentrated spent liquor is fed to the fluidized bed oxidation reactor whereby an ash bed product can be treated for chemical recovery without the problem of scrubber-evaporator shutdowns due to large solid particles.

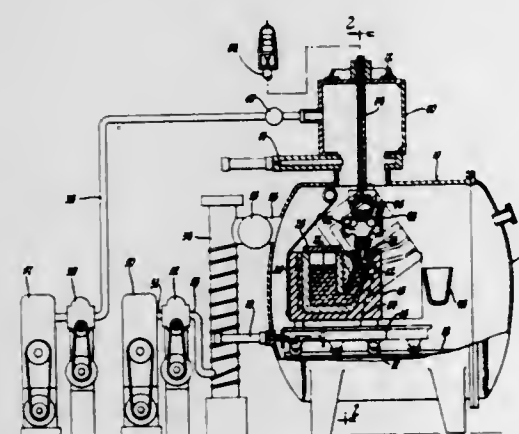
3,635,791

PRESSURE POURING IN A VACUUM ENVIRONMENT
Kenneth B. Bly, Bloomfield Hills, and Donald S. Mills, Southfield, both of Mich., assignors to General Motors Corporation

Filed Aug. 4, 1969, Ser. No. 847,118
Int. Cl. B22d 27/16

U.S. Cl. 164—258

2 Claims



An apparatus for melting and casting high-temperature, heat-resistant alloys in a vacuum environment. The apparatus includes an induction-heated furnace having an upwardly extending pouring spout mounted in a vacuum chamber, a boron nitride pouring nozzle, a bottom fill permeable refractory mold, and means whereby the molten metal is forced under pressure into the mold and allowed to solidify. In the casting process, the metal is melted under a vacuum, an evacuated bottom fill mold is seated on the pouring nozzle, and the molten metal is forced under pressure up into the mold and allowed to solidify all under vacuum conditions to produce a precision casting of superior quality.

3,635,792

REFUELLING MEANS FOR NUCLEAR REACTORS
Allan Barker, Chester, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed July 22, 1968, Ser. No. 746,429
Claims priority, application Great Britain, Aug. 16, 1967, 37,819/67

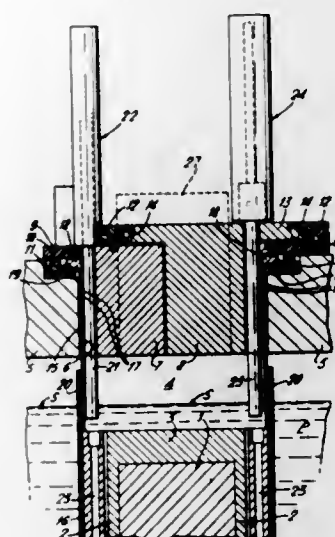
Int. Cl. G21c 19/18

U.S. Cl. 176—32

6 Claims

A fast reactor of the type which has its core submerged in a pool of liquid coolant contained in a vessel, is provided with an annular store for fuel elements, the store also being submerged in said pool of liquid coolant and being disposed concentrically relative to said reactor core. Fuel-handling

means are provided for moving fuel elements to said store and from thence to said core, and vice versa. The annular store is preferably rotatable relative to a fixed part of the reactor installation and enables unloading and loading of said



store to be undertaken while the reactor is operating. The fast reactor is conveniently liquid-metal-cooled.

3,635,793

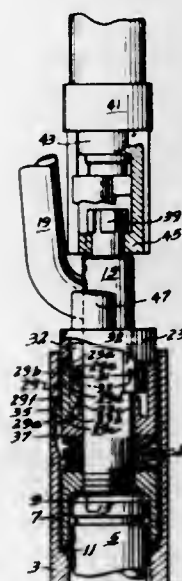
CONNECTOR ASSEMBLY

Jack W. Kolb, and Bob G. Smith, both of Richland, Wash., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 7, 1969, Ser. No. 864,430
Int. Cl. G21c 21/00

U.S. Cl. 176—87

8 Claims



A working member, particularly nuclear fuel, is held in place by a latched assembly. The latches are operated by a slidable sleeve working against a heavy spring. A pneumatic cylinder and piston pushes the slide against the spring, releasing the latches. The arrangement also compensates for creep or thermal expansion and, in one embodiment, relieves pressure surges.

3,635,794

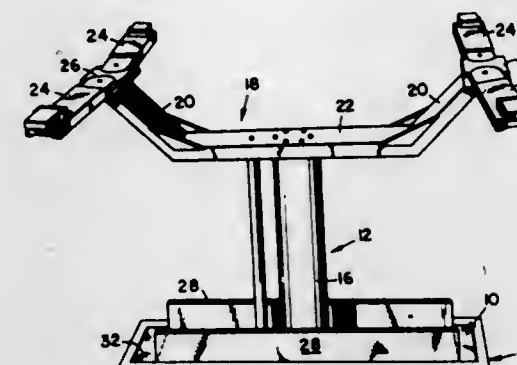
SAFETY DOOR FOR VEHICLE LIFT

John G. Petry, San Jose, Calif., assignor to J. D. Cochran Manufacturing Company, San Francisco, Calif.

Filed Jan. 5, 1970, Ser. No. 579
Int. Cl. B66f 7/28

U.S. Cl. 187—8.62

8 Claims



A door mechanism for the ends of the rectangular opening of the floor box for housing a vehicle lift of the type which is disposed below floor level in the lift box when the lift is at its lowest position. The mechanism includes a pair of swingable safety doors for the ends of the opening of the floor box. The safety doors are actuated by the swingable movement of the pair of main doors which cover the central portion of the opening of the floor box when the lift is at its lowest position. An actuating arm is provided for each safety door, respectively, for moving it into a horizontal position in response to swinging movement of a corresponding main door. The arm also supports the safety door in its horizontal position.

3,635,795

ENZYMATIC RESOLUTION OF RACEMIC (CIS-1,2-EPOXYPROPYL) PHOSPHONIC ACID COMPOUNDS

Arnold L. Demala, Westfield; John M. Chemerda, Watchung, Plainfield, and Raymond F. White, Englishtown, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 27, 1968, Ser. No. 787,580
Int. Cl. C12d 9/00

U.S. Cl. 195—2

12 Claims

Enantiomeric mixtures of esters and amides of (cis-1,2-epoxypropyl)phosphonic acid (—) stereoselectively hydrolyzed by enzymes of micro-organisms to produce (—) (cis-1,2-epoxypropyl)phosphonic acid. This product and its salts have antibacterial activity.

3,635,796

METHOD FOR FERMENTING A LIQUEFIED HYDROCARBON GAS

Osamu Imada, Machida-shi; Kazuo Hoshiai, Tokyo, both of Japan, and Masatami Tanaka, deceased, late of Machida-shi, Japan (by Itsuko Tanaka, administratrix) assignors to Kyowa Hokko Co., Ltd., Tokyo, Japan

Continuation of application Ser. No. 702,765, Feb. 23, 1968, now abandoned. This application May 26, 1968, Ser. No. 740,402

Int. Cl. C12b 1/00

U.S. Cl. 195—28 R

7 Claims

A continuous process for culturing a micro-organism in an aqueous nutrient medium under aerobic conditions in the presence of a liquefied hydrocarbon gas as a main carbon source which comprises adding fresh liquefied hydrocarbon gas to the culture medium, determining the concentration of dissolved liquefied hydrocarbon gas in the culture medium and controlling the addition of fresh liquefied hydrocarbon gas depending upon the detected concentration of said liquefied hydrocarbon gas in the culture medium, the supply and dissolution of the liquefied hydrocarbon gas being based

on the rate of said gas consumed by the micro-organisms. Alternatively, the partial pressure of the liquefied hydrocarbon gas in the vent gas can be measured and used to control the rate of liquefied hydrocarbon gas supplied to the culture medium.

3,635,797

ENZYMATIC COMPOSITION

John J. Battistoni, and William E. Hibbard, both of Las Vegas, Nev., assignors to Nevada Enzymes, Inc.

Filed Nov. 18, 1968, Ser. No. 776,772
Int. Cl. C02c 1/02

U.S. Cl. 195—56

7 Claims

Multienzymatic composition comprises an enzymatic fermentation reaction product, surfactants, citric and lactic acids, urea and pine oil.

3,635,798

BLOOD AND FLUID CULTURING SYSTEM

William R. Kirkham, 77 Livingston Ave., Edison, N.J., and William R. Kozub, 212 High Street, Metuchen, N.J.

Continuation-in-part of application Ser. No. 717,708, Apr. 1, 1968, now abandoned. This application Mar. 24, 1969, Ser. No. 809,881

Int. Cl. C12k 1/04

U.S. Cl. 195—103.5

6 Claims

Method of culturing blood by agglomerating red blood cells in a container containing a solution of "agglomerating" agents and a nutrient medium for any bacteria which may be present in the blood, filtering the solution and unagglomerated blood elements whereby bacteria are trapped upon the filter, adding a culture medium to the filter and incubating the bacteria for growth and identification. The filtering unit may be composed of two separate filters so that aerobic and anaerobic bacterial growth may be carried out. The apparatus for the method is also disclosed.

3,635,799

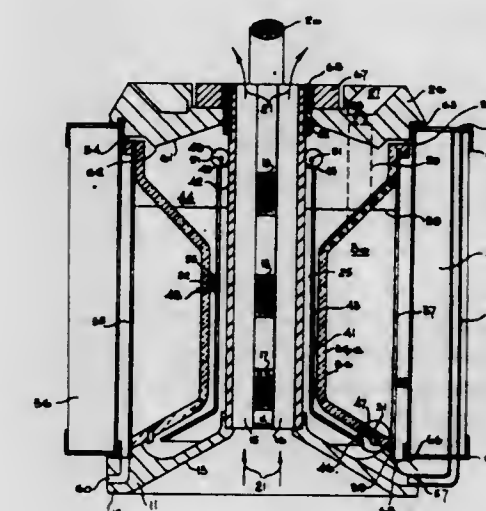
PORTABLE STILL WITH CONCENTRIC-VAPORIZING, RESERVOIR AND COLLECTION CHAMBERS

Alvin Lowi, Jr., 2146 Toscani Drive, San Pedro, Calif.
Filed Jan. 31, 1969, Ser. No. 795,468

Int. Cl. B01d 3/00

U.S. Cl. 202—83

9 Claims



A distillation unit including a vaporizing chamber, a reservoir containing liquid to be distilled and operatively associated with the vaporizing chamber to feed liquid thereto, means for heating the vaporizing chamber liquid to produce a vapor phase thereof, and means for condensing the vapor phase to form a distilled liquid separated from the reservoir

liquid. A flue is provided in heat-exchange relation with the vaporizing chamber and means are provided for directing heat to the flue. Means are also provided for rupturing bubbles of vapor produced in the vaporizing chamber.

3,635,800

TRANSFER OF LIQUID AS VAPOR BETWEEN BODIES OF LIQUID WITH DIFFERENT CURVATURES AND ASSOCIATED VAPOR PRESSURES

Franklin A. Rodger, and Edward M. Parcell, both of Cambridge, Mass., assignors to Pactide Corporation, Cambridge, Mass.

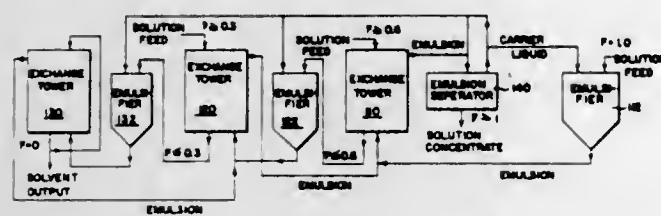
Continuation-in-part of application Ser. No. 631,523, Apr. 17, 1967, now abandoned, Continuation-in-part of application Ser. No. 256,407, Feb. 5, 1963, now abandoned.

This application Mar. 23, 1970, Ser. No. 21,877

Int. Cl. B01d 3/00, 3/14, 3/34, 3/08; B01f

U.S. Cl. 203-10

16 Claims



A liquid transfer system is disclosed, particularly applicable to the desalination of water, in which a solution, e.g., saline water, is formed into fine droplets having a specified curvature and associated vapor pressure dispersed in a carrier fluid immiscible with the solvent to form a disperse system which is then brought into intimate association with a body of solvent of lower solute concentration and having a smaller curvature and lower associated vapor pressure creating an unstable condition in which solvent transfers as vapor from the droplets of the disperse system to the body of solvent. Examples are given in which the disperse system is an aerosol, i.e., carrier fluid is a gas, or an emulsion, i.e., carrier fluid is a liquid.

3,635,801

NICKEL ELECTRODEPOSITION PROCESS FOR IMPROVING HIGH-TEMPERATURE DUCTILITY

Charles A. Bruch, Cincinnati, Ohio, assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 5, 1969, Ser. No. 804,593

Int. Cl. C23b 5/08

U.S. Cl. 204-49

1 Claim

A process of electroplating nickel using an electrolyte containing a sulfamate. The process is conducted at a temperature of 27° C. or lower. The electrolyte may be used in either an acid or an alkaline bath.

3,635,802

METHOD OF ANODIZING A THIN-FILM DEVICE

Robert A. Manning, Essex, Mass., and Donald H. Raymond, Rockingham, N.H., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 6, 1970, Ser. No. 87,370

Int. Cl. C23b 9/00

U.S. Cl. 204-56 R

15 Claims

Thin-film resistors and other devices are precision adjusted by a regular, geometric progression of steps. Each step of a binary step anodization pattern for adjusting a resistor to a nominal resistance value is designed to decrease by one-half the percentage deviation in resistance from the nominal value at the end of the preceding step. Successive binary step decreases in the percentage resistance deviation are attained by a series of binary step decreases in the product of anodizing current and anodizing time for each step. The resultant,

decreasing rate adjustment pattern tends to render negligible any chance of substantially overshooting the desired nominal value while permitting rapid attainment of the nominal value.

A general purpose, process control computer is equipped with a series of tapes or other program devices storing anodizing current and anodizing time information for carrying out successive steps of the subject anodizing technique. Such information is that which has been derived for given sets of conditions and resistor codes, incorporating various regular, geometric progression anodizing patterns and linear approximations, such as a linear approximation of a binary step pattern. Each resistor is anodized in successive steps, after each of which steps a resistance measurement is made and the anodizing current and anodizing time for the next step are determined. Anodization is terminated when the tolerance zone about the nominal resistance value is entered.

3,635,803

PREPARATION OF OLEFIN OXIDE FROM AN OLEFIN

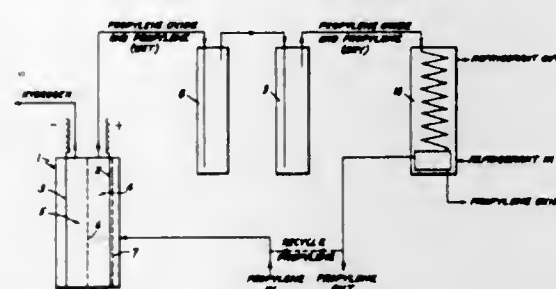
Thomas David Binns, Watford, and David Cyril George Gattiker, London, both of England, assignors to Interzo A.G., Glarus, Switzerland

Continuation-in-part of application Ser. No. 879,159, Nov. 24, 1969, now abandoned. This application Sept. 30, 1970, Ser. No. 76,781

Int. Cl. C07b 29/06; C07d 1/08, 1/14

U.S. Cl. 204-80

32 Claims



An olefin oxide is produced by electrolysis of an aqueous medium containing acetate ions while an olefin is added to the medium.

3,635,804

PREPARATION OF CHLORINE BY ELECTROLYSIS OF HYDROCHLORIC ACID AND POLYVALENT METAL CHLORIDES

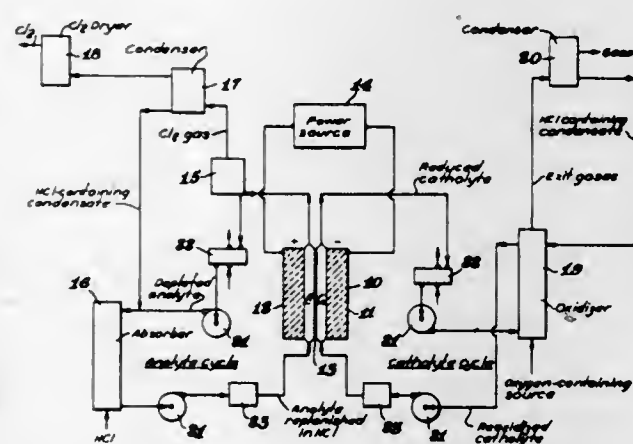
Gerhard Gritzner, and James J. Leddy, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed July 24, 1969, Ser. No. 844,402

Int. Cl. C01b 7/06, 11/26

U.S. Cl. 204-128

5 Claims



The present invention relates to a dual electrolyte system utilizing a diaphragm electrolytic cell. The anolyte and

catholyte, containing aqueous HCl and a polyvalent reducible metal chloride, are processed and recycled separately. The system of the present invention produces high-purity Cl₂ at higher than conventional current efficiencies.

3,635,805

WORKING OF METAL BODIES

Samuel Raviv, Beer-Sheva; Elia Rabinovitz, Dimona, and Shimon Malkiel, Beer-Sheva, all of Israel, assignors to The State of Israel, Atomic Energy Commission, Beer-Sheva, Israel

Filed Aug. 12, 1968, Ser. No. 751,925

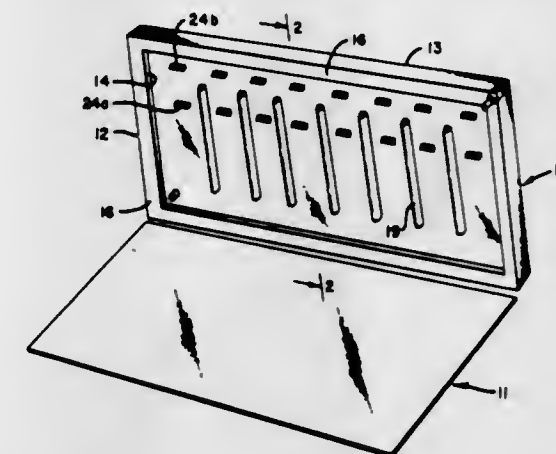
Claims priority, application Israel, Feb. 29, 1968, 29,547

Int. Cl. B23p 1/00

U.S. Cl. 204-143 R

9 Claims

Electrolytic working of metal or mineral bodies. An electrolytic circuit is established using nitric acid as electrolyte and cathodes which are inert to the electrolyte under the operating conditions and the body to be worked is immersed into the electrolyte and brought into direct contact with, or close proximity to, the cathode. A current is flown through the circuit and by this the body is bored, cut or the like according to the specific arrangement.



of gel from the cover. Also continuous and semicontinuous methods of production are provided.

3,635,809

ELECTRODEPOSITION COATING PROCESS OF VINYLIDENE FLUORIDE RESIN

Shigeru Seki, and Kouji Sato, both of Iwaki-shi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 28, 1969, Ser. No. 819,979

Claims priority, application Japan, Apr. 26, 1968, 43/28201

Int. Cl. B01k 5/02

U.S. Cl. 204-181

13 Claims

An electrodeposition process which comprises electrophoretically depositing a vinylidene fluoride resin on an electrical conductor from a solvent mixture consisting essentially of a vinylidene fluoride resin powder dispersion in an organic liquid dispersing medium, said organic liquid dispersing medium comprising an organic liquid having a dielectric constant greater than 3.8 and being selected from the group consisting of organic liquids having a solubility parameter of from about 7.0 to about 13.0, exhibiting a low degree of hydrogen bonding, a solubility parameter of from about 7.7 to about 12.5 exhibiting a middle degree of hydrogen bonding, a solubility parameter of from about 9.6 to about 11.8 exhibiting a high degree of hydrogen bonding, and mixtures thereof.

3,635,810

ELECTROCOATING WITH DESULFATED PIGMENTS

Garmond G. Schurr, Palos Heights, Ill., and Bruce M. Morgan, Griffith, Ind., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed Sept. 22, 1969, Ser. No. 860,023

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204-181

3 Claims

Pigments having sulfate impurity are treated with barium hydroxide. Such pigments are useful in producing glossy anodic deposits of pigmented polycarboxylic resins by electrocoating processes. The bath stability over long periods of time can be substantially improved and is valuable in continuous electrocoating processes.

3,635,811

METHOD OF APPLYING A COATING

George C. Lane, Milford, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Nov. 6, 1967, Ser. No. 680,794

Int. Cl. C23c 15/00

U.S. Cl. 204-192

8 Claims

An apparatus for applying a coating material to a substrate such as a razor blade, comprising a drum unit having a plu-

3,635,808

METHOD AND APPARATUS FOR FORMING ELECTROPHORESIS APPARATUS AND THE LIKE

Franklin R. Elevitch, 430 Nevada Street, Palo Alto, Calif.

Continuation-in-part of application Ser. No. 300,341, Aug. 6, 1966, now abandoned, continuation-in-part of application

Ser. No. 579,089, Sept. 13, 1966, now abandoned, continuation-in-part of application Ser. No. 664,133, Aug. 29, 1967, now Patent No. 3,479,265, dated Nov. 18, 1969.

This application Nov. 17, 1969, Ser. No. 877,378

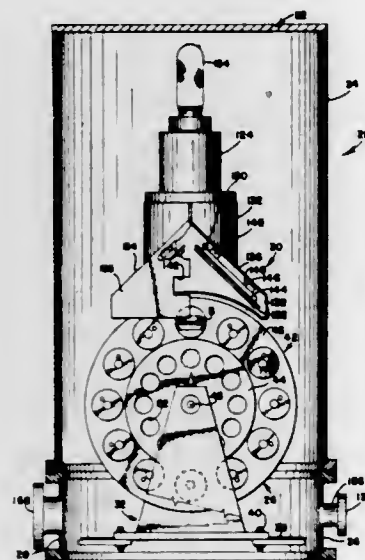
Int. Cl. B01k 5/00

U.S. Cl. 204-180 G

10 Claims

Thin film apparatus for electrophoresis, chemical analyses and the like is provided, the film being an aqueous gel such as agarose gel. Improvements in the manufacture of such ap-

ality of driven hub assemblies, each of which supports carrier means for carrying a large number of razor blades, and in which the hubs are driven, for example, by an epicyclic gear or chain mechanism, so as to expose the desired portions of



the carriers, in a desired timed relation, to a coating material which is caused to emanate from a fixed source. The source comprises a so-called sputtering module including housing having, at the top part thereof, a pair of angled target plates from which the coating material is taken, and, at the bottom thereof, an opening past which the carriers are moved by the drum.

By "sputtering" as used herein, is meant the slow disintegration of a target under the bombardment of ionized gas molecules, and, more particularly, the disintegration of a coating material which is placed on the target and transferred to a substrate after being "sputtered" from the target.

The coating material is moved from the target plates to the substrate by a so-called "RF induced plasma sputtering" process. In this process, with the apparatus and materials in a very high vacuum, a high radio frequency, ("R.F.") is impressed across two electrode plates, each of which is disposed immediately behind the target plates, and each of which attains a high negative space charge. Thereafter, a normally inert gas, such as argon is introduced to the area between the plates, ionized, by bombardment with high velocity electrons, and the resulting plasma particles strike the target plates containing the coating material, freeing or "sputtering" it therefrom, in atomic or molecular sized particles, which are then attracted to the grounded potential substrate and are received and firmly bound thereon to form a coating of extreme smoothness and adhesion. In one embodiment, a metal coating is sputtered onto the edge portions of razor blades, and in other embodiments, organic polymers or other high-molecular weight coatings are transferred to a substrate, in some cases with simultaneous partial chemical breakdown, rearrangement, or other chemical or physical reaction during the sputtering process, and in still further embodiments, metal oxides, alloys, or other metal compounds are transferred, or simultaneously formed and transferred.

3,635,812

SOLID OXYGEN-ION ELECTROLYTE CELL FOR THE DISSOCIATION OF STEAM

Henry S. Spacil, Schenectady, N.Y., assignor to General Electric Company

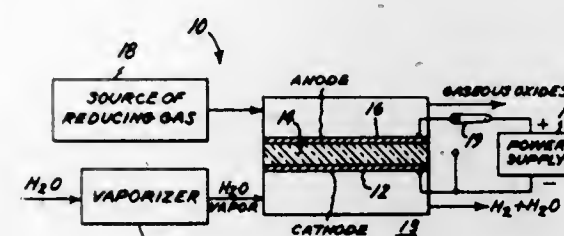
Filed July 5, 1968, Ser. No. 742,653
Int. Cl. B01k 1/00, 3/04, 3/06

U.S. Cl. 204-193

4 Claims

The dissociation of water vapor primarily for the generation of hydrogen gas by the use of a solid oxygen-ion elec-

trolyte cell is described. In the preferred arrangement means



for supplying a flow of reducing gas to the anode is employed to depolarize the anode.

3,635,813

ANODE SYSTEM FOR CATHODIC PROTECTION OF STRETCHED CHAIN

Richard W. Drisko, Oxnard, and Earl J. Klefer, La Mesa, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy
Filed Mar. 3, 1969, Ser. No. 803,764
Int. Cl. C23f 13/00

U.S. Cl. 204-197

1 Claim



The invention comprises cathodic protection against corrosion of stretched chain immersed in an electrolyte (sea water) in which sacrificial anodes of pure zinc are cast onto independent and spaced links of the chain. In order to ensure electrical continuity between adjacent links, a cable may be stretched therealong connecting each link to the spaced anodes. Thus when the chains are positioned in water having a high conductivity, e.g., sea water, the sacrificial anodes are consumed and an electrical current passes along the chain links so as to produce electrical potential and cathodically protect the chain from corrosion.

3,635,814

CATALYTIC COAL CONVERSION PROCESS

Robert W. Rieve, Springfield, and Harold Shalit, Drexel Hill, both of Pa., assignors to Atlantic Richfield Company, New York, N.Y.

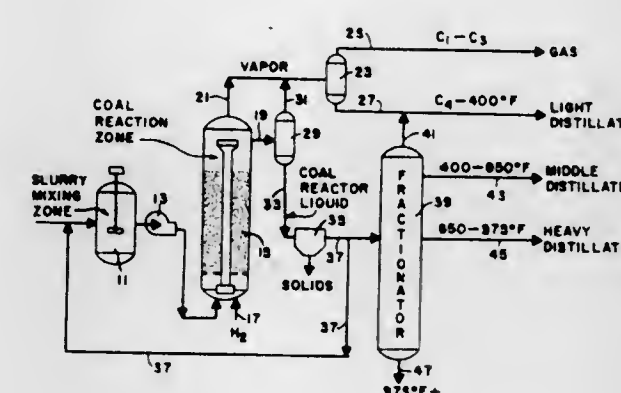
Filed Nov. 25, 1970, Ser. No. 92,613
Int. Cl. C10g 1/08

U.S. Cl. 208-10

16 Claims

The hydroconversion of coal solids is accomplished at conversion conditions by bringing coal solids, molecular hydrogen and catalyst solids into contact in a reactor. The catalyst solids are comprised of catalytically active substance containing molybdenum on an alumina support material. The catalyst solids are in the size range between 3 and 200 mesh

U.S. Sieve Series and have a pore volume of at least 0.015 monosex fish, either separately or in combination are in milliliter (STP) per gram and an accessible pore distribution operative contact with a constantly changing body of liquid



such that at least 50 percent of the pores are greater than 1,100 angstroms.

3,635,815

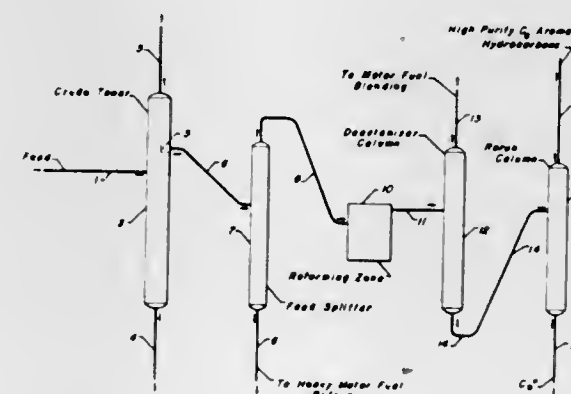
PROCESS FOR PRODUCING A MIXTURE OF HIGH-PURITY C AROMATIC HYDROCARBONS

Paul J. Kuchar, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed July 2, 1969, Ser. No. 838,619
Int. Cl. C10g 35/00

U.S. Cl. 208-95

2 Claims



High purity C₈ aromatic hydrocarbons are produced by prefractionating a C₆-400° F. naphtha feed fraction into a 270° F. to 275° F. endpoint fraction and catalytically reforming this 270° F. to 275° F. endpoint fraction to produce a reformat having a minimum of C₆+ hydrocarbons. The reformat is then passed to a deoxygenizing zone and a rerun column zone to recover a mixture of high-purity C₈ aromatic hydrocarbons.

3,635,816

METHOD OF PURIFYING CITRUS PLANT EFFLUENT AND RAISING WORMS AND FISH

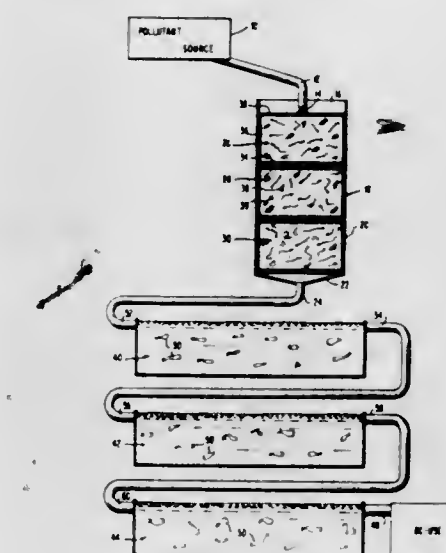
Gerald Golub, 1879 Via Genoa, Winter Park, Fla.

Filed Aug. 12, 1969, Ser. No. 849,473
Int. Cl. C02c 1/02

U.S. Cl. 210-2

1 Claim

Removable filter units consisting of environmental support material holding captured worms, or great numbers of



for removing organic pollutants while allowing periodic harvesting of mature worms and fish.

3,635,817

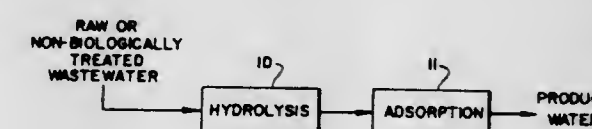
WASTE WATER TREATMENT PROCESS

Mathew M. Zuckerman, Yonkers, and Alan H. Molof, New City, both of N.Y., assignors to Envirotech Corporation, Palo Alto, Calif.

Filed Oct. 17, 1968, Ser. No. 768,378
Int. Cl. C02c 5/02

U.S. Cl. 210-26

15 Claims



Waste water from industrial and municipal sources is treated in a hydrolysis treatment sequence wherein large soluble organic molecules such as proteins and polysaccharides in the waste water are broken down into small molecules such as amino acids and mono and disaccharides which are more readily adsorbed by activated carbon or other adsorbents. Additional treatment processes may be employed at various stages of the hydrolysis treatment sequence.

3,635,818

CHITIN AND CHITOSAN AS CHROMATOGRAPHIC SUPPORTS AND ADSORBENTS FOR COLLECTION OF METAL IONS FROM ORGANIC AND AQUEOUS SOLUTIONS AND SEA WATER

Maria Gertrude Muzzarelli, Nee Weckx, Casella Postale 693, Bologna 40100, Italy

Filed Oct. 13, 1969, Ser. No. 865,999
Claims priority, application Italy, Dec. 6, 1968, 1836/68
Int. Cl. B01d 15/08

U.S. Cl. 210-31 C

10 Claims

The present invention relates to the use of chitin as a chromatographic chelating support and adsorbent for the collection and for the separation of the metal ions from aqueous and organic solutions and from sea water.

3,635,819

PROCESS FOR CLEANING UP OIL SPILLS

Robert Kaiser, Cambridge, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed June 15, 1970, Ser. No. 46,558
Int. Cl. E02b 15/04

U.S. Cl. 210—40

10 Claims

The present invention relates to a system for controlling oil spills floating on open bodies of water. The process involves dispersing a hydrocarbon base ferrofluid containing an oil soluble water insoluble surfactant and a stable colloid of magnetic solids e.g. magnetite into the oil slick, then using a magnetic field to attract and pick up the oil spill, which is now magnetically responsive.

3,635,820

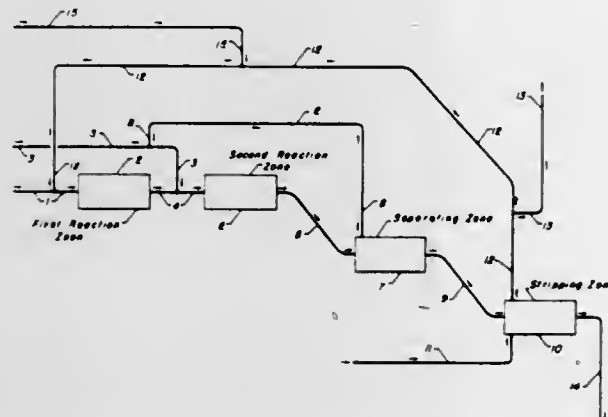
TREATING A WATER STREAM CONTAINING A WATER-SOLUBLE SULFITE COMPOUND

Peter Urban, Northbrook, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Aug. 31, 1970, Ser. No. 68,274
Int. Cl. C02b 1/18

U.S. Cl. 210—61

21 Claims



A water stream containing a water-soluble sulfite compound is treated in order to reduce its total sulfur content while minimizing the formation of sulfate byproducts by the steps of: (a) converting the sulfite compound contained in the water stream to the corresponding thiosulfate compound; (b) catalytically reacting the resulting thiosulfate compound with hydrogen at reduction conditions selected to produce the corresponding sulfide compound; and thereafter (c) stripping hydrogen sulfide from an effluent stream from step (b) to form a substantially sulfate-free treated water stream which is substantially reduced in total sulfur content relative to the input water stream. Principal utility of this treatment procedure is associated with the regeneration of a sulfite-containing absorbent stream which is commonly produced by contacting a flue gas stream containing sulfur dioxide with a suitable aqueous absorbent stream containing an alkaline reagent.

3,635,821

FLAME RETARDANT COMPOSITIONS COMPRISING AN INERT FILLER, A HALOGEN SOURCE AND A PHOSPHORUS-CONTAINING COMPOUND AND METHODS FOR THEIR PREPARATION

Kenneth Treadwell, Rahway, N.J., assignor to M & T Chemicals Inc., New York, N.Y.

Filed July 23, 1969, Ser. No. 844,179
Int. Cl. C09k 3/28; B44d 1/16

U.S. Cl. 252—8.1

17 Claims

A flame-retardant system is provided for polyurethane foams comprising an inert filler, a halogen source and a phosphorus-containing compound, and, also, urethane foam compositions containing the flame-retardant systems. In addition, methods are provided for making the systems including coating the individual particles of the filler with a composition containing the halogen source, and thereafter adhering the phosphorus-containing compound to the coated particles.

and also, methods for making the flame-retardant urethane foam compositions.

3,635,822

DRILLING FLUID

Jack H. Douglass, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Nov. 7, 1969, Ser. No. 874,953
Int. Cl. C10m 3/34

U.S. Cl. 252—8.5 A

3 Claims

A method of restoring the physical properties to a shale control drilling fluid containing a dihydroxynaphthalenesulfonic acid dispersant wherein the hydroxyl groups are in adjacent positions to each other on the same ring and the sulfonic acid group is on either ring that has been detrimentally effected by exposure to high-drilling temperatures above about 250° F., which comprises stirring said heated drilling fluid and adding thereto a minor amount of calcium hydroxide.

3,635,823

SYNERGISTIC COMPOSITION AND USE THEREOF

Edwin J. Latos, Chicago, and Robert H. Rosenwald, Western Springs, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of application Ser. No. 591,990, Nov. 4, 1966, now abandoned. This application Jan. 30, 1970, Ser. No. 7,208

Int. Cl. C10m 1/46

U.S. Cl. 252—32.5

11 Claims

Synergistic mixture of (1) the reaction product of from one to two mole proportions of amino compound and one mole proportion of polyhalopolyhydopolycyclicdicarboxylic acid or anhydride and (2) salt of oxyalkylenated alcohol phosphate and amino compound.

3,635,824

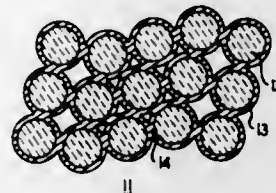
RESISTANCE HEATER AND METHOD FOR PREPARATION THEREOF

Raymond G. Brandes, Meyersville, N.J., and Charles M. Picass, Reiffen, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 3, 1969, Ser. No. 838,862
Int. Cl. H01b 1/02

U.S. Cl. 252—512

4 Claims



A resistance heater comprising a sintered mass of refractory particles, each particle comprising an insulating core coated with a thin film of an electrically conducting material, is obtained by a processing sequence involving coating the particles of interest, compacting the coated particles to form a pellet and sintering the pellet. Devices produced in accordance with the described technique manifest enhanced reliability and uniformity as compared with prior art heaters, and permit a new degree of freedom in the design of heating elements.

3,635,825

WATER-INSENSITIVE HYDRAULIC FLUIDS CONTAINING BIS-BORATE ESTERS OR BRIDGED-BORATE ESTERS

Arthur W. Sawyer, Hamden, and David A. Csejka, Orange, both of Conn., assignors to Olin Corporation

Continuation-in-part of application Ser. No. 717,997, Apr. 1, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 653,335, July 14, 1967, now abandoned. This application Oct. 12, 1970, Ser. No. 80,121

Int. Cl. C09k 3/00

U.S. Cl. 252—75

14 Claims

This invention relates to water-insensitive hydraulic fluid compositions which contain at least one bis-borate or

3,635,829

DETERGENT FORMULATIONS

Meiling T. Yang, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed May 19, 1969, Ser. No. 825,985
Int. Cl. C11d 3/34, 3/30

U.S. Cl. 252—526

10 Claims

To obviate eutrophication of water, nonphosphorus detergent builders are provided. These are the water-soluble salts of 2-[N,N-di-(carboxymethyl)]amino-3-sulfopropionic acid (e.g., the tetrasodium salt thereof). Conventional detergent actives may be used with these builders. Synthesis of the builders is described.

3,635,830

DETERGENT COMPOSITIONS CONTAINING OXYDISUCCING ACID SALTS AS BUILDERS

Vincent Lambert, Upper Saddle River, and Mark D. Komort, Hawthorth, both of N.J., assignors to Lever Brothers Company, New York, N.Y.

Continuation-in-part of application Ser. No. 731,700, May 24, 1968, now abandoned. This application Nov. 24, 1969, Ser. No. 879,627

Int. Cl. C11d 3/20, 7/26; C02b 1/22

U.S. Cl. 252—152

7 Claims

There are disclosed herein detergent compositions containing a water-soluble organic detergent compound and as a builder therefore the normal alkali metal, ammonium or alkanol amine salts of ether polycarboxylic acids selected from the group consisting of oxydisuccinic acid, carboxymethyloxysuccinic acid and hydrofuran tetracarboxylic acid.

3,635,831

PRODUCTION OF HIGH-PURITY CESIUM-137

Arthur F. Rupp, John J. Pinajian, and Stanley J. Rimshaw, all of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 25, 1969, Ser. No. 861,193
Int. Cl. G21c 19/00

U.S. Cl. 252—301.1 R

6 Claims

A method has been provided for the production of high-purity cesium-137 free of cesium-134. Concentrated ¹³⁷Cs free of ¹³⁴Cs is obtained by removing nonsoluble gases, including xenon isotopes, from an operating reactor and passing these gases through a stainless steel mesh at a point in time of the gas removal path to optimize the decay of ¹³⁷Xe to ¹³⁷Cs. Since cesium is highly reactive, it will react with the mesh and thereby be deposited thereon. The mesh is then periodically removed from the gas stream and washed with water to remove the solids enriched in ¹³⁷Cs.

3,635,832

DECORATIVE COMPOSITION

Jack Toney, Minneapolis, Minn., assignor to Craft Master Corporation

Filed May 26, 1969, Ser. No. 827,888
Int. Cl. C09k 1/00

U.S. Cl. 252—301.3 R

4 Claims

There are disclosed improved decorative compositions containing a flock agent, generally combined with an adhesive in which at least a portion of the flock agent is composed of particles containing an ultraviolet responsive, luminescent material. The particles preferably have an average size in the range of 25 microns to one-half inch. The compositions are useful in decorating surfaces such as Christmas trees, floats and glass windows, particularly where a flocked decorative design is desired.

bridged-borate ester as the base component in said fluid composition. Such water-insensitive hydraulic fluids are high-boiling compositions particularly useful as brake fluids.

3,635,826

COMPOSITIONS AND METHODS FOR TREATING METAL SURFACES

Andrew J. Hamilton, Philadelphia, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Filed Nov. 3, 1969, Ser. No. 873,626
Int. Cl. C23g 1/08, 1/12; C23f 3/00

U.S. Cl. 252—79.4

20 Claims

Acidic solutions having as an acidic component phosphoric acid and sulfuric acid, as a surfactant component a mixture of primary ethoxylated alcohol and modified polyethoxylated straight chain alcohol, and as a sequestrant component a mixture of oxalic acid and citric acid, are useful in cleaning aluminum, especially drawn and ironed aluminum cans coated with drawing oil, in cleaning, deoxidizing and brightening stainless steel, and in forming corrosion resistant and paint adherent iron phosphate coatings on ferrous surfaces when applied thereto by the reverse roll coat method.

3,635,827

LOW-FOAM RINSING AND WASHING AGENTS FOR DISH WASHERS

Gunter Jakobi, Hilden, Rhine, Germany, assignor to Henkel & Cie GmbH, Düsseldorf-Holthausen, Germany

Filed Feb. 17, 1969, Ser. No. 799,933

Claims priority, application Germany, Mar. 14, 1968, H 65601

Int. Cl. C11d 1/68

U.S. Cl. 252—89

10 Claims

Low-foaming rinsing and washing compositions adapted for dishwashers consisting essentially of (A) from 70 percent to 98 percent by weight of water-soluble polyvinyl alcohols having a molecular weight of between 1,000 and 4,000, and (B) from 2 percent to 30 percent by weight of interface active compounds containing oxypropylene and/or oxybutylene radicals which may contain oxyethylene units, as well as aqueous solutions containing said low-foaming rinsing and washing compositions.

3,635,828

ENZYME-CONTAINING DETERGENT COMPOSITIONS

Lawrence Benjamin, Springfield Township, Hamilton County, and John F. Sullivan, Colerain Township, Hamilton County, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 29, 1969, Ser. No. 888,955
Int. Cl. C11d 7/38

U.S. Cl. 252—99

10 Claims

Soil- and stain-removing detergent compositions consisting essentially of a water-soluble synthetic organic detergent and from 0.01 to 2 percent of a lipoxidase having enzymatic activity over the ranges of 5° C. to 70° C. and pH 5 to 11 are disclosed. The lipoxidase-containing detergent compositions can optionally contain a fatty acid substrate having cis-, cis-double bonds or an alkyl ester thereof for coupled oxidation of stains. Inorganic peroxy compounds can also be employed. The compositions of the invention are particularly adapted to the treatment of textile materials having soils or stains which have a content of polyunsaturated components.

3,635,833

MANGANESE ACTIVATED MAGNESIUM-LITHIUM ALUMINO-GALLATE LUMINESCENT MATERIAL
Ranjit Kumar Datta, East Cleveland, Ohio, assignor to General Electric Company

Filed Apr. 28, 1969, Ser. No. 819,919
Int. Cl. C09k 1/04, 1/68

U.S. Cl. 252—301.4 R

3 Claims

Manganese-activated lithium gallate, magnesium-lithium gallate, and magnesium-lithium alumino-gallate phosphors emit in the green region when excited by cathode rays and short-wavelength ultraviolet radiation.

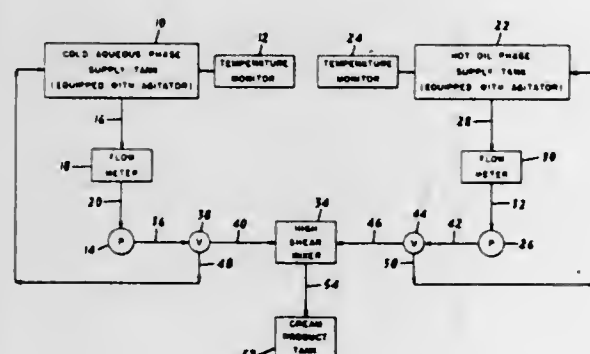
3,635,834

PROCESS FOR PREPARING SEMISOLID EMULSIONS
Rudolfo Cilento, North Brunswick, and Robert M. Cohn, Colonia, both of N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 886,810
Int. Cl. B01j 13/00

U.S. Cl. 252—314

1 Claim



A process is provided for preparing semisolid emulsions (creams) wherein a hot oil phase and a cold aqueous phase are mixed under conditions of high shear to interdisperse and homogenize the phases and with a second thereafter cause them to congeal and form a cream. Emulsifiers are included in either or both of the phases or can be separately mixed with the two phases.

3,635,835

GELLED ACIDIC COMPOSITIONS
Marvin L. Peterson, Woodstown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Original application Aug. 28, 1967, Ser. No. 663,495, now Patent No. 3,507,720. Divided and this application Aug. 20, 1969, Ser. No. 871,342
Int. Cl. B01j 13/00

U.S. Cl. 252—315

18 Claims

Aqueous acidic compositions gelled with a polymer having pendent amide or nitrile functions cross-linked by a monomer containing a plurality of $-(CH_2OR)$ groups bonded to amido nitrogen and a process for their preparation. The gelling system of this invention finds particular utility in explosive compositions based on an oxidizing agent and one or more fuels or sensitizers.

3,635,836

THICKENED COMPOSITIONS AND THE PROCESS OF PREPARING SAME

Joseph D. Mullen, Golden Valley, Minn., assignor to General Mills, Inc., Minneapolis, Minn.

Filed Nov. 10, 1969, Ser. No. 875,511
Int. Cl. B01j 13/00; C11d 7/08, 7/50

U.S. Cl. 252—316

12 Claims

Thickened compositions comprising about 1.5 to 20 percent of particulate proteinaceous material obtained from legume seeds, about 20.0 to 55.0 percent of a protic acid and about 40.0 to 75.0 percent of a thickening component which is water, an alkanol, an alkylcarbonyl compound or mixtures thereof. Process for preparing such compositions.

3,635,837

SPRAY-FORMED SODIUM NITRATE

Homer L. Robson, Hamden, Conn., assignor to Olin Mathieson Chemical Corporation

Original application July 28, 1967, Ser. No. 656,688, now Patent No. 3,560,396, dated Feb. 2, 1971. Divided and this application May 18, 1970, Ser. No. 48,751
Int. Cl. B01j 1/16

U.S. Cl. 252—397

6 Claims

Sprayed-formed sodium nitrate preparations containing added diluents.

3,635,838

REGENERATION OF UNSUPPORTED VANADIUM SULFIDE CATALYST

John G. Gatsis, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Feb. 2, 1970, Ser. No. 8,057
Int. Cl. B01j 11/76, 11/02

U.S. Cl. 252—415

5 Claims

A carbonized, unsupported nonstoichiometric vanadium sulfide catalyst is regenerated by way of a three-stage treatment at elevated temperatures. In the first stage, carbon is removed from the catalyst by contacting with elemental sulfur at an elevated temperature in the range of about 500° to about 1,000° C. The substantially carbon-free catalyst is treated with a mineral acid, or anhydrous HF, to dissolve metallic contaminants, and further treated in a third stage with elemental sulfur at a temperature in the range of 300° to about 500° C. to form vanadium tetrasulfide.

ERRATUM

For Class 252—429 see:
Patent No. 3,636,019

3,635,839

MODIFIED CATALYST SYSTEM FOR STEREOSPECIFIC POLYMERIZATION OF OLEFINS

Raymond Eichenbaum, Providence, R.I., and James G. Murray, East Brunswick, N.J., assignors to Mobil Oil Corporation

Filed Sept. 11, 1968, Ser. No. 759,238
Int. Cl. B01f 13/00

U.S. Cl. 252—429

2 Claims

Homopolymers and copolymers of 1-olefins (C_3-C_{18}) having a high degree of tacticity are produced in the presence of a novel catalyst system composed of (A) a compound of a transitional metal of Groups IVA, VA, VIA, and VIII of the Periodic Arrangement of the Elements wherein the metal is present in a valence state lower than its maximum and (B) the reaction product of a dialkyl-aluminum chloride and iodine.

3,635,840

POLYMERIZATION CATALYST

Robert A. Hinton, Lawrence, Kans., assignor to Phillips Petroleum Company

Filed Mar. 17, 1969, Ser. No. 807,931
Int. Cl. C08d 3/04

U.S. Cl. 252—430

4 Claims

A catalyst is prepared by calcining and thus coactivating with an oxygen-containing gas for a period of time to activate the same, to obtain disclosed results, the ingredients of a mass obtained by bringing together an organometal component, chromium oxide or a compound convertible by calcination to chromium oxide, in combination with at least one material selected from the group consisting of silica, alumina, zirconia, and thoria and a vanadium chelate component, e.g., vanadium acetylacetonate. The catalyst is suited to the polymerization of olefinic materials, especially 1-olefins and/or dienes to form polymers and copolymers, e.g., polyethylene.

The catalyst permits polymerization of an alpha olefin to produce polymers having a considerably lower melt index at constant conditions than that earlier obtained with a catalyst omitting the vanadium acetylacetonate and productivities per unit of catalyst which are considerably greater than those obtained when the vanadium acetylacetonate is not present during coactivation.

3,635,841

NOVEL ANTHRAQUINONE HYDROGENATION CATALYST

Carl D. Keith, Summit; Kurt W. Cornely, Westfield, and Nathan D. Lee, Lambertville, all of N.J., assignors to Engelhard Minerals and Chemicals Corporation, Newark, N.J.

Filed June 16, 1969, Ser. No. 833,678
Int. Cl. B01j 11/08, 11/22

U.S. Cl. 252—466 PT

3 Claims

A novel hydrogenation catalyst, especially useful for the catalytic hydrogenation of an anthraquinone working compound in the process for producing hydrogen peroxide, is described containing at least 0.05 percent by weight of metallic palladium dispersed on alumina supporting spheres, wherein the major crystalline structure of the alumina spheres is in the form of delta-alumina, theta-alumina, or mixtures of delta- and theta-aluminas and is substantially free of alpha-alumina, gamma-alumina or alpha-alumina monohydrate, wherein the alumina spheres have substantially no pores larger than about 0.06 micron, a BET surface area of over 20 m²/gm., and wherein the palladium metal penetration into the pores of the supporting alumina surface is no more than about 40 or 50 microns.

3,635,842

SHORT LIFE PAPER SIZE FROM MODIFIED POLYALKYLENE-IMINES

Juan Longoria, III, and William P. Coker, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed June 27, 1966, Ser. No. 560,640
Int. Cl. C08g 33/08

U.S. Cl. 260—2 BP

20 Claims

Unique water-soluble polymers are prepared by reacting a polyalkylenepolyamine or a polyalkylenimine with an epoxide or an activated aziridine; the epoxide and aziridine rings are each connected to a hydrocarbon radical having at least eight carbon atoms through generally an ether, ester, carboxamide or phosphoramidate linkage. The polymers are particularly useful as temporary paper sizes, i.e., the polymers impart a sizing effect which disappears after some days without affecting the absorbency characteristics of the paper after that time.

3,635,843

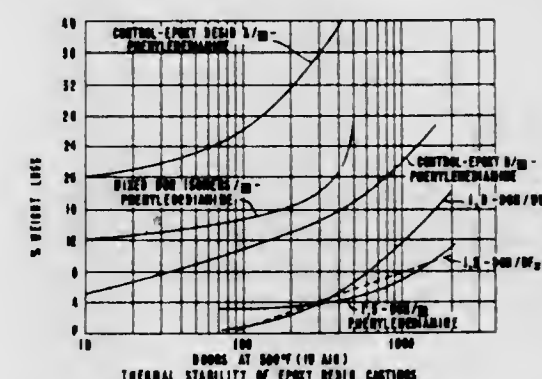
CRYSTALLINE 1,5-DIGLYCIDYLNAPHTHALENE AND CURED PRODUCTS THEREOF

Harvey L. Parry, Summit, and Alton J. Landua, Maplewood, both of N.J., assignors to Shell Oil Company, New York, N.Y.

Filed July 17, 1969, Ser. No. 842,526
Int. Cl. C08g 23/20

U.S. Cl. 260—2 N

8 Claims



The preparation of crystalline 1,5-diglycidynaphthalene is described. The present invention is further directed to curable and cured compositions of 1,5-diglycidynaphthalene.

3,635,844

CURABLE MOLDING COMPOSITIONS COMPRISING A POLYEPOXIDE AND A HYDANTOIN

Daniel Porret, Binningen; Juergen Habermeyer, Allschwil; Wolfgang Setz, Basel, and Willy Fetscher, Binningen, all of Switzerland, assignors to Ciba Limited, Basel, Switzerland

Filed Nov. 17, 1969, Ser. No. 877,484
Int. Cl. C08g 30/14

U.S. Cl. 260—2 N

14 Claims

Curable molding, coating and adhesive compositions which contain a polyepoxide compound, for example a liquid polyglycidyl ether of bisphenol A, and, as the curing agent, an N,N'-di-(gamma-aminopropyl)-hydantoin, for example 1,3-di-(gamma-aminopropyl)-5,5-dimethyl-hydantoin. Curing can be carried out at relatively low temperatures, for example at 40° C. The new type of curing agent bridges, in respect of its gradation of reactivity, a gap between aliphatic polyamines and cycloaliphatic polyamines. The new curing agents furthermore have the advantage relative to the aromatic polyamines of being nontoxic.

3,635,845

CURABLE COMPOSITIONS OF MATTER CONTAINING A POLYEPOXIDE AND A HYDRANTOIN COMPOUND

Daniel Porret, Binningen; Juergen Habermeyer, Allschwil, and Wolfgang Setz, Basel, all of Switzerland, assignors to Ciba Limited, Basel, Switzerland

Filed Nov. 18, 1969, Ser. No. 877,845
Int. Cl. C08g 30/14

U.S. Cl. 260—2 N

11 Claims

Curable moulding, coating and adhesive compositions which contain a polyepoxide compound, for example a liquid polyglycidyl ether of bisphenol A and, as the curing agent, a 1,1'-methylene-bis-(3-gamma-aminopropyl-hydantoin), for example 1,1'-methylene-bis-(3-gamma-aminopropyl-5,5-dimethyl-hydantoin). The curing can take place at relatively low temperatures. The new type of curing agent bridges, in the gradation of the activity, a gap between aliphatic polyamines and cycloaliphatic polyamines. The new curing agents furthermore have the advantage, relative to the aromatic polyamines, of being nontoxic.

3,635,846 EXPANDED POLYELECTROLYTE RESIN AND PROCESS FOR MAKING SAME

Stephen A. Spitz, Scituate, Mass., assignor to Amicon Corporation, Cambridge, Mass.

Filed July 13, 1967, Ser. No. 653,004
Int. Cl. C08f 47/08, 33/08

U.S. Cl. 260—2.5 R

4 Claims

A process for making highly expanded polyelectrolyte gel powders suitable for incorporation into, and imparting improved moisture vapor transmission rates to, films comprising hydrophobic polymers and the like. This process comprises the removal of water and other plasticizing components from precipitated polyelectrolyte complex gels, redispersing the gel in a volatile liquid medium, and thereupon causing the rapid evaporation of said volatile medium under conditions, conveniently moderately elevated temperatures, which prevent moisture from condensing on the polyelectrolyte gel as it is separated from the aforesaid volatile medium. The unique products of the invention are highly porous and characterized by their high absorptivity of dioctyl phthalate, their low-bulk density and their ability to enhance the moisture vapor transmission of a standard polyvinylchloride film formulation by a factor in excess of about 5 when incorporated therein at loadings of about 15 percent on total polymer weight.

3,635,847

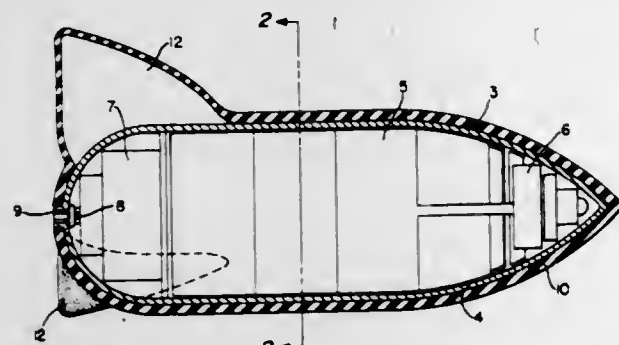
EXPLOSIVE ASSEMBLY INCLUDING A BODY PORTION AND A CLOSURE HAVING A COVERING OF ELASTOMERIC MATERIAL

Theodore A. Evans, and Marvin T. Conger, both of Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 24, 1968, Ser. No. 786,666
Int. Cl. C08f 47/10; C08j 1/20

U.S. Cl. 260—2.5 FP

4 Claims



This invention relates to an explosive assembly having a body portion and closures therefor, the body portion and closures having a covering of an ablative elastomeric material where the elastomeric material is polybutadiene acrylonitrile, polychloroprene and mixtures thereof with polyvinyl chloride that is compounded with a curative, plasticizer and a burn resistant agent, preferred plasticizers being phenol formaldehyde resin or polyethylene of 8,000 to 15,000 molecular weight.

3,635,848

ISOCYANURATES, POLYISOCYANURATES AND POLYURETHANES AND THEIR PREPARATION USING AS A CATALYST A COORDINATION COMPOUND OF AN ORGANIC BORATE ESTER AND AN ALKALI OR ALKALINE EARTH METAL

George M. Rambosek, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of application Ser. No. 618,035, Feb. 23, 1967. This application July 10, 1969, Ser. No. 840,854

Int. Cl. C08g 22/44, 22/34

U.S. Cl. 260—2.5 AB

26 Claims

Isocyanates are trimerized, polymerized, or reacted with

polyols, in the presence of a new catalyst comprising an organic borate ester and a base metal to produce isocyanurates, polyisocyanurates, urethane-modified polyisocyanurates, or isocyanurate-modified polyurethanes.

3,635,849

POLYISOBUTYLENE PARAFFIN WAX AND OIL BLENDS

Alden W. Hanson, Midland, Mich., assignor to University Patents, Inc., Chicago, Ill.

Filed Sept. 8, 1969, Ser. No. 856,150

Int. Cl. C08f 29/06

U.S. Cl. 260—2.5 B

5 Claims

A novel composition of matter consisting essentially of from about 5 percent to about 45 percent of a polyolefin, particularly polyisobutylene, which has a molecular weight greater than 120,000, from about 15 percent to about 70 percent of a paraffin having a melting point between 40° C. and 100° C. and from about 5 percent to about 80 percent oil with or without minor diluents or other constituents. Composition is characterized by inertia to instantaneous pressure, conformance upon application of pressure and resistance to sag, as well as having cold flow characteristics to a resistance of gravity plus about 2 gms./in.² or above. Also is directed to the process of making such composition.

3,635,850

FLAME RETARDANT COMPOSITIONS OF STYRENE POLYMERS AND BROMINATED HEXAMETHYL BENZENE

Helmut Birkner; Willi Ziegenbein, and Anton, Schick; all of Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

Filed Sept. 8, 1969, Ser. No. 856,208

Claims priority, application Germany, Sept. 20, 1968, P 17 94 182.1

Int. Cl. C08d 7/10, 11/04; C08j 1/18

U.S. Cl. 260—2.5 FP

9 Claims

A fire resistant composition of styrene polymers containing as fireproofing agents the bromination products of hexamethyl benzene in amounts of about 1-20 percent by weight based on the styrene polymers. In addition to the bromination products of hexamethyl benzene, the composition can include organic chlorine compounds, antimony trioxide and/or foaming agents.

3,635,851

POLYURETHANE ELASTOMERS AND FOAMS PREPARED FROM POLYAMINE CURING AGENTS

Guenther Kurt Hoeschele, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 781,276, Dec. 4, 1968, now abandoned, Continuation-in-part of application Ser. No. 668,961, Sept. 19, 1967, now abandoned,

Continuation-in-part of application Ser. No. 631,868, Apr. 19, 1967, now abandoned, Continuation-in-part of application Ser. No. 552,704, May 25, 1966, now abandoned.

This application Nov. 20, 1969, Ser. No. 878,560

Int. Cl. C08g 22/00, 22/04

U.S. Cl. 260—2.5 AM

19 Claims

Amine curing agents for polyurethane foams and elastomers obtained by condensing a monoamine composition with formaldehyde in the presence of a mineral acid. The monoamine can be 2-chloroaniline or mixtures of 2-chloroaniline with aniline and/or o-toluidine. The proportions of reactants are selected to produce curing agents which have moderate reactivities and exhibit a limited tendency to crystallize under normal operating conditions. The amine compositions are particularly useful as curing agents in the preparation of polyurethane foams. The new compounds, 3-chloro-4,4'-diaminodiphenylmethane and 3-chloro-3'-methyl-4,4'-diaminodiphenylmethane can be obtained from appropriate reaction products.

3,635,852

PROCESS OF MAKING A GENERAL PURPOSE EXPANDABLE ALKENYL AROMATIC POLYMER CONTAINING DI-ALKYL POLYSILOXANE INTERNALLY

Arnold B. Finestone, Roger Miller, and Michal Niechwiadowicz, Leominster, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

No Drawing. Continuation of application Ser. No. 667,657, Sept. 14, 1967. This application Dec. 15, 1969, Ser. No. 882,377

Int. Cl. C08j 1/26

U.S. Cl. 260—2.5 B

8 Claims

Expandable alkenyl aromatic polymer compositions are prepared by polymerizing in aqueous suspension an alkenyl aromatic monomer having mixed therein about 0.0005 to 0.05% by weight of a liquid organically disubstituted polysiloxane and thoroughly washing the resulting expandable particulate product.

3,635,853

ADHESIVE COMPOSITION FOR PREPARATION OF A LAMINATED PHOTOGRAPHIC IDENTIFICATION CARD COMPRISING GELATIN, A COPOLYMER LATEX OF POLYVINYL ACETATE AND AN ALKYL ESTER OF AN UNSATURATED CARBOXYLIC ACID, A PLASTICIZER AND A SOLVENT

Donald G. Wiest, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Original application Aug. 7, 1967, Ser. No. 658,705, now Patent No. 3,520,758. Divided and this application Dec. 10, 1969, Ser. No. 883,850

Int. Cl. C09 11/00

U.S. Cl. 260—8

1 Claim

An embossable identification or credit card has been made by laminating the photographic emulsion layer of a transparent photographic film to a rigid substrate using an adhesive based on a latex of polyvinyl acetate copolymerized with an alkyl ester of an unsaturated carboxylic acid to which gelatin, gelatin plasticizer and an attack solvent for the substrate are added. The migration of the plasticizer from the adhesive into the emulsion during and subsequent to lamination causes an increased hardening and/or plasticizing of the emulsion and improves cohesive bonding within the emulsion, and consequently the overall toughness, durability and quality of the identification card produced. Alternatively, the gelatin plasticizer may be wiped onto the surface of the photographic emulsion layer just prior to the lamination.

3,635,854

FOOTWEAR WITH ADJUSTABLE-LENGTH SHANK

Wesley G. Martin, Manitowoc, Wis., assignor to Aluminum Specialty Company, Manitowoc, Wis.

Filed Aug. 8, 1969, Ser. No. 848,626

Int. Cl. A63c 17/02

U.S. Cl. 280—11.26

7 Claims

To provide a roller skate of adjustable length, a first shank member and a second shank member overlap and are held at any one of several positions by a leaf spring that has its base mounted to the top shank member and has a tab on its other end receivable between any of several parallel arms within a slot of the bottom shank member. It is held to the top member by a bolt having its head rigidly affixed to the top member and its threaded portion in the slot in the bottom member which bottom member is between the top member and the spring. To change the length of the roller skate, a finger grip on

the end of the leaf spring is pulled downward to remove the tab from between two pairs of arms and the mem-



bers are adjusted in length, after which, the tab is inserted between two other pairs of arms.

3,635,855

PHOTOGRAPHIC ARTICLES AND MATERIALS USEFUL IN THEIR MANUFACTURE

Howard F. Earhart, Frederick J. Jacoby, and Clemens B. Starck, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application Nov. 25, 1966, Ser. No. 596,803, now Patent No. 3,516,832, dated June 23, 1970. Divided and this application Oct. 2, 1969, Ser. No. 870,775

Int. Cl. C08f 45/08; G03c 1/82

U.S. Cl. 260—17 R

3 Claims

This development relates to film materials that are especially adapted for use as photographic film units in film packs which, in turn, are preferably adapted for development outside the camera. The photographic films for this invention are comprised of a black film base having on one surface thereof a layer containing spherical polymeric beads, carbon black and low viscosity cellulose nitrate (to provide improved adhesion to the film base). Optionally, on the other surface is a white layer containing titanium dioxide pigment and low viscosity cellulose nitrate, a gel sub layer, and finally a photographic emulsion. This application is directed to the coating compositions which are particularly useful in the coating of the black film base.

3,635,856

POLYVINYL CHLORIDE COMPOSITIONS

Akira Kaneko, Tadashi Ogino, and Yoshiyuki Hata, Fukushima, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 637,368, May 10, 1967. This application Oct. 23, 1969, Ser. No. 868,932

Claims priority, application Japan, May 10, 1966, 41/29,508; Dec. 19, 1966, 41/83,137

Int. Cl. C08b 29/30; C08f 3/30, 45/58

U.S. Cl. 260—17.4

8 Claims

Non-toxic polyvinyl chloride compositions comprising a major portion of polyvinyl chloride containing a stabilizer composed of a mixture of (1) a polyhydric alcohol, (2) zinc, calcium and/or magnesium salts of a fatty acid, (3) an epoxidation product of a vegetable fat or oil, and (4) at least one additive selected from the group consisting of (a) a sucrose alkyl ester and (b) a semister of an organic polybasic acid having at least one free carboxy group per molecule. Examples of suitable sucrose alkyl esters are the sucrose lauryl, myristyl and stearyl esters. Examples of suitable semisters of polybasic organic acids are the monoesters of maleic, fumaric, itaconic, thiodiglycolic, thiodipropionic, diglycolic, citric, tartaric, malic and phthalic acids.

3,635,857

GRAFT COPOLYMERS OF STARCH

Alfred Restaino, Lawrence Township, and Weldon N. Reed, Pennington, N.J., assignors to Atlas Chemical Industries, Inc., Wilmington, Del.

No Drawing. Continuation of application Ser. No. 594,264, Nov. 14, 1966, which is a continuation of application Ser. No. 258,119, Feb. 13, 1963, which in turn is a continuation-in-part of application Ser. No. 177,150, Mar. 5, 1962. This application Dec. 12, 1969, Ser. No. 880,507

Int. Cl. C08b 25/02; C08f 1/24

U.S. Cl. 260—17.4

9 Claims

A process for preparing graft copolymers of water-soluble vinyl monomers to starch which comprises irradiating starch with high energy ionizing radiation to a dose of from 0.1 to 30 megarads in the presence of oxygen and reacting the irradiated starch with a water-soluble vinyl monomer in aqueous solution containing a dissolved catalyst capable of forming free radicals by reaction with hydroperoxides. Water-soluble graft copolymers containing exceptionally high molecular weight grafted side chains are obtained which are excellent flocculating agents.

3,635,858

PATTERN PAINT

Wataru Shiratori, Ichikawa-cho, Japan, assignor to Toyo Kasei Co., Ltd., Tokyo, Japan

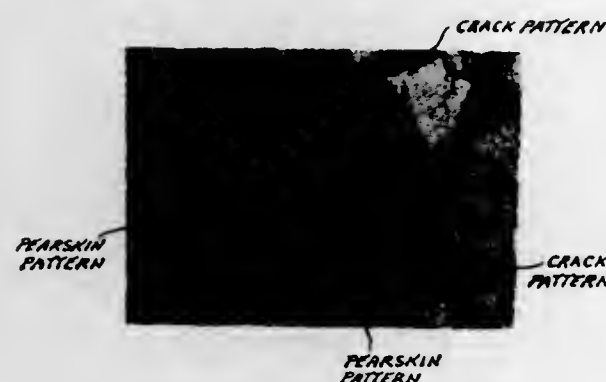
Filed Aug. 8, 1969, Ser. No. 848,569

Claims priority, application Japan, Aug. 9, 1968, 43/56,127

Int. Cl. C09d 3/64, 3/72, 5/28

U.S. Cl. 260—22 R

4 Claims



A paint for producing graceful intermingled patterns of pearl skin patterns and crack patterns formed by applying the paint on an undercoat painted on any article to be painted, said paint being composed of zinc stearate, organic solvents and synthetic resin consisting of polyvinyl chloride or polyester, the undercoat being formed by applying the same or similar resin as contained in the said paint, the formation of patterns being caused by the ionizing action of zinc stearate and different evaporating velocities of the organic solvents.

3,635,859

IMPROVEMENTS RELATING TO ALKYD RESINS
Beppino Passalenti, Silvio Vargiu, and Ugo Nistri, Milan, Italy, assignors to Società Italiano Resine S.p.A., Milan, Italy

No Drawing. Filed Dec. 11, 1969, Ser. No. 884,335

Claims priority, application Italy, Dec. 31, 1968, 25,747/68, Patent 852,646

Int. Cl. C08g 17/013, 7/16

U.S. Cl. 260—22 M

4 Claims

Alkyd resins are prepared by having an organic phosphite present in the monomer condensation stage and

treating the condensation product with a metal salt and a peroxide.

3,635,860

EPOXY SOLDERS

George A. Salensky, Metuchen, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Dec. 22, 1969, Ser. No. 887,316

The portion of the term of the patent subsequent to June 10, 1986, has been disclaimed

Int. Cl. C08g 45/04, 51/04

U.S. Cl. 260—23.7

17 Claims

This invention relates to epoxy solders, based on cycloaliphatic diepoxides and dimers of unsaturated fatty acids in admixture with polymers of butadiene, which are suitable for use as automotive body solders on electro coated or primed surfaces.

3,635,861

PRESSURE-SENSITIVE HOT-MELT ADHESIVES

Thomas E. Russell, Verona, N.J., assignor to The Flintkote Company, White Plains, N.Y.

No Drawing. Filed June 28, 1968, Ser. No. 741,231

Int. Cl. C09j 3/26

U.S. Cl. 260—27

9 Claims

A pressure-sensitive adhesive composition having instant room temperature tack, good cold flow-resistance and good shear strength which comprises as a first component a resinous rubbery block copolymer of styrene and butadiene or isoprene, as a second component a rubber extending petroleum oil, and as a third component a modified or unmodified rosin, a coumarone-indene resin, a polyterpene resin, a diene-olefin aliphatic hydrocarbon resin or a polystyrene resin, and optionally as a fourth component a resinous atactic polypropylene.

3,635,862

STABILIZED POLYMER COMPOSITIONS

John Robert Dunn, Sarnia, Ontario, Canada, assignor to Polymer Corporation, Sarnia, Ontario, Canada

No Drawing. Filed Dec. 3, 1969, Ser. No. 881,856

Claims priority, application Canada, Jan. 16, 1969, 40,289

Int. Cl. C08c 11/60; C08d 9/00

U.S. Cl. 260—27 BB

7 Claims

Resistance to aging of a polymer of conjugated diolefin such as a high cis-1,4 polybutadiene or a block copolymer of butadiene and styrene or alpha methyl styrene is improved by the addition of 0.1-5 parts of a compound such as 2-mercaptobenzimidazole, 2-mercaptobenzoxazole or a hydrocarbyl substituted dithiohydantoin.

3,635,863

METHOD OF IMPROVING BITUMINOUS MATERIALS

John J. Drukker, Wyckoff, N.J., assignor to The Flintkote Company, White Plains, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 686,693, Nov. 29, 1967. This application Dec. 16, 1969, Ser. No. 885,610

Int. Cl. C08d 9/12

U.S. Cl. 260—27

16 Claims

There is disclosed herein a method for modifying the properties of bituminous materials by dispersing in such materials at a temperature below about 220° F. a water-in-oil emulsion of an aqueous elastomeric polymer in an oil carrier, and thereafter evaporating water from the aqueous phase at a temperature below about 275° F.

3,635,864

COAL TAR AND MERCAPTAN-TERMINATED POLYMER COMPOSITIONS

William J. McCarthy and Robert W. Ireland, Avon Lake, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Oct. 28, 1969, Ser. No. 871,944

Int. Cl. C07d 35/28, 43/28

U.S. Cl. 260—28.5 AS

8 Claims

Blends of mercaptan-terminated liquid copolymers and coal tar form curable sealant compositions that may be cured with suitable curing agents to form elastomers having adhesion to cementitious materials and are suitable for sealing concrete and forming elastomeric gaskets.

3,635,865

PLASTICIZED TERMINALLY ACTIVE LIQUID DIOLEFIN POLYMERS CONTAINING POLYALKYLENIMINES

Douglas C. Edwards and Premysl Thomas Dolezal, Sarnia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada

No Drawing. Filed Dec. 11, 1969, Ser. No. 884,366

Claims priority, application Canada, Feb. 10, 1969, 42,428

Int. Cl. C08d 11/02

U.S. Cl. 260—28.5

9 Claims

The retardation of the rate of vulcanization of highly extended compositions of liquid polymers of conjugated diolefins having terminal allylic halide groups has been found to be lessened or even overcome by the use of a poly(alkylenimine) containing more than five amine groups and having a molecular weight of at least about 250.

3,635,866

FLAME-RETARDANT POLYBUTENE-1 COMPOSITIONS

Francis M. Seger, Edison, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Dec. 24, 1969, Ser. No. 888,061

Int. Cl. C08f 45/52, 45/60; C09k 3/28

U.S. Cl. 260—28.5 R

4 Claims

Flame-retardant polybutene-1 compositions contain three additives; antimony trioxide, ammonium fluoborate, and another halogen-containing compound having 60-90 percent halogen. These compositions are characterized by having a total flame-retardant additive content of 15 weight percent or less and by having a burning time of less than two seconds before self-extinguishment.

3,635,867

POLYMERIZATION PROCESS FOR MAKING AQUEOUS ACRYLIC-CONTAINING EMULSIONS

Ernest Clark Yuille, Louisville, Ky., assignor to Celanese Coatings Company, New York, N.Y.

No Drawing. Filed Dec. 5, 1967, Ser. No. 687,969

Int. Cl. C08f 1/84, 15/00

U.S. Cl. 260—29.4 UA

8 Claims

A process for producing the improved aqueous acrylic-containing emulsions for blister resistant paints and to the products thereof prepared by the addition of an amino resin prior to or during the polymerization, in an aqueous solution, of an alkyl ester of a polymerizable alpha beta unsaturated monocarboxylic acid and a monomer containing a single $H_2C=C$ group. The polymerization occurs in the presence of a polymerizable unsaturated carboxylic

acid, a catalytic amount of a free radical polymerization catalyst and a surfactant. The interpolymer formed is capable of continuous film formation at 40° C. or below.

3,635,868

STABLE AQUEOUS EMULSIONS OF FUNCTIONAL GRAFT POLYMERS FROM VINYL LACTAM POLYMERS

Eugene S. Barabas, Watchung, and Marvin M. Fein, Westfield, N.J., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed May 4, 1970, Ser. No. 34,569

Int. Cl. C08f 19/00, 19/02

U.S. Cl. 260—29.6 RW

10 Claims

Stable aqueous emulsions comprising grafted terpolymers of a polymeric N-vinyl lactam, such as polyvinyl pyrrolidone, with an arylalkene (e.g. styrene or vinyl toluene) and a vinyl ketone (e.g. methyl vinyl ketone).

3,635,869

CATALYSIS OF EPOXY RESIN/CARBOXYLIC ACID SYSTEMS WITH TRIVALENT CHROMIUM III TRICARBOXYLATE SALTS

Roger B. Steele, Fair Oaks, and Arthur Katsakian, Jr., and Joseph J. Scigliano, Sacramento, Calif., and Jude W. Barry, Beaverton, Oreg., assignors to Aerojet-General Corporation, El Monte, Calif.

No Drawing. Filed Mar. 16, 1970, Ser. No. 20,053

Int. Cl. C08g 51/26, 51/34

U.S. Cl. 260—30.4 EP

9 Claims

This patent describes a novel storable epoxy resin system comprising a curable epoxy resin and a carboxylic acid or acid anhydride; the improvement wherein the system is provided with a chromium III tricarboxylate salt catalyst adapted to contain unoccupied coordination sites, deactivated with certain non-reactive, volatile, coordinating, electron donating solvents including methanol, ethanol, N,N-dimethylformamide, dioxane, tetrahydrofuran, dimethyl sulfoxide, dimethyl sulfolane, nitro alkanes, nitro aromatics, tetramethyl urea, N,N-dimethylacetamide, N-methylcaprolactam and N-methyl pyrrolidone which solvent evaporates upon the application of the composition to a surface to reactivate the catalyst by the formation of occupied coordination sites, and resulting in reaction of the epoxy compound with the carboxylic acid or acid anhydride.

3,635,870

SEGMENTED POLYURETHANE ELASTOMERS

Wilhelm Thoma, Bergisch Neukirchen, Harald Oertel, Odenthal-Globus, and Heinrich Rinke, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 7, 1970, Ser. No. 26,424

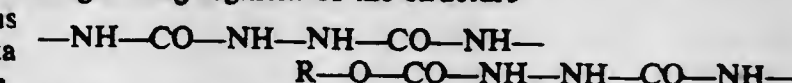
Claims priority, application Germany, Apr. 11, 1969, P 19 18 504.7

Int. Cl. C07c 125/04; C08g 22/04

U.S. Cl. 260—30.8

17 Claims

The invention relates to linear segmented polyurethane elastomers consisting of the reaction product of an isocyanate preadduct containing 1.0 to 6.0% by weight of free NCO groups with chain lengtheners, said polyurethane elastomers containing at least 55 mol percent, based on the total amount of chain lengthening segments, of a chain lengthening segment of the structure



wherein R is a divalent alkylene radical with 1 to 4 carbon atoms, an aromatic or an araliphatic radical.

3,635,884

ORGANIC COMPOSITIONS STABILIZED WITH PHOSPHORUS-CONTAINING ADDITIVES

Bernard R. Meltzer, Royal Oak, Mich., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Application Nov. 21, 1966, Ser. No. 595,613, now Patent No. 3,493,638, dated Feb. 3, 1970, which is a continuation-in-part of application Ser. No. 505,990, Nov. 1, 1965. Divided and this application Nov. 5, 1969, Ser. No. 874,416

Int. Cl. C08c 27/64; C08d 11/04; C08f 45/58

U.S. Cl. 260—45.85

8 Claims

A new class of antioxidants is prepared by the reaction of phosphorus trihalides with 2,6-dihydrocarbyl-p-hydroquinones. A typical example is the product prepared by the reaction of phosphorus trichloride with 2,6-di-tert-butyl-p-hydroquinone. A major component of the reaction product has been identified as tris(3,5-di-tert-butyl-4-hydroxyphenyl)phosphite. Another component present in lesser amounts is bis(3,5-di-tert-butyl-4-hydroxyphenyl)hydrogen phosphonate. Both the reaction product and the pure tris(3,5-di-tert-butyl-4-hydroxyphenyl)phosphite have been found to be antioxidants in organic materials, especially in polypropylene and lubricating oil. They also exhibit a synergistic antioxidant response with dialkyl thiodialkanoates such as dilaurylthiodipropionate.

3,635,885

POLYOLEFINS STABILIZED WITH ALKENYL PHENOLS

William H. Starnes, Jr., Baytown, Tex., assignor to Esso Research and Engineering Company

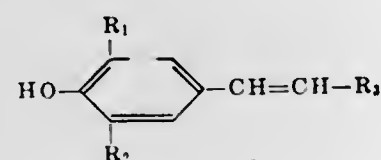
No Drawing. Filed July 28, 1969, Ser. No. 845,486

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95

4 Claims

The hindered alkenyl phenols having the following structure are useful as antioxidants for hydrocarbons and especially for polyolefins such as polypropylene and are produced by the reaction of a chloromethylphenol and a trialkylphosphine, reacting the intermediate formed with a hydroxide or alkoxide to yield the corresponding zwitterion, and then reacting the zwitterion with either an aromatic or an aliphatic aldehyde to produce the following structures:



where

R₁ and R₂ are alkyls having 1 to 8 carbon atoms, preferably a tertiary alkyl; and
R₃ is selected from the group consisting of alkyl and aryl.

3,635,886

POLYOLEFINS STABILIZED WITH ALKENYL PHENOLS

William H. Starnes, Jr., and Tad L. Patton, Baytown, Tex., assignors to Esso Research and Engineering Company

No Drawing. Original application Oct. 2, 1967, Ser. No. 671,975, now Patent No. 3,526,668, dated Sept. 1, 1970. Divided and this application July 30, 1969, Ser. No. 846,230

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95

8 Claims

A composition consisting essentially of a solid polymer of an alpha-monoolefin such as polypropylene or polyethylene and an oxidation resistant amount of a selected alkenyl phenol.

3,635,887

ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER WITH UNPRIMED ADHESION

Keith E. Polmanteer, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

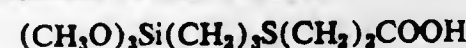
No Drawing. Filed Dec. 29, 1969, Ser. No. 888,940

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 G

9 Claims

A mixture of an uncured room temperature vulcanizable silicone rubber and an organosilicon compound having an organic radical with a —COOH group and a silicon-bonded hydrolyzable group gives a silicone rubber with improved unprimed adhesion to a variety of substrates when cured. An example of the organosilicon compound is an organosilane of the formula



3,635,888

POLYMER DERIVED FROM DIALKYL SUCCINYL-SUCCINATES AND DIAMINES

Kazuo Adachi, Akira Tai, and Fukuji Higashi, Tokyo, Japan, assignors to Tekkosa Co., Ltd., Tokyo, Japan

Filed Feb. 16, 1970, Ser. No. 11,667

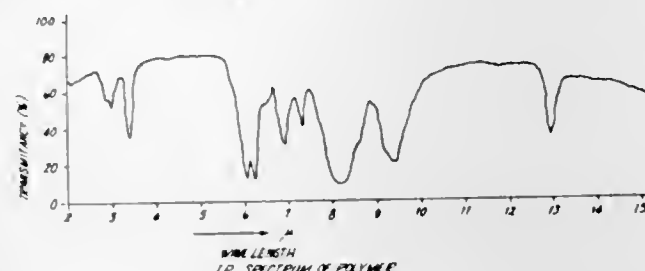
Claims priority, application Japan, Feb. 19, 1969,

44/11,825

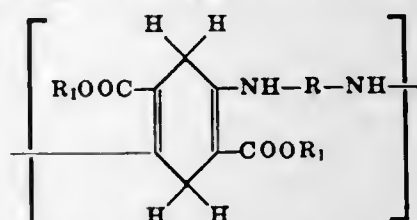
Int. Cl. C08g 17/02, 33/06

U.S. Cl. 260—47 CP

5 Claims



A polymer, which is obtained by the reaction between dialkyl succinylsuccinate and diamine of the formula $\text{NH}_2\text{—R—NH}_2$ in the presence of solvents, is a new compound having recurring structural units of the formula



and is characterized by spectroscopic absorption I.R. spectra at the vicinities of 3.10, 6.01, 6.20 and 8.20 μ and of NMR at 83.13 and 8.70 p.p.m.

The polymer is conveniently employed as a coating for metal goods which are made of copper, iron, aluminum or the like, and as adhesive materials, and is able to be cast into films and sheets.

3,635,889

ADHESION PROMOTING DENTAL MATERIALS

Rafael L. Bowen, Gaithersburg, Md., assignor to the United States of America as represented by the Secretary, Department of Health, Education, and Welfare

No Drawing. Filed Feb. 18, 1970, Ser. No. 12,423

Int. Cl. C08f 7/02; A61k 5/00

U.S. Cl. 260—47 U

7 Claims

Polymerizable liquid condensation products that are also surface-active can be used for dental materials as primers or as monomers to mediate adhesive bonding between particulate fillers and between polymerizing formulations and surfaces such as tooth structure. Preferred the acid-catalyzed condensation products are (I) 2-methacryloxyethyl vanillate, (II) 2-methacryloxyethyl-p-hydroxybenzoate, and (III) 2-methacryloxyethyl gallate.

When surfaces of extracted teeth were wetted with the minimal amount of viscous liquid (I) and a hardening dimethacrylate composite material was applied, the average tensile bond strength was significantly raised (from 18 to 30 kg. f./cm.²).

The mechanism appears to be that the electron-withdrawing effect of the carboxylate group in the aforementioned compounds and in other similar compounds encompassed in the scope of this invention deactivates the phenolic hydroxyl group toward degradative chain transfer with free radicals to the extent that the compounds homopolymerize and copolymerize rapidly when initiated with an amineperoxide system or with other free radical generating initiator systems. In contrast with eugenol, when product (I) containing 0.6% of N,N-dimethyl-sym-xylidine was mixed with zinc oxide powder containing 1.0% benzoyl peroxide, it hardened in about 4 minutes and had an average diametral tensile strength of 154 kg. f./cm.² and an average compressive strength of 1180 kg. f./cm.².

3,635,890

STABILIZATION OF POLYPHENYLENE OXIDES

Toshio Takemura, Kyoto, Isamu Nakagawa, Osaka, and Seizo Nakashio, Nishinomiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 781,978, Dec. 6, 1968. This application Sept. 8, 1970, Ser. No. 70,577

Int. Cl. C08g 23/20

U.S. Cl. 260—47 ET

20 Claims

Polyphenylene oxides are stabilized to thermal oxidation by reacting the polymers with a halogenated phosphorus compound in the presence or absence of a basic compound.

3,635,891

INTERNALLY PLASTICIZED POLYIDENE RESINS

Hyman R. Lubowitz, Hawthorne, and Eugene A. Burns, Palos Verdes Peninsula, Calif., assignors to TRW Inc., Redondo Beach, Calif.

No Drawing. Continuation-in-part of application Ser. No. 565,074, July 14, 1966. This application Nov. 13, 1969, Ser. No. 876,580

Int. Cl. C08g 22/08

U.S. Cl. 260—47 EP

18 Claims

Thermosetting polydiene resins may be modified by the inclusion of plasticizers to produce more versatile resins having widely variant properties. Thermosetting 1,2-polybutadiene or 3,4-polyisoprene resins may be modified by the inclusion of an organic compound having at least one reactive vinyl group.

3,635,892

THERMOSTABLE HETEROCYCLIC POLYMERS CONSISTING OF POLY 2-QUINOXALINONES AND SIMILAR CYCLIC COMPOUNDS AND THEIR PROCESS OF MANUFACTURE

Guy Rabilloud, Bernard Sillion, and Gabriel de Gaudemaris, Grenoble, France, assignors to Institut Français du Pétrole, des Carburants et Lubrifiants, Roull-Malmson, Hauts-de-Seine, France

Filed Sept. 24, 1969, Ser. No. 860,498

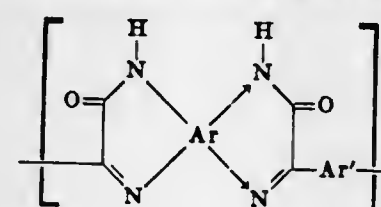
Claims priority, application France, Sept. 25, 1968, 167,608

Int. Cl. C08g 33/02

U.S. Cl. 260—47 CP

18 Claims

There are provided thermostable heterocyclic polymers consisting essentially of recurring units of the formula



wherein Ar and Ar' are aromatic radicals of 4–40 carbon atoms. The polymers are produced by reacting an aromatic tetra-amine with an arylene-diglyoxylic compound of the formula



wherein R is hydrogen, alkyl or aryl and said polymers are useful in the preparation of adhesive, sponges, cellular structures, molded materials and composite materials.

3,635,893

WATER-SOLUBLE SULFONIUM DERIVATIVES OF DIPHENYL ETHER

Melvin J. Hatch, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

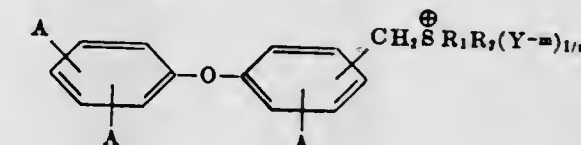
No Drawing. Application May 26, 1966, Ser. No. 553,046, now Patent No. 3,502,910, dated Mar. 24, 1970, which is a continuation-in-part of application Ser. No. 322,057, Nov. 7, 1963. Divided and this application Aug. 27, 1969, Ser. No. 870,843

Int. Cl. C08g 17/003, 17/08

U.S. Cl. 260—47 C

5 Claims

Polyester films useful as surface coatings are prepared from an aqueous solution of a water-soluble diphenyl ether sulfonium salt of Formula I:



where each A is —H or



and Y is a C₂–C₁₀ polycarboxylic acid anion, by thermally drying the solution to convert the sulfonium salt into a polyester.

3,635,894

CURABLE EPOXY RESIN COMPOSITIONS CONTAINING ORGANOIMIDAZOLIUM SALT

Rostyslaw Dowbenko and Carl C. Anderson, Gibsonsia, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Nov. 6, 1969, Ser. No. 874,721

Int. Cl. C08g 30/14

U.S. Cl. 260—47

10 Claims

Storage-stable, curable epoxy resin compositions comprise a mixture of an epoxy resin and an organoimidazolium salt. Preferably, the composition includes a nitrogenous compound, such as urea, dicyandiamide, melamines or thioureas. These compositions are storage-stable in the uncured state for long periods of time at room temperature, but can be easily cured at elevated temperatures to provide products having excellent shear strength, peel strength and other properties. These epoxy resin compositions can be used as coatings, adhesives, potting compounds, in castings and laminates, and for similar purposes.

3,635,895

PROCESS FOR PREPARING THERMOPLASTIC POLYCARBONATES

Morton Kramer, Delmar, N.Y., assignor to General Electric Company

No Drawing. Original application Sept. 1, 1965, Ser. No. 484,445, now Patent No. 3,525,712, dated Aug. 25, 1970. Divided and this application Oct. 31, 1969, Ser. No. 873,134

The portion of the term of the patent subsequent to Aug. 25, 1987, has been disclaimed

Int. Cl. C08g 17/13

U.S. Cl. 260—47 XA

5 Claims

A process for preparing a thermoplastic randomly branched polycarbonate composition which comprises re-

acting in an organic solvent a dihydric phenol and a carbonate precursor, which reaction is carried out in the presence of 0.1 to about 2 mole percent of a finely divided polyfunctional organic compound, 50 weight percent of which has a particle size of less than 100 microns and wherein the organic solvent has suspended therein an inorganic acid acceptor. The polyfunctional organic compound is one which may be either phloroglucinol, 2,4-dihydroxy-benzoic acid, trimesic acid, 4,4-bis(3-isopropyl-4-carboxyphenyl) hexanol, 3,5-dihydroxythiophenol, melamine or triethanolamine.

3,635,896

POLYMER WITH GRAPHITE-TYPE STRUCTURE PREPARED FROM TETRAAMINOANTHRAQUINONE AND NAPHTHALENE - 1,8,4,5-DI-INDANDIONE

Carl S. Marvel, Tucson, Ariz., William Bracke, Brussels, Belgium, and Prabir K. Dutt, Tucson, Ariz., assignors to Research Corporation, New York, N.Y.

Filed Dec. 12, 1969, Ser. No. 884,612

Int. Cl. C08g 15/00

U.S. Cl. 260—65

2 Claims

The stepwise condensation of 1,4,5,8-tetraaminoanthraquinone with naphthalene-1,8,4,5-diindandione yields a polymer with a graphite-type structure. The polymer exhibits a high degree of thermal stability and can be used to prepare articles intended for use at elevated temperatures.

3,635,897

UNSATURATED NITRILE-MODIFIED AROMATIC HYDROCARBON-FORMALDEHYDE RESINS

Telichi Tanigaki, Matsuyama-shi, Japan, assignor to Japan Gas Chemical Company, Inc., Tokyo, Japan

No Drawing. Filed June 24, 1969, Ser. No. 836,151

Claims priority, application Japan, Dec. 28, 1968, 44/95,961

Int. Cl. C08g 7/00, 13/00, 20/28

U.S. Cl. 260—67 A

13 Claims

Ethylenically unsaturated nitrile-modified aromatic hydrocarbon-formaldehyde resins which contain in the molecular structure an amide linkage, a reactive unsaturated group and at least one functional group selected from a methylene linkage, a di-methylene ether linkage, an acetal linkage and a methylol group are produced by effecting the ternary addition-condensation of aromatic hydrocarbon, formaldehyde and ethylenically unsaturated nitrile in an aqueous medium at an elevated temperature not exceeding 100° C. for a period of 1 to 10 hours in the presence of an acid catalyst. The resultant resins are extremely reactive and useful in paints, adhesives, rubber reinforcing materials, molding materials, laminated materials and sizing agents for papers to give them water resistance, chemical resistance, electric-insulation resistance, weathering resistance and improved mechanical characteristics.

3,635,898

PROCESS FOR POLYMERIZATION OF ACOLEIN

Donald H. Lorenz, Basking Ridge, N.J., and David I. Randall and Joseph P. Copes, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed July 3, 1969, Ser. No. 839,058

Int. Cl. C08f 3/40

U.S. Cl. 260—67 UA

5 Claims

Polymerization of acrolein in presence of 0.5 to 9% by weight based on the total reaction mixture—of sodium

sulfate in aqueous solution with a persulfate or other free radical yielding polymerization catalyst.

3,635,899

POLYESTERIFICATION OF 1,4- AND 1,5-DIOLS

Marvin L. Doerr and Luis R. Vizurraga, Charlotte, N.C., assignors to Fiber Industries, Inc.

No Drawing. Filed Sept. 4, 1969, Ser. No. 855,402

Int. Cl. C08g 17/01

U.S. Cl. 260—75 M

5 Claims

There is provided a novel process for the production of a polyester wherein the production of undesired cyclic by-products is minimized. In said process a mixture comprised of at least one 1,4- or 1,5-diol and a dicarboxylic acid ester is subjected to a temperature of about 140 to about 230 degrees centigrade and a vacuum of from about 15 to about 760 millimeters of mercury absolute for from about 30 to about 200 minutes, a vacuum of less than about 15 millimeters of mercury is then slowly imposed upon it, and thereafter the temperature of the mixture is raised to from about 230 to about 300 degrees centigrade; and the mixture is maintained under these temperature and pressure conditions until a polymer with the desired relative viscosity is formed.

This process minimizes the amount of cyclic by-products produced.

3,635,900

POLYESTER CONDENSATION PROCESS USING ALKALI METAL GERMANATES

John A. Price, Swarthmore, and Mary J. Stewart, Riddlewood, Pa., assignors to FMC Corporation, Philadelphia, Pa.

No Drawing. Filed Oct. 28, 1969, Ser. No. 871,948

Int. Cl. C08g 17/015

U.S. Cl. 260—75 R

8 Claims

Process of preparing saturated linear polyester resins comprising carrying out an ester-interchange reaction between a lower alkylene glycol and a lower alkyl diester of a saturated aromatic dicarboxylic acid or carrying out a direct esterification reaction between a lower alkylene glycol and a saturated aromatic dicarboxylic acid and polycondensing the reaction product thereof in the presence of an alkali metal germanate as a polycondensation catalyst.

3,635,901

PROCESS AND APPARATUS FOR CONTINUOUSLY POLYCONDENSING OR POLYMERIZING MONOMERS

Federico Urgesi, Vercelli, Italy, and Horst Rothert, Berlin, Germany, assignors to Chatillon Societa Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy, and Karl Fischer Apparate- u Rohrleitungsbau, Berlin, Germany

Continuation of application Ser. No. 519,836, Jan. 11, 1966. This application July 23, 1969, Ser. No. 869,416

Claims priority, application Italy, Jan. 15, 1965, 814/65

Int. Cl. C08g 17/01, 20/12

U.S. Cl. 260—75 M

4 Claims

There is provided a process for continuously producing macromolecular products useful in the manufacture of fibers and films by polycondensation or polymerization of monomers, and characterized by distributing a thin film of polycondensable or polymerizable material from a supply thereof onto a controllably heated cylindrical surface, causing the thin film or layer to move downwardly along the surface as a thin film to a discharge zone, i.e. the material in such a condition is out of contact with a bulk body of the material.

3,635,902

PRODUCTS

Robert G. Thompson, Signal Mountain, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Division of application Ser. No. 509,245, Oct. 18, 1965, now Patent No. 3,492,272, which is a division of application Ser. No. 264,783, Mar. 13, 1963, now Patent No. 3,467,719, which in turn is a continuation-in-part of application Ser. No. 187,982, Apr. 16, 1962. Divided and this application Dec. 29, 1969, Ser. No. 888,935

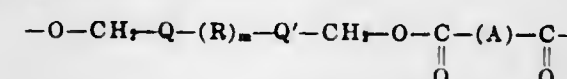
The portion of the term of the patent subsequent to Jan. 27, 1987, has been disclaimed

Int. Cl. C08g 17/08

U.S. Cl. 260—75 R

3 Claims

The application discloses a class of glycols containing two hydroxycyclohexyl groups, and linear condensation polyesters prepared therefrom which are characterized by recurring units of the formula



wherein *m* is 0 or 1, *Q* and *Q'* are 1,3- or 1,4-cyclohexylene or alkyl derivatives thereof, *R* is an alkylene radical, and *A* is a divalent saturated hydrocarbon radical containing a 6-membered carbocyclic nuclei. Polyesters particularly suitable for textile fibers are illustrated.

3,635,903

CURING SYSTEM FOR POLYMERIC RUBBER MATERIALS

James E. Kearnan, Yorktown Heights, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 680,000, Nov. 2, 1967. This application Oct. 15, 1969, Ser. No. 866,741

Int. Cl. C08f 27/06

U.S. Cl. 260—79.5 B

6 Claims

A vulcanized product obtained by heating a rubber-like alpha olefin copolymer in the presence of a curing agent comprising a blend of a tetraalkylthiuram sulfide and a N,N'-polythio-bis-dialkyl amine.

3,635,904

PROCESS FOR MANUFACTURE OF RIGID NONCELLULAR POLYURETHANE

Peter James Briggs and William Raymond Clegg, Manchester, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England

No Drawing. Filed Jan. 8, 1970, Ser. No. 1,539

Claims priority, application Great Britain, Jan. 9, 1969, 1,323/69

Int. Cl. C08g 22/04

U.S. Cl. 260—77.5 AA

3 Claims

A process for manufacture of shaped polyurethane articles which comprises forming an anhydrous reaction mixture of one or more organic polyisocyanates and one or more organic polyols such as will provide a rigid polyurethane on curing, allowing the mixture to cure to a gelled state and subjecting the mixture to a fabrication step prior to the mixture reaching a fully cured state.

3,635,905

CYANIDE ION AS CATALYST FOR HETEROCYCLIC POLYMERS

Tad L. Patton, Baytown, Tex., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of applications Ser. No. 685,281, Nov. 24, 1967, and Ser. No. 796,221, Feb. 3, 1969. This application May 22, 1970, Ser. No. 41,656

Int. Cl. C08g 22/00

U.S. Cl. 260—77.5 R

53 Claims

Heterocyclic polymers containing either or both 4-imino-1,3-imidazolidine - 2,5 - dione - 1,3 - diyl rings and/or

5 - imino - 1,3 - imidazolidine - 2,4 - dione - 1,3 - diyl rings are produced in the presence of an added cyanide ion by the reaction of diisocyanates with hydrogen cyanide, by the reaction of dicyanoforamides with diisocyanates and by the polymerization of cyanoformamidyl isocyanates. The presence of the added cyanide ion produces heterocyclic polymers with substantially no cross-linking through the imino group of the imidazolidine rings.

3,635,906

PREPARATION OF POLYURETHANES USING ORGANO-TIN CATALYST AND TIME-LAPSE MODIFIER

Madhusudan D. Jayawant, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 12, 1968, Ser. No. 775,190

Int. Cl. C08g 22/34, 22/18; B01j 11/82

U.S. Cl. 260—77.5 AC

15 Claims

Method of preparing polyurethanes by time-lapse catalysis which comprises:

(A) thoroughly mixing a reaction medium containing:

(1) an organic polyisocyanate,

(2) about 0.5-1.5 equivalent, per equivalent of organic polyisocyanate, of an organic polyhydroxy compound,

(3) about 0.0001 to 0.1 mole, per equivalent of organic polyisocyanate, of a cure rate catalyst for the polyurethane reaction consisting essentially of amine-free organo-tin cure rate catalyst for the polyurethane reaction,

(4) at least about 0.1 mole, per mole of amine-free organo-tin catalyst, of a time-lapse modifier selected from the group consisting of

(a) β -dicarbonyl compounds having an enol content of at least about 4% and a dicarbonyl angle of not greater than about 120 degrees,

(b) α -hydroxy ketones,

(c) fused aromatic β -hydroxy ketones in which the hydroxyl group is attached to a carbon beta to the keto group in an adjacent ring, and

(d) β -hydroxy nitrogen - heterocyclic fused aromatics in which the hydroxyl group is attached to a carbon beta to the nitrogen in an adjacent ring,

(B) applying the reaction mixture, and

(C) allowing the applied reaction mixture to cure at ambient temperature.

3,635,907

PROCESS FOR THE PRODUCTION OF POLYURETHANES

Helmut Schu'ze, Erlenbach, and Martin Pfistermeister, Oberbruch, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing. Filed July 9, 1969, Ser. No. 840,516

Claims priority, application Germany, July 13, 1968, P 17 70 884.8

Int. Cl. C08g 22/04, 22/06

U.S. Cl. 260—77.5 AM

9 Claims

Process for producing polyurethanes in which a macrodiol is reacted with a diisocyanate containing at least one aromatic radical to form a pre-adduct; the pre-adduct is reacted with chain extenders; diphenylmethane-4,4'-diisocyanates and a diol are added to the reaction mixture; and the reaction is stopped after the polyurethane has reached a given viscosity by the addition of a monoalcohol. The process produces polyurethanes having outstanding properties.

3,635,908
PROCESS OF PREPARING POLYURETHANE-UREA THERMOPLASTIC PRODUCTS BASED ON A POLYAMINE CARBAMATE AS CHAIN EXTENDER

Herwart C. Vogt, Grosse Ile, and George Roley, Trenton, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation of application Ser. No. 661,818, Aug. 21, 1967. This application Nov. 10, 1969, Ser. No. 875,519

Int. Cl. C08g 22/16, 53/16

U.S. Cl. 260—77.5 AA 4 Claims

The subject matter of the present application relates to polyurethane-urea compositions. As disclosed herein, the polyurethane-urea compositions are prepared by heating a composition which comprises (a) polyamine carbamate and either (b) organic polyisocyanate and (c) organic compound containing at least two active hydroxyl groups or (d) isocyanate-terminated intermediate prepared by the reaction of (b) and (c). The polyamine carbamate employed in these compositions acts as a chain-extending agent and may act as a foaming or blowing agent, thereby providing for unitary compositions for preparation of polyurethane-ureas which are stable at room temperature.

3,635,909
METHOD FOR POLYMERIZING α -AMINO ACID N-CARBOXYANHYDRIDES USING ALKALI METAL SALTS OF 2-PYRROLIDONE

Yasuo Fujimoto, Keizo Tatsukawa, and Toru Doluchi, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Filed June 2, 1970, Ser. No. 42,853

Claims priority, application Japan, June 18, 1969, 44/47,651

Int. Cl. C08g 20/08

U.S. Cl. 260—78 A 14 Claims

The polymerization of α -amino acid N-carboxyanhydrides is carried out in the presence of an alkali metal salt of 2-pyrrolidone or derivatives thereof to produce amino acid polymers.

3,635,910
POLYAMIDES CONTAINING PHOSPHONAMIDE
 Stanley Albert Sills and Hugh Foster, Pontypool, England, assignors to Imperial Chemical Industries Limited, London, England

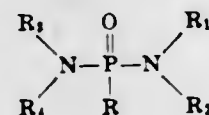
No Drawing. Filed May 5, 1969, Ser. No. 822,012

Claims priority, application Great Britain, May 14, 1968, 22,885/68

Int. Cl. C08g 20/38

U.S. Cl. 260—78 R 9 Claims

A polyamide derived from a dicarboxylic acid and a diamine, a lactam or aminocarboxylic acid or polyamide forming derivative thereof and containing at least 25 parts per million (expressed as phosphorus) of a phosphonamide having the formula:



where R is aliphatic, cycloaliphatic, aromatic or $-NR_5R_6$; R_1 , R_2 , R_3 , R_4 , and R_5 are H, aliphatic, cycloaliphatic, aromatic or form part of a heterocyclic group in which the nitrogen also forms part of the heterocyclic structure, and R_6 is aliphatic, cycloaliphatic, aromatic or forms part of a heterocyclic group in which the nitrogen also forms part of heterocyclic structure. The thus modified polyamide gives fibers which show increased dye-uptake together with improved elastic recovery and initial modulus after treatment with boiling water.

3,635,911
POLYAMIDES HAVING ENHANCED RESISTANCE TO LIGHT DEGRADATION

Gene C. Weedon, Richmond, Va., and Robin B. Mumford, Middletown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed May 14, 1969, Ser. No. 824,697

Int. Cl. C08g 20/38

U.S. Cl. 260—78 R 6 Claims

Acid dyeable polyamide filaments having enhanced resistance to light degradation are prepared by polymerizing the polyamide-forming materials in the presence of at least 10 equivalents per 10⁶ gms. of polymer of p-toluenesulfonic acid and less than about 90 equivalents per 10⁶ gms. of a primary diamine such as m-xylylenediamine.

3,635,912
POLYAMIDES FROM 13,14-DIAZATRICYCLO[6.4.1.1^{2,7}]TETRADECANE AND 13,14-DIAZATRICYCLO[6.4.1.1^{2,7}]TETRADECANE-3,5,9,11-TETRAENE

Alexander L. Johnson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Feb. 25, 1966, Ser. No. 529,961, now Patent No. 3,475,433. Divided and this application June 27, 1969, Ser. No. 837,348

Int. Cl. C08g 20/20

U.S. Cl. 260—78 R 6 Claims

Film and fiber forming polyamides from 13,14-diazatricyclo[6.4.1.1^{2,7}]tetradecane and 13,14-diazatricyclo[6.4.1.1^{2,7}]tetradeca-3,5,9,11-tetraene.

3,635,913
PREPARATION OF POLYAMIDES WITH ALKALINE CATALYSTS

Karl Heinz Hermann, Krefeld-Bochum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft

No Drawing. Continuation-in-part of abandoned application Ser. No. 444,399, Mar. 31, 1965. This application Oct. 23, 1969, Ser. No. 868,890

Claims priority, application Germany, Apr. 3, 1964, F 42,504

Int. Cl. C08g 20/18

U.S. Cl. 260—78 L 4 Claims

Process for preparing polyamides comprising polymerizing an anhydrous lactam in the presence of a catalytic amount of an alkali metal—or alkaline earth metal—C-alkyl lactam, C-cyclo-alkyl lactam, aralkyl lactam or aryl lactam at a temperature of about 100° C., preferably in the presence of an accelerator selected from the group of organic isocyanates, carbodiimides, cyanamides, N-acyl-lactams, and N-diacyl-amines. The catalyst is preferably initially dissolved in an inert organic solvent and then added to the polymerization system.

3,635,914
REACTIVE HYDROXYL GROUP-CONTAINING VINYL CHLORIDE TERPOLYMERS

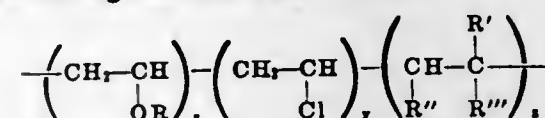
Wiley E. Daniels, Allentown, and Nathan D. Field, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Dec. 24, 1969, Ser. No. 888,025

Int. Cl. C08f 15/40

U.S. Cl. 260—78.5 CIH 4 Claims

Reactive hydroxyl group-containing vinyl chloride terpolymers having the following formula:



wherein R represents an alkyl group having from 1 to 18 carbon atoms, R' represents hydrogen or methyl, R'' represents hydrogen, hydroxyalkyl or hydroxyalkyl carbalkoxy, and R''' represents hydroxy, hydroxyalkyl or

hydroxyalkyl carbalkoxy, x represents from about 50 to about 98 mole percent, y represents from about 1 to about 40 mole percent and z represents from about 1 to about 10 mole percent. The method of preparing the novel terpolymers by copolymerizing vinyl chloride, an alkyl vinyl ether and a polymerizable hydroxyl group-containing monomer in the presence of a free radical catalyst is also disclosed.

3,635,915
COPOLYMERS OF MALEIC ACID AND ACRYLIC ACID

Donald J. Gale, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

No Drawing. Filed Nov. 28, 1969, Ser. No. 880,972

Int. Cl. C08f 15/36

U.S. Cl. 260—78.5 R 10 Claims

Copolymers of maleic acid and acrylic acid are prepared by polymerizing a mixture of maleic acid and acrylic acid in water in the presence of a polymerization catalyst. The copolymers produced in this manner are water-soluble, clear and flexible, and are useful as surface coatings. The copolymers are particularly useful as textile sizing compositions for fibers and yarns.

3,635,916
COPOLYMERS OF HALFESTERS OF MALEIC ANHYDRIDE AND 2-ALKOXYPROPENE

Peter Schlumbom, Irvington, and David A. Gordon, Scarsdale, N.Y., assignors to Gelgy Chemical Corporation, Greenburgh, N.Y.

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,832

Int. Cl. C08f 27/12

U.S. Cl. 260—78.5 T 11 Claims

Alkylene oxide monoether halfesters of maleic anhydride/2-alkoxypropene copolymers and alkyl and alkylene oxide mixed halfesters of said copolymers are homogeneous film-forming compositions useful in hair spray preparations. There halfesters are prepared by the esterification of the maleic anhydride/2-alkoxypropene copolymer with an appropriate alcohol.

3,635,917
METHOD OF PRODUCING HIGHLY CONCENTRATED ACRYLONITRILE POLYMER AND COPOLYMER SOLUTIONS

Eberhard W. Roth, Hans-Joachim H. G. Krüning, and Eberhard P. H. Peter, Premnitz, Germany, assignor to Veb Chemiefaserwerk Friedrich Engels, Premnitz, Germany

No Drawing. Filed Dec. 19, 1969, Ser. No. 886,733

Int. Cl. C08f 3/76, 15/38

U.S. Cl. 260—79.3 M 3 Claims

A solution prepared by polymerizing acrylonitrile alone or with at least one comonomer in a solvent is concentrated and demonomerized by evaporation in two stages, the first stage being at a pressure of at least 50 torr and the second stage being at a pressure of no greater than 40 torr.

3,635,918
2-MORPHOLINOSULFINYLBENZOTHAZOLES

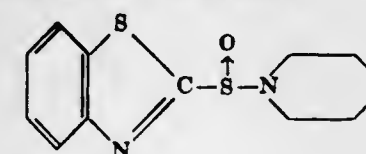
Alfred Bay Sullivan and Robert Henry Campbell, Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Original application June 1, 1967, Ser. No. 642,712, now Patent No. 3,454,590. Divided and this application Nov. 14, 1969, Ser. No. 871,319

Int. Cl. C08f 27/06

U.S. Cl. 260—79.5 B 3 Claims

The disclosure is new compounds such as 2-morpholino-sulfinylbenzothiazole of the formula



The compounds are prepared by the action on the corresponding 2-morpholinobenzothiazole of an aqueous solution of an alkali metal hypohalite. The new compounds are useful accelerators for the vulcanization of rubber.

3,635,919
PREPARATION OF ETHYLENE/PROPYLENE COPOLYMER

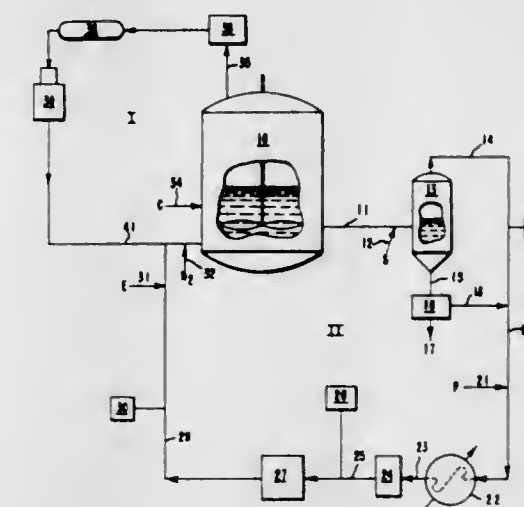
Edward Peter Goffinet, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 30, 1969, Ser. No. 846,006

Int. Cl. C08f 15/04

U.S. Cl. 260—80.78

5 Claims



Process for producing an ethylene/propylene copolymer having a predetermined composition on a continuous basis by recycling reactants of the reaction mixture in two separate streams, a first stream formed from the vapor phase of the reaction mixture and comprising largely monomers; and a second stream comprising liquid phase of the reaction mixture free from polymer product, analyzing the second stream for monomer concentrations and regulating the flow of fresh monomers to the reactor to maintain constant monomer concentrations in the liquid phase; compressing, cooling and purifying the first stream and recycling the cooled monomers therein to the reactor.

3,635,920
METAL PHOSPHINODITHIOATES AND BIS(PHOSPHINOTHIOYL) DISULFIDES AS VULCANIZATION ACCELERATORS

David Apotheker, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

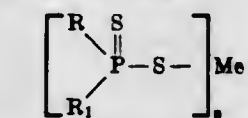
No Drawing. Filed May 21, 1969, Ser. No. 826,680

Int. Cl. C08f 27/06

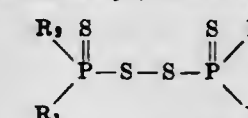
U.S. Cl. 260—79.5 B

12 Claims

Vulcanization of copolymers of at least one α -olefin with a nonconjugated diene having no more than one polymerizable double bond is accelerated by metal phosphinodithioates of the formula



and by bis(phosphinothioyl) disulfides of the formula



wherein each R_1 , R_2 , R_3 , R_4 , and R_5 can be phenyl, lower alkylphenyl, halophenyl, naphthyl, halonaphthyl,

aralkyl and alkyl containing 1-20 carbon atoms, or cycloalkyl containing 5-6 ring carbon atoms; Me is zinc, copper, cadmium or iron; and n is the valence of the metal. These vulcanization accelerators are particularly suitable for rapid, high-temperature cures because "reversion" of tensile properties, usually occurring at high temperatures, is here considerably reduced.

3,635,921

CRYSTALLINE TERPOLYMERS OF 4-METHYLPENTENE, 3-METHYLPENTENE AND AN ALPHA OLEFIN

James Keith Hambling, Frimley, near Aldershot, and David Allison Woodhead, Shepperton, England, assignors to The British Petroleum Company Limited, London, England

No Drawing. Continuation of application Ser. No. 600,401, Dec. 9, 1966. This application Nov. 17, 1969, Ser. No. 871,574

Claims priority, application Great Britain, Dec. 16, 1965, 53,350/65

Int. Cl. C08f 15/40

U.S. Cl. 260—80.78

5 Claims

This invention provides a process for the production of a crystalline terpolymer of improved mechanical properties by copolymerizing 4-methylpentene-1, 3-methylpentene-1, and a normal alpha olefin in the presence of a catalyst.

3,635,922

PROCESS FOR POLYMERIZING CONJUGATED DIENES

Tai Chun Cheng, Akron, and Adel F. Halasa, Bath, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 27, 1969. Ser. No. 869,879

Int. Cl. C08d 1/32; C08f 1/28

U.S. Cl. 260—83.7 R

23 Claims

Conjugated dienes are polymerized by a new catalyst system which is more economically and more easily prepared and used than present catalyst systems used for similar purpose. This catalyst system comprises a combination of a free radical anion component modified by an alkali metal halide. The free radical anionic component is made, in an appropriate solvent, from an alkali metal and an anion forming compound such as naphthalene. The alkali metal halide is preferably potassium chloride, bromide or iodide, but can also be other alkali metal halides. The catalyst system is used to polymerize conjugated dienes to polymer products of controlled molecular weight, suitable for easy processing and having properties desirable for ultimate use in tires and other molded products. The molecular weights of the products are increased by virtue of the modifier as compared to the molecular weights obtained with the radical anion component alone.

3,635,923

PROCESS FOR ADDING SULFITE ESTERS TO ORGANO-ALKALI METAL CATALYZED POLYMERIZATION SYSTEMS

Charles M. Selman, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Dec. 5, 1969, Ser. No. 882,705

Int. Cl. C08f 1/28, 7/04, 15/04

U.S. Cl. 260—84.3

9 Claims

The molecular weight and molecular weight distribution of homopolymers and copolymers of conjugated dienes and/or monovinyl-substituted aromatic hydrocarbons is increased and the cold flow of rubbery polymers of said monomers is decreased by employment of sulfite ester treating agents.

3,635,924

ALTERNATING COPOLYMERS OF UNSATURATED HALOGENATED HYDROCARBONS AND ACRYLONITRILE OR ACRYLIC COMPOUND

Kohel Nakaguchi, Shohachi Kawasumi, Masaaki Hirooka, and Hiroshi Yabuuchi, Nihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Continuation of application Ser. No. 480,139, Aug. 16, 1965. This application Oct. 21, 1969, Ser. No. 868,243

Claims priority, application Japan, Aug. 18, 1964, 39/47,354

Int. Cl. C08f 15/24, 15/32

U.S. Cl. 260—85.5 XA

26 Claims

Alternating copolymers of acrylonitrile or an acrylic compound and terminally ethylenically unsaturated halogenated hydrocarbon are produced by reacting an unsaturated halogenated hydrocarbon monomer, such as vinyl chloride, vinylidene chloride, allyl chloride or p-iodostyrene, with a conjugated vinyl compound, such as methyl acrylate, n-butyl acrylate, N-ethyl acrylamide, methyl thiolacrylate and acrylonitrile, in the presence of an organoaluminum compound, such as ethylaluminum sesquichloride, ethylaluminum dichloride, methylaluminum sesquibromide and trialkylaluminum. The reaction may be carried out over a wide range of temperatures (-150°C . to $+100^{\circ}\text{C}$.) but lower temperatures are preferred. The products in general are characterized by a substantially 1:1 molar ratio of the starting polymers, a high molecular weight and an intrinsic viscosity within the range of from 0.1 to 10.

3,635,925

POLYMERIZATION OF VINYL CHLORIDE IN BULK AND AT LOW TEMPERATURES

Sergio Lo Monaco, Vincenza, Carrado Mazzolini, Mestre-Venice, and Luigi Patron and Alberto Moretti, Venice, Italy, assignors to Chatillon Societa Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 671,216, Sept. 28, 1967. This application Dec. 15, 1969, Ser. No. 885,293

Claims priority, application Italy, Dec. 16, 1968, 25,161/68

Int. Cl. C08f 1/62, 3/30

U.S. Cl. 260—85.5

15 Claims

Vinyl chloride is polymerized in bulk and at low temperatures utilizing a polymerization catalyst comprised of an organic hydroperoxide, sulphur dioxide and an alcoholate of a Group I metal of the Periodic Table, said alcoholate having from 1 to 6 carbon atoms, and said alcoholate and sulphur dioxide being present in a molar ratio of at least 2.

3,635,926

AQUEOUS PROCESS FOR MAKING IMPROVED TETRAFLUOROETHYLENE / FLUOROALKYL PERFLUOROVINYL ETHER COPOLYMERS

William Franklin Gresham, Wilmington, Del., and Alfons Franz Vogelpohl, Washington, W. Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,871

Int. Cl. C08f 15/06, 3/24

U.S. Cl. 260—87.5 A

6 Claims

Tough, stable copolymers of tetrafluoroethylene monomer and fluorovinyl ether monomers can be produced by aqueous polymerization of the monomers by a process that requires that the reaction be carried out at from about 50 to about 110°C . in the presence of a water-soluble initiator such as ammonium persulfate, an emulsifying agent and a gaseous chain transfer agent such as hydrogen, methane or ethane.

3,635,927

POLYMERIZATION PROCESSES USING A 3-COMPONENT INITIATOR SYSTEM

Richard Johnston, Reading, England, assignor to The Gillette Company, Boston, Mass.

No Drawing. Filed Jan. 28, 1969, Ser. No. 794,796
Claims priority, application Great Britain, Feb. 12, 1968, 6,838/68

Int. Cl. C08f 3/76, 3/90, 7/04

U.S. Cl. 260—88.7

8 Claims

This invention is concerned with initiation systems for the polymerization of ethylenically unsaturated monomers in aqueous media. Generally, the initiation system comprises (1) a water-soluble ferrous or ferric salt, (2) a water-soluble peroxide or persalt, and (3) a water-soluble organic compound which is capable of forming a complex with ferrous or ferric ions and does not exhibit substantial degradative transfer activity in the polymerization reaction.

3,635,928

MANUFACTURE OF POLYVINYL CHLORIDE

Jean Claude Thomas, Lyon, Rhone, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Paris, France

No Drawing. Filed Apr. 26, 1966, Ser. No. 545,304
Claims priority, application France, Apr. 30, 1965, 15,363

Int. Cl. C08f 45/00, 29/18

U.S. Cl. 260—92.8

9 Claims

Prior practice of making homogeneous resins of vinyl chloride containing adjuvants such as stabilizers, plasticizers, lubricants, fillers and antioxidants has involved intense mechanical working, for instance on a roll mill, and has proved to be difficult of satisfactory execution. Frequently such processes produced products possessed of potential instability, introduced by the heat of the mixing operation, which appeared during later operations on the resin. Lack of homogeneity was also known, producing inferior products. The present process of preparing finely divided polymers in powders and granular forms accomplishes the loading and homogenization of the particles with their working adjuvants by bringing an organic carrier liquid containing the adjuvants in solution or suspension into contact with the pulverulent, solid polymer to be loaded, with agitation which accomplishes a thorough mixing of the two phases and the transfer of the adjuvants from the liquid to the polymer. The transfer is seemingly accomplished by sorption, and is substantially complete, but the applicant is not bound by any theory of transfer. After the transfer has been accomplished the carrier liquid is evaporated off and reused.

3,635,929

PROCESS FOR THE HALOGENATION OF VINYL POLYMERS

Giorgio Gatta, Mestre, and Roberto Rettore, Treviso, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation of application Ser. No. 566,231, July 19, 1966. This application Nov. 3, 1969, Ser. No. 871,558

Claims priority, application Italy, July 21, 1965, 7,188/65; Mar. 22, 1966, 15,807/66

Int. Cl. C08f 3/30, 27/02

U.S. Cl. 260—92.8

3 Claims

A process for making a polymeric material in which chemically combined vinyl-chloride polymer is chlorinated in a suspending medium containing a chlorofluoro-alkane in addition to a chloro-alkane from the class of chlorofluoro-methanes and ethanes and chloro-methanes and ethanes respectively. The volume ratio of the chlorofluoro-alkane to the chloro-alkane is less than about 10.

3,635,930

CARBON DISULFIDE WITH TRIALKYL PHOSPHINE AS ADJUVANT FOR POLYMERIZATION CATALYST AND POLYMERIZATION PROCESS

Lawrence M. Fodor, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,198

Int. Cl. C08f 1/56, 3/10

U.S. Cl. 260—93.7

6 Claims

Carbon disulfide alone or with an alkyl phosphine, e.g. tributyl phosphine complex, is used as adjuvant for titanium trichloride-aluminum chloride-organoaluminum or organoaluminum halide catalyst suitable for polymerization of 1-olefins, e.g., propylene. Polymers having higher than usual modulus and lower than usual xylenes-soluble content are producible with the improved catalyst at usual conditions. A synergistic effect has been discovered with respect to flexural modulus and xylene-soluble content of the polymer prepared.

3,635,931

POLYISOPRENE FROM AMYLENES VIA n-AMYLENE ISOMERIZATION, OXIDATIVE DEHYDROGENATION, EXTRACTIVE DISTILLATION, AND POLYMERIZATION OF LOW-CONCENTRATION ISOPRENE

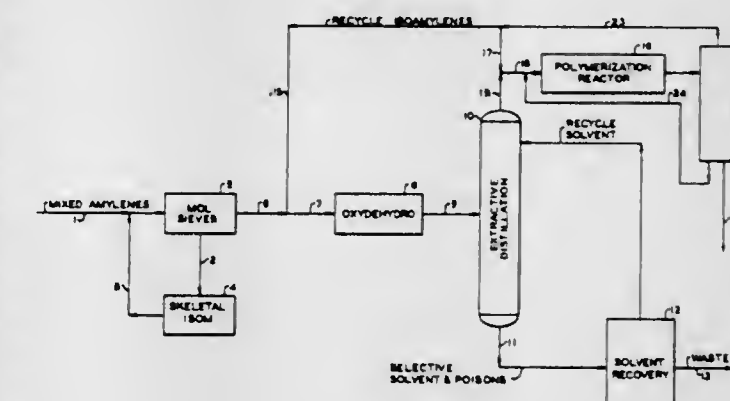
Joseph W. Davison, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Dec. 22, 1969, Ser. No. 887,282

Int. Cl. C08d 3/10

U.S. Cl. 260—94.2

10 Claims



A process for the production of polyisoprene from a relatively low-concentration isoprene stream obtained from a feedstock of mixed amylenes. Isoamylenes are separated from n-amylenes by molecular sieves, isoamylenes in part dehydrogenated to isoprene, catalyst poisons removed by extractive distillation, and the isoprene contained in the stream then polymerized to synthetic rubber. The n-amylenes separated by use of the molecular sieves are skeletally isomerized to isoamylenes and recycled to the molecular sieve separation.

3,635,932

PROCESS OF SEPARATING MICROGEL FROM RUBBER POLYMERS

Norman F. Keckler, Canton, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of application Ser. No. 505,043, Oct. 24, 1965. This application May 1, 1969, Ser. No. 821,153

Int. Cl. C08d 3/08, 5/00

U.S. Cl. 260—94.7 R

3 Claims

The invention relates to polymers, both (1) homopolymers of hydrocarbon conjugated-diene monomers of

4 and 5 carbon atoms and (2) copolymers of said monomers with aliphatic or aryl olefinic monomers produced by solution polymerization using a lithium-containing catalyst, with production of microgel. The microgel is separated by centrifuging a solution of the polymer product in a solvent of different density from the microgel.

3,635,933

1,2-POLYBUTADIENE MOLDING COMPOSITION

Robert J. Schaffhauser, Brookside, and Charles D. Mason, Florham Park, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed June 12, 1969, Ser. No. 832,852

Int. Cl. C08d 5/02, 11/04, 13/28

U.S. Cl. 260—94.7 A

2 Claims

1,2-butadiene polymer having at least 80% of the butadiene content combined therein in the 1,2 form is used together with a peroxy curing agent to produce a molding composition. The polybutadiene can be in a normally granular, crystalline form or in non-crystalline form. The composition cures at good rate even when antioxidant to inhibit premature curing is included in the composition. A heat distortion temperature of at least 250° C. can be obtained. Conventional ingredients of molding compounds such as fillers and mold lubricants can be incorporated with the composition. The composition can be worked without curing up to a temperature of about 150° C. and cured at higher temperatures.

3,635,934

CRYSTALLINE 1,2-POLYBUTADIENE MOLDING COMPOSITION

Robert J. Schaffhauser, Brookside, and Charles D. Mason, Florham Park, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed June 12, 1969, Ser. No. 832,855

Int. Cl. C08d 5/02, 11/04, 13/28

U.S. Cl. 260—94.7 A

2 Claims

Crystalline 1,2-butadiene polymer is used together with a free-radical curing agent to produce a molding composition. The polybutadiene is in the normally granular, crystalline, largely syndiotactic form. When molding compositions of this polybutadiene are formulated on a roll mill, the compositions are granulated. Those formulated with peroxy curing agents will readily cure to a heat distortion temperature of at least 250° C. even when containing an antioxidant serving to inhibit premature curing. Conventional ingredients of molding compounds such as fillers and mold lubricants can be incorporated with the compositions. The compositions including a peroxy curing agent and an antioxidant can be worked without curing at temperatures above the fusion temperature, and cured at higher temperatures.

3,635,935

POLYMERIZATION OF ETHYLENE WITH SUPPORTED HYDROCARBON TITANIUM ACTIVATED WITH ALKYLALUMINUM

Wendell P. Long, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Oct. 17, 1969, Ser. No. 867,356

Int. Cl. C08f 1/56, 3/06

U.S. Cl. 260—94.9

5 Claims

Ethylene is polymerized at a high rate and with high catalyst mileage by using as the catalyst a tetra(aryl) titanium, such as tetrabenzyltitanium, extended on a silica support and activated with an organoaluminum compound, preferably a dialkylaluminum chloride.

3,635,936

PRODUCTION OF HOMOPOLYMERS OF ETHYLENE USING HYDROPEROXY-ALKYLPHENYL-ALKANES AS CATALYST

Hans Gropper and Franz Mletzner, Ludwigshafen, Klaus Kinkel, Rodenkirchen, and Friedrich Urban, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,859

Claims priority, application Germany, Oct. 26, 1968,

P 18 05 635.4

Int. Cl. C08f 3/04, 1/60

U.S. Cl. 260—94.9 R

2 Claims

A process for the production of homopolymers of ethylene by polymerization of ethylene at high pressure and elevated temperature using a mixture of a hydroperoxide and oxygen as a polymerization initiator with or without a polymerization regulator. An essential feature of the process according to the invention is the use of hydroperoxides of a specially selected class of compounds.

3,635,937

ETHYLENE POLYMERIZATION

Ronald S. Bauer, Orinda, Harold Chung, Berkeley, Peter W. Glockner, Alameda, and Wilhelm Kelm, Berkeley, Calif., and Henry van Zwet, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Nov. 5, 1969, Ser. No. 874,374

Int. Cl. C08f 1/58, 3/06

U.S. Cl. 260—94.9 C

9 Claims

Highly linear and crystalline polyethylene is produced by contacting ethylene in the presence of a nickel chelate of a bidentate chelating ligand having a tertiary organophosphorus moiety and a carboxymethyl or carboxyethyl group attached directly to the phosphorus atom of the organophosphorus moiety, in liquid phase in a reaction diluent consisting essentially of an alkane, alkene, or mixture thereof.

3,635,938

TECHNIQUE FOR ENHANCING THE ABILITY OF POLYMER TO BOND WITH ADHESIVE AND RESULTANT POLYMER

Francis W. Ryan, Millington, and Harold Schonhorn, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

No Drawing. Original application Feb. 17, 1967, Ser. No. 616,785, now Patent No. 3,520,753. Divided and this application Dec. 19, 1969, Ser. No. 886,755

Int. Cl. C08f 29/04, 29/16; C08g 20

U.S. Cl. 260—94.9

5 Claims

Hydrocarbon, fluorocarbon and polyamide polymers destined for bonding with adhesives are melted upon a high energy metal or metal oxide surface, cooled and separated therefrom by dissolution of the latter. The resultant materials are capable of bonding with any conventional adhesive, yielding superior bond strengths.

3,635,939

MONOAZO DYES CONTAINING PHTHALIMIDES

Johannes Dehnert, Ludwigshafen, Walter Grosch, Mannheim, and Gerhard Gnad, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 703,273, Feb. 6, 1968. This application May 27, 1970, Ser. No. 41,083

Claims priority, application Germany, Feb. 14, 1967, P 16 44 056.5

Int. Cl. C09b 29/30

U.S. Cl. 260—152

2 Claims

Dyes containing sulfonic acid groups derived from 3-aminophthalimides, or 4-aminophthalimides, and 2-amino-8-hydroxynaphthalene-6-sulfonic acid, which are especially suitable for dyeing polyamides.

3,635,940

DISAZO DYESTUFFS CONTAINING A BRIDGING GROUP AND AT LEAST ONE QUATERNARY AMMONIUM GROUP

Gert Hegar, Schoenenbuch, Hans-Joerg Angliker, Riehen, and Richard Peter, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed May 21, 1968, Ser. No. 730,943

Claims priority, application Switzerland, May 29, 1967,

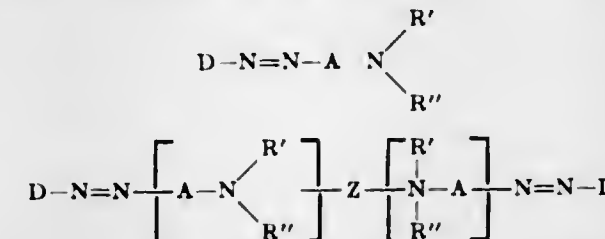
7,532/67

Int. Cl. C09b 33/06, 43/00; D06p 1/02

U.S. Cl. 260—155

9 Claims

Disazo compounds of the formula



in which D represents the residue of a monocyclic or bicyclic diazo component, A represents an arylene residue and R' and R'' each represents an alkyl residue, are linked together via their coupling components through a bifunctional bridging group Z which has no dyestuff characteristics and which contains at least one quaternated nitrogen atom. The compounds are useful for dyeing and printing synthetic fibers, and produce intense and level dyeings possessing good fastness to light, washing, perspiration and sublimation.

3,635,941

DISPERSE MONO AZO DYES CONTAINING AN ACYLAMIDOTETRAHYDROQUINOLINE GROUP

Max A. Weaver, James M. Straley, and Clarence A. Coates, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,411

Int. Cl. C09d 29/36

U.S. Cl. 260—155

10 Claims

Water-insoluble azo compounds having a 1-alkyl- or 1-cycloalkyl-7-acylamido-1,2,3,4-tetrahydroquinoline coupling component and certain substituted phenyl groups as a diazo component are useful as dyes for polyester textile materials.

3,635,942

BASIC IONINOTRIAZOLE AZOINDOLE DYESTUFFS

Reinhard Mohr, Offenbach (Main), and Johann Ostermeier, Rembrücken, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,104

Claims priority, application Germany, Feb. 22, 1968,

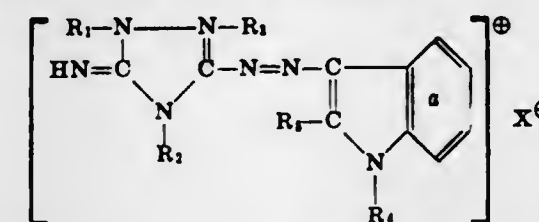
P 17 19 075.9

Int. Cl. C09b 29/00, 29/36; D06p 1/08

U.S. Cl. 260—157

6 Claims

Basic azo dyestuffs of the formula:



wherein R₁ is aryl, R₂ and R₃ are alkyl or aralkyl, R₄ and R₅ are hydrogen or unsubstituted or substituted alkyl or aryl, X[⊖] is an anion, and in which the benzene nucleus a

may contain non-ionic substituents which dyestuffs are suitable for the dyeing or printing of tannin-treated cellulose fibers, silk, leather or fully synthetic fibers such as acetate rayon, polyamide or acid-modified polyester, especially fibers consisting of polyacrylonitrile or polyvinylidene cyanide, and which give in the majority of cases dyeings with very clear and deep colours and good fastness to light, fulling, cross-dyeing, carbonizing, chlorinating, perspiration, decatizing, steaming, ironing, rubbing and solvents.

3,635,943

HYDROTREATING PROCESS WITH COARSE AND FINE CATALYSTS

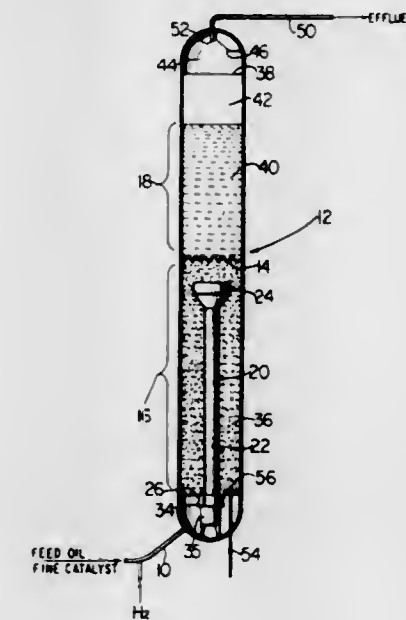
Norman C. Stewart, Lake Charles, La., assignor to Cities Service Research and Development Company, New York, N.Y.

Filed Oct. 16, 1969, Ser. No. 866,874

Int. Cl. C10g 13/02, 23/00

U.S. Cl. 208—157

7 Claims



A process for treating heavy hydrocarbon oil with hydrogen gas at high pressures and temperatures in the presence of particulate catalysts is disclosed herein. The process comprises feeding the heavy hydrocarbon oil, preferably a vacuum or atmospheric residuum, hydrogen gas and fine particulate catalyst in the size range of up to about 600 microns upwardly through an expanded bed of coarse particulate catalyst ranging in size from about 1/32 to about 3/8 inch at a sufficient velocity to maintain the bed in an expanded, random motion state, reducing the upward velocity of the hydrocarbon oil, hydrogen gas and fine particulate catalyst above the expanded coarse catalyst bed to a velocity sufficient to establish an expanded fine catalyst bed, and withdrawing the treated hydrocarbon oil and effluent gases from the high pressure, high temperature zone above the fine catalyst bed.

3,635,944

HIGHLY WATER SOLUBLE DISAZO DYESTUFFS

Alvin C. Litke, West Seneca, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed May 12, 1969, Ser. No. 823,989

Int. Cl. C09b 31/04

U.S. Cl. 260—191

6 Claims

Highly water soluble phenylazophenylazonaphthyl tri-

(lithium sulfonate) dyestuffs adapted to dye cellulosic fibers bright, light-fast violet shades.

3,635,945

TRIALKYLPHOSPHINEGOLD COMPLEXES OF 1-β-D-GLUCOPYRANOSIDES

Piroska E. Nemeth, Philadelphia, and Blaine M. Sutton, Hatboro, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Oct. 28, 1969, Ser. No. 871,956
Int. Cl. C07c 47/18

U.S. Cl. 260—210 R 12 Claims
Trialkylphosphinegold complexes of 1-β-D-glucopyranosides having anti-arthritis activity are prepared by reaction of an appropriate glucopyranoside derivative with a trialkylphosphinegold halide.

3,635,946

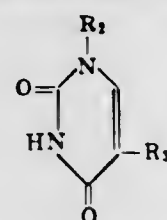
N₁-(2'-FURANIDYL)-DERIVATIVES OF 5-SUBSTITUTED URACILS

Solomon Aronovich Giller, Ul. Pernavas 10, kv. 76; Regina Abramovna Zhuk, Ul. Gorkogo 77-20; Marger Jurievich Lidak, Ul. Mezhotmes 37, kv. 1; and Alna Avgustovna Zidernane, Ul. Engelsa 111a, kv. 9, all of Riga, U.S.S.R.

No Drawing. Continuation of application Ser. No. 692,323, Dec. 21, 1967. This application July 22, 1969, Ser. No. 849,559

Int. Cl. C07d 51/52

U.S. Cl. 260—211.5 R 1 Claim
Novel compounds of the formula



wherein R₂ is a 2-furanidyl group and R₃ is methyl, trihalomethyl or halogen are prepared by reacting the mercury or bis-trimethylsilyl derivatives of the corresponding uracils with 2-chlorofuranidine. The 2-pyranidyl derivative is prepared if 2-chloropyranidine is used instead. The compounds are useful in treating sarcoma 180 and Walker carcinosarcoma in mice.

3,635,947

CATALYTIC PROCESS FOR THE PREPARATION OF MONOCARBODIIMIDES AND ISOCYANATE-MONOCARBODIIMIDE ADDUCTS

Ehrenfried H. Kober, Hamden, Wilhelm J. Schnabel, Branford, and Strong K. Gardner, North Haven, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Filed Jan. 10, 1967, Ser. No. 608,456
Int. Cl. C07c 119/04; C07d 44/00

U.S. Cl. 260—239 A 8 Claims
Monocarbodiimides and organic isocyanate-monocarbodiimide adducts are provided by heating organic isocyanates in the presence of a catalytic amount of phenylphosphonic diamide at a temperature from about 120° to about 190° C. The monocarbodiimides are useful as catalysts and chemical intermediates; the adducts are useful in the preparation of polyurethane foams.

3,635,948

PREPARATION OF 7-CHLORO-2,3-DIHYDRO-1-METHYL-5-PHENYL-1H-1,4-BENZODIAZEPINE FROM 2,3-DIHYDRO-1-METHYL-5-PHENYL-1H-1,4-BENZODIAZEPINE BY CHLORINATION

Robert Ye-Fong Ning, Verona, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed June 4, 1968, Ser. No. 734,216
Int. Cl. C07d 53/04, 53/06

U.S. Cl. 260—239 7 Claims
7-chloro-2,3-dihydro-1-methyl-5-phenyl-1H-1,4-benzodiazepine (A) from 2,3-dihydro-1-methyl-5-phenyl-1H-1,4-benzodiazepine by chlorination. (A) is useful as an anticonvulsant, muscle relaxant and sedative agent.

3,635,949

METHOD FOR THE PRODUCTION OF 7-CHLORO-2-METHYLAMINO-5-PHENYL-5H-1,4-BENZODIAZEPINE-4-OXIDE, AND 7-CHLORO-2-METHYLAMINO-5-PHENYL-3H-1,4-BENZODIAZEPINE-4-OXIDE

Torben Torsbjerg Møller, Aarhus, Poul Nedenskov, Birkerød, and Henning B. Rasmussen, Løgsten, Denmark, assignors to Aktieselskabet Grindstedværket, Aarhus, Denmark

No Drawing. Filed Sept. 16, 1968, Ser. No. 760,088
Claims priority, application Denmark, Oct. 19, 1967, 5,198/67

Int. Cl. C07d 53/06

U.S. Cl. 260—239 BD 1 Claim

The invention relates to the novel 7-chloro-2-methylamino-5-phenyl-5H-1,4-benzodiazepine-4-oxide (I), to the production thereof by oxidizing 7-chloro-2-methylamino-4-hydroxy-5-phenyl-4,5-dihydro-3H-1,4-benzodiazepine, the reaction product being subjected to fractional crystallization to recover (I), and to the conversion of (I) into 7-chloro-2-methylamino-5-phenyl-3H-1,4-benzodiazepine-4-oxide (II) by heating the reaction product from the said oxidation in alkaline solution.

3,635,950

N-ADAMANTYL-3-AZETIDINOL AND DERIVATIVES THEREOF

Elijah H. Gold, West Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed Oct. 11, 1968, Ser. No. 766,936
Int. Cl. C07d 25/00

U.S. Cl. 260—239 A 7 Claims
Disclosed herein are N-adamantyl-3-azetidinols and certain derivatives thereof. These novel compounds are useful in prophylactically treating certain viral infections.

3,635,951

PREPARATION OF AZEPINE DERIVATIVES

Donald A. Tyssee and John P. Petrovich, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 18, 1969, Ser. No. 859,209
Int. Cl. C07b 1/00; C07d 41/02

U.S. Cl. 260—239 B 13 Claims
Hexamethylenimine (2,3,4,5,6-hexahydroazepine) is produced by bringing tetrahydropyran-2-methanol, hydrogen and ammonia in the vapor phase into contact with a catalyst consisting essentially of a reducing metal and a dehydration material at temperatures between about 150° to 550° C. Partially hydrogenated azepine is produced when the process is carried out in the absence of hydrogen and the reducing metal. Hexamethylenimine is useful as a component in insecticide and herbicide formulations. Partially hydrogenated azepine may be converted to aminohexanol or hexamethylenimine.

3,635,952

CONVERSION OF OXEPANE TO HEXAMETHYLENIMINE

Donald A. Tyssee and John P. Petrovich, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 18, 1969, Ser. No. 859,176
Int. Cl. C07b 1/00; C07d 41/02

U.S. Cl. 260—239 B 2 Claims
Hexamethylenimine is produced by bringing oxepane and ammonia in the vapor phase into contact with an activated alumina catalyst at a temperature between about 150° and 550° C. Hexamethylenimine is a useful chemical intermediate, e.g., it may be converted to hexamethylenediamine which is a monomer in the manufacture of nylon 66. Also, it is useful in herbicide and insecticide compositions.

3,635,953

2-AMIDOPENICILLINS AND METHODS FOR THEIR PREPARATION

Milton Wolf, West Chester, and John H. Sellstedt, King of Prussia, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 760,090, Sept. 17, 1968. This application July 22, 1969, Ser. No. 843,841

Int. Cl. C07d 99/16, 99/24

U.S. Cl. 260—239.1 12 Claims
This invention concerns 2-amidopenicillins and 2-amidocephalosporins having potent antibiotic activity per se, and following hydrolysis to their corresponding acid forms. These 2-amido compounds are prepared by the amidation of penicillin or cephalosporin precursors. Alternatively, 2-amido-6-aminopenicillanic acids and 2-amido-7-aminocephalosporanic acids may be acylated to afford these compounds.

3,635,954

3-HYDROXY-Δ⁵-PREGNANE DERIVATIVES SUBSTITUTED AT C-7 WITH KETO, LOWER ALKANOLYLOXY OR HYDROXY

Richard Wightman Kierstead and Ronald Andrew Lemahieu, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,482
Int. Cl. C07c 173/00

U.S. Cl. 260—239.55 41 Claims
3-hydroxy-Δ⁵ pregnane derivatives substituted at C-6 with chloro or lower alkyl and substituted at C-7 with keto, lower alkanoloyloxy or hydroxy and 3,5-dihydroxy-Δ⁶ pregnane derivatives substituted at C-6 with lower alkyl which are useful as progestational agents.

3,635,955

SUBSTANTIALLY PURE BASIC DYES DERIVED FROM 4-METHYLENE-1,3-DISUBSTITUTED-3,4-DIHYDROPYRIMIDONES

Guenter Hansen and Matthias Seefelder, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 655,315, July 24, 1967. This application May 22, 1970, Ser. No. 39,861

Claims priority, application Germany, July 26, 1966, P 15 44 410.7

Int. Cl. C07d 51/34

U.S. Cl. 260—240 G 1 Claim
Substantially pure basic dyes derived from 4-methylene-1,3-disubstituted-3,4-dihydropyrimidones which are eminently suitable for dyeing and printing textile materials made of acrylonitrile polymers.

3,635,956

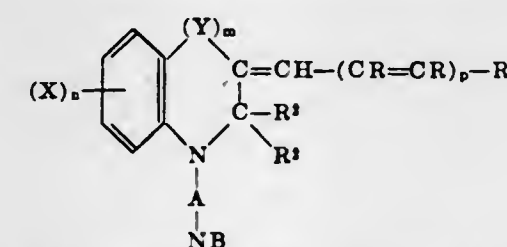
BENZOTHAZINES, RELATED COMPOUNDS, DERIVATIVES AND SALTS THEREOF

John Krapcho, Somerset, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,808
Int. Cl. C07d 93/12

U.S. Cl. 260—240 K 12 Claims

This disclosure relates to compounds having the formula



wherein X is hydrogen, halogen, trifluoromethyl, alkoxy, alkylthio, amino, dialkylamino, hydroxy, cyano or nitro; Y is O, S, sulfone (SO₂) or sulfoxide (SO); R is hydrogen

or lower alkyl; R' is lower alkyl, X-substituted phenyl (e.g., 4-fluorophenyl; pentafluorophenyl, and so forth); 4-phenylphenyl; piperonyl (3,4-methylenedioxyphenyl); X-substituted thienyl; X-substituted furyl; pyridyl; X-substituted phenyl alkylene (e.g., benzyl, 4-chlorophenethyl); naphthyl; cycloalkyl (e.g., cyclopropyl; cyclobutyl, cyclohexyl, and so forth), cycloalkenyl (3-cyclohexenyl); polycyclic alkylene (e.g., adamantyl) and polycyclic alkenyl (e.g., 5-norbornenyl); R² and R³ taken separately are each hydrogen, and taken together are oxo (O=); m is 0 or 1; p is 0 or 1; and n is 1 to 4; A is lower alkylene (e.g., from one to six carbons) and NB is a basic nitrogen containing radical; pharmaceutically acceptable salts thereof; and to processes for their preparation. Compounds having the above structure possess central nervous system depressant activity as well as antibacterial and disinfectant activity.

3,635,957

STYRYL DYES

Guido R. Genta, Lock Haven, Pa., assignor to American Aniline Products, Inc.

No Drawing. Filed May 20, 1969, Ser. No. 826,272
Int. Cl. C07d 91/44

U.S. Cl. 260—240 R 6 Claims
Water-insoluble disperse yellow dyes, particularly suitable as colorants for polyester fibers, are provided. The dyes are made from a benzaldehyde intermediate having as part of its structure a 2-mercaptobenzothiazole or a thiazolinethiol by reacting the intermediate with a nitrile containing an active methylene group, such as malononitrile. The new dyes give dyeings on polyethylene terephthalate fibers of outstanding fastness properties.

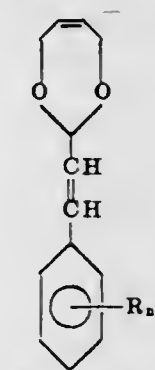
3,635,958

4,7-DIHYDRO-2-STYRYL-1,3-DIOXEPINS

Chester E. Pawloski, Ray City, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,528
Int. Cl. C07d 17/00

U.S. Cl. 260—240 D 2 Claims
The present invention is directed to new compounds, namely, 4,7-dihydro-2-styryl-1,3-dioxepins corresponding to the formula:



wherein R represents a lower alkyl group of from 1 to about 8, both inclusive, carbon atoms, and n is 0, 1, 2, 3, 4, or 5. The compounds are suitable for use as fungicides and herbicides.

3,635,959

2-[4-(3-LOWERALKYL-4-PHENYL-V-TRIAZOLE)-STYRYL]-BENZOTHAZOLES AND BENZOXAZOLES

Gaudenz Girelli di Giovanoel, Ariesheim, Basel-Land, and Reinhard Zwiedler, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,214
Claims priority, application Switzerland, Nov. 22, 1968, 17,398/68

Int. Cl. C07d 85/48

U.S. Cl. 260—240 D 7 Claims
2-[4-(3-alkyl-4-phenyl-v-triazole)-styryl]-benzoxazoles and -benzothiazoles are brighteners for organic material.

The compounds are obtained from the oxims of the coupling products of p-diazo-2-styrylbenzoxazoles and benzylalkylketones through splitting off water.

3,635,960
PARA-PHENYLTHIAZOLYL- AND PARA-PHENYLOXDIAZOLYL DERIVATIVES OF STYRYLBENZOXAZOLES OR OF STYRYLBENZOTHIAZOLES

Gaudenz Girell di Giovanoel, Arlesheim, Basel-Land, and Reinhard Zweidler, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Nov. 19, 1969, Ser. No. 878,215
Claims priority, application Switzerland, Nov. 22, 1968, 17,397/68

Int. Cl. C07d 91/62
U.S. Cl. 260—240 D 7 Claims
p-Phenylthiazolyl- and p-phenyloxidiazolyl-derivatives of styrylbenzoxazoles or of styrylbenzothiazoles are brighteners of organic material. The compounds are obtained from the corresponding benzoylhydrazide-carbonyl compounds through splitting off of water.

3,635,961
CEPHALOSPORINS AND PROCESS FOR THEIR PREPARATION

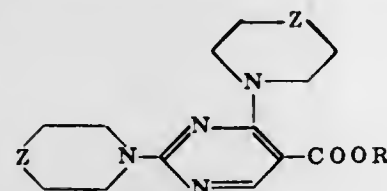
Kenneth Butler, Waterford, Conn., assignor to Pfizer, Inc., New York, N.Y.
No Drawing. Filed Mar. 27, 1968, Ser. No. 716,305
Int. Cl. C07d 99/24

U.S. Cl. 260—243 C 13 Claims
Esters of α -carboxy- and α -carbothioic- α -aryl acetyl derivatives of: (a) 7-aminocephalosporanic acid; (b) desacetyl 7-aminocephalosporanic acid; (c) desacetoxy 7-aminocephalosporanic acid; and (d) the tertiary amine derivatives of 7-aminocephalosporanic acid; the corresponding acids derived therefrom, and the salts thereof, which compounds exhibit antimicrobial activity, and methods for their preparation.

3,635,962
CERTAIN 2,4-BIS-MORPHOLINO- AND 2,4-BIS-THIAMORPHOLINO-PYRIMIDINE-5-CARBOXYLIC ACID ESTERS

Edmond G. Wyss, Bern, Switzerland, assignor to Dr. A. Wander S.A., Bern, Switzerland
No Drawing. Filed Nov. 3, 1969, Ser. No. 873,646
Claims priority, application Switzerland, Nov. 8, 1968, 16,679/68; Feb. 28, 1969, 3,039/69; Aug. 5, 1969, 11,857/69

Int. Cl. C07d 99/04, 99/06
U.S. Cl. 260—243 B 46 Claims
The invention concerns new pyrimidine derivatives of the Formula I,



in which:

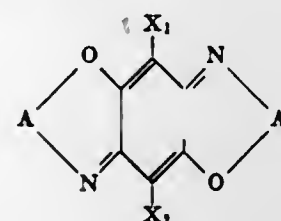
Z signifies oxygen of sulphur, and
R signifies alkyl, halo-substituted alkyl having up to 4 halo substituents, alkenyl, alkoxyalkyl, cycloalkyl or cycloalkylalkyl, each significance having up to 9 carbon atoms,

their acid addition salts and pharmaceutical compositions thereof, as well as to processes for the production of such compounds.

The compounds exhibit narcotic or hypnotic activity.

3,635,963
6,13-CYANO, NITRO, OR ARYLSULPHONYL TRI-PHENODIOXAZINE DYESTUFFS
Stefan Hari, Basel, and Karl Ronco, Riehen, Switzerland, assignors to Ciba Limited, Basel, Switzerland
No Drawing. Filed June 10, 1969, Ser. No. 832,023
Claims priority, application Switzerland, June 12, 1968, 8,709/68

Int. Cl. C07d 87/48
U.S. Cl. 260—246 6 Claims
Dioxazines of the formula



in which A represents an ortho-arylene radical, X₁ represents a cyano, nitro or arylsulphonyl group, and X₂ represents a cyano, nitro or arylsulphonyl group or a hydrogen or halogen atom, are valuable pigments useful for coloring plastic masses in fast shades.

3,635,964
5-MORPHOLINYL-2,1-BENZISOTHAZOLINES
Joseph A. Skorz, Milwaukee, and John T. Suh and Claude I. Judd, Mequon, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed Feb. 10, 1969, Ser. No. 798,119
Int. Cl. C07d 87/46

U.S. Cl. 260—247.1 6 Claims
The compounds are 2,1-benzisothiazoline-2,2-dioxides substituted in the 5-position by a 2-morpholinyl group. The compounds are useful as central nervous system depressants. The compounds may also be used as intermediates in the preparation of pickling agents, mothproofing agents and wood preservatives. Compounds disclosed include 1-methyl-5-(4-benzyl-5-oxo-2-morpholinyl)-2,1-benzisothiazoline-2,2-dioxide, 1-methyl-5-(4-benzyl-2-morpholinyl)-2,1-benzisothiazoline-2,2-dioxide hydrochloride, and 1-methyl-5-(2-morphalinyl)-2,1-benzisothiazoline-2,2-dioxide hydrochloride.

3,635,965
THIENO[2,3-d:4,5-d']DIPYRIMIDIN-4(3H)-ONES
Arthur A. Santilli, Havertown, and Dong H. Kim, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Nov. 4, 1969, Ser. No. 874,034
Int. Cl. C07d 99/06

U.S. Cl. 260—247.1 4 Claims
This invention concerns thieno[2,3-d:4,5-d']dipyrimidin-4(3H)-ones which pharmacologically efficacious as central nervous system depressants.

3,635,966
6-SUBSTITUTED-INDOLO[1,2-c]QUINAZOLINES
Robert Louis Duncan, Jr., Richmond, Va., assignor to A. H. Robins Company, Inc., Richmond, Va.
No Drawing. Filed Oct. 22, 1969, Ser. No. 868,612
Int. Cl. C07d 59/14

U.S. Cl. 260—247.5 R 6 Claims
6-substituted-indolo[1,2-c]quinazolines useful as sedatives are disclosed. The novel compounds of the invention are prepared by reacting 6-halomethylindolo[1,2-c]quinazolines with nitrogen-containing heterocyclic compounds.

3,635,967
ALPHA-(TERTIARY AMINOMETHYL)-PHENYL-ALPHA-PYRIDYL OR C-PIPERIDYL-BENZYL ALCOHOLS

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Original application Sept. 22, 1966, Ser. No. 581,152, now Patent No. 3,497,508, dated Feb. 24, 1970. Divided and this application Nov. 17, 1969, Ser. No. 877,453

Int. Cl. C07d 87/40
U.S. Cl. 260—247.5 R 8 Claims

Pyridyl and piperidyl benzyl alcohols substituted in the α -position with a substituted methylphenyl moiety useful as anti-inflammatories and anti-diabetics are obtained from corresponding benzophenones and a pyridyl lithium compound.

3,635,968
PRODUCTION OF CYANURIC ACID

Horst Goelz, Schwetzingen, Hubert Suter and Klaus Juer-gen Fust, Ludwigshafen, and Walter Himmele, Wall-dorf, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Ger-many
Filed July 9, 1969, Ser. No. 840,247

Claims priority, application Germany, July 9, 1968, P 17 70 827.9

Int. Cl. C07d 55/36
U.S. Cl. 260—248 A 5 Claims

Production of cyanuric acid from urea and/or biuret at elevated temperature using an unsubstituted or substituted N-cyclohexylpyrrolidone as solvent.

3,635,969
PROCESS FOR THE PRODUCTION OF TRIALLYL CYANURATE

Isao Yamada, Tokyo, Japan, assignor to Kabushiki Kaisha Musashino Kagaku Kenkuyo, Tokyo, Japan

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,192
Claims priority, application Japan, Apr. 26, 1969, 44/32,235

Int. Cl. C07d 55/50
U.S. Cl. 260—248 CS 10 Claims

Triallyl cyanurate is prepared by an improved process from cyanuric chloride and an aqueous allyl alcohol solution. Such improved process allows for the production of high yields of a high quality triallyl cyanurate without requiring the necessary purification of the prior art by carrying out such improved process under the following conditions:

- the concentration of said aqueous allyl alcohol solution must be about 70% by weight;
- the amount of allyl alcohol contained in said aqueous allyl alcohol solution must be about 4.5 times the molar quantity of the total amount of cyanuric chloride added;
- the concentration of said aqueous caustic soda solution must be about 40±0.5% by weight;
- additions of said aqueous caustic soda solution and cyanuric chloride must be made to said aqueous allyl alcohol solution alternately so that the reaction solution is maintained in a slightly alkaline state at all times and the temperature of the reaction solution is maintained constantly at 15±3° C.; and
- the total amount of the caustic soda added must be about 3.3 times the molar quantity of the total amount of the cyanuric chloride added.

3,635,970
CRYSTALLINE MELAMINE PYROPHOSPHATE

Robert Glenn Fessler, Martinsville, and Bruce Charles Tredinnick, Bound Brook, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Apr. 17, 1969, Ser. No. 817,168

Int. Cl. C07d 55/24
U.S. Cl. 260—249.6 7 Claims

A new crystalline form of melamine pyrophosphate having its maximum intensity at a peak in its X-ray diffraction pattern of 3.25 Å. and a process for making it wherein a pyrophosphate salt is added to an aqueous system of melamine and a mineral acid present in at least twice the stoichiometric amount of melamine are provided.

3,635,971
3-(3,4-DIHYDRO-3-OXO-2-QUINOXALINYL) PROPIONAMIDES

Tobias O. Yellin, Skokie, Ill., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed June 18, 1970, Ser. No. 47,617

Int. Cl. C07d 51/78
U.S. Cl. 260—250 R 10 Claims

3-(3,4-dihydro-3-oxo-2-quinoxaliny) propionamides which are useful as tranquilizers and antidepressants.

3,635,972
3-METHYL-2-QUINOXALINECARBOXAMIDE-DI-N-OXIDES

Timothy H. Cronin, Niantic, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed July 22, 1969, Ser. No. 843,810

Int. Cl. C07d 51/78
U.S. Cl. 260—250 R 6 Claims

Novel 3-methyl-2-quinoxalinecarboxamide-di-N-oxides wherein the carboxamide group is represented by —CON(R₁)-alkylene-Z wherein Z is lower alkanoylamino, mono-, or di(lower alkyl)amino, hydroxy, lower alkoxy, lower alkanoyloxy, carboxy, carbo(lower)alkoxy or carbamyl and R₁ is hydrogen or methyl are described. The products are useful as bactericides.

3,635,973
METHOD OF PREPARING 3-SUBSTITUTED PYRIDOPYRIMIDINEDIONES AND LUMAZINES

Richard L. Jacobs, Perrysburg, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 740,090, June 26, 1968. This application Nov. 20, 1969, Ser. No. 878,593

Int. Cl. C07d 57/28
U.S. Cl. 260—251.5 9 Claims

A method of preparing 3-substituted-pyrido[2,3-d]pyrimidine-2,4(1H,3H)-diones, 3-substituted-pyrido[3,2-d]pyrimidine-2,4(1H,3H)-diones, 3-substituted-pyrido[3,4-d]pyrimidine-2,4(1H,3H)-diones, 3-substituted-pyrido[4,3-d]pyrimidine-2,4(1H,3H)-diones, and 3-substituted lumazines from the corresponding N-monosubstituted 2,3- and 3,4-pyridinedicarboxamides, and 2,3-pyrazinedicarboxamides, in which the aforesaid compounds are reacted with an alkali or alkaline earth metal hypohalite in the presence of a base, preferably aqueous sodium hydroxide. Many of the pyridopyrimidinediones and lumazines thus formed are useful as agricultural chemi-

3,635,984

1,2,3,4,6,7-HEXAHYDRO-11bH-BENZO[a]QUINOLIZINES

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Division of application Ser. No. 642,311, May 31, 1967, now Patent No. 3,502,679, which is a continuation-in-part of application Ser. No. 480,479, Aug. 17, 1965, now Patent No. 3,383,388. This application Dec. 18, 1969, Ser. No. 886,352

Int. Cl. C07d 35/10

U.S. Cl. 260—286 R

7 Claims

11b - R - 1,2,3,4,6,7 - hexahydro - 11bH - benzo[a]quinolizines are useful as analeptics, anti-inflammatories and hypotensive-antihypertensives. They are prepared from β -phenethylamines and ω -acylalkylencarboxylic acids having from two to four carbons in the alkylene chain.

3,635,985

3-PHENYL-4-ACYLOXYCARBOSTYRILS

Haruki Nishimura, Osaka-fu, and Yasutaka Nagai, Kyoto-fu, Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Higashi-ku, Osaka-shi, Osaka-fu, Japan

No Drawing. Filed Jan. 27, 1970, Ser. No. 6,316

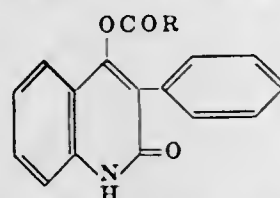
Claims priority, application Japan, Feb. 1, 1969, 44/7,498

Int. Cl. C07d 33/48

U.S. Cl. 260—287 R

3 Claims

A 3-phenyl-4-acyloxycarbostyryl of the formula:



wherein R is methyl or ethoxy prepared by treating 3-phenyl-4-hydrocarbostyryl with an acylating agent, which is useful as a minor tranquilizer with less side effect and low toxicity.

3,635,986

2-SUBSTITUTED AMINO-HEXAHYDROBENZO[a]QUINOLIZINES

John William Van Dyke, Jr., Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Continuation-in-part of application Ser. No. 650,579, July 3, 1967. This application Dec. 22, 1969, Ser. No. 887,342

Int. Cl. C07d 39/00

U.S. Cl. 260—287 R

15 Claims

2-substituted amino-hexahydrobenzo[a]quinolizines and pharmacologically acceptable salts thereof that are useful as anti-hypertensive agents. Prepared by reacting 2-oxo-1,3,4,6,7,11b-hexahydro - 2H - benzo[a]quinolizine with an amine to form a Schiff base which is then reduced.

3,635,987

O-(THIOCARBAMOYL-PYRIDYL) PHOSPHATES AND PHOSPHOROTHIOATES

Kurt Gubler, Riehen, and Odd Kristiansen, Reinach, near Basel, Switzerland, assignors to Ciba-Gelby Corporation, Ardsley, N.Y.

No Drawing. Filed Mar. 24, 1970, Ser. No. 22,404

Claims priority, application Switzerland, Mar. 28, 1969, 4,802/69

Int. Cl. C07d 31/48

U.S. Cl. 260—294.8 E

2 Claims

New O-(thiocarbamoyl-pyridyl) phosphates and phosphorothioates having pesticidal activity are disclosed.

Pesticidal compositions and a method for controlling pests are further disclosed.

3,635,988

RACEMATE OF 2-(4-METHOXY- α -PIPERIDINO-BENZYL)CYCLOHEXANOL

Charles Ferdinand Huebner, Chatham, N.J., assignor to Ciba Corporation, Summit, N.J.

No Drawing. Filed Sept. 25, 1969, Ser. No. 861,143

Int. Cl. C07d 29/34

U.S. Cl. 260—293.68 A

3 Claims

The new 2-(4-methoxy- α -piperidonobenzyl)-cyclohexanol and therapeutically useful salts thereof are unique CNS-stimulants.

3,635,989

ETHER DERIVATIVES OF AZADIBENZO-CYCLOHEPTEN-5-OLS

Cornelis van der Stelt and Petrus Simon Hofman, Haarlem, Netherlands, assignors to N. V. Koninklijke Pharmaceutische Fabrieken v/h Brocades-Stheeman & Pharmacia, Amsterdam, Netherlands

No Drawing. Original application Jan. 25, 1967, Ser. No. 611,544, now Patent No. 3,462,447. Divided and this application May 26, 1969, Ser. No. 827,908

Int. Cl. C07d 29/28

U.S. Cl. 260—293.59

4 Claims

The present invention relates to amino alkyl ethers of azadibenzocyclohepten-5-ols. These ethers are prepared from the corresponding 5-ol and 5-halo compounds which are also novel compounds forming a feature of this invention. The ethers of this invention, as well as the acid addition and quaternary ammonium salts thereof, are therapeutically active compounds possessing anti-histaminic properties.

3,635,990

4-PIPERIDINO-PROLINES

Francesco A. Mauri, Giancarlo Jommi, and Giovanna Riva, Milan, Italy, assignors to Ravizza S.A., Lausanne, Switzerland

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,426

Int. Cl. C07d 29/28

U.S. Cl. 260—293.71

13 Claims

4-piperidino-proline derivatives are disclosed which are endowed with anti-inflammatory, antipyretic and analgesic properties.

3,635,991

8-[2 - 2 - SUBSTITUTED-3-INDOLYL]ETHYL] - 2-LOWER - ALKYL - 2,8 - DIAZOSPIRO[4,5]1,3-DECANEDIONES

Sydney Archer, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 733,250, May 31, 1968, which is a continuation-in-part of application Ser. No. 634,899, May 1, 1967. This application Sept. 16, 1969, Ser. No. 858,511

Int. Cl. C07d 29/30

U.S. Cl. 260—293.61

4 Claims

Novel 8-2-(2-substituted-3-indolyl)ethyl]-2-lower-alkyl-2,8-diazaspiro[4,5]-1,3-decanediones having useful psychomotor depressant activity.

3,635,992

CERTAIN CARBAMATE DERIVATIVES OF 5-SULFON AMIDO-2-PYRIDINE METHANOLS

Michiro Inoue, Hisako Ishikawa, Takio Shimamoto, and Masayuki Ishikawa, Tokyo, Japan, assignors to Zaidan Hojin Dohmyakukohka Kenkyu Shoreikal, Tokyo, Japan

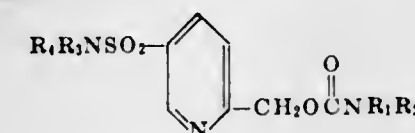
No Drawing. Filed Mar. 25, 1969, Ser. No. 810,356
Claims priority, application Japan, Apr. 8, 1968, 43/22,804

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 F

14 Claims

Carbamates of pyridinemethanol derivatives represented by the formula:



wherein R₁ stands for hydrogen atom or alkyl group, R₂ stands for hydrogen atom or alkyl, allyl, aryl, aralkyl, furfuryl, picolyl or pyridyl group, R₃ stands for hydrogen atom or alkyl group and R₄ stands for hydrogen atom, alkyl group or radical represented by the formula: —COOR₅ wherein R₅ stands for alkyl group or

—CONR₆R₇

wherein R₆ and R₇ stands for hydrogen atom or alkyl group, and R₁ and R₂ or R₃ and R₄ can together form a divalent alkylene group which may be interrupted by heteroatom, and process for the production thereof.

3,635,993

1,2,3,4-TETRAHYDRO-5H-[1]BENZOPYRANO-[3,4-a]PYRIDINES

Harry G. Pars, Lexington, Felix E. Granchelli, Arlington, and Raj K. Razdan, Belmont, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

No Drawing. Original application May 29, 1967, Ser. No. 642,223, now Patent No. 3,514,464, dated May 26, 1970. Divided and this application Oct. 30, 1969, Ser. No. 870,278

Int. Cl. C07d 31/28

U.S. Cl. 260—297 H

14 Claims

A new series of 1,2,3,4-tetrahydro-5H-[1]benzopyrano-[3,4-c]pyridines and 5H-[1]benzopyrano[3,4-c]piperidines, having C.N.S. and cardiovascular activity.

3,635,994

HALOPYRIDINE SULFENYL- AND SULFONYLHALIDES

Penelope B. Domenico, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 26, 1969, Ser. No. 861,463

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 F

9 Claims

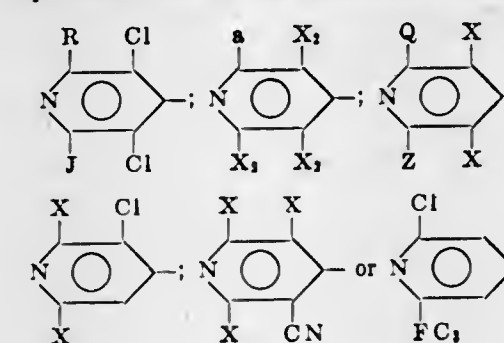
This disclosure is directed to sulfur containing substituted pyridine compounds corresponding to the formula

Py—M—D

wherein D represents chlorine, bromine or fluorine; M represents sulfonyl (—S—) or sulfonyl

(—S O₂)

and Py represents one of the substituted pyridyl radicals



in which X₂ represents bromine or fluorine; X represents chlorine or X₂; a represents hydrogen or X₂; R represents hydrogen or X; J represents trichloromethyl, trifluoromethyl or R; Q represents methyl sulfonyl

(CH₃S O₂)

or R and Z represents cyano (—CN) or methyl sulfonyl, with the proviso that D is fluorine only when M is sulfonyl. The preparation and use of these compounds as pesticides is also disclosed.

3,635,995

2-(2-IMIDAZOLIN-2-YL)METHYLTHIOPYRIDINE-N-OXIDE AND DERIVATIVES THEREOF

Robert E. Manning, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Dec. 5, 1969, Ser. No. 882,707

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 G

3 Claims

Substituted imidazoles, e.g., 2-(2-imidazolin-2-yl) methylthiopyridine - N - oxide, useful as antifungals and antibacterial agents are prepared from a halomethyl-imidazoline or halo substituted methylimidazoline and a mercaptopyridine-N-oxide derivative.

3,635,996

CERTAIN 1-(2-PROPYNYL)-2(1H)-PYRIDONES

Chester E. Pawloski, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.

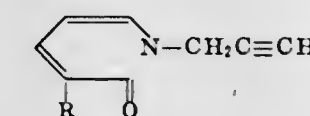
No Drawing. Filed Nov. 21, 1969, Ser. No. 878,903

Int. Cl. C07d 31/32

U.S. Cl. 260—297 Z

3 Claims

The present invention is directed to new and useful compounds, namely 1-(2-propynyl) - 2(1H) - pyridones corresponding to the formula:



wherein R is hydrogen, lower alkyl groups of from 1 to about 4, both inclusive, carbon atoms or a straight or branched chain propynyloxy group. The compounds are suitable for use as herbicides.

3,635,997

N-HALOPHENYLDICHLORISOTHAZOLONES AND METHOD FOR THEIR MANUFACTURE

Werner Toepfl, Basel, Switzerland, assignor to Ciba Limited, Basel, Switzerland

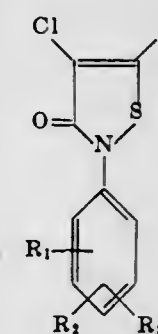
No Drawing. Filed July 1, 1969, Ser. No. 838,330
Claims priority, application Switzerland, July 5, 1968, 10,067/68

Int. Cl. C07d 91/10

U.S. Cl. 260—302 A

7 Claims

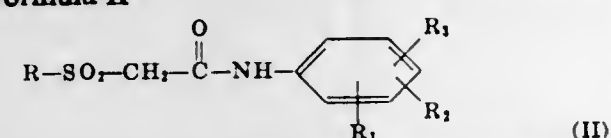
New isothiazolones of the general Formula I



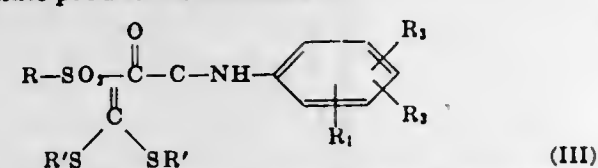
(I)

in which one of R₁, R₂ and R₃ represents halogen and each of the others of R₁, R₂ and R₃ represents hydrogen, lower

alkyl, lower alkoxy, halogen, nitro, trifluoromethyl, cyano, phenoxy or halogenophenoxy, are prepared by reacting an anilide of Formula II



in which R is alkyl or aryl, with carbon disulphide and a strongly alkaline compound, obtaining a reaction product which is then reacted with an alkylating agent to obtain the intermediate product of Formula III



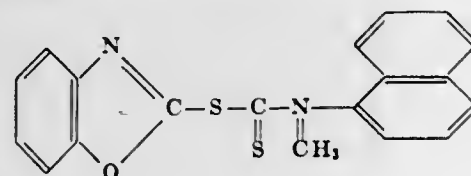
in which R' represents lower alkyl. This intermediate product is treated with a chlorinating agent to obtain the final product of Formula I. The new isothiazolones are useful as microbicides and germicides.

3,635,998

2-BENZOXAZOLYL N-METHYL-N-NAPHTHYL-DITHIOCARBAMATE

Alex Berg, Hans Eberhardt, Hans Machleidt, Alexander Wildfeuer, and Hanns Goeth, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Filed May 7, 1969, Ser. No. 822,731
Claims priority, application Germany, May 13, 1968, P 17 70 402.8
Int. Cl. C07d

U.S. Cl. 260—307 1 Claim
2-benzoxazolyl N-methyl-N-naphthyl-dithiocarbamate of the formula



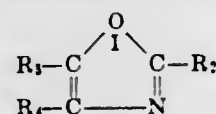
useful as an antimycotic.

3,635,999

SYNTHESIS OF OXAZOLES

Bernard Tramier and Albert Bonzom, Marseille, France, assignors to Societe Nationale des Petroles d'Aquitaine, Courbevoie, France
No Drawing. Filed Mar. 25, 1969, Ser. No. 810,339
Int. Cl. C07d 85/44

U.S. Cl. 260—307 R 11 Claims
New oxazoles are prepared having the formula



where R₂ is alkyl of 1 to 6 carbon atoms, phenyl or hydroxyphenyl, R₁ is methyl and R₃ is hydrogen. A process of preparing oxazoles is disclosed comprising condensing an acetylenic compound having an electronegative group on the carbon atom in the α-position relative to the triple bond with an ammonium salt of an organic acid or an amide.

3,636,000

METHOD FOR PREPARING DITHIOURAZOLE

Michael J. Spitulnik, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Sept. 8, 1969, Ser. No. 856,148
Int. Cl. C07d 55/06

U.S. Cl. 260—308 C 6 Claims
Dithiourazole is prepared by dissolving 2,5-dithiobiurea and an alkali metal carbonate in water in a proportion of

at least about 0.5 mole of alkali metal carbonate per mole of 2,5-dithiobiurea and heating the resulting solution. In the presence of the alkali metal carbonate, ring closure of the 2,5-dithiobiurea occurs to yield dithiourazole and release ammonia. Optimum results are obtained by heating at reflux under an inert atmosphere for a period of at least several hours.

3,636,001

AMINE SALTS OF NITRAMINOTRIAZOLES

Fritz Reisser, Therwil, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Continuation-in-part of abandoned application Ser. No. 814,461, Apr. 8, 1969. This application Nov. 12, 1969, Ser. No. 876,088
Claims priority, application Switzerland, Apr. 16, 1968, 5,563/68

Int. Cl. A01n 9/22; C07d 55/06 24 Claims
U.S. Cl. 260—308 R
Alkyl ammonium salts of 3-nitramino-1,2,4-triazoles useful as fungicides and acaricides.

3,636,002

1-(2-HALOGENZYLOXY-1-INDANYL)-IMIDAZOLES

Erik Fred Godefrol, Turnhout, Belgium, assignor to Janssen Pharmaceutica, N.V.
No Drawing. Filed Dec. 15, 1969, Ser. No. 885,365
Int. Cl. C07d 49/36

U.S. Cl. 260—309 7 Claims
The compounds are of the class of 1-(2-halobenzyloxy-1-indanyl)-imidazoles useful for their anti-fungal activity. A novel intermediate, 1-(1-imidazolyl)-2-indanol is also presented.

3,636,003

SUBSTITUTED 2-MERCAPTOIMIDAZOLE DERIVATIVES

Karl J. Doebel, Ossining, N.Y., and Andre R. Gagneux, Basel, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y.
No Drawing. Continuation-in-part of applications Ser. No. 721,928, Apr. 17, 1968, now Patent No. 3,488,423, and Ser. No. 721,930, Apr. 17, 1968, now Patent No. 3,505,350, which is a continuation-in-part of application Ser. No. 500,245, Oct. 21, 1965, which in turn is a continuation-in-part of application Ser. No. 204,643, June 22, 1962. This application Nov. 17, 1969, Ser. No. 877,483

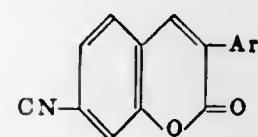
Int. Cl. C07d 49/36 6 Claims
U.S. Cl. 260—309
The compounds are of the class of substituted 2-mercaptoimidazole derivatives which have anti-inflammatory utility. An illustrative example is 1-(4-fluorophenyl)-5-methyl-2-imidazolemercaptoacetic acid.

3,636,004

7-CYANO-COUMARINS

Klaus-Dieter Bode, Leverkusen, and Carl-Wolfgang Schellhammer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 5, 1969, Ser. No. 821,970
Claims priority, application Germany, May 6, 1968, P 17 68 364.6

Int. Cl. C07d 7/26 2 Claims
U.S. Cl. 260—308 R
7-cyano-coumarin of the formula



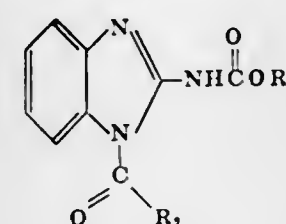
in which Ar denotes an optionally substituted aromatic carbocyclic or aromatic heterocyclic radical as defined hereinbelow which are adapted for use to protect organic materials against ultraviolet radiation.

3,636,005

ACYL SUBSTITUTED 2-BENZIMIDAZOLE-CARBAMATES

Hein L. Klopping, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Division of application Ser. No. 714,462, Mar. 20, 1968, now Patent No. 3,541,213, which is a continuation-in-part of application Ser. No. 629,900, Apr. 11, 1967, which in turn is a continuation-in-part of application Ser. No. 548,034, May 6, 1966. Divided and this application July 20, 1970, Ser. No. 56,644
Int. Cl. C07d 49/38

U.S. Cl. 260—309.2 5 Claims
Acyl substituted 2-benzimidazolecarbamates of the formula below are useful as mite ovicides and fungicides.



wherein R₁ is methyl or ethyl and R₂ is alkyl of 1-4 carbons, cycloalkyl of 3-4 carbons, methoxycarbonyl or ethoxycarbonyl. An exemplary species of the general class is the compound: methyl-1-acetyl-2-benzimidazolecarbamate.

3,636,006

WATER-INSOLUBLE ANTHRAQUINONE DERIVATIVES

Jean-Frederick Guye-Vuilleme and Otto Ruettner, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland
No Drawing. Filed Oct. 2, 1967, Ser. No. 671,943
Claims priority, application Switzerland, Oct. 10, 1966, 14,576/66; Oct. 18, 1966, 14,999/66; Jan. 25, 1967, 1,070/67

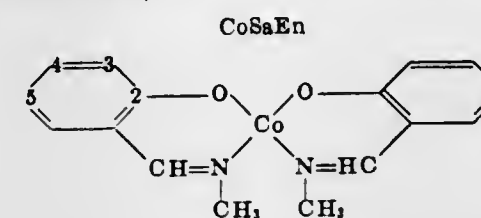
Int. Cl. C09b 1/50; C07c 121/78 6 Claims
U.S. Cl. 260—378
Aminoanthraquinone derivatives containing a N-cyano-methylamino group and process for their preparation.

3,636,007

OXYGEN COMPLEXES OF RING SUBSTITUTED N,N'-ETHYLENEBIS(SALICYLIDENEIMINATO) COBALT (II)

Fausto Calderazzo, Via Fiorentina 12, 51017 Pescia, Pistoia Italy, and Carlo Floriani, Via Prinetti 19, 56100 Pisa, Italy
No Drawing. Continuation-in-part of application Ser. No. 635,380, May 2, 1967. This application Mar. 13, 1969, Ser. No. 807,117

Int. Cl. C07f 15/06 8 Claims
U.S. Cl. 260—270 R
Oxygen complexes of N,N'-ethylenebis(salicylidene-iminato) cobalt (II)



and of substitution products having substituents such as halogen, alkoxy, or the like on a carbocyclic ring thereof

are produced by a complexing reaction of such compound with oxygen and an organic ligand. The reaction medium is an organic liquid which comprises an aprotic organic solvent that will complex as a ligand with the cobalt compound. The complex products have two gram atoms oxygen and one or two moles of the organic ligand complexed per two moles of the CoSaEn moiety. The complexes are prepared by dispersing or dissolving the CoSaEn compound in an organic liquid which comprises the ligand and then exposing the mixture to oxygen. Suitable aprotic solvent ligands include dimethylformamide, dimethylsulfoxide, pyridine oxide and the like. Pyridine similarly complexes making a complex having one mole pyridine, one mole CoSaEn and two gram atoms oxygen.

3,636,008

PROCESS FOR THE PRODUCTION OF AN ANTHRAQUINONE DISPERSE DYE

Eiji Yamada, Ibaragi-shi, Kunimasa Hamaguchi, Takarazuka-shi, and Takashi Akamatsu, Ashiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed June 3, 1969, Ser. No. 830,147
Claims priority, application Japan, June 14, 1968, 43/41,270, 43/42,171
Int. Cl. C09b 1/06, 1/50

U.S. Cl. 260—380 2 Claims
A process for the production of a 1,8-dioxy-4,5-dinitroanthraquinone halide by reacting borate of chrysazin with a nitrating agent in a fuming sulfuric acid medium, successively reacting the resulting mixture containing borate of the nitroanthraquinone with a halogenating agent and recovering a 1,8-dioxy-4,5-dinitroanthraquinone halide according to the conventional procedure; and a process for the production of a 1,8-dioxy-4,5-diaminoanthraquinone halide by reacting the mixture containing borate of the nitroanthraquinone halide obtained according to the above-mentioned procedure, without recovering a 1,8-dioxy-4,5-dinitroanthraquinone halide, with a reducing agent in sulfuric acid medium, wherein the halide means bromide or chloride.

3,636,009

2-(8-CYCLOHEXYLOCTYL OR 7-CYCLOHEXYL-HEPTYL)-1,4-DIHYDRO-4-IMINO-1-OXONAPHTHALENE

Louis F. Fieser, 27 Pinehurst Road, Belmont, Mass. 02178; Sydney Archer, Bethlehem (52 Wisconsin Ave., Delmar, N.Y. 12054); and Roman R. Lorenz, 3 Highland Drive, East Greenbush, N.Y. 12061
No Drawing. Original application Oct. 25, 1966, Ser. No. 589,204, Divided and this application Oct. 20, 1969, Ser. No. 870,806

Int. Cl. C07c 119/14 2 Claims
U.S. Cl. 260—396 N
This invention relates to 2-cyclohexylalkyl-1,4-dihydro-4-imino-1-oxonaphthalenes which are intermediates for anti-malarial agents.

3,636,010

ESTERS OF STEROID-17-CARBOXYLIC ACIDS

Georg Anner, Basel, and Charles Meystre, Reinach, Basel-Land, Switzerland, assignors to Ciba Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Dec. 10, 1969, Ser. No. 884,002
Claims priority, application Switzerland, Dec. 23, 1968, 19,190/68

Int. Cl. C07c 167/18, 169/12 8 Claims
U.S. Cl. 260—397.1
Ester of Δ^{1,4}-16α-methyl-6α,9α-difluoro-11β,17α-dihydroxy-3-oxo-androstadiene-17-carboxylic acid, its de-

hydro derivative and the corresponding compounds having an 11-oxo group instead of the 11 β -hydroxy group having good anti-inflammatory and thymolytic activity.

3,636,011

11 β -FLUORO-19-NOR-STERIODS AND PROCESS FOR THEIR PREPARATION

Gordon Hanley Philipps, Greenford, and Alan Tulley, Liverpool, England, assignors to Glaxo Laboratories Limited, Middlesex, England

No Drawing. Continuation-in-part of application Ser. No. 572,694, Aug. 16, 1966. This application June 24, 1969, Ser. No. 836,139

Claims priority, application Great Britain, Aug. 16, 1965, 35,005/65

Int. Cl. C07c 169/06, 169/30

U.S. Cl. 260—397.3

9 Claims

11 β -fluoro-19-nor-steroids are prepared by reacting the corresponding 11 α -hydroxy-19-nor-steroids with a fluorinating agent in an inert solvent. The novel 11 β -fluoro-19-nor-steroids exhibit hormonal activity.

3,636,012

17 α -(3'-HYDROXYPROPYNYL)-SUBSTITUTED STEROIDS

Sandor Barcza, West Orange, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed June 16, 1969, Ser. No. 833,796

Int. Cl. C07c 169/20

U.S. Cl. 260—397.4

6 Claims

The compounds are 13-alkyl-17 β -hydroxy-17 α -(3'-hydroxypropynyl)-3-oxo-gonanes having either 4- or 5(10) unsaturation, e.g., 17 β -hydroxy-17 α -(3'-hydroxypropynyl)-estra-4-en-3-one, and are useful as pharmaceuticals.

3,636,013

OESTROGENS

Michel Rolland, Paris, France, assignor to Les Laboratoires Albert Rolland, Paris, France

No Drawing. Filed Aug. 2, 1966, Ser. No. 569,597

Claims priority, application France, Aug. 5, 1965, 27,431

Int. Cl. C07c 169/08

U.S. Cl. 260—397.5

1 Claim

3-ethoxy-1,3,5-estratriene-16 α ,17 β -diol is a novel estrogen producing no secondary estrogenic effects such as swelling of the mammary glands or histologic alternations of male sex glands or tissues when administered. The compound is obtained from the corresponding 17-keto compound by reduction with a borohydride.

3,636,014

17 β -(ALKYLTHIOALKYL)AMINOANDROST-5-EN-3-OLS, ACYL DERIVATIVES THEREOF AND INTERMEDIATES THERETO

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Oct. 24, 1969, Ser. No. 869,347

Int. Cl. C07c 169/20

U.S. Cl. 260—397.5

10 Claims

17 β -(alkylthioalkyl)aminoandrost-5-en-3 β -ols and the acyl derivatives thereof are prepared by condensation of the corresponding 17-keto starting material with the appropriate alkylthioalkylamine, reduction of the resulting 17-imines and, optionally, acylation of the amines so produced. The amines and corresponding acyl derivatives are useful pharmacological agents, e.g. anti-inflammatory and anti-fungal.

3,636,015 PREPARATION OF THIONAMIDES

Patricia M. Scanlon, Arlington, Mass., and Elwyn R. Young, Nashua, N.H., assignors to W. R. Grace & Co., New York, N.Y.

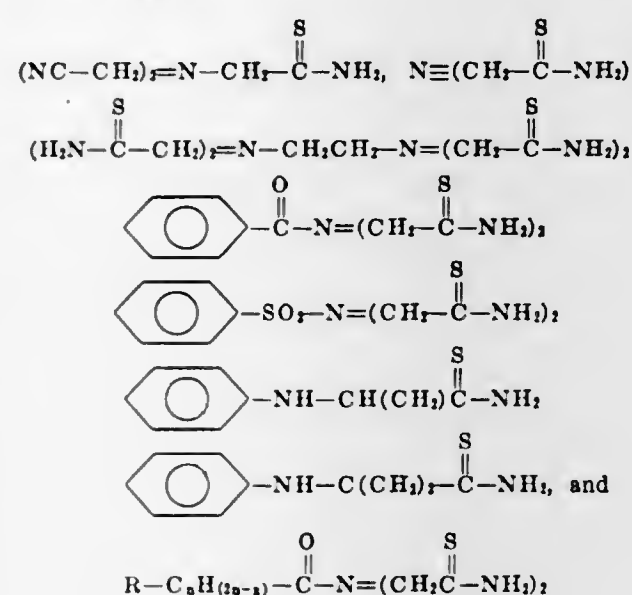
No Drawing. Filed Oct. 14, 1968, Ser. No. 767,517

Int. Cl. C07c 103/44, 121/20, 153/05

U.S. Cl. 260—402.5

11 Claims

In abstract, this invention is directed to thionamides having the formulas:



wherein R is a member selected from the group consisting of —H and —CH₃, n is 1-16, and x is 0 or 2, and to the preparation of such thionamides, all as recited hereinafter.

3,636,016

SURFACE ACTIVE AGENTS

Stephen E. McGuire, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

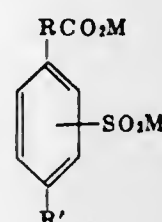
No Drawing. Filed May 28, 1969, Ser. No. 828,770

Int. Cl. C07c 143/90

U.S. Cl. 260—402

4 Claims

Novel surface active agents are provided having the general formula:



wherein R is a linear alkyl group containing from about 1 to 30 carbon atoms, R' is an acyclic alkyl group containing from about 1 to 30 carbon atoms, the sum of R plus R' being at least 7, and M is a cation selected from the group consisting of Li, Na, K, Rb, Cs, Ca, Mg, NH₄ and substituted ammonium.

3,636,017

PRODUCING LACTYLIC ACID ESTERS OF FATTY ACIDS

Stanley Eng, Mentor, Ohio, assignor to Glyco Chemicals, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 526,684, Feb. 11, 1966. This application Nov. 20, 1969, Ser. No. 878,540

Int. Cl. C07c 69/68; C11c 3/00; A21d 2/16

U.S. Cl. 260—410.9 R

12 Claims

Production of fatty acid esters of lactic acid by (a) reacting lactic acid with an at least partly water-soluble

alkali metal alkaline earth metal or ammonium base to form the corresponding lactic acid salt, (b) esterifying said salt with a fatty acid and (c) treating the resulting salt of the acyl lactic acid with mineral acid to convert it to the fatty acid ester of lactic acid. The products are useful as additives for bakery products.

3,636,018

ESTERS OF 2,7,11-TRIMETHYL-3-METHYLENE-4,6,10-DODECATRIENOIC ACID USEFUL AS INSECTICIDES

Karel Hejno, Vaclav Jarolim, Karel Slama, and Frantisek Sorm, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed July 24, 1969, Ser. No. 845,127

Int. Cl. C07c 69/52, 69/66; A01n 9/24

U.S. Cl. 260—410.5

10 Claims

Methods employing and compositions comprising novel esters of 2,7,11-trimethyl-3-methylene-4,6,10-dodecatricenoic acid which are useful for the control of insects.

3,636,019

ZIEGLER POLYMERIZATION CATALYSTS

Philippe Mornet, Pau, Jean Teitgen, Arthez-de-Bearn, and Gilbert Marie, Pau, France, assignors to Société Nationale des Petroles d'Aquitaine, Tour d'Aquitaine, Courbevoie, France

No Drawing. Filed Aug. 7, 1968, Ser. No. 750,758

Claims priority, application France, Aug. 9, 1967, 117,337

Int. Cl. C08f 15/04

U.S. Cl. 252—429 B

7 Claims

Alkoxy alkyl halosulphites and halosulphates are used as activators for Ziegler-type polymerization catalysts wherein the transition metal compound is preferably a vanadium compound and the organoaluminum is preferably a haloaluminum alkyl.

3,636,020

METHOD FOR PREPARING DIORGANIC MERCURY COMPOUNDS

Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass.

No Drawing. Filed Aug. 21, 1969, Ser. No. 852,099

Int. Cl. C07f 3/12

U.S. Cl. 260—433

13 Claims

The invention provides an improved method for preparing diorganic mercury compounds. The method comprises disproportionating an organic mercury salt by contacting the organic mercury salt with a polyamine, such as a polyethyleneimine having a molecular weight between about 600 and 100,000, ethylenediamine, diethylenetriamine, triethylenetetraamine, and propylenediamine in water thereby forming the water-insoluble diorganic mercury compound and a water-soluble mercury-polyamine complex. The diorganic mercury compound may be separated and recovered from the reaction mixture by filtration, layer separation, or distillation.

3,636,021

TETRAMETHYL LEAD MANUFACTURE

Denis Lamarche and Maurice Decarie, Montreal, Quebec, Canada, assignors to Miranda Inc., Apartado, Panama

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,522

Int. Cl. C07f 7/24

U.S. Cl. 260—437 R

6 Claims

A process for producing tetramethyl lead comprising reacting a Pb-Na alloy and methyl chloride in the presence of a catalyst comprising an amide of a metal of

3,636,022

NICKEL AMIDE COMPLEXES OF BISPHENOL SULFIDES

John Harvey Bright, Middlesex, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Apr. 9, 1969, Ser. No. 814,805

Int. Cl. C07f 15/04; C08f 45/62

U.S. Cl. 260—439 R

6 Claims

Nickel amide complexes of 2,2'-thiobis(p-alkylphenols) are provided. The complexes are prepared by the reaction of a 1:1 nickel aquo complex of a 2,2'-thiobis(p-alkylphenol) with an amide. The invention also provides stable polyolefin compositions containing said nickel amide complexes or a mixture of an amide and the aforementioned nickel aquo complex of 2,2'-thiobis(p-alkylphenol).

3,636,023

THIOBIS PHENOL-NICKEL (II) ALKANOLAMINE COMPLEXES AND USE IN POLYMERS

Robert William Murray, Lebanon, and Joseph Adrian Hoffman, Bridgewater Township, Somerset County, N.J., assignors to American Cyanamid Company, Stamford, Conn.

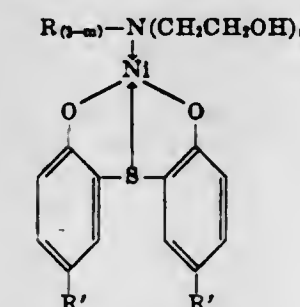
No Drawing. Filed Aug. 27, 1969, Ser. No. 853,507

Int. Cl. C07f 15/04; C08f 45/62

U.S. Cl. 260—439 R

4 Claims

Nickel complexes of alkanolamines and nickel (II) thiobisphenols are provided having the general formula:



wherein R is hydrogen; alkyl containing from 1 to about 18 carbon atoms including cyclic, acyclic and branched radicals as well as combinations thereof; substituted alkyl containing from 2 to about 36 carbon atoms including cyanoalkyl, alkoxyalkyl, carbalkoxyalkyl, carbamoylalkyl and R₂N alkyl wherein R is as defined herein; aryl containing from about 6 to about 10 carbon atoms; aralkyl containing from about 7 to about 12 carbon atoms, especially mono and bicyclic ar(lower-alkyl); and alkenyl containing from about 2 to about 18 carbon atoms; R' is an alkyl group containing from 1 to about 18 carbon atoms; and m is an integer from 1 to 3.

These complexes are useful as light stabilizers and/or dye receptors in polymeric compositions.

3,636,024

HALOGENATED-10,10'-BIPHENOXARSINES

Chun-Shan Wang and Thomas W. McGee, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 4, 1970, Ser. No. 34,615

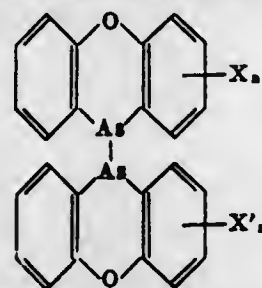
Int. Cl. C07f 9/74; A01n 9/00; C08f 1/84

U.S. Cl. 260—440

4 Claims

The present invention is directed to methods useful for protecting articles from attack by marine-fouling organisms which comprises treating an article with compo-

sitions containing an anti-fouling amount of an organoarsine compound corresponding to the formula



wherein X and X' represent halogen, and n is 0, 1 or 2, and thereafter placing the article so treated in the environment of the marine-fouling organisms. Methods of treating articles by painting their surfaces with a paint composition containing at least 0.2 pound of one of the above organoarsine compounds per gallon of composition are described together with useful paint compositions. The halogenated organoarsine compounds of the above formula wherein n is 1 or 2 are novel compounds and constitute a second embodiment of this invention.

3,636,025

TRIALKYL-SILYLMETHYL GUANIDINIUM SALTS

Sandor Barcza, West Orange, N.J., assignor to

Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,892

Int. Cl. C07H 7/10; A61K 27/00

U.S. Cl. 260—448.2 N

4 Claims

Tri(lower) alkylsilylmethyl guanidinium salts, e.g., trimethylsilylmethyl guanidinium nitrate, are obtainable by guanylating a tri(lower) alkylsilylmethylamine, e.g., with a 1-guanyl-3,5-dimethylpyrazole salt, and are useful as anti-inflammatory agents.

3,636,026

BENZOL-SILYL-ESTERS

Karl Fuhr, Hugo Vernaleken, and Hans-Georg Heine, Krefeld, Hans Rudolph, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,938

Claims priority, application Germany, Nov. 6, 1968,

P 18 07 297.4

Int. Cl. C07E 7/06, 7/18

U.S. Cl. 260—448.8 R

8 Claims

The invention relates to possibly α -substituted benzoin-silyl-esters which are useful photosensitizers for the photopolymerisation of polymerisable compounds or compound mixtures including mixtures of unsaturated polyesters and copolymerisable monomeric compounds.

3,636,027

CATALYTIC CARBONYLATION OF NITRO COMPOUNDS TO PREPARE ISOCYANATES

Eric Smith, Madison, Conn., assignor to

Olin Corporation

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,813

Int. Cl. B01J 11/78; C07c 119/04

U.S. Cl. 260—453 PC

18 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprised of a mixture of a sulfur-containing heteroaromatic compound and a halide of a noble metal. The heteroaromatic sulfur-containing compound is one in which the heteroaromatic ring

- contains at least 5 members,
- contains at least two double bonds,
- contains at least one sulfur atom, and
- may contain, in addition to carbon and sulfur, at least one other atom selected from the group consisting of oxygen, nitrogen, and mixtures thereof.

Thiophene and dibenzothiophene are the preferred heteroaromatic compounds, and the noble metal halide is preferably a halide of palladium, rhodium, iridium, platinum, or mixtures thereof. The catalyst system may also include a third component such as molybdenum trioxide or another metal oxide.

3,636,028

CATALYTIC CARBONYLATION OF NITRO COMPOUNDS TO PREPARE ISOCYANATES

Eric Smith, Madison, Conn., assignor to

Olin Corporation

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,814

Int. Cl. B01J 11/78; C07c 119/04

U.S. Cl. 260—453 PC

11 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprised of a mixture of an oxygen-containing heteroaromatic compound and a halide of a noble metal. The heteroaromatic oxygen-containing compound is one

- containing at least five members in the ring,
- containing at least two double bonds in the ring,
- containing at least one oxygen in the ring, and
- may contain, in addition to oxygen and carbon in the ring, at least one nitrogen atom in the ring.

Dibenzofuran, 2,5-diphenyl furan, and 2,5-diphenyl oxazole are the preferred heteroaromatic oxygen compounds. The noble metal halide is preferably a halide of palladium, rhodium, iridium, platinum, or mixtures thereof. The catalyst system may also include a third component such as molybdenum trioxide or another metal oxide.

3,636,029

CATALYTIC CARBONYLATION OF NITRO COMPOUNDS TO PREPARE ISOCYANATES

Eric Smith, Madison, Conn., assignor to

Olin Corporation

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,819

Int. Cl. B01J 11/78; C07c 119/04

U.S. Cl. 260—453 PC

14 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprised of a mixture of an oxygen-containing sulfur compound and a halide of a noble metal. The oxygen-containing sulfur compounds include organic sulfoxides, organic sulfonates, organic sulfones, and alkali metal sulfites, and derivatives thereof. Tetramethylene sulfoxide, sodium sulfite, and dibenzothiophene sulfone represent some of the preferred oxygen-containing sulfur compounds. The noble metal halide is preferably a halide of palladium, rhodium, iridium, platinum, or mixtures thereof. The catalyst system may also include a third component such as molybdenum trioxide or another metal oxide.

3,636,030

RECOVERY OF AROMATIC DIISOCYANATES FROM STILL RESIDUES

Gilbert T. Perkins, Beaumont, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,220

Int. Cl. C07c 119/04

U.S. Cl. 260—453 SP

5 Claims

A process for recovering aromatic diisocyanate values from distillation residues obtained in the manufacture of aromatic diisocyanates, said process comprising the steps of (1) adding a solution of the still residues, in an inert organic solvent such as orthodichlorobenzene, to aqueous hydrochloric or hydrobromic acid at about 25 to 150° C. so that isocyanates, biurets and carbodiimides present in said residues are at least partially hydrolyzed, (2) phosphogenating the resulting mixture at about 150 to 200° C. in

the presence of less than 10% by weight of water based on the weight of still residues and (3) recovering aromatic diisocyanate from the phosphogenated mixture.

3,636,031

ANTIOXIDANT SYSTEM FOR POLYOLEFINS

William O. Drake and Kenneth R. Mills, Bartlesville, Okla., assignors to Phillips Petroleum Company

Continuation-in-part of application Ser. No. 570,459,

Aug. 5, 1966. This application July 24, 1969, Ser.

No. 844,642

Int. Cl. C08f 45/60

U.S. Cl. 260—45.8 N

12 Claims

A stabilizer system for poly 1-olefins comprising an organic phosphite ester, a thioester, 2,6-di-tert-butyl-4-methylphenol, and 4,6-di(4-hydroxy-3,5-di-tert-butylphenoxy)-2-octylthio-1,3,5-triazine.

3,636,032

INDANE DERIVATIVES OF THIOCARBAMIC ACIDS

Hermann Breuer, Regensburg, Germany, assignor to

E. R. Squibb & Sons, Inc., New York, N.Y.

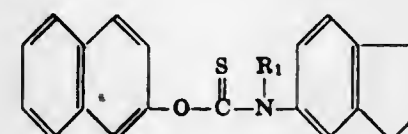
No Drawing. Filed Aug. 6, 1968, Ser. No. 750,486

Int. Cl. C07c 155/08

U.S. Cl. 260—455 A

3 Claims

This invention relates to new indane derivatives of substituted thiocarbamic acids, more particularly, those having the formula



wherein R₁ is hydrogen or lower alkyl. These new compounds are useful as antifungal agents.

3,636,033

ADDITION PRODUCT OF AN α,β -UNSATURATED ESTER AND A THIOCARBOXYLIC ACID

Eduard K. Kleiner, New York, N.Y., assignor to Celge Chemical Corporation, Greenburgh, N.Y.

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,115

Int. Cl. C07c 153/07

U.S. Cl. 260—455 C

14 Claims

Organic materials, particularly synthetic polymers such as polypropylene, are protected against oxidation in air, thermal degradation or deterioration by including, in such substances, a stabilizing amount of an antioxidant. The antioxidant is obtained by reacting (a) an α,β -unsaturated ester of a hindered hydroquinone and (b) a thio acid.

3,636,034

SURFACTANT PRODUCTION VIA RHODIUM-CATALYZED OXO PROCESS

Yoshio Ohsumi, Yoshiki Matsunaga, Mitsuo Yamaguchi, Hiroshi Ishida, Takeshi Onoda, and Masaru Onishi, Tokyo, Hiroshi Kasugai, Yokohama-shi, and Tadao Namiki, Kawasaki-shi, Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

No Drawing. Filed Sept. 27, 1965, Ser. No. 490,697

Claims priority, application Japan, Oct. 2, 1964,

39/55,911

Int. Cl. C07c 141/04

U.S. Cl. 260—459

1 Claim

A surface active composition comprising salts of high molecular weight alkyl sulfate. The salts are obtained by reacting one or more mono-olefins having 10 to 24 carbon atoms with carbon monoxide and hydrogen in the presence of a rhodium catalyst. The resultant product is hydrogenated to form high molecular weight alcohols and these are sulfated followed by neutralization of the resultant sulfation products by certain bases.

3,636,035

STABILIZED MOULDING COMPOSITIONS FROM POLYMERS OF α -OLEFINS

Otto Mauz, Niederhofheim, Taunus, and Eberhard Prinz, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed July 7, 1969, Ser. No. 839,712

Claims priority, application Germany, July 10, 1968,

P 17 69 764.2

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95

4 Claims

Moulding compositions from polyolefins and a stabilizer mixture which is difficult to extract by boiling water consisting of a phosphorus containing bisphenol and a disulfide.

3,636,036

ALKYL SUBSTITUTED PHENYLENE DIISONITRILES

Ivar Ugi, 3611 McLaughlin Ave.,

Los Angeles, Calif. 90066

No Drawing. Application Sept. 26, 1966, Ser. No. 588,656, which is a continuation of application Ser. No. 264,707,

Mar. 12, 1963. Divided and this application Feb. 11, 1970, Ser. No. 10,603

Int. Cl. C07c 119/02

U.S. Cl. 260—465 H

2 Claims

1-methyl-3,5-diethyl-2,4-phenylene-diisocyanide, and 2,4,6-triisopropyl-1,3-phenylene-diisocyanide. The compounds are useful as cross-linking and hardening agents for plastics which contain carboxyl groups.

3,636,037

CARBONIC ESTERS OF 4-NITROPHENOL

Cyril Donninger and John A. Schofield, Kent, England, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed June 2, 1969, Ser. No. 829,786

Claims priority, application Great Britain, June 4, 1968, 26,573/68; Jan. 24, 1969, 4,080/69

Int. Cl. A01N 9/20; C07c 79/32, 79/34

U.S. Cl. 260—463

8 Claims

Herbicidally active carbonic esters of 2-substituted-4-nitro-6-halophenols and methods for their preparation.

3,636,038

4'-CYANO-5-HALO-3-PHENYLSALICYLANILIDES

Jack D. Early, Bethesda, and John P. Chupp, Kirkwood, Md., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Aug. 8, 1967, Ser. No. 659,040, now Patent No. 3,525,766, dated Aug. 25, 1970. Divided and this application July 28, 1969, Ser.

No. 860,458

Int. Cl. C07c 121/74

U.S. Cl. 260—465 D

3 Claims

Compounds characterized by a 5-halo-3-phenylsalicylanilido nucleus, the anilido group of which having substituents of the group nitro, cyano and trifluoromethyl. These compounds are useful as gastropodocides.

3,636,039

SUBSTITUTED BENZYLIMIDAZOLIDINONES

Vsevolod Gruenman, Montclair, and Max Hoffer, Nutley, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 725,946, May 1, 1968. This application Feb. 24, 1970, Ser. No. 13,769

Int. Cl. C07d 49/34

U.S. Cl. 260—309.7

14 Claims

The present disclosure relates to novel benzylimidazolidinones, with special reference to the 4-(substituted benzyl)-2-imidazolidinones, methods for their preparation and

novel intermediates useful therein. The benzylimidazolidinones are useful as hypotensive agents.

3,636,040
COMPLEX COMPOUNDS OF THE COBALT-PHTHALOCYANINE SERIES

Heinrich Vollmann, Leverkusen, and Peter Mertens, Cologne, Marienburg, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 28, 1968, Ser. No. 755,826
Claims priority, application Germany, Aug. 31, 1968, F 53,375

Int. Cl. C09b 47/04

U.S. Cl. 260—314.5

16 Claims

Coordinatively hexavalent complex salts of trivalent cobalt, in which four of the six coordination points at the cobalt atom are occupied by the phthalocyanine ring system which has a double negative charge, and each of the remaining two points is occupied by an amine and process for preparing said complex salts comprising treating cobalt-phthalocyanines with an oxidizing agent in the presence of an anion and with an amine. The complex salts can be used as dyestuffs for lacquers, synthetic materials and pastes for ball point pens.

3,636,041

4,5-DIHYDRO-7H-THIENO[2,3-c]THIOPYRANS
Paul Schmidt and Kurt Eichenberger, Therwil, and Ernst Schweizer, Basel, Switzerland, assignors to Ciba Corporation, Summit, N.J.

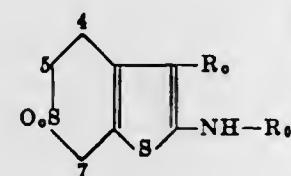
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,250
Claims priority, application Switzerland, Feb. 29, 1968, 2,980/68; Aug. 9, 1968, 12,029/68; Jan. 21, 1969, 836/69

Int. Cl. A61k 27/00; C07d 65/04

U.S. Cl. 260—332.2 C

15 Claims

Compounds of the formula



in which R_1 stands for acyl or hydrogen, R_2 for a free or functionally converted carboxyl group and n for 0, 1 or 2, and which contain in at least one of the positions 5 and 7 an aryl radical and which may be further substituted in positions 4, 5 and/or 7 are useful as starting materials and as central inhibiting, antiinflammatory and antihypertensive agents.

3,636,042

PROCESS FOR THE PREPARATION OF OXOPYRROLES AND INTERMEDIATES USEFUL THEREIN
Irwin J. Pachter, Woodbury, and Karl Schoen, Kew Gardens, N.Y., assignors to Endo Laboratories Inc., Garden City, N.Y.

No Drawing. Application Sept. 1, 1967, Ser. No. 664,942, which is a continuation-in-part of applications Ser. No. 575,303, Aug. 26, 1966, and Ser. No. 599,387, Dec. 6, 1966. Divided and this application July 16, 1968, Ser. No. 768,569

Int. Cl. C07d 27/26

U.S. Cl. 260—326.1

14 Claims

Process for preparing 2-aminoalkyl pyrrol-3-yl ketones and derivatives thereof, and novel compounds thus pro-

duced. The process is carried out by quaternizing 2-dimethylamino- or 2-piperidino-alkyl-pyrrol-3-yl ketones or derivatives thereof, including those having bi- and tricyclic nuclei, and reacting the quaternary salts either with a base and an amine, or, alternatively, with an amine only.

3,636,043

METHOD FOR THE PREPARATION OF 4-ALKYLPYRROLINES AND COMPOUNDS PRODUCED THEREBY

Barney J. Magerlein, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 4, 1969, Ser. No. 796,558

Int. Cl. C07d 27/04

U.S. Cl. 260—326.3

7 Claims

4-alkylpyrrolines are prepared in relatively high yields by reacting a 2-alkylacrolein with a dialkyl N-alkanoyl-amidomalonate, dehydrating the obtained 4-alkylpyrrolidine, and thereafter hydrolyzing, decarboxylating, and catalytically hydrogenating the produced 4-alkyl-4-pyrroline. The 4-alkyl-pyrrolines are useful as intermediates for the preparation of 4-alkylhygric acids which, in turn, are a source of component acids that are reacted with amino sugars to form antibiotics of the lincomycin type.

3,636,044

N-(3',5'-DICHLOROPHENYL)ITACONIMIDE

Akira Fujinami, 134-4 Nishiyamacho, Ashiya-shi, Japan; Fukashi Horiuchi, 18-19 Tominosatocho, Takatsuki-shi, Japan; Katsuji Nodera, 28-16 Koshlenguchi-3-chome, Nishinomiyashi, Japan; Toshiaki Ozaki, 11-14 Sonehigashimachi-2-chome, and Sigeo Yamamoto, 149-24 Honmachi-9-chome, both of Toyonaka-shi, Japan; and Tadashi Ootshi, 9-17 Sakuragaoka-4-chome, Minoo-shi, Japan

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,157

Int. Cl. C07d 27/10

U.S. Cl. 260—326.5

1 Claim

A novel compound, N-(3',5'-dichlorophenyl)itaconimide is less phyto-toxic as well as harmless to mammals and has a peculiarly conspicuous fungicidal activity. The novel compound can readily be prepared by dehydrating N-(3',5'-dichlorophenyl)itaconic acid monoamide. A fungicidal composition containing N-(3',5'-dichlorophenyl)itaconimide as an active ingredient have prominent preventive and exterminative effects on such fungi as *Pyricularia oryzae* Cav., *Cochliobolus miyabeanus*, *Pellicularia sasakii*, *Sclerotinia*, *Aspergillus niger* and the like.

3,636,045

THIEPINO AND OXEPINO[4,5-c]PYRROL DERIVATIVES

Hans Blattner and Walter Schindler, Riehen, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,175
Claims priority, application Switzerland, Nov. 27, 1968, 17,644/68

Int. Cl. C07d 27/36

U.S. Cl. 260—326.5

7 Claims

Substituted 2,3-dihydro-1H-dibenzo[2,3:6,7]thiepine [4,5-c]pyrrols, the corresponding oxepino derivatives and the pharmaceutically acceptable acid addition salts thereof have a central nervous system depressant effect; the compounds can be prepared by reacting 10,11-bis-bromomethylidibenzof[4,5-c]thiepins or the corresponding oxepins with primary amines; the pyrrols and the pharmaceutically acceptable acid addition salts thereof are the active ingredients of pharmaceutical compositions; an illustrative embodiment is 2-ethyl-2,3-dihydro-1H-dibenzo[2,3:6,7]thiepine[4,5-c]pyrrol.

3,636,046
DERIVATIVES OF DIBENZO[b,f]PYRROLO[3,4-d]AZEPINE

Hans Blattner and Walter Schindler, Riehen, Switzerland; Herr Dr. Leonhard Gysin, executor and legal representative of said Walter Schindler, deceased, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,177
Claims priority, application Switzerland, Dec. 19, 1968, 18,946/68

Int. Cl. C07d 27/36

U.S. Cl. 260—326.9

6 Claims

Compounds of the class of 1,2,3,8-tetrahydro-dibenzo[b,f]pyrrolo[3,4-d]azepines and pharmaceutically acceptable acid addition salts thereof have a depressant effect on the central nervous system; they can be prepared from N-substituted 10,11-bis-bromomethyl-5H-dibenz[b,f]azepines and a primary amine; the compounds are active ingredients of pharmaceutical compositions; an illustrative embodiment is 2-ethyl-1,2,3,9-tetrahydro-dibenzo[3,4-d]azepine.

3,636,047

KETONE DERIVATIVES OF 1,4-BENZODITHIAN AND 1,4-BENZOXATHIAN

Michel Tobias, Edison, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,185

Int. Cl. C07d 13/00, 89/14

U.S. Cl. 260—327 P

4 Claims

5,6,7,8-tetrahydro-8-oxo-1,4-benzodithian and 5,6,7,8-tetrahydro-8-oxo-1,4-benzoxathian are prepared by base-catalyzed reaction of 2-halo-2-cyclohexen-1-one or 2,3-epoxycyclohexanone with a dimer-captoalkane or a mercaptoalcohol. They are dehydrogenated to the corresponding phenol and converted to N-methylcarbamates, which have insecticidal activity.

3,636,048

CHLORONAPHTHO DITHIOLE COMPOUNDS AND A METHOD FOR THEIR PREPARATION

Erwin Kilnsberg, Mountainside, N.J., assignor to American Cyanamid Company, Stamford, Conn.

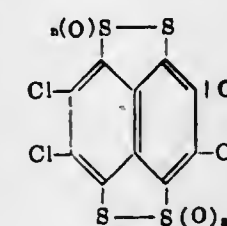
No Drawing. Continuation-in-part of application Ser. No. 701,120, Jan. 29, 1968. This application July 15, 1970, Ser. No. 55,287

Int. Cl. C07d 71/00; C07c 25/22

U.S. Cl. 260—327 C

7 Claims

A new class of chloronaphtho dithiole compounds is provided which are particularly useful as yellow colorants in plastics and as intermediates for the preparation of dielectric materials. The compounds are represented by the following formula:



wherein n is an integer from 0 to 2. Furthermore, a new yellow pigment is provided which consists essentially of 3,4,7,8-tetrachloronaphtho[1,8-cd:4,5c'd']bis(1,2-dithiole).

3,636,049

ISOTHIOCHROMAN CARBOXAMIDES

James M. McManus, Old Lyme, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 26, 1969, Ser. No. 880,396

Int. Cl. C07d 65/04

U.S. Cl. 260—327 TH

13 Claims

A series of novel 4-oxo-isothiochroman-3-carboxamide 2,2-dioxides have been prepared, including their pharma-

ceutically acceptable salts. These compounds are useful in therapy as non-steroidal anti-inflammatory agents. Alternate methods of preparation are provided and some of these synthetic routes are described in detail.

3,636,050

N-BENZOTHIENYLCHLOROACETAMIDES

Patrick R. Driscoll, Fords, and Harold A. Kaufman, Piscataway, N.J., assignors to Mobil Oil Corporation
No Drawing. Original application Feb. 7, 1968, Ser. No. 703,567, now Patent No. 3,495,967, dated Feb. 17, 1970. Divided and this application Oct. 10, 1969, Ser. No. 870,773

Int. Cl. C07d 63/72

U.S. Cl. 260—330.5

2 Claims

N-benzothienyl-2-chloroacetamide and ring- and N-substituted derivatives thereof are new compounds that are herbicides, particularly as pre-emergent herbicides.

3,636,051

PROCESS FOR PURIFICATION OF DICYCLOPENTADIENE DIEPOXIDE

Rudolph Rosenthal, Broomall, and Joseph A. Kleras, Lincoln University, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Nov. 4, 1969, Ser. No. 874,082

Int. Cl. C07d 1/06

U.S. Cl. 260—348 C

10 Claims

Dicyclopentadiene diepoxide prepared by the epoxidation of dicyclopentadiene with tertiary butyl hydroperoxide or tertiary amyl hydroperoxide in the presence of a molybdenum catalyst contains small amounts of carbonyl compounds which interfere with the subsequent use of this material as an intermediate in the preparation of polyethers by giving highly colored undesirable products. The carbonyl compounds are removed from dicyclopentadiene diepoxide in this process by one or more recrystallizations of the compound from a mixture of a ketone and a paraffinic hydrocarbon solvent.

3,636,052

HYDROXYARYLPOLYMETHYLENESULFONIUM ZWITTERIONS

Melvin J. Hatch, Socorro, New Mexico, and Masao Yoshimine, Hugh B. Smith, and Donald L. Schmidt, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

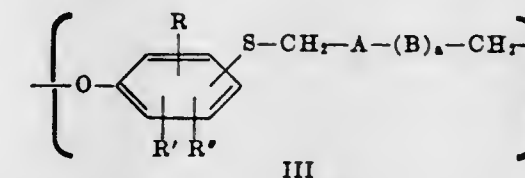
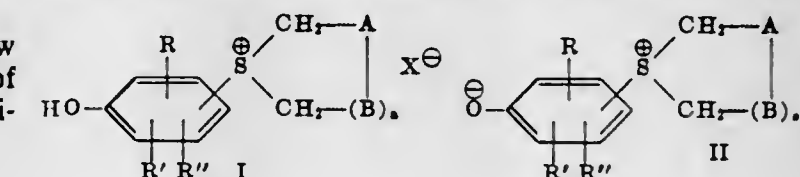
No Drawing. Filed Oct. 15, 1969, Ser. No. 866,763

Int. Cl. C07d 63/04, 65/00

U.S. Cl. 260—332.3 R

20 Claims

Hydroxyarylpoly(methylenesulfonium salts of Formula I, prepared by condensation of a phenol and a polymethylenesulfide, can be converted into a sulfonium hydroxide inner salt II and then thermally polymerized to yield polymers containing a plurality of groups of Formula III:



These polymers and copolymers are useful water resistant thermoplastic resins and impregnants.

3,636,053

PREPARATION OF 2,3,4,5-TETRAHYDROOXEPIN

Donald A. Tyssee, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,317

Int. Cl. C07d 9/00

U.S. Cl. 260—333

6 Claims

2,3,4,5-tetrahydrooxepin is prepared in high yields of contacting tetrahydropyran-2-methanol in the gaseous state with at least one of a certain group of catalysts, e.g. silica-alumina catalyst, at a temperature above about 150° C. 2,3,4,5-tetrahydrooxepin is a useful reactant for the preparation of vinyl ether polymers or copolymers. Also, 2,3,4,5-tetrahydrooxepin may be reduced to oxepane, the corresponding saturated cyclic ether, which possesses good solvent properties.

3,636,054

(4,4-DIALKOXY-2,5-CYCLOHEXADIENYLIDENE) MALONONITRILES

Brian R. O'Connor, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

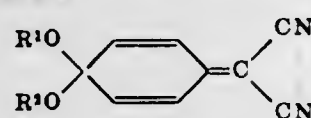
No Drawing. Filed Sept. 25, 1968, Ser. No. 762,605

Int. Cl. C07d 13/04, 15/04

U.S. Cl. 260—340.7

3 Claims

Described and claimed are the novel (4,4-dialkoxy-2,5-cyclohexadienylidene)malononitriles and their derivatives of the formula



wherein R¹ and R² together are alkylene of 2-3 carbon atoms.

The compounds of this invention are useful as foliar fungicides.

3,636,055

4-OXO-19-NOR-A-HOMO-STERIOD DIENES AND A PROCESS FOR THEIR MANUFACTURE

Georg Anner, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,256

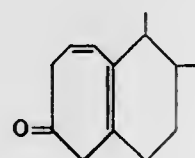
Claims priority, application Switzerland, Nov. 30, 1967, 16,861/67; June 25, 1968, 17,887/68

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

17 Claims

Compounds of the partial formula



especially those of the androstane, pregnane or cholestane series, and the process of preparing same by reacting a Δ^{1,4}-3-oxo-steroid-diene which in the 10-position carries a reactive esterified hydroxymethyl group with an alkali metal in an aprotic solvent and in the presence of a polycyclic aromatic hydrocarbon and isomerizing the resulting 4-oxo-19-nor-A-homo-2,5(10)-diene.

Use: As intermediates for the manufacture of the known, highly-active 4-oxo-19-nor-A-homo-steroid-1(10)-2,4a-trienes.

3,636,056

2,6-DISUBSTITUTED-9-OXABICYCLONONANES AND METHODS OF PREPARING SAME

John M. Larkin, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.

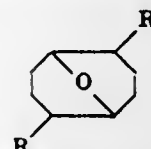
No Drawing. Filed Oct. 20, 1969, Ser. No. 867,946

Int. Cl. C07d 7/18

U.S. Cl. 260—345.1

14 Claims

There is provided 2,6-disubstituted-9-oxabicyclononanes of the formula:



where R is NO₂, =O or NH₂ and where R¹ is ONO₂ or OH. The compounds have utility as rust inhibitors, cetane improvers and anti-icing compounds in fuel compositions.

3,636,057

COLOR STABILIZER FOR MALEIC ANHYDRIDE

Jesse Wehrman, Houston, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex.

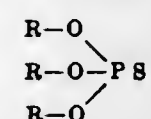
No Drawing. Filed Aug. 21, 1969, Ser. No. 852,088

Int. Cl. C07c 57/14

U.S. Cl. 260—346.8

20 Claims

High temperature color stable maleic anhydride can be obtained by adding trace amounts, i.e., 50-2000 p.p.m. of an hydrocarbyl thiophosphate of the structure



to the maleic anhydride where R is a hydrocarbon radical having 1 to 15 carbon atoms. For example maleic anhydride containing 560 p.p.m. of triethyl thiophosphate maintained at 140° for 24 hours had a color of 10-15 (Hazen) whereas unstabilized maleic anhydride had a color of 300+ (Hazen).

3,636,058

7,10-DIHYDRO-3-ALKYL-6H-DIBENZO[b,d]PYRAN-6,9(8H)-DIONES AND 5-HYDROXY-7-ALKYL-4-CHROMANONES

Kenneth Earl Fahrenholtz, Bloomfield, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Mar. 25, 1966, Ser. No. 537,298, now Patent No. 3,507,885, dated Apr. 21, 1970. Divided and this application Mar. 13, 1969, Ser. No. 807,094

Int. Cl. C07d 7/24, 7/32

U.S. Cl. 260—343.2 R

5 Claims

7,10-dihydro-3-alkyl-6H-dibenzo[b,d]pyran-6,9(8H)-diones which are intermediates for the psychotropic and analgesic 3-alkyl-9-hydrocarbyl(idene)-6H-dibenzo[b,d]pyrans. 5-hydroxy-7-alkyl-4-chromanones are alternate pathway intermediates in the production of the final product dibenzo[b,d]pyrans.

3,636,059

CYCLOPENTENOLONE ESTERS

Masano Matsui, Tokyo, Takeshi Kitahara, Yono-shi, Keimei Fujimoto, Kyoto, and Yositosi Okuno, Nishino-miya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed July 17, 1967, Ser. No. 653,684

Claims priority, application Japan, July 20, 1966,

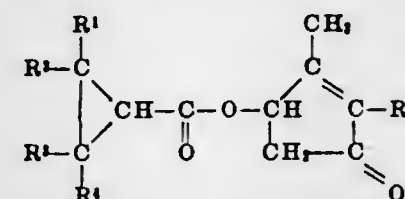
41/47,882

Int. Cl. C07c 64/74, 69/76

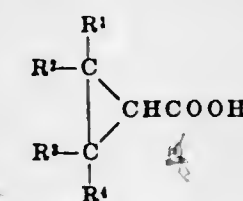
U.S. Cl. 260—347.4

12 Claims

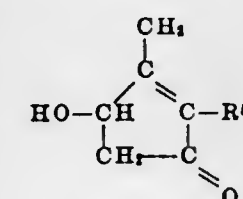
Novel cyclopropanecarboxylic acid esters of the formula,



wherein R¹ is hydrogen, lower alkyl having 1 to 4 carbon atoms, phenyl, lower alkyl having 1 to 4 carbon atoms-substituted phenyl, or lower alkoxy having 1 to 4 carbon atoms-substituted phenyl, R², R³ and R⁴ are lower alkyls having 1 to 4 carbon atoms, and R⁵ is lower alkyl having 1 to 4 carbon atoms, lower alkenyl having 1 to 4 carbon atoms, cycloalkenyl having 5 to 6 carbon atoms, aralkyl having 6 to 9 carbon atoms, alkadienyl group of 5 carbon atoms or furfuryl. These novel esters are prepared by esterifying a cyclopropanecarboxylic acid having the formula,



wherein R¹, R², R³ and R⁴ have the same meanings as above, or its reactive derivative, with a cyclopentenolone compound having the formula,



wherein R⁵ has the same meanings as above. These esters are useful as an insecticide harmless to warm-blood animals.

3,636,060

PROCESS FOR GLYCIDYL 2,2-DINITRO-2-FLUOROETHOXIDE

Milton B. Frankel, Tarzana, Edward F. Witucki, Sepulveda, and Ronald Rushworth, Reseda, Calif., assignors to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed Mar. 4, 1970, Ser. No. 19,147

Int. Cl. C07d 1/18

U.S. Cl. 260—348.6

5 Claims

Epibromohydrin is reacted with 2,2-dinitro-2-fluoroethanol in a one step process to produce glycidyl 2-dinitro-2-fluoroethoxide (GDNFE). The conditions of the reaction prevent the formation of 1,3-bis-(2,2-dinitro-2-fluoroethoxy)-2-propanol, a by-product ordinarily formed in GDNFE preparations, which is difficult to separate from GDNFE. GDNFE is useful as a binder for explosive and propellant formulations.

3,636,061

PROCESS FOR THE PREPARATION OF EPOXYPHOSPHONATES

Richard J. Turley, Derby, Conn., assignor to Olin Corporation

No Drawing. Filed Nov. 21, 1969, Ser. No. 878,926

Int. Cl. C07f 9/38

U.S. Cl. 260—348

7 Claims

An improved method for preparing 1,2-epoxyalkyl phosphonates useful for flame retardants in plastics, especially polyurethanes, condenses dialkyl phosphites with alpha-haloketones using alkali metal alcoholates in lower aliphatic alcohols as reagent.

3,636,062

N-(1-AZIDO-2,2,2-TRIALKOETHYL) AZIDES AND CARBAMATES

Malcolm S. Singer, Point Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

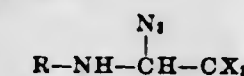
No Drawing. Filed Jan. 7, 1969, Ser. No. 789,595

Int. Cl. C07c 117/00; C07d 109/00

U.S. Cl. 260—349

5 Claims

Azides of the formula:



in which X is Cl or Br and R is a carboxyacyl, sulfonyl-acyl or alkoxy-carbonyl group. These azides are nematocidal.

3,636,063

6-METHYL-1,3,10,11-TETRAHYDROXNAPHTHACENE-2-CARBOXAMIDE-5,12-QUINONE

Jerry Robert Daniel McCormick, Spring Valley, and Nancy Hazlett Arnold, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 19, 1969, Ser. No. 851,487

Int. Cl. C07c 103/26

U.S. Cl. 260—365

1 Claim

This disclosure describes 6-methyl-1,3,10,11-tetrahydroxynaphthacene-2-carboxamide-5,12-quinone useful as an intermediate for the preparation of 6-methyl-1,3,10,11,12-pentahydroxynaphthacene-2-carboxamide.

3,636,064

ANTHRAQUINONE REACTIVE DYES

Seiji Hotta, Minoo-shi, Tomio Nakano, Takarazuka-shi, Hirohito Kenmochi, Toyonaka-shi, and Takashi Akamatsu, Ashiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

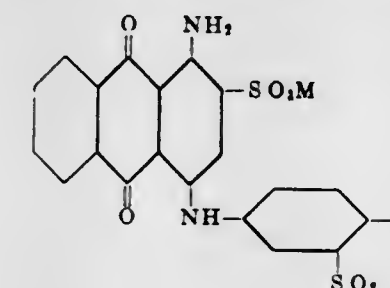
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,900

Int. Cl. C09b 1/34

U.S. Cl. 260—374

4 Claims

Clear reddish blue or greenish blue anthraquinone reactive dyes,



wherein

X: —CH=CH₂ or —CH₂CH₂OSO₂M wherein M is Na, K or H and

Y: an alkyl group, an alkoxy group, a hydroxy group, a halogen atom, an acylamino group or an alkyl-amino group.

3,636,065

WATER-INSOLUBLE ANTHRAQUINONE
DYESTUFFS

Jéan-Frédéric Guye-Vuillème, Basel, Switzerland, assignor to Ciba Limited, Basel, Switzerland
No Drawing. Filed June 12, 1968, Ser. No. 736,249
Claims priority, application Switzerland, June 21, 1967, 8,817/67

Int. Cl. C09b 1/50

U.S. Cl. 260—376

6 Claims

1,5 - dihydroxy - 4,8 - diamino - 2 - phenyl-anthraquinones carrying in p-position at the phenyl residue an acyloxy group of a sulfur- or nitrogen-containing carbonic acid derivative.

3,636,066

PROCESS FOR THE MANUFACTURE OF ACRYLONITRILE BY AMMOXIDATION

Keisho Yamada, Shigeki Nagai, Kyoji Odan, Yasuo Nakamura, and Mikio Hidaka, Ube-shi, Japan, assignors to Ube Industries, Ltd., Ube-shi, Japan

No Drawing. Filed Mar. 5, 1969, Ser. No. 804,655

Int. Cl. C07c 121/02

U.S. Cl. 260—465.3

3 Claims

In the process of manufacturing acrylonitrile wherein propylene, ammonia and oxygen are contacted with a solid oxidizing catalyst in the vapor phase at a temperature in the range of 400–600° C., the improved method which comprises using as said solid catalyst that which consists essentially of

- (A) a bismuth antimonate in which the atomic ratio of bismuth to antimony is 1:1, and
(B) an oxide of a metal selected from the group consisting of tungsten, uranium, molybdenum, vanadium, tin and iron;

the weight ratio of said bismuth antimonate to said oxide being in the range of 95:5–50:50.

3,636,067

PURIFICATION OF ACRYLONITRILE BY ABSORPTION, PLURAL DISTILLATION AND RECYCLE OF BOTTOMS STREAM TO THE ABSORBER

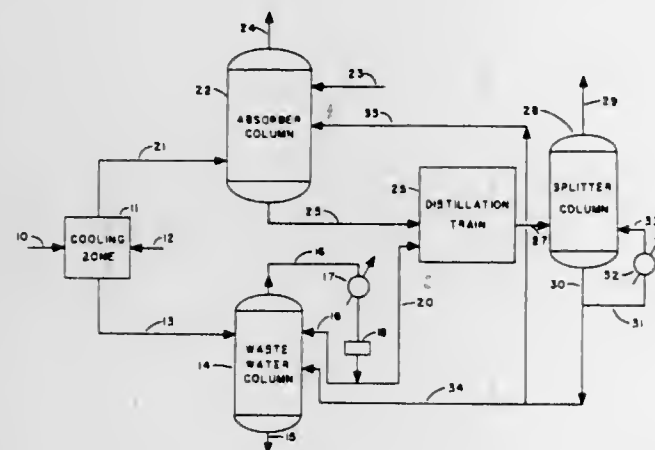
Gordon H. Lovett, Texas City, and Ronald E. Ramblin, Houston, Tex., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 10, 1969, Ser. No. 865,314

Int. Cl. B01d 3/40; C07c 121/32

U.S. Cl. 260—465.3

8 Claims



A process for the reduction of the methacrylonitrile content of product acrylonitrile which comprises introducing

at least a portion of a bottom fraction from an acrylonitrile heavy ends splitter column into an absorbing column, taking overhead from said absorbing column a fraction containing at least part of the methacrylonitrile, taking a bottom fraction from the absorbing column, removing the absorbing solvent from the bottom fraction and returning the acrylonitrile in the bottom fraction to the acrylonitrile heavy ends splitter column.

3,636,068

PURIFICATION OF ACRYLONITRILE BY QUENCHING, ABSORPTION, DISTILLATION AND RECYCLE TO THE ABSORBER

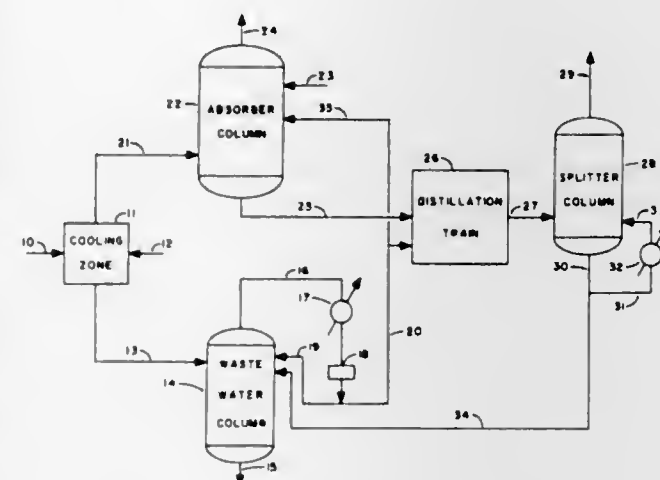
Gordon H. Lovett, Texas City, and Ronald E. Ramblin, Houston, Tex., assignors to Monsanto Company, St. Louis, Mo.

Filed Oct. 10, 1969, Ser. No. 865,315

Int. Cl. B01d 3/40; C07c 121/32

U.S. Cl. 260—465.3

10 Claims



A process for the reduction of the methacrylonitrile content of product acrylonitrile which comprises introducing at least a portion of a methacrylonitrile rich bottom fraction from an acrylonitrile-heavy ends splitter column into a distillation zone used to separate low-boiling organic material from water, taking at least a portion of the overhead from said distillation zone and introducing said fraction into an acrylonitrile absorbing column, taking overhead from said absorbing column a fraction containing at least a part of the methacrylonitrile, taking a bottom fraction from the absorbing column, removing the absorbing solvent from the bottom fraction and returning the acrylonitrile in the bottom fraction to the acrylonitrile-heavy ends splitter column.

3,636,069

CERTAIN NOPINOL DERIVATIVES

Thomas W. Gibson, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Original application Dec. 16, 1966, Ser. No. 602,141, now Patent No. 3,522,276, dated July 28, 1970. Divided and this application Dec. 11, 1969, Ser. No. 889,777

Int. Cl. C07c 77/02, 81/02, 131/02

U.S. Cl. 260—466

1 Claim

The synthesis of the novel intermediates, cis-2-nopinyl nitrite, 8-nitroso-cis-nopinol dimer and 8-oximino-cis-nopinol, and the final product, 1-methyl-2-hydroxy-3-oxatricyclo[5.2.0.0^{4,9}] nonane, useful as a perfume, is disclosed.

3,636,070

VINYL ESTER AMIDE OF PINIC ACID

Glen W. Hedrick, Lake City, Fla., and Frank C. Magne, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Original application June 20, 1967, Ser. No. 647,343, now Patent No. 3,544,529, dated Dec. 1, 1970. Divided and this application Aug. 6, 1969, Ser. No. 870,851

Int. Cl. C07c 103/86

U.S. Cl. 260—468 R

1 Claim

This invention relates to some vinyl ester amides of pinic acid, methods for preparing same and to certain copolymers thereof. More particularly, this invention relates to the preparation of vinyl 2,2-dimethyl-3-morpholinocarbonylcyclobutane acetate, vinyl 2,2-dimethyl-3-piperidinocarbonylcyclobutane acetate, and vinyl 2,2-dimethyl-3-di-n-butylaminocarbonylcyclobutane acetate by selective amination followed by vinyl interchange and the preparation of several vinyl chloride copolymers derived therefrom.

3,636,071

ETHERS CONTAINING A HYDROPHEN-
ANTHRENE NUCLEUS

John A. Edwards, Los Altos, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed Oct. 26, 1966, Ser. No. 589,494

Int. Cl. C07c 69/76

U.S. Cl. 260—468.5

7 Claims

Ethers of tetrahydro, hexahydro, and octahydrophenanthrene and derivatives thereof.

3,636,072

NOVEL HYDROPHENANTHRENE ESTERS

Alexander D. Cross, Mexico City, Mexico, and John H. Fried, Palo Alto, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Sept. 7, 1967, Ser. No. 665,951

Int. Cl. C07c 69/76, 69/00

U.S. Cl. 260—468.5

9 Claims

Bicyclo[2.2.2]octane - 1 - carbonyloxy, bicyclo[2.2.2]octane - 1 - carbonyloxymethyl, bicyclo[2.2.2]octane - 1 - methyleneoxycarbonyl, bicyclo[2.2.2]octane - 1 - methylenecarbonate, bicyclo[2.2.2]octane - 1 - methylenecarbonyldioxymethyltricyclo[3.3.1.1^{1,5}]decane - 1 - methylenecarbonate, and tricyclo[3.3.1.1^{1,5}]decane - 1 - methylenecarbonyldioxymethyl esters of tetrahydro-, hexahydro-, and/or octahydrophenanthrenes which esters are useful for their long-acting anti-fertility and estrogenic activity and processes for the preparation of these novel esters.

3,636,073

[4-(2-CYANOVINYLOXY)PHENOXY]ACETIC ACIDS

Edward J. Cragoe, Jr., Lansdale, and Otto W. Woltersdorf, Jr., Chalfont, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed July 3, 1967, Ser. No. 650,648

Int. Cl. A61k 27/00; C07c 121/74

U.S. Cl. 260—465 D

6 Claims

[4-(1-alkenyl)phenoxy]alkanoic acid products substituted at the 2-carbon of the alkene chain by one or more radicals selected from cyano, carboxy, alkoxy, carbonyl, sulfamoyl, carbamoyl, alkylsulfonyl and arylsulfonyl. The said products are diuretic and saluretic agents which can be used in the treatment of conditions associated with electrolyte and fluid retention. The products of this invention are obtained by treating a nuclear alkanoyl substituted phenoxyalkanoic acid or an ester derivative thereof with a reagent which is capable of replacing the oxygen atom of the alkanoyl group by an alkylidene radical. Suitable reagents include, for example (substituted methylene) triphenylphosphorane and reactive methylene compounds.

3,636,074

NOVEL MERCAPTOPHENOL DERIVATIVES

Emil J. Geering, Grand Island, and Norman W. Dachs, Buffalo, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Aug. 5, 1968, Ser. No. 749,954

Int. Cl. C07c 149/40

U.S. Cl. 260—470

17 Claims

There are described novel hydroxyarylythio ethylene and ethane derivatives containing in the position β to the hydroxyarylythio radical a cyano, nitro, aromatic, carbonyl, sulfonyl, sulfinyl, phosphinyl or phosphinothioyl radical. A process for the preparation of said compositions, their pesticidal utility and pesticidal carbamate and phosphorothioate derivatives are also described.

3,636,075

LOWER ALKYL α -(DI-LOWER ALKYL-SULFAMOYL)- α -PHENYLALKANOIC ACID ESTERS

Bernard Loev, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Nov. 13, 1969, Ser. No. 876,575

Int. Cl. C07c 143/78

U.S. Cl. 260—470

3 Claims

The compounds are lower alkyl α -(di-lower alkyl-sulfamoyl)- α -phenylalkanoic acid esters having antidepressant activity.

3,636,076

N - FLUORODICHLOROMETHYLMERCAPTO - N - TRIFLUOROMETHYL - AMINO - BENZOIC ACID PHENYL ESTERS

Engelbert Kuhle, Berg-Gladbach, Erich Klauke, Odenthal-Hahnenberg, Brigitte Hamburger, Cologne, and Fritz Steinfatt, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 24, 1970, Ser. No. 22,363

Claims priority, application Germany, Apr. 6, 1969, P 19 19 180.1

Int. Cl. C07c 149/20

U.S. Cl. 260—470

10 Claims

N - trihalogenmethylmercapto - N - trifluoromethyl-amino-benzoic acid phenyl esters, i.e. (optionally methyl, (trifluoromethyl, methoxy, chloro or nitro - substituted)- (N - trihalogenmethylmercapto-N-trifluoromethyl-amino)-benzoic acid (carboxy and alkoxy-carbonyl-substituted)-phenyl esters, which possess pesticidal, especially antimicrobial, properties and which may be produced by conventional methods.

3,636,077

ACID ADDITION SALTS OF 5-BENZOYL-4-HYDROXY-2-METHOXYBENZENESULFONIC ACID AND 4-AMINO-BENZOIC ACID ESTER AND DERIVATIVES THEREOF

Dale Adrian Stauffer, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Continuation-in-part of application Ser. No. 702,537, Feb. 2, 1968. This application Dec. 17, 1968, Ser. No. 784,473

Int. Cl. C07c 101/62

U.S. Cl. 260—471 R

3 Claims

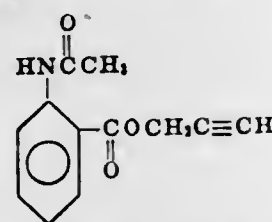
Acid addition salts of 5-benzoyl-4-hydroxy-2-methoxybenzenesulfonic acid and 4-aminobenzoic acid and ester derivatives thereof that are useful as sunscreen agents. These compounds are prepared by reacting 2-hydroxy-4-methoxybenzophenone with a halosulfonic acid to form an intermediate arylsulfonic acid and reacting the intermediate sulfonic acid with a lower alkyl 4-aminobenzoate to form a salt. If desired, these compounds may be hydrolyzed to form 4-carboxyphenylammonium 5-benzoyl-4-hydroxy-2-methoxybenzenesulfonate.

3,636,078

2-PROPYNYL ESTER OF N-ACETYL ANTHRANILIC ACID

Chester E. Pawloski, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 3, 1969, Ser. No. 873,599
Int. Cl. C07c 103/32

U.S. Cl. 260—471 R 1 Claim
The present invention is a new compound, namely the 2-propynyl ester of N-acetyl anthranilic acid corresponding to the formula:



The compound is suitable for use as a herbicide.

3,636,079

METHYL N-(3-CHLORO-4-BROMO PHENYL) CARBAMATE

Karl-Heinz Koenig, Ludwigshafen (Rhine), and Adolf Fischer, Mutterstadt, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,546
Claims priority, application Germany, Apr. 6, 1967, P 16 42 221.2
Int. Cl. C07c 125/06

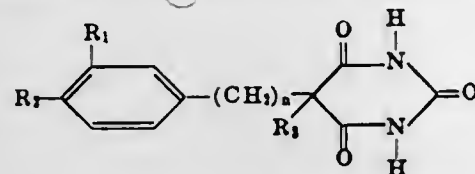
U.S. Cl. 260—471 C 1 Claim
Substituted methyl N-phenylcarbamates and a method for controlling unwanted plants with said compounds.

3,636,080

SUBSTITUTED PHENYLMALONIC ACID AND PHENYLALKYL MALONIC ACID ESTERS

Arnold Brossi, Verona, Antonino Focella, Clifton, Albert Israel Rachlin, Verona, and Sidney Teitel, Clifton, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application Feb. 27, 1967, Ser. No. 619,030, now Patent No. 3,464,990, dated Sept. 2, 1969. Divided and this application Apr. 10, 1969, Ser. No. 815,230
Int. Cl. C07c 69/76

U.S. Cl. 260—473 R 2 Claims
Barbituric acid derivatives of the formula



wherein R₁ and R₂ are hydroxy, lower alkoxy or aralkoxy; R₃ is hydrogen, lower alkyl, lower alkenyl or lower alkynyl; and n is an integer from 0 to 2, are prepared, from correspondingly substituted diethyl(phenyl)malonates. The products are useful as tranquilizers.

3,636,081

2-FORMYL-3,5-DISUBSTITUTED TEREPHTHALATE ESTERS

Jerry Robert Daniel McCormick, Spring Valley, and Nancy Hazlett Arnold, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Aug. 19, 1969, Ser. No. 851,442
Int. Cl. C07c 69/82

U.S. Cl. 260—473 R 9 Claims
This disclosure describes 2-formyl-3,5-disubstituted terephthalate esters useful as intermediates for the prepa-

ration of 6-methyl-1,3,10,11,12-pentahydroxynaphthacene-2-carboxamide.

3,636,082

CARBONYLATION OF ORGANIC HALIDES WITH METALLIC ALCOHOLATES

Richard N. Knowles, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Jan. 3, 1969, Ser. No. 788,944
Int. Cl. C07c 69/76

U.S. Cl. 260—475 R 7 Claims
Organic esters are prepared by reacting an organic halide, an alkali or alkaline earth alcoholate and carbon monoxide at elevated temperature and pressure, in the presence of a palladium catalyst and carbon dioxide.

3,636,083

POLYMERIZABLE DERIVATIVE OF NITRILOTRIACETIC ACID

Edward D. Weil, Yonkers, and Walter Stamm, Tarrytown, N.Y., and Stanley B. Mirviss, Stamford, Conn., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Jan. 10, 1968, Ser. No. 696,705
Int. Cl. C07c 101/20

U.S. Cl. 260—482 P 1 Claim
A polymerizable composition of matter having the formula:



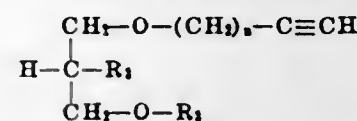
wherein R is an unsaturated aliphatic radical selected from the group consisting of alkenyl, alkynyl, alkadienyl, cycloalkenyl and mixtures thereof, and wherein each group can have from 2 to 20 carbon atoms.

3,636,084

SEDATIVE COMPOSITIONS

Michel L. Delalande, Paris France, assignor to Delalande S.A., Courbevoie, Hauts-de-Seine, France
No Drawing. Continuation-in-part of application Ser. No. 567,861, July 26, 1966, now Patent No. 3,527,788. This application Apr. 15, 1968, Ser. No. 721,170
Claims priority, application France, Apr. 17, 1967, 103,026
Int. Cl. C07c 125/04

U.S. Cl. 260—482 C 2 Claims
A compound which has tranquilizing and myo-relaxing properties and which is represented by the formula:



in which n is an integer from one to four inclusive, R₂ is a hydroxyl or carbamoyloxy (OCONH₂) radical and R₃ is a saturated or unsaturated, straight or branched-chain hydrocarbon radical having one to seven carbon atoms, which radical may be halogen substituted or a substituted phenyl radical.

3,636,085

PERFLUOROALKYLSULFONAMIDO-ALKYL ESTERS OF FUMARIC ACID AND OTHER ETHYLENICALLY UNSATURATED POLYBASIC ACIDS AND POLYMERS THEREOF

Eduard Karl Kleiner, New York, N.Y., assignor to Ciba-Geigy Corporation, Greenburgh, N.Y.
No Drawing. Filed Apr. 1, 1969, Ser. No. 812,439
Int. Cl. C07c 69/52, 69/60

U.S. Cl. 260—485 F 19 Claims
Monomeric perfluoroalkylsulfonamido-alkyl esters of fumaric, maleic, citraconic, mesaconic, itaconic, aconitic,

and methylene malonic acid form homopolymers and form copolymers with other ethylenically unsaturated comonomers. The polymers obtained have valuable soil repellent properties and are therefore especially useful in textile finishes. A preferred compound exemplified is bis[2-(N-ethyl-n-perfluorooctanesulfonamido)ethyl] itaconate.

3,636,086

METHOD FOR INHIBITING THE POLYMERIZATION OF UNSATURATED CARBOXYLIC ACID ESTERS

Akio Yamagishi, Takaharu Ishida, Yukinaga Aono, and Shigekatsu Kondo, Niihama-shi, Japan, assignors to Sumitomo Chemical Company Ltd., Osaka, Japan
No Drawing. Filed Sept. 8, 1969, Ser. No. 856,200
Int. Cl. C07c 69/54

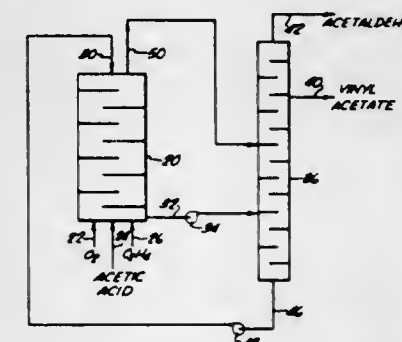
U.S. Cl. 260—486 R 8 Claims
Acrylic and methacrylic acid esters can be prevented from polymerization due to the presence of water in the steps of preparation thereof by addition of a radical polymerization inhibitor together with at least one compound selected from the group consisting of condensed phosphoric acid salts such as alkali pyrophosphates, tripolyphosphates, tetrametaphosphates and hexametaphosphates, and silicic acid salts.

3,636,087

VINYL ACETATE RECOVERY PROCESS

Frederick F. Caserio, Jr., Laguna Beach, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.
Filed Sept. 12, 1966, Ser. No. 578,547
Int. Cl. C07c 67/04, 67/06

U.S. Cl. 260—497 R 5 Claims



The solvent extraction of vinyl acetate from a reaction product mixture including vinyl acetate, acetic acid, and water including the step of freezing the water and acetic acid prior to extraction and the recirculation of the extracted reaction product mixture for reuse is disclosed.

3,636,088

HALOALKYL PHOSPHINIC ACIDS AND THEIR APPLICATION TO COTTON

Leon H. Chance and Ethel K. Leonard, New Orleans, and George L. Drake, Jr., Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Application Jan. 24, 1969, Ser. No. 823,206, which is a division of application Ser. No. 635,680, May 3, 1967, now Patent No. 3,484,184. Divided and this application Nov. 14, 1969, Ser. No. 871,295
Int. Cl. C07s 9/30

U.S. Cl. 260—502.4 R 1 Claim
Bis(chloromethyl)phosphinic acid is prepared by a new method; other phosphinic acids are prepared by reacting

3,636,089

PRODUCTION OF AROMATIC DITHIOCARBOXYLIC ACIDS

Friedrich Becke, Heidelberg, and Helmuth Hagen, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 3, 1968, Ser. No. 733,773
Claims priority, application Germany, June 16, 1967, P 12 74 121.8-42
Int. Cl. C07c 153/00

U.S. Cl. 260—502.6 4 Claims
The production of aromatic dithiocarboxylic acids by reaction of aromatic monohalomethyl compounds with elementary sulfur and alkali metal or alkaline earth metal alcoholates. The new products of the process are valuable starting materials for the production of dyes and pesticides.

3,636,090

SULFONATION OF BENZENE UNDER SUPERATMOSPHERIC PRESSURE

John J. Luecken, East St. Louis, Ill., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 22, 1967, Ser. No. 663,474
Int. Cl. C07c 143/24

U.S. Cl. 260—505 E 6 Claims
A process for the preparation of benzenesulfonic acid by the sulfonation of benzene in the liquid phase with a sulfonating agent under superatmospheric pressure while passing benzene vapor through the liquid.

3,636,091

NOVEL 9-CARBOXYMETHYL-9-PHOSPHABICYCLONANES AND ALKALI METAL SALTS THEREOF

Ronald F. Mason, Mill Valley, and Wilhelm Keim, Berkeley, Calif., assignors to Sun Oil Company, New York, N.Y.

No Drawing. Filed Nov. 5, 1969, Ser. No. 874,375
Int. Cl. C07f 9/50

U.S. Cl. 260—514 R 4 Claims
9-carboxymethyl-9-phosphabicyclonanes and alkali metal salts thereof, useful as ligands of organometallic olefin oligomerization catalysts, are produced by the direct condensation of the sec-phosphine 9-phosphabicyclonane and a haloacetic acid.

3,636,092

PRODUCTION OF 2,4,5-TRICHLOROBENZOIC ACID

Heinz Nohe, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik AG, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 3, 1969, Ser. No. 881,934
Claims priority, application Germany, Dec. 6, 1968, P 18 13 013.7
Int. Cl. C07c 63/12

U.S. Cl. 260—515 A 8 Claims
The production of 2,4,5-trichlorobenzoic acid by heating a 3,4,5,6-tetrachlorocyclohexadiene-1,2-dicarboxylic acid or a mixture thereof in an aqueous medium and in

the presence or absence of basic reagents, or in an organic solvent in the presence of basic reagents at temperatures of from 30° to 300° C.

3,636,093

RESOLUTION OF 2-METHYLENE CYCLOPROPANE CARBOXYLIC ACID

Alexander M. Holnowski, Union, and David F. Hinkley, Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed July 29, 1968, Ser. No. 748,215

Int. Cl. C07c 61/16

U.S. Cl. 260—514 P

1 Claim

The racemic mixture of 2-methylenecyclopropane carboxylic acid is resolved into its antipodes and obtained in a pure state with high yields.

3,636,094

NORBORNANECARBOXYLIC ACID AMIDES OF ANTHRANILIC ACID

Peter Yonan, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed July 25, 1969, Ser. No. 845,042

Int. Cl. C07c 103/30

U.S. Cl. 260—518 R

8 Claims

Amides wherein the nitrogen is part of an anthranilic acid system and the carbonyl is part of a norbornane- or norbornene-carboxylic acid system are described herein. The compounds are active against a variety of organisms including bacteria, protozoa, fungi, and algae. They are also useful as anti-inflammatory agents and anti-atherogenic agents.

3,636,095

PREPARATION OF AROMATIC CARBOXYLIC ACIDS

Kenji Nakaoka, Numazu-shi, and Tadao Kato and Seikichi Matsuhisa, Mishima-shi, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 330,220, Dec. 2, 1963. This application July 10, 1967, Ser. No. 652,012

Int. Cl. C07c 63/02

U.S. Cl. 260—524 R

12 Claims

In a process for preparing a specific aromatic carboxylic acid in a lower aliphatic carboxylic acid solvent under an oxygen partial pressure of 0.2–70 atm. and at a temperature of 60–200° C., an improvement which comprises using a cobalt compound as a catalyst and paraldehyde as a promoter, characterized in that the amount of said cobalt compound is about 0.62–4% by weight as cobalt based on said lower aliphatic carboxylic acid solvent and the total using amount of said paraldehyde is about 0.667–8% by weight of said lower aliphatic carboxylic acid solvent.

3,636,096

PROCESS FOR THE PREPARATION OF BENZENE DICARBOXYLIC ACIDS

Marion J. Mathews III and Charles R. Campbell, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Feb. 27, 1968, Ser. No. 708,527

Int. Cl. C07c 63/02

U.S. Cl. 260—524 N

8 Claims

In the preparation of a benzene dicarboxylic acid by oxidation of a liquid xylene with nitric acid, the yield of the benzene dicarboxylic acid can be substantially improved by carrying out the oxidation in the presence of a nitro-substituted aromatic compound.

3,636,097

ISOLATION OF MALIC ACID FROM TOBACCO

William R. Harvey, Midlothian, Va., assignor to Philip Morris Incorporated, New York, N.Y.

No Drawing. Filed Dec. 17, 1969, Ser. No. 885,963

Int. Cl. C07c 51/48

U.S. Cl. 260—527 R

8 Claims

Natural, *l*-malic acid and salts thereof are obtained in good yield from bright tobacco parts by extraction of water-solubles including malic acid and water soluble pectins. This is followed by enzymatic de-esterification of pectins fractions under mildly acid conditions. Pectin degradation products are removed. Neutralization with an alkaline earth metal oxide or hydroxide yields the *l*-malic acid as the corresponding salt. Conventional treatment permits isolation of the *l*-malic acid.

3,636,098

PROCESS FOR PRODUCING METHIONINE

Takesaburo Shima, Akio Yamagishi, Masao Sada, Bonji Osaki, and Zenichi Yamamoto, Niihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed June 29, 1967, Ser. No. 650,016

Claims priority, application Japan, July 2, 1966, 41/43,158

Int. Cl. C07c 101/04, 149/20

U.S. Cl. 260—534 S

5 Claims

A process for producing α -amino acid comprising introducing a synthesis liquid of a hydantoin compound directly into a hydrolysis step to effect the hydrolysis of said compound and then concentrating the resulting reaction liquid as well as recovering ammonia and carbon dioxide to recycle them to the synthesis step of the hydantoin compound. According to this process, not only α -amino acid can be continuously produced in high yields but also the reaction liquid can be concentrated without accompanying the degeneration and polymerization of α -amino acid and, moreover, ammonia and carbon dioxide can be recovered in large amounts and can be re-used.

3,636,099

PREPARATION OF ADIPIC ACID BY NITRIC ACID OXIDATION OF CYCLOHEXYLHYDROXYLAMINE

Thomas F. Mich, Ann Arbor, Mich., and Werner H. Mueller, Gulf Breeze, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Nov. 26, 1969, Ser. No. 880,416

Int. Cl. C07c 51/24

U.S. Cl. 260—537 P

5 Claims

Adipic acid is produced in high yields by oxidation of cyclohexylhydroxylamine with aqueous nitric acid in the liquid phase.

3,636,100

PREPARATION OF ADIPIC ACID BY NITRIC ACID OXIDATION OF NITROSOCYCLOHEXANE DIMER

Werner H. Mueller, Gulf Breeze, and John J. Hicks, Jr., and Charles R. Campbell, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,245

Int. Cl. C07c 51/24

U.S. Cl. 260—537 P

5 Claims

Adipic acid is produced in high yields by oxidation of the nitrosocyclohexane dimer with aqueous nitric acid in the liquid phase.

3,636,101

PROCESS FOR THE PRODUCTION OF DICARBOXYLIC ACIDS

Thomas F. Doumani, deceased, late of Fullerton, Calif., by Selma S. Doumani, executrix, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Oct. 24, 1969, Ser. No. 870,015

Int. Cl. C07c 51/24

U.S. Cl. 260—537 P

7 Claims

A cycloparaffin is converted to an aliphatic dicarboxylic acid by nitrating the cycloparaffin, contacting the resulting nitrocycloparaffin with an alkali or alkaline earth hydroxide or with ammonia to form a metal or ammonium salt thereof, and oxidizing the salt with nitric acid to form the dicarboxylic acid. A preferred method is nitrating cyclohexane, forming an ammonium salt of the nitrocyclohexane and oxidizing the salt with nitric acid in the presence of molecular oxygen to form adipic acid, useful in the manufacture of nylon.

3,636,102

PREPARATION OF CARBOXYLIC ACID CHLORIDES

Alfred E. Lippman, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 21, 1967, Ser. No. 632,524

Int. Cl. C07c 51/58

U.S. Cl. 260—544 Y

7 Claims

The preparation of α -chloroacid chlorides by the reaction of an appropriate α -chlorocarboxylic acid with sulfur dichloride and chlorine in the presence of dimethylformamide. Carboxylic acid chlorides are valuable intermediates for the preparation of organic compounds, especially herbicidal compounds, which have an acyl moiety.

3,636,103

TETRAALKYL SULFOXIMINIUM SALTS AS CATIONIC BACTERICIDES

Eugene P. Gosselink, Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,938

Int. Cl. C07c 145/00

U.S. Cl. 260—551 S

3 Claims

Tetraalkyl sulfoximinium salts having one long-chain alkyl group of 10 to 16 carbon atoms are effective cationic bactericides. Three methods of preparation are given; each begins with dialkyl sulfoximine and adds alkyl groups sequentially to nitrogen.

3,636,104

PROCESS FOR PREPARING N,N'-DIARYLTHIOUREAS

Ehrenfried H. Kober, Hamden, Conn., and Gerhard F. Ottmann, Wuppertal-Elberfeld, Germany, assignors to Olin Mathieson Chemical Corporation, New Haven, Conn.

No Drawing. Filed Oct. 29, 1968, Ser. No. 771,616

Int. Cl. C07c 157/00

U.S. Cl. 260—552 R

25 Claims

The process for preparing N,N'-diarylthioureas by reacting:

- (a) carbon disulfide and/or carbonyl sulfide,
- (b) water,
- (c) a compound selected from the group consisting of
 - (1) an aromatic nitro compound,
 - (2) an aromatic nitroso compound,
 - (3) and mixtures of (1) and (2),
- (d) and a base,

and recovering the N,N'-diarylthioureas produced thereby.

3,636,105

1-FLUOROACETYLAMINO-2,2,2-TRICHLORO-ETHYL UREAS

Christa Fest, Wuppertal-Elberfeld, and Gunther Hermann, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 12, 1969, Ser. No. 876,143

Claims priority, application Germany, Nov. 22, 1968, P 18 10 293.7

Int. Cl. C07c 127/00

U.S. Cl. 260—553 R

7 Claims

1-fluoroacetyl amino-2,2,2-trichloro-ethyl ureas, i.e. N-(1-fluoroacetyl amino-2,2,2-trichloro-ethyl-1-yl)-N'-(alkyl, phenyl, alkoxyphenyl and chloro-substituted phenyl)-ureas, which possess selective rodenticidal properties, and which may be produced by conventional methods.

3,636,106

PROCESS FOR UREA SYNTHESIS

John F. Villiers-Fisher, Kendall Park, and Philip F. Kaupas, Old Bridge, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Sept. 12, 1968, Ser. No. 759,371

Int. Cl. C07c 127/00

U.S. Cl. 260—555 A

28 Claims

A process for the high pressure synthesis of urea from ammonia and carbon dioxide is provided, in which recycle aqueous ammonium carbamate solution is pressurized and stripped with feed carbon dioxide, preferably at or slightly above urea synthesis reactor pressure. The stripping step is carried out in a heat exchange zone which is externally heated to decompose ammonium carbamate, so that a high pressure off-gas principally containing carbon dioxide and ammonia is produced from the stripping step, together with a liquid effluent principally consisting of water, which may be discarded or processed to recover ammonia values. Feed ammonia is preferably added to the high pressure off-gas from stripping, to produce a combined process stream having an ammonia to carbon dioxide molar ratio of about 2:1, which is passed through a decomposer-heat exchange zone to heat effluent from the urea synthesis reactor, thus decomposing ammonium carbamate in the urea synthesis effluent and producing an off-gas which is processed to produce the aqueous ammonium carbamate solution. The combined process stream may cool during condensation, depending on the ammonia to carbon dioxide ratio in the decomposer-heat exchange zone, however the principal effect on the combined process stream is condensation of molten ammonium carbamate, to produce a gas-liquid mixture of low or negligible water content. The resulting process stream containing condensed ammonium carbamate is passed to urea synthesis. In an alternative embodiment of the invention, the combined process stream produced by adding ammonia to the stripping off-gas may be cooled in heat exchange with liquid water which is vaporized to produce steam, which may be employed in a separate unit to heat the urea synthesis effluent and decompose ammonium carbamate.

3,636,107

SUBSTITUTED 5-HALO-3-PHENYLSALICYLANILIDES

Jack D. Early, Bethesda, and John P. Chupp, Kirkwood, Md., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Application Aug. 8, 1967, Ser. No. 659,040, now Patent No. 3,525,766, dated Aug. 25, 1970, which is a division of application Ser. No. 495,678, Oct. 13, 1965, now Patent No. 3,382,145. Divided and this application Nov. 10, 1969, Ser. No. 871,312

Int. Cl. C07c 103/30

U.S. Cl. 260—559 S

3 Claims

Compounds characterized by a 5-halo-3-phenylsalicylanilido nucleus, the anilido group of which having substituents of the group nitro, cyano and trifluoromethyl. These compounds are useful as gastropodocides.

3,636,108
CATALYTIC HYDROGENATION OF AROMATIC
NITROGEN CONTAINING COMPOUNDS OVER
ALKALI MODERATED RUTHENIUM

Loren D. Brake, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Continuation-in-part of application Ser. No. 691,933, Dec. 20, 1967, which is a continuation-in-part of application Ser. No. 587,981, Oct. 20, 1966, which in turn is a continuation-in-part of application Ser. No. 516,083, Dec. 23, 1965. This application is also a continuation-in-part of application Ser. No. 587,981, Oct. 20, 1966, which is a continuation-in-part of application Ser. No. 516,083, Dec. 23, 1965. This application is also a continuation-in-part of application Ser. No. 691,980, Dec. 20, 1967, which is a continuation-in-part of application Ser. No. 587,989, Oct. 20, 1966, which in turn is a continuation-in-part of application Ser. No. 516,093, Dec. 23, 1965. This application is also a continuation-in-part of application Ser. No. 587,989, Oct. 20, 1966, which is a continuation-in-part of application Ser. No. 516,093, Dec. 23, 1965. This application Apr. 4, 1969, Ser. No. 813,753

Int. Cl. C07c 85/14

U.S. Cl. 260—563 D

22 Claims

Organic aromatic nitrogen containing compounds, such as p-phenylenediamine or 4,4'-methylenedianiline, can be hydrogenated by admixing the compound with hydrogen at a hydrogen partial pressure of at least 200 p.s.i., a total pressure of from 200 p.s.i. to 15,000 p.s.i., a temperature in the range of from 100° C. to 300° C., in the presence of from 0% to 200% by weight, based on the weight of the compound to be hydrogenated, of added ammonia, and in the presence of from 0.001% to 10% by weight, based on the compound to be hydrogenated and calculated as metallic ruthenium of a ruthenium catalyst supported on an inert carrier, said catalyst being alkali moderated with from 0.1% to 15% of a basic metal compound calculated as the alkali metal.

3,636,109
2,2'-ISOPROPYLIDENEBIS(6 - LOWER ALKOXY-m-
PHENYLENE)METHYLENE]BIS(2 - THIOPSEUDO-
UREA) DIHYDROCHLORIDE

Henry E. Hennis, Coleman, and Duane B. Priddy, Lansing, Mich., assignors to The Dow Chemical Company, Midland, Mich.

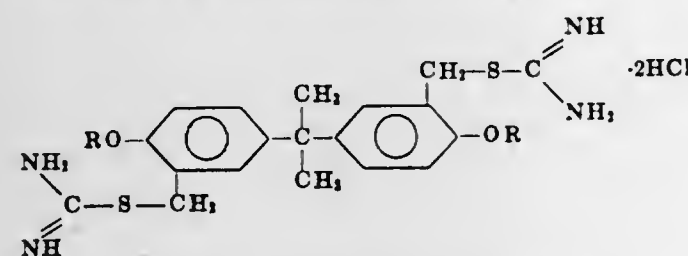
No Drawing. Filed Feb. 5, 1969, Ser. No. 796,894

Int. Cl. C07c 123/00

U.S. Cl. 260—564 E

2 Claims

Compounds corresponding to the formula



wherein R represents a lower alkyl group. The compounds are prepared by reacting a 2,2'-bis(α-chloro-4-lower alkoxy-m-tolyl)propane with thiourea. The compounds are useful as antimicrobials.

3,636,110
IMINES

Harold I. Weingarten, St. Louis, William A. White, Creve Coeur, and John P. Chupp, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 20, 1966, Ser. No. 558,584

Int. Cl. C07c 119/00

U.S. Cl. 260—566 R

6 Claims

The present invention relates to the preparation of imines, particularly sterically hindered imines.

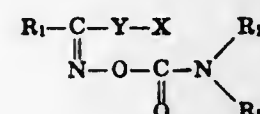
3,636,111
CARBAMOYL OXIMES
 Marvin J. Karten, Ardsley, N.Y., assignor to
 USV Pharmaceutical Corporation
 No Drawing. Continuation-in-part of application Ser. No. 714,450, Mar. 20, 1968, which is a continuation-in-part of application Ser. No. 680,047, Nov. 2, 1967. This application Nov. 18, 1969, Ser. No. 877,822

Int. Cl. C07c 131/00

U.S. Cl. 260—566

14 Claims

Compounds of the formula



wherein R₁ and R₃ are lower aliphatic, cycloalkyl, or aromatic (including hetero), R₂ is hydrogen, aromatic, lower aliphatic, or phenyl-lower alkyl, Y is an alkylene group having from 1-5 carbon atoms, and X is a secondary amino group, have potent analgesic activity, particularly when R₃ is a p-alkoxyphenyl (e.g. p-methoxyphenyl and p-ethoxyphenyl). Compounds wherein both R₁ and R₃ are phenyl exhibit anticonvulsant activity. Compounds where R₁ is phenyl or 4-chlorophenyl and R₃ is cycloalkyl, such as cyclohexyl, show topical anesthetic activity. A number of compounds also have hypotensive activity.

3,636,112
α-HALO-α-FORMYL-CARBONYL-PHENYL-
HYDRAZONES
 Wilfried Draber and Karl Heinz Büchel, Wuppertal-Elberfeld, Ingeborg Hammann, Cologne, and Günter Unterstehöfer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed July 2, 1969, Ser. No. 838,631

Claims priority, application Germany, July 4, 1968, P 17 68 825.4

Int. Cl. C07c 119/00

U.S. Cl. 260—566 B

9 Claims

α-halo - α - formyl-carbonyl-phenyl-hydrazones, i.e. α-(chloro and bromo)-α-(formyl, dioxo-pentamethylene and oxa-thia-pentamethylene)-carbonyl - (mono to tri alkyl, chloro, trifluoromethyl, trifluoromethyl mercapto and/or alkyl sulfonyl-substituted phenyl)-hydrazones, which possess arthropodocidal, especially acaricidal and insecticidal, properties, and which may be produced by conventional methods.

3,636,113
NOVEL FRAGRANCE MATERIALS, CHEMICAL
INTERMEDIATES, AND PROCESSES
 John B. Hall, Rumson, N.J., assignor to International Flavors & Fragrances, Inc., New York, N.Y.

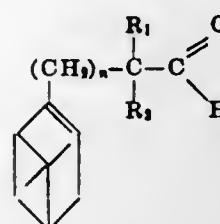
No Drawing. Filed Nov. 4, 1969, Ser. No. 874,038

Int. Cl. C07c 119/00

U.S. Cl. 260—566 R

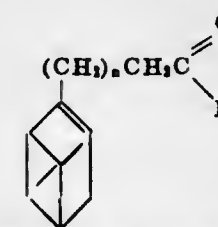
1 Claim

Novel aldehydes having the structure:



wherein R₁ is hydrogen or lower alkyl, R₂ is lower alkyl, and n is 1 or 2; lower alkyl acetals thereof; lower alkylene acetals thereof; mixtures and olfactory compositions containing same; mixtures and olfactory compositions containing 6,6 dimethyl bicyclo [3.1.1]hept-2-ene-alka-

nals (hereinafter referred to as pinoalkanal) having the structure:



wherein n is 1 or 2; lower alkyl acetals thereof; lower alkylene cyclic acetals thereof; novel processes for the production of such chemical compounds; and Schiff bases of said aldehydes and pinoalkanal.

3,636,114
NOVEL QUATERNARY AMMONIUM COMPOUNDS
AND METHOD FOR PREPARATION THEREOF
 Erich Tobler and Donald J. Foster, Charleston, W. Va., assignors to Union Carbide Corporation
 No Drawing. Continuation-in-part of application Ser. No. 715,979, Mar. 26, 1965. This application July 16, 1968, Ser. No. 745,103

Int. Cl. C07c 93/02

U.S. Cl. 260—567.6

4 Claims

Quaternary ammonium compounds containing at least one 2-hydroxy alkyl group are prepared by treating epoxy alkanes with primary or secondary amines, followed by quaternization of the tertiary amines thus obtained. The compounds possess germicidal and/or textile softening properties. The various ammonium compounds prepared comprise bis(2 - hydroxyoctadecyl)dimethylammonium chloride, bis(2 - hydroxyhexadecyl)dimethylammonium chloride, 2 - hydroxyoctadecylhexadecyldimethylammonium chloride 2 - hydroxyoctadecylbenzyl dimethylammonium chloride, 2-hydroxyoctadecyl 1-octadecoxymethyl dimethylammonium chloride, 2-hydroxydodecylbenzyl dimethylammonium chloride, bis(2-hydroxyoctyl)dimethylammonium chloride, 2-hydroxytetradecyl trimethylammonium chloride.

3,636,115
QUATERNARY AMMONIUM DERIVATIVES
OF INDENE

Edward Griffin Shay, Belle Mead, and Edward A. Tavss, Jersey City, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.

No Drawing. Filed Sept. 12, 1969, Ser. No. 857,573

Int. Cl. C07c 87/68

U.S. Cl. 260—567.6 M

5 Claims

Microbicidal quaternary ammonium derivatives of indene, at least some of which retain a high degree of their microbicidal activity in hard water, the quaternary nitrogen having a long chain alkyl of 8 to 18 carbon atoms, but preferably 12 to 14 carbon atoms, and two lower alkyl chains of 1 to 4 carbon atoms attached thereto.

3,636,116
1,2-SUBSTITUTED INDENE COMPOUNDS
 Donald L. Trepanier, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Sept. 3, 1968, Ser. No. 757,102

Int. Cl. C07c 87/28; C07d 85/00, 87/00

U.S. Cl. 260—570

5 Claims

1,2-substituted indene compounds such as 3-(substituted phenyl) - 3a,8b - dihydro - 4H-indeno[2,1-d]-isoxazoles are prepared by the reaction of indene with substituted chlorobenzhydroxamic acid. The indenoisoxazole compounds can be converted to other substituted indene compounds by reduction to produce 2-(α-amino-substituted-benzyl)-1-indanols, which in turn can be reacted with cyanogen bromide to produce substituted α-(1-hydroxy-2-indanyl)benzylcyanamides, which can be cyclized to prepare further substituted indene compounds, namely, 2 - amino-4-(substituted phenyl)-4,4a,5,9b-tetra-

hydroindeno[2,1-e]oxazines. The compounds are useful in the study of animal behavior and are particularly useful as potentiators of amphetamine and of barbiturates such as hexobarbital.

3,636,117
PROCESS FOR MAKING 4,4'-METHYLENE BIS
(2-CHLOROANILINE)

Guenther Kurt Hoeschele, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 3, 1968, Ser. No. 757,158

Int. Cl. C07c 85/08

U.S. Cl. 260—570 D

4 Claims

A process of manufacturing 4,4'-methylene bis(2-chloroaniline) by condensing ortho-chloroaniline with formaldehyde in the presence of hydrochloric acid, the molar ratio of ortho-chloroaniline to formaldehyde being 1.9-2.0:1 and the molar ratio of hydrochloric acid to ortho-chloroaniline being at least 1.35:1.

3,636,118
SELECTIVE ABSORPTION PROCESS USING A
PRESSURE OSCILLATION SYSTEM

William J. Asher, Fanwood, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

Continuation-in-part of application Ser. No. 703,143, Feb. 5, 1968, which is a continuation-in-part of application Ser. No. 363,258, Apr. 28, 1964. This application Aug. 25, 1969, Ser. No. 866,053

Int. Cl. C07c 7/12; C10g 25/04; B01j 1/22

U.S. Cl. 260—674 SA

18 Claims

A method of improving the mass transfer rate in gas-solid sorption and sorption-catalytic processes. The improvement is accomplished by rapidly oscillating the gas pressure on the bed. The improvement is most effective in processes which are limited by the rate of diffusion of the gaseous component into the pores of the solid material. A significant improvement is realized in processes wherein long-chain n-paraffins are separated from hydrocarbon mixtures.

3,636,119
4-AMINO-2-(8-CYCLOHEXYLOCTYL OR 7-CYCLO-
HEXYLHEPTYL)-1-NAPHTHOL

Louis F. Fieser, 27 Pinehurst Road, Belmont, Mass. 02178; Sydney Archer, Bethlehem, N.Y. (52 Wisconsin Ave., Delmar, N.Y. 12054); and Roman R. Lorenz, 3 Highland Drive, East Greenbush, N.Y. 12061

No Drawing. Original application Oct. 25, 1966, Ser. No. 589,204. Divided and this application Oct. 20, 1969, Ser. No. 870,807

Int. Cl. C07c 91/46

U.S. Cl. 260—575

2 Claims

4-amino-2-Q-1-naphthol compounds which are useful as intermediates in the synthesis of 2-Q-1,4-naphthoquinone compounds, where Q is (7-cyclohexylheptyl or 8-cyclohexyloctyl).

3,636,120
PROSTAGLANDIN E PRIMARY ALCOHOLS
 John E. Pike, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

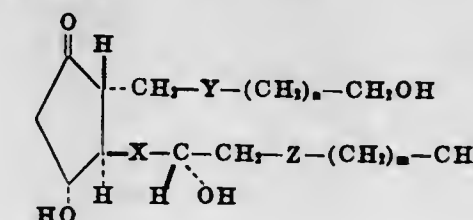
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,979

Int. Cl. C07c 49/28, 49/40

U.S. Cl. 260—586 R

6 Claims

This invention is a class of new organic compounds structurally related to the prostaglandins. These compounds have the formula:



wherein X is $-\text{CH}_2\text{CH}_2-$ or trans-CH=CH- and both Y and Z are $-\text{CH}_2\text{CH}_2-$, or wherein X is trans-CH=CH- , Y is cis-CH=CH- , and Z is $-\text{CH}_2\text{CH}_2-$ or cis-CH=CH- , wherein m is 0, 1, or 2, and wherein n is 2, 3, 4, or 5, and the tricarboxylates thereof. These compounds have biological properties which cause them to be useful in the study and treatment of physiological conditions involving abnormal lipid mobilization and blood platelet aggregation. This invention also involves processes and intermediates for preparing these compounds from the natural prostaglandins and analogues thereof.

3,636,121 PROCESS FOR THE PRODUCTION AND RECOVERY OF ORTHO-XYLENE, PARA-XYLENE AND ETHYLBENZENE

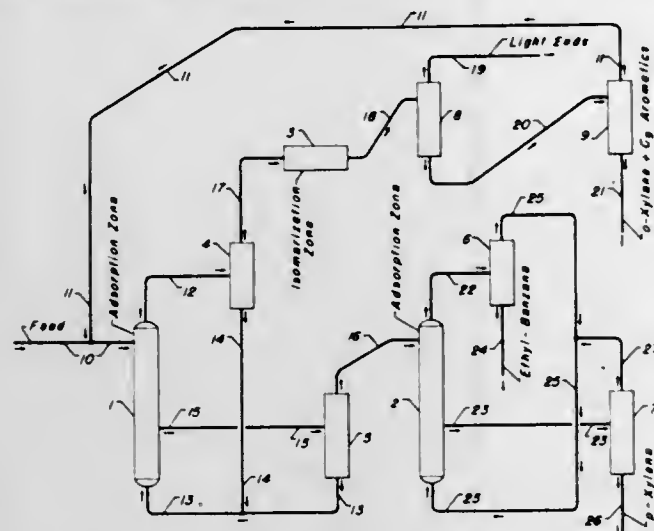
Laurence O. Stine, Western Springs, and Donald B. Broughton, Evanston, Ill., assignors to Universal Oil Company, Des Plaines, Ill.

Filed Nov. 7, 1969, Ser. No. 874,919

Int. Cl. C07c 7/12, 15/08

U.S. Cl. 260—674 SA

9 Claims



A dual adsorption and isomerization process employing a combination of a first adsorption zone in communication with a second adsorption zone and an isomerization zone. The process is suitable for the separation of various C_8 isomers into individual relatively pure streams containing the individual isomers. A first adsorption zone separates para-xylene and ethylbenzene from the other C_8 aromatic isomers fed to that adsorption zone and passes the para-xylene and ethylbenzene to a second adsorption zone wherein para-xylene and ethylbenzene are separated into relatively purified para-xylene and ethylbenzene streams. The remaining C_8 aromatics separated from the para-xylene and ethylbenzene in the first adsorption zone are passed into an isomerization zone to effect the production of additional para-xylene which is eventually recycled to the first adsorption zone allowing increased yield of para-xylene based on the C_8 aromatic fed to the first adsorption zone. An ortho-xylene stream is recovered from the effluent stream from the isomerization reaction zone.

3,636,122 PREPARATION OF 1,4-HEXADIENE FROM ETHYLENE AND BUTADIENE WITH SELECTED CYCLOPENTADIENYL RHODIUM CATALYSTS

Richard D. Cramer, Landenberg, Pa., and Richard V. Lindsey, Jr., Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 28, 1970, Ser. No. 41,538

Int. Cl. C07c 3/10

U.S. Cl. 260—680 B

10 Claims

1,4-hexadiene is prepared by reaction between ethylene and butadiene in the presence of certain cyclopentadienyl-rhodium catalysts at a temperature of about 35–300° C.

3,636,123 OXYDEHYDROGENATION PROCESS

Roger M. Bean, Glen Mills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 15,893, Mar. 2, 1970. This application Jan. 28, 1971, Ser. No. 110,638

Int. Cl. C07c 5/18

U.S. Cl. 260—680 E

4 Claims

Oxydehydrogenation of 2,3-dimethylbutene-1 to 2,3-dimethylbutadiene using a catalyst obtained from ammonium hexamolybdochromate.

3,636,124 POLYOLEFIN PRODUCTION

John R. Coleman, Jr., Littleton, David W. Hall, Englewood, and Frank L. Dormish, Denver, Colo., assignors to Marathon Oil Company, Findlay, Ohio

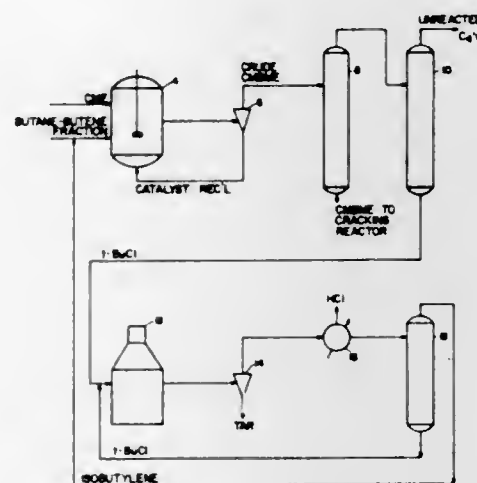
Filed Sept. 25, 1969, Ser. No. 861,100

Int. Cl. C07c 1/20, 41/12

U.S. Cl. 260—681

9 Claims

In the preparation of polyolefins by reacting a halo-ether and an olefin and splitting hydrogen halide and alcohol from the intermediate adduct, a side reaction occurs between olefin and hydrogen halides to produce a halide of the olefin. This by-product is cracked to form



olefin and hydrogen halides which are recycled for use as starting materials in the process of making the polyolefins.

3,636,125 ISOMERIZATION OF BRANCHED CHAIN 1-OLEFIN TO BRANCHED CHAIN 2-OLEFIN EMPLOYING 5A MOLECULAR SIEVES

Frederic H. Hoppstock, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Nov. 10, 1969, Ser. No. 875,489

Int. Cl. C07c 5/30

U.S. Cl. 260—683.2

3 Claims

There is disclosed a process for the isomerization of 1-olefins to 2-olefins using 5A molecular sieves as a catalyst.

3,636,126 METATHESIS OF OLEFINS

Henry R. Menapace, Stow, and Jin-Liang Wang, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Sept. 8, 1969, Ser. No. 856,165

Int. Cl. C07c 3/62

U.S. Cl. 260—683 D

2 Claims

There is disclosed a process for the formation of new olefins from internal olefins by subjecting an internal ole-

fin to a catalyst of a mixture of alkyl lithium and tungsten or molybdenum halides.

3,636,127 OLEFIN ISOMERIZATION PROCESS

Frederick C. Ramquist, Stickney, and Richard C. Wacker, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Nov. 3, 1969, Ser. No. 873,512

Int. Cl. C07c 5/24

U.S. Cl. 260—683.2

9 Claims

Isomerizable olefins, in admixture with polymerizable diolefins are isomerized without polymerization of the diolefins by the utilization of a crystalline aluminosilicate with at least a portion of its cation content provided by copper or zinc.

3,636,128 OLEFIN OLIGOMERIZATION WITH A NICKEL-CONTAINING CATALYST SYSTEM

Howard E. Dunn, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Apr. 24, 1969, Ser. No. 819,105

Int. Cl. C07c 3/10

U.S. Cl. 260—683.15 D

5 Claims

Olefins such as propylene are oligomerized to products such as dimers with a catalyst system comprising an organoaluminum compound such as ethylaluminum dichloride and a nickel complex such as [1,2-bis(diphenylphosphino)ethylene]dichloronickel, wherein the nickel component can be recovered and recycled to the oligomerization zone.

3,636,129 NORMAL PARAFFIN ALKYLATION USING FLUOROSULFONIC ACID AND GROUP V METAL FLUORIDE CATALYST

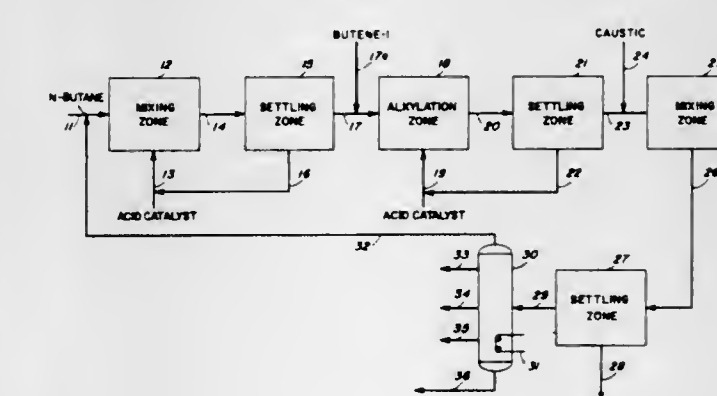
Paul Thomas Parker and Charles Newton Kimberlin, Jr., Baton Rouge, La., assignors to Esso Research and Engineering Company

Filed Feb. 18, 1970, Ser. No. 12,303

Int. Cl. C07c 3/54, 3/56

U.S. Cl. 260—683.47

7 Claims



Normal paraffins containing from C_4 to C_8 carbon atoms are alkylated with C_2 to C_3 olefins in the presence of a catalyst comprised of fluorosulfonic acid and a Group V metal fluoride such as antimony pentafluoride at temperatures in the range of -40° to 250° F. The normal paraffin is first contacted with the catalyst composition at a temperature in the range of about 80° to 250° F. to form cations which are thereafter contacted with the olefin at a temperature in the range of about -40° to 100° F.

3,636,130 ALKYLATION PROCESS UTILIZING SIMULTANEOUS ABSORPTION AND EXTRACTION OF DI-ALKYL SULFATES

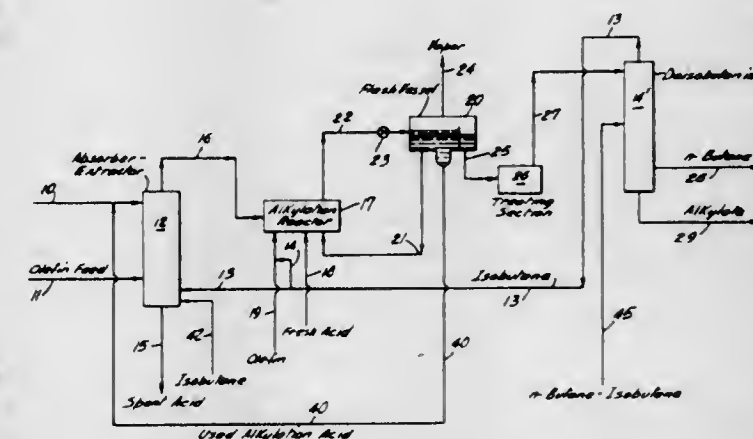
James O. Francis, Houston, Tex., and Arthur R. Goldsby, Chappaqua, N.Y., assignors to Texaco Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 602,258, Dec. 16, 1966. This application Apr. 30, 1970, Ser. No. 33,524

Int. Cl. C07c 3/54

U.S. Cl. 260—683.62

5 Claims



Combination sulfuric acid alkylation-acid recovery process wherein olefin feed is reacted with used alkylation acid in the presence of alkylatable isoparaffin hydrocarbon to produce alkyl sulfates which are simultaneously extracted by the alkylatable isoparaffin and the extract solution passed to the alkylation zone.

3,636,131 BASIC DYEABLE POLYESTER

Gerald W. Davis, Gerald Farrow, and Nestor A. Ravenna, Charlotte, N.C., assignors to Fiber Industries, Inc.

No Drawing. Filed Nov. 28, 1969, Ser. No. 880,980

Int. Cl. C08g 17/14

U.S. Cl. 260—75 S

6 Claims

A process for producing basic dyeable polyester fiber and film-forming polymer and the product produced thereby, the process involving incorporating in the polymer minor amounts of a metal salt of isethionic acid and minor amounts of a di-functional compound which copolymerizes with the polymer and functions as a dye opener.

3,636,132 BLOCK COPOLYMERS OF TETRAHYDROFURAN AND 3,3-BIS(CHLOROMETHYL) OXETANE

Takeo Saegusa, Kyoto, and Shuichi Matsumoto, 8-22 Tojin Kitamachi, Kita-ku, Kyoto, Japan; said Matsumoto assignor to said Saegusa

Filed July 16, 1970, Ser. No. 55,540

Claims priority, application Japan, July 19, 1969, 44/56,762

Int. Cl. C08g 23/04

U.S. Cl. 260—823

12 Claims

Block copolymers of tetrahydrofuran (THF) and 3,3-bis(chloromethyl) oxetane (BCMO) are provided containing an amorphous block of random THF-BCMO copolymer having both of its polymer chain ends linked to crystalline homopolymer blocks selected from poly-THF and poly-BCMO.

3,636,133

EPOXY RESIN ADHESIVE COMPOSITIONS CONTAINING AN ISOCYANATE TERMINATED POLYURETHANE PREPOLYMER AND A CHAIN EXTENDER

Jerry Marvin Hawkins, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 17, 1969, Ser. No. 877,446
The portion of the term of the patent subsequent to Aug. 25, 1987, has been disclaimed
Int. Cl. C08g 47/00, 45/12

U.S. Cl. 260—824 EP

6 Claims

This invention is directed to thermosettable resin compositions comprising essentially an epoxy resin and between about 5 and 50 parts per hundred parts of epoxy resin of a reactive terminated urethane type polymeric modifier for such epoxy resin wherein such modifier is the reaction product of approximately two molar equivalents of an organic isocyanate, approximately one molar equivalent of a polymeric "backbone" material having an average molecular weight of from about 500 to 5000, which is terminated with an active hydrogen capable of reacting with said organic isocyanate and which contains flexibilizing groups in the main polymer chain, and approximately one molar equivalent of a "cappant" material of the general formula



where X and X' is SH, OH, NH₂ and COOH and R is alkyl, aryl, aliphatic, aromatic, and branched aliphatic; wherein such polymeric modifier has an average molecular weight of at least about 500 but less than about 5000 and is compatible with the epoxy resin; and wherein the modified epoxy resin compositions are particularly useful in adhesive formulations.

3,636,134

ROOM TEMPERATURE VULCANIZABLE ACETOXYSILOXANE BLOCK COPOLYMER

Robert C. Antonen, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Dec. 1, 1969, Ser. No. 881,319
Int. Cl. C08g 47/02, 47/06

U.S. Cl. 260—825

28 Claims

A room temperature vulcanizable acetoxy-siloxane block copolymer of a polydiorganosiloxane block and a monoorganosiloxane block being endblocked with mono-organosiloxane units is useful as an adhesive.

3,636,135

POLYAMIDES ADMIXED WITH POLYETHERESTERAMIDES

John David Garforth, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Aug. 22, 1969, Ser. No. 852,507
Claims priority, application Great Britain, Sept. 5, 1968, 42,215/68
Int. Cl. C08g 41/04

U.S. Cl. 260—857

10 Claims

Polyamide compositions suitable for the manufacture of shaped articles, especially fibres, having anti-static and soil-resistant properties are uniform mixtures of a synthetic linear polyamide and a polyetheresteramide obtained by condensing (a) an aliphatic dicarboxylic acid, and (b) a hydroxypolyoxyalkylene compound, and either (c) an aliphatic or cycloaliphatic amino acid or lactam, or (d) an aliphatic or cycloaliphatic diamine, or both (c) and (d). The most suitable polyetheresteramides are those in which less than 20% by weight of the repeat units in the polyamide segments thereof are identical with the repeat units of the polyamide. The soil-resistant properties of fibres are best developed by a scouring treatment.

3,636,136

METHOD OF POWDERING POLYAMIDES WITH HYDROLYZED ETHYLENE/VINYL ACETATE COPOLYMERS

Alvin E. Konopik, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 18, 1969, Ser. No. 877,852
Int. Cl. C08g 41/04

U.S. Cl. 260—857 L

9 Claims

Polyamides having melt indices in the range of 0.01 to 2000 are powdered by grinding in standard grinding equipment using as grinding aid about 1 to 100 percent by weight, based on the polyamide, of about 50–100 percent alcoholized ethylene/vinyl ester copolymer which, before being alcoholized, contained about 70 to 98 mole percent ethylene and about 2 to 30 mole percent vinyl ester. The resulting compositions are useful for preparing nylon color concentrates and, when the polyamide is relatively low melting, they are particularly useful as textile fusible adhesives.

3,636,137

BIS[o(CARBO - 2 - ETHYLHEXOXY)-BENZOYL] PEROXIDE AS POLYESTER CURING AGENT

Hans G. Gerritsen, Deventer, Hendrik Hansma, Schalkhaar, and Hans Jaspers, Deventer, Netherlands, assignors to Koninklijke Industriële Maatschappij Noury & Van Der Lande N.V., Deventer, Netherlands
No Drawing. Original application Apr. 26, 1967, Ser. No. 633,703. Divided and this application June 5, 1969, Ser. No. 850,278
Claims priority, application Netherlands, May 6, 1966, 6606159
Int. Cl. C08f 21/00, 21/02

U.S. Cl. 260—861

1 Claim

The present invention relates to a new ortho-substituted dibenzoyl peroxide, viz bis[o - (carbo - 2 - ethylhexoxy) - benzoyl] peroxide capable of use as an initiator in the peroxidic polymerization of vinyl monomers and in the copolymerization of unsaturated polyester resins containing vinyl monomers as copolymerizable monomers; the invention also relates to a process for preparing bis[o - (carbo-2-ethylhexoxy)-benzoyl] peroxide and to the use of said peroxide as an initiator in the peroxidic polymerization of vinyl monomers and in the copolymerization of unsaturated polyester resins containing vinyl monomers as copolymerizable monomers.

3,636,138

PROCESS FOR IMPACT MODIFICATION OF VINYL HALIDE POLYMERS AND IMPACT MODIFIERS AND VINYL HALIDE BLENDS PRODUCED THEREWITH

Ludwig A. Beer, Agawam, Mass., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Aug. 5, 1968, Ser. No. 749,941
Int. Cl. C08f 19/08, 41/12, 29/24

U.S. Cl. 260—876 R

19 Claims

A novel graft copolymer is prepared utilizing a diene rubber substrate and two different interpolymers forming a graft superstrate. Initially the diene rubber is admixed with a polymerizable monomer formulation containing a monovinylidene aromatic hydrocarbon and an alkyl alkacrylate which is grafted thereonto. This graft copolymer is admixed with a second polymerizable monomer formulation containing a monovinylidene aromatic hydrocarbon and an unsaturated nitrile which is grafted thereonto to form a composite graft copolymer having a shell rich in the nitrile interpolymer. Blends of such composite graft copolymers with vinyl chloride polymers having a high degree of transparency are also disclosed.

3,636,139

POLY(VINYL CHLORIDE)

Norman G. Gaylord, New Providence, and Akio Takahashi, Parsippany, N.J., assignors to Gaylord Associates Inc., Newark, N.J.
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,850
Int. Cl. C08f 29/24, 15/02

U.S. Cl. 260—876 R

17 Claims

Poly(vinyl chloride) of improved thermal stability is prepared by contacting vinyl chloride homopolymer with a 1,4-polybutadiene having a cis-1,4 content of at least 35%.

3,636,140

THERMOPLASTIC RESIN BLEND OF POLYSULFONE WITH ABS

Alfred F. Ingulli, Warren, Mich., and Henry L. Alter, West Haven, Conn., assignors to Uniroyal, Inc., New York, N.Y.
Continuation-in-part of application Ser. No. 827,766, May 26, 1969, which is a continuation-in-part of application Ser. No. 671,654, Sept. 29, 1967, which in turn is a continuation-in-part of application Ser. No. 866,068, Sept. 30, 1969, now Patent No. 3,555,119. This application Aug. 4, 1969, Ser. No. 847,070
The portion of the term of the patent subsequent to Jan. 12, 1988, has been disclaimed
Int. Cl. C08f 41/12

U.S. Cl. 260—876 R 9 Claims
Blends of thermoplastic polysulfone resin with ABS plastic are characterized by an unusually useful combination of properties, particularly high heat distortion temperature in combination with good flow and processing characteristics, as well as impact resistance, flexural strength and self-extinguishing characteristics.

3,636,141

LOW SHRINKAGE 1,2-BUTADIENE POLYMER MOLDING COMPOSITION

Charles T. O'Neill, Dover, Ronald S. Krigbaum, Ironia, and Ralph W. Nussbaum, West Orange, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Apr. 23, 1969, Ser. No. 818,827
Int. Cl. C08d 9/00, 9/02

U.S. Cl. 260—880 R

9 Claims

Shrinkage is normally observed upon curing molding compositions based upon 1,2-butadiene polymers having at least 80% of the butadiene content combined therein in the 1,2 form. Such shrinkage in both unfilled and filled compositions can be greatly reduced without reducing the cure rate by including in the composition a normally solid thermoplastic organic resin and a normally liquid vinyl monomer in amounts of about 20–100 parts each, per 100 parts by weight of butadiene polymer. The thermoplastic resin must be at least partially incompatible with the butadiene polymer when the composition is cured. Examples of such thermoplastic resin include methyl methacrylate polymer and styrene polymer and examples of such vinyl monomer include styrene.

3,636,142

TRIORTHOPHOSPHATE ESTERS OF ETHOXYLATED TRIOLS

William G. De Pierri, Jr., Baytown, Tex., assignor to Esso Research and Engineering Company
No Drawing. Filed Apr. 4, 1968, Ser. No. 718,906
Int. Cl. C02b 5/06; C07f 9/08

U.S. Cl. 260—929

17 Claims

Triorthophosphate ester of ethoxylated triols having from 3 to 20 carbon atoms and 2 to 50 moles of ethylene oxide. The alkali metal and ammonium salts of said ester may be used to inhibit the deposition of water insoluble salts in aqueous system such as subsurface formations containing brine.

3,636,143

O-(2 - NITRO - 4 - ALKYL-PHENYL)-O-ALKYL-N-ISOPROPYL-AMIDO-PHOSPHOROTHIOATES

Gerhard Schrader, Wuppertal-Cronenberg, and Ludwig Eue and Helmuth Hack, Cologne, Germany, and Selichi Hirane, Masahiro Aya, Shigeo Kishino, and Nobuo Fukazawa, Tokyo, Japan, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Nov. 7, 1969, Ser. No. 874,954
Int. Cl. A01n 9/36; C07f 9/24

U.S. Cl. 260—954

9 Claims

O-(2-nitro - 4 - alkyl - phenyl) - O - alkyl - N - isopropyl-amido-phosphorothioates, which possess herbicidal properties.

3,636,144

DITHIOPHOSPHORIC ACID SALTS AND PROCESS FOR MAKING SAME

Hiroshi Tsuchiya, Ashiya-shi, Fukashi Horiuchi, Takatsuki-shi, Kunio Mukai, Nishinomiyashi, Akio Kimura, Takarazuka-shi, and Yoshihiko Nishizawa, Nara-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed Apr. 3, 1968, Ser. No. 718,327
Claims priority, application Japan, Apr. 6, 1967, 42/22,234
Int. Cl. C07f 9/16

U.S. Cl. 260—958

7 Claims

Dithiophosphoric acid salts such as sodium O-ethyl-S-benzylphosphorodithioate, potassium O-n-propyl-S-benzylphosphorodithioate, sodium O-n-butyl-S-ethylphosphorodithioate and potassium O-ethyl-S-1-(2-phenylpropyl)phosphorodithioate are produced by reacting a thiolthionophosphoric acid ester with sodium hydrosulfide or potassium hydrosulfide in an absolute or aqueous organic solvent at 50° to 150° C. for 30 minutes to 5 hours. The thus produced dithiophosphoric acid salts are useful as intermediates for manufacturing dithiolester type organic phosphorus agricultural chemicals and further they include dithiophosphoric acid salts.

3,636,145

PREPARATION OF TRIALKENYL PHOSPHITES

Arthur D. F. Toy, Stamford, Conn., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Mar. 24, 1969, Ser. No. 809,990
Int. Cl. C07f 9/08

U.S. Cl. 260—982

3 Claims

A procedure for preparing a trialkenyl phosphite is disclosed, said procedure comprising reacting trimethyl phosphite and an alkenol in the presence of a non-azeotropic solvent. The use of a solvent which does not form an azeotrope with methyl alcohol, the by-product of the reaction of an alkenol with trimethyl phosphite, has led to improved product yield and purity as well as an extremely rapid reaction rate.

3,636,146

PREPARATION OF DIALKENYL PHOSPHONATES

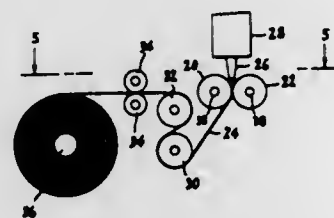
Arthur D. F. Toy, Stamford, Conn., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Mar. 24, 1969, Ser. No. 810,026
Int. Cl. C07f 9/40

U.S. Cl. 260—982

7 Claims

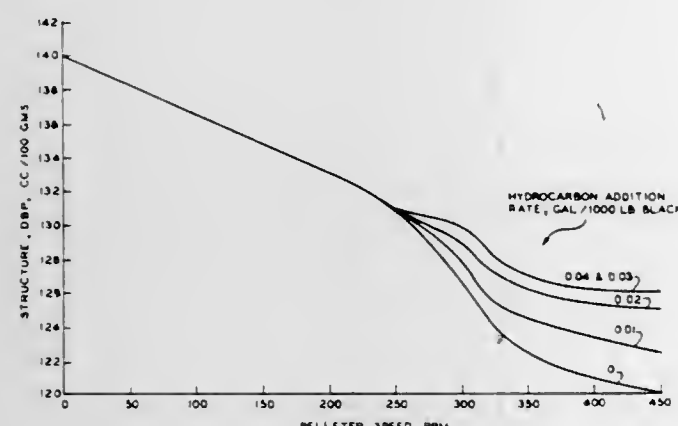
A procedure for preparing a dialkenyl phosphonate is disclosed, said procedure comprising reacting dimethyl phosphonate and an alkenol in the presence of a non-azeotropic solvent. The use of a solvent which does not form an azeotrope with methyl alcohol, the by-product of the reaction of an alkenol with dimethyl phosphonate, has led to improved product yield and purity as well as an extremely rapid reaction rate.

3,636,147
METHOD FOR MAKING SHEET MATERIAL FOR VISUAL PATTERN EFFECTS
 William P. Rowland, Southington, Conn., assignor to Rowland Products, Incorporated, Kensington, Conn.
 Filed Jan. 14, 1969, Ser. No. 791,041
 Int. Cl. B29d 11/00; B29c 15/00
 U.S. Cl. 264—1 11 Claims



A process for making sheet material providing visual pattern effects utilizes two embossing rolls each having a multiplicity of closely spaced cavities therein to provide embossments on both surfaces of heated synthetic plastic sheet material passing therebetween. The speed of one or both rolls is varied so as to vary the period for the embossments of one surface to phase in and out of axial alignment with the embossments of the other surface, thereby providing varying visual patterns along the length of the sheet material.

3,636,148
CARBON BLACK PELLETING
 John E. Slagel, Orange, Tex., assignor to Phillips Petroleum Company
 Filed Aug. 7, 1969, Ser. No. 848,277
 Int. Cl. B01j 2/12
 U.S. Cl. 264—40 10 Claims

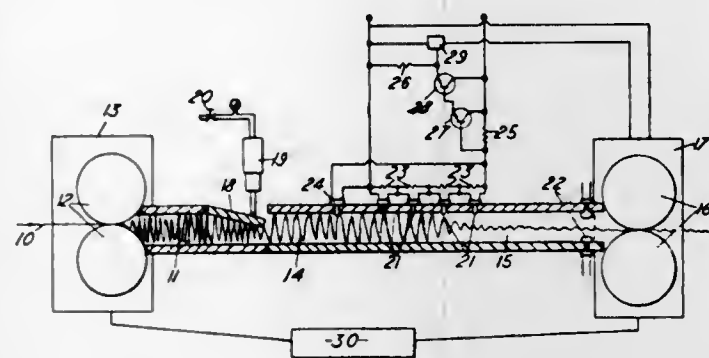


A method for controlling the structure of a pelleted carbon black which involves pelleting the black in the presence of a hydrocarbon and controlling either the speed of the pelletor or the rate of addition of hydrocarbon, or both, to produce a pelleted black of a desired structure.

3,636,149
CRIMPING OF YARN
 Angelo Luigi Alfredo Tambini, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England
 Continuation-in-part of application Ser. No. 718,266, Apr. 2, 1968. This application Dec. 22, 1969, Ser. No. 887,425
 Int. Cl. D02g 1/12 27 Claims

The improvement in methods and apparatus for controlling stuffing box crimping comprising photocell meas-

uring means arranged to provide a signal smoothly related to the amount of yarn in the buffer chamber. The ratio of withdrawal to delivery of the yarn is controlled there-

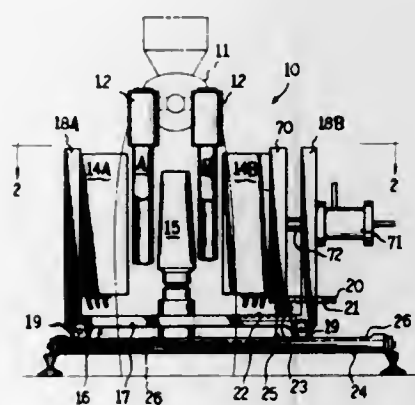


by maintaining the amount of yarn in the buffer chamber constant with the counter-pressure measurement regulator maintaining the controlled ratio at a constant value.

3,636,150
PROCESS FOR PREPARING CELLULOSE ESTER REVERSE OSMOSIS MEMBRANES ON FLEXIBLE WEBS HAVING ENHANCED RELEASABILITY
 Martin E. Rowley, Hilton, and Walter D. Slowig and Carl F. Smith, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Nov. 28, 1969, Ser. No. 880,905
 Int. Cl. B29c 1/04; B29d 27/04; B44d 5/02
 U.S. Cl. 264—41 5 Claims

It has been found that when flexible webs (such as those of polymeric films having good dimensionable stability and substantially no solubility in the dope systems being used) are utilized as temporary supports upon which cellulose ester dope solutions are cast in the manufacture of "reverse osmosis" membranes, the resulting gelled membranes are ordinarily difficult to remove from the flexible web. Dramatically enhanced releasability of the gelled membranes from such flexible supports results if the surface of the flexible support is first made very hydrophylic.

3,636,151
METHOD FOR PRODUCING A HOLLOW DOUBLE-WALL PLASTIC ARTICLE
 Tomomatsu Nagai, Tokyo, Japan, assignor to Kyoraku Kogyo Co., Ltd., Kamigyo-ku, Kyoto, Japan
 Filed Apr. 27, 1970, Ser. No. 32,109
 Int. Cl. B29c 17/07
 U.S. Cl. 264—89 4 Claims



A method for forming a hollow double-wall plastic article comprises positioning at least two tubular plasti-

cized parisons of plastic material at opposite sides of at least one core of a mold, closing half-molds of the mold about the parisons and the core to enclose said parisons, blowing the parisons into contact with the cavity faces by introducing fluid pressure medium into the parisons and removing the finished article from the mold after curing the article. Further, an apparatus for the said method comprises a pair of extrusion nozzles positioned parallel to each other, a mold including a pair of half-molds and at least one core member, means for opening and closing the half-molds and means for introducing fluid pressure medium into the enclosed parisons.

3,636,152
METHOD FOR THE CATALYTIC HYDROGENATION OF ORGANIC NITRO DERIVATIVES IN THE GASEOUS STATE TO CORRESPONDING AMINES

Laszlo Szigeth, Basel, Switzerland, assignor to Lonza Ltd., Basel, Switzerland
 Filed Nov. 25, 1968, Ser. No. 778,524
 Claims priority, application Switzerland, Dec. 12, 1967, 16,900/67
 Int. Cl. C07c 85/10

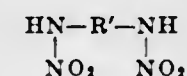
U.S. Cl. 260—580 1 Claim
 A process for the catalytic hydrogenation of organic nitro derivatives into amines including evaporating a liquid nitro derivative in a hot stream of gas comprised substantially of hydrogen by atomizing the nitro derivative with the aid of hydrogen, circulating the stream of gas in a closed circuit to cause catalytic hydrogenation of the stream of gas, condensation of reaction products and return of the nitro derivative to a fluid state, and separating amines from the condensed reaction products.

3,636,153
PROCESS FOR THE PRODUCTION OF METHYLAMINE TOGETHER WITH DIMETHYLAMINE
 Edgar Enders, Cologne-Fliktard, and Dieter Hüllstrung, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
 No Drawing. Filed Feb. 10, 1969, Ser. No. 798,111
 Claims priority, application Germany, Mar. 5, 1968, P 16 68 906.8
 Int. Cl. C07c 85/00, 87/08

U.S. Cl. 260—583 J 9 Claims
 Process for producing methylamine and dimethylamine by passing a mixture of carbon monoxide, hydrogen and nitrogen over a catalyst containing zirconium or hafnium at a temperature of about 300° to 600° C.

3,636,154
METHOD OF PREPARING BIS-DIFLUOROAMINO-BIS-NITROAMINO-ALKANES
 David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
 No Drawing. Filed Mar. 26, 1963, Ser. No. 268,535
 Int. Cl. C07c 87/22, 111/00

U.S. Cl. 260—583 C 3 Claims
 1. The method of preparing a compound of the formula



wherein R' is an alkylene group having substituted thereon at each of two adjacent carbon atoms a difluoroamino group, said method comprising reacting a diisocyanate of the formula $\text{O}=\text{C}=\text{N}-\text{R}-\text{N}=\text{C}=\text{O}$ wherein R is a lower alkylene group with dinitrogen tetroxide and tetrafluorohydrazine in an inert organic solvent under superatmospheric pressure at a temperature of about 150° F. to about 250° F.

3,636,155
PROCESS FOR THE PRODUCTION AND RECOVERY OF N,N-DIMETHYLLAURYLAMINE OXIDE
 Jorge R. Muratorio, Buenos Aires, Argentina, assignor to Celanese Corporation, New York, N.Y.
 No Drawing. Original application Nov. 1, 1967, Ser. No. 679,634. Divided and this application Oct. 27, 1969, Ser. No. 871,805
 Int. Cl. C07c 85/16, 87/06

U.S. Cl. 260—583 D 3 Claims
 A process for the production and recovery of N,N-dimethylaurylamine oxide which comprises reacting N,N-dimethylaurylamine with peracetic acid in an organic solvent medium whereby the reaction products form an ammonium acetate salt, treating the ammonium acetate salt so as to remove the acetate radical from the salt and recovering a N,N-dimethylaurylamine oxide solution having good detergent properties.

3,636,156
PROCESS FOR THE DIRECT PRODUCTION OF KETONES FROM OLEFINS

Atsumu Ozaki and Yoshihiko Morooka, Tokyo, Japan, assignors to Idemitsu Petrochemical Co., Ltd.
 No Drawing. Filed Oct. 21, 1968, Ser. No. 769,369
 Claims priority, application Japan, Apr. 25, 1968, 43/27,839
 Int. Cl. C07c 45/04

U.S. Cl. 260—597 R 5 Claims
 A feed gas comprising an olefin, steam and oxygen is subjected under normal or raised pressure at 150–300° C. to a vapor phase one step reaction. The reaction is conducted in the presence of a complex oxide catalyst comprising molybdenum oxide and at least one of the oxides selected from tin oxide, iron oxide or cobalt oxide.

3,636,157
PREPARATION OF TOLUALDEHYDES
 John E. Bozik, Plum Borough, and Harold E. Swift, Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
 No Drawing. Filed Jan. 9, 1970, Ser. No. 1,872
 Int. Cl. C07c 47/52

U.S. Cl. 260—599 10 Claims
 Tolualdehydes are prepared by converting crotonaldehyde over a catalyst comprised of at least one Group Ib metal and at least one metal selected from the group consisting of tin and lead.

3,636,158
3-METHOXY-BENZALDEHYDES
 David F. Hinkley, Plainfield, and John Budavari, Warren, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
 No Drawing. Application Jan. 22, 1967, Ser. No. 692,689, now Patent No. 3,506,714, dated Apr. 14, 1970, which is a continuation-in-part of application Ser. No. 405,591, Oct. 21, 1964. Divided and this application June 23, 1969, Ser. No. 870,859
 Int. Cl. C07c 47/52

U.S. Cl. 260—600 2 Claims
 3-lower alkoxy-4-(1-lower alkoxy-lower alkoxy)-benzaldehyde compounds are useful as intermediates for pharmaceutical products.

3,636,159
HYDROFORMYLATION PROCESS AND CATALYST
 Paul W. Solomon, Bartlesville, Okla., assignor to Phillips Petroleum Company
 Filed Dec. 19, 1968, Ser. No. 785,121
 Int. Cl. C07c 45/16

U.S. Cl. 260—604 HF 12 Claims
 Hydroformylation reactions are carried out in the presence of a catalyst comprising a solid polymer of a pyri-

dine having associated therewith a metal of the group cobalt, rhodium, ruthenium, platinum and palladium. The polymer, which can be formed in part of a polyvinylaromatic compound, is used to remove catalyst residues from hydroformylation reaction effluent streams.

3,636,160

TRISHYDROXYMETHYL PHOSPHINE OXIDE FROM PHOSPHINE AND FORMALDEHYDE

Ronald H. Carlson, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Filed July 13, 1970, Ser. No. 54,577
Int. Cl. C07f 9/02

U.S. Cl. 260—606.5 P

10 Claims

A process is described for the preparation of tris (hydroxymethyl) phosphine oxide (THPO) by a direct two-step process of reacting phosphine and excess formaldehyde under pressure of about 4 to about 15 atmospheres at a temperature of from 25 to 70° C., whereby a tris (hydroxymethyl) phosphine hemiacetal solution is obtained which is then treated with a hydroxide catalyst to obtain THPO.

3,636,161

SYNTHESIS OF GEM-DIHALOCYCLOPROPANE COMPOUNDS

Gene C. Robinson, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Nov. 26, 1969, Ser. No. 880,358
Int. Cl. C07c 43/32

U.S. Cl. 260—611 R

16 Claims

Hydrolysis of tris - (2,2-dihalocyclopropylcarbinyl)-orthoformate gives 2,2-dihalocyclopropyl carbinol. These orthoformates, which can be prepared by reacting triallyl-orthoformate with an alkali metal hydroxide and a haloform, and the carbinols resulting from the hydrolysis reaction are useful as germicides, insecticides, miticides and fungicides, and as chemical intermediates.

3,636,162

ETHER PRODUCTION

Harold Chung and Wilhelm Keim, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 653,032, July 13, 1967. This application Oct. 27, 1969, Ser. No. 869,931
Int. Cl. C07c 43/20

U.S. Cl. 260—612 D

4 Claims

Aromatic 2,7-alkadienyl ethers are produced by a dimerization-addition reaction of phenols with conjugated alkadienes, e.g., butadiene, in the presence of nickel complexed with triaryl phosphite ligands. The unsaturated ethers are useful for conversion to epoxides.

3,636,163

METHOD OF PREPARING TRANSPARENT PRODUCTS CONSISTING LARGELY OF POLYEPIBROMOHYDRIN

Herbert Jenkner, Cologne-Deutz, and Walter Büttgens, Cologne-Gremberg, Germany, assignors to Chemische Fabrik Kalk G.m.b.H.
No Drawing. Filed Sept. 10, 1969, Ser. No. 856,795
Claims priority, application Germany, Sept. 12, 1968, P 17 93 404.2
Int. Cl. C07c 41/02, 43/00

U.S. Cl. 260—615 B

3 Claims

Light-colored polyepibromohydrin is made by polymerizing epibromohydrin with the aid of a Friedel-Crafts catalyst in the presence of an organic derivative of phosphonic acid, e.g., glycidyl phosphonic acid diethyl ester, triethyl phosphite, or the like, preferably in solution in an inert liquid solvent, e.g., a liquid halogenated hydrocarbon.

3,636,164

TETRAHYDROXYLIC ORGANO COMPOUNDS AND THE PROCESS FOR PREPARING THE SAME

Andre Lakodey and Francis Weiss, Pierre-Benite, France, assignors to Ugine Kuhlmann, Paris, France
No Drawing. Filed Jan. 22, 1968, Ser. No. 699,290
Claims priority, application France, Jan. 20, 1967, 91,856
Int. Cl. C07c 43/02

U.S. Cl. 260—615 R

5 Claims

Tetrahydroxylic organo compounds such as 1-hydroxyethyleneoxy-2-methylol-2,6-hexanediol, 1-hydroxydiethyleneoxy-2-methylol-2,6-hexanediol, 1-hydroxypropyleneoxy-2-methylol-2,6-hexanediol and 1-hydroxydipropyleneoxy-2-methylol-2,6-hexanediol are prepared from their corresponding 1-[hydroxyalkyleneoxymethyl]-6,8-dioxabicyclo[3.2.1]octanes by hydrolysis and hydrogenation in a non-alkaline medium and in the presence of a hydrogenation catalyst.

3,636,165

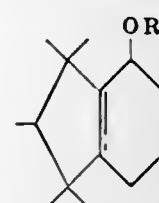
INDANOL DERIVATIVES AND PROCESSES FOR PRODUCING SAME

John B. Hall, Oakhurst, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
No Drawing. Filed Aug. 18, 1969, Ser. No. 851,076
Int. Cl. C07c 35/22

U.S. Cl. 260—617 F

6 Claims

Novel hydrogenated indanol derivatives having the formula



wherein R is hydrogen, alkyl, or acyl; perfume compositions containing such indanols and processes for producing same.

3,636,166

DIPHENYLMETHYLENE SPIRANES

Daniel Lednicer, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Mar. 10, 1969, Ser. No. 815,512
Int. Cl. C07c 39/08, 39/12

U.S. Cl. 260—619 A

1 Claim

Diarylmethylene spiranes, processes for the preparation of the same and intermediates produced by said processes. The compounds have utility as antifertility agents, lipid normalizing agents, central nervous system agents, estrogens and estrogen antagonists.

3,636,167

TREATMENT OF ACETYLENIC GLYCOLS

Robert J. Tedeschi, Whitehouse Station, and Herbert C. McMahon, Basking Ridge, N.J., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
No Drawing. Filed Nov. 14, 1969, Ser. No. 877,035
Int. Cl. C07c 33/04, 33/06, 35/02

U.S. Cl. 260—638 Y

7 Claims

Acetylenic carbinols are prepared from acetylenic glycols by continuously adding distillation residues from reactions between an acetylenic hydrocarbon and a carbonyl compound to a slurry of an alkali metal carbonate in mineral oil maintained at elevated temperatures and reduced pressures whereby cleavage of the glycols is effected and the resultant acetylenic carbinols are recovered.

3,636,168

PREPARATION OF POLYNUCLEAR AROMATIC COMPOUNDS

Roy R. Josephson, West Marlborough Township, Chester County, Pa., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Filed Dec. 29, 1969, Ser. No. 888,937
Int. Cl. C07c 79/10, 79/12

U.S. Cl. 260—645

9 Claims

A process is provided for the coupling of aromatic compounds to produce polynuclear aromatic compounds wherein the reaction is carried out in liquid hydrogen fluoride by contacting the aromatic compound with a mixture of a mercuric salt and a catalytic amount of a noble metal salt, the noble metal being palladium, rhodium, ruthenium or gold.

3,636,169

PROCESS FOR THE PRODUCTION OF 1,1,1-TRIFLUORO-2-MONOCOLORO-2-MONOBROMOETHANE BY DEBROMINATION OF 1,1,1-TRIFLUORO-2-MONOCOLORO-2,2-DIBROMOETHANE

Andrea Scipioni and Giampaolo Gambaretto, Padova, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Filed Dec. 30, 1968, Ser. No. 788,047
Int. Cl. C07c 19/08

U.S. Cl. 260—653

6 Claims

The invention is concerned with a process for the production of 1,1,1-trifluoro-2-chloro-2-monobromomethane which comprises reacting 1,1,1-trifluoro-2-chloro-2,2-dibromoethane with an alcohol selected from aliphatic and aromatic alcohols in alkaline phase, the molar ratio between alcohol and 1,1,1-trifluoro-2-chloro-2,2-dibromoethane being at least equal to 1.

3,636,170

PROCESS FOR PREPARING HALOGENATED AROMATICS

Vincent A. Notaro, Monroeville, and Charles M. Selwitz, Pitcairn, Pa., assignors to Gulf Research & Development Company
No Drawing. Filed July 3, 1969, Ser. No. 839,042
Int. Cl. C07c 25/04

U.S. Cl. 260—650 R

10 Claims

A process for preparing a nuclear chloro or nuclear bromo aromatic compound which involves heating an aromatic compound in the presence of a nitrate ion, a nitrite ion, NO or NO₂, a chloride or bromide ion, water, oxygen and a strong acid.

3,636,171

SELECTIVE CHLORINATION OF BENZENE AND CHLOROBENZENE USING A CATALYST OF ALUMINUM CHLORIDE AND STANNIC CHLORIDE OR TITANIUM TETRACHLORIDE

Karl L. Krumel, Midland, and James R. Dewald, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Nov. 21, 1969, Ser. No. 878,900
Int. Cl. C07c 25/06, 25/08

U.S. Cl. 260—650 R

6 Claims

By conducting the reaction of chlorine with benzene or chlorobenzene in the presence of a small but effective amount of a catalyst containing 1 to 25% by weight of aluminum chloride and 75 to 99% by weight of stannic chloride, titanium tetrachloride or mixture thereof, high yields of the monochlorinated product are obtained, high para to ortho isomer ratios in the dichlorinated product are realized and chlorine is efficiently employed in the reaction.

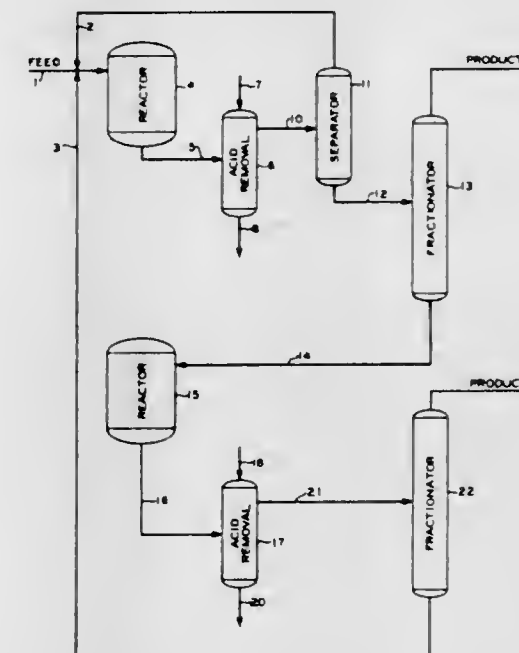
3,636,172

DEHALOGENATION OF FLUOROHALOCARBONS

Lloyd E. Gardner, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Oct. 29, 1969, Ser. No. 872,007
Int. Cl. C07c 17/34, 21/18

U.S. Cl. 260—635.5

4 Claims



Fluorohalocarbons are dehalogenated to produce fluoroolefins by contacting first in the presence of hydrogen with a first catalytic composition containing fluorine under mild hydrogenolysis conditions to generate a fluorohalo-hydrocarbon, followed by contacting with a second catalytic composition containing a metal oxide or metal salt under more severe conditions in the absence of hydrogen to form increased yields of fluoroolefins.

3,636,173

HYDRODEHALOGENATION PROCESS AND CATALYST

Lloyd E. Gardner, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation-in-part of application Ser. No. 584,334, Oct. 5, 1966. This application July 28, 1969, Ser. No. 845,545
Int. Cl. C07c 17/00, 21/18

U.S. Cl. 260—653.5

5 Claims

Fluorohalocarbons are dehalogenated by contact in the presence of hydrogen with a catalytic composition containing aluminum fluoride and at least one metal phosphate.

3,636,174

PROCESS FOR PREPARING CYCLODODECATRIENE

Katsuyuki Nakamura, Tokyo, Masanori Tanabe, Asaka, Yoshiyuki Mizoguchi, Iruma-gun, and Hirohisa Fukuda, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Aug. 6, 1970, Ser. No. 61,823
Claims priority, application Japan, Aug. 12, 1969, 44/63,275; Sept. 10, 1969, 44/71,204; Sept. 16, 1969, 44/72,994; Dec. 22, 1969, 44/102,567; Mar. 18, 1970, 45/22,262
Int. Cl. C07c 3/00

U.S. Cl. 260—666 B

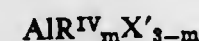
13 Claims

Process for preparing cyclododecatriene by cyclizably trimerizing 1,3-butadiene which comprises using a

binary catalyst obtained by reacting at a temperature in the range from 5° to 70° C. a mixture of the two catalytic components, (1) a secondary or tertiary alkoxy-titanium compound represented by the general formula



wherein n is a positive integer from 1 to 4, X is halogen, alkoxy or phenoxy groups, R^{I} is hydrogen or alkyl group and R^{II} and R^{III} respectively represent alkyl group or $\text{CR}^{\text{IV}}\text{R}^{\text{V}}$ in combination represents cycloalkyl group and (2) an alkyl aluminum halide represented by the general formula



wherein m is a number from 1 to 2, X' is halogen and R^{IV} represents alkyl or aryl groups.

3,636,175 SELECTIVE HYDROGENATION USING METAL ARSENIDE OR ANTIMONIDE CATALYST

Gerhard P. Nowack, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,156
Int. Cl. C07c 5/06, 5/14, 5/16

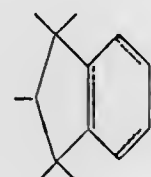
U.S. Cl. 260—666 A 10 Claims
An improved method for selective hydrogenation of non-conjugated cyclic polyenes to the corresponding cyclic monoolefins with metal arsenide and metal antimonide hydrogenation catalysts which comprises contacting the feed polyenes with a double bond isomerization catalyst prior to, with or in conjunction with, contact of the feed.

3,636,176 HYDROGENATED INDANE DERIVATIVES AND PROCESSES FOR PRODUCING SAME

John B. Hall, Oakhurst, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

No Drawing. Filed Aug. 18, 1969, Ser. No. 851,086
Int. Cl. C07c 13/46

U.S. Cl. 260—666 PY 6 Claims
A hydrogenated indane derivative having the formula:



wherein the dashed lines represent single or double bonds, no more than two of the dashed lines represent double bonds and, when two double bonds are present, such bonds being conjugated or unconjugated; perfume compositions containing such indanes; and processes for producing same.

3,636,177 PROCESS FOR PRODUCING DURENE

Takashi Suzuki and Hiroyuki Iesaka, Niigata, Japan, assignors to Japan Gas Chemical Company, Inc., Chiyoda-ku, Tokyo, Japan

No Drawing. Filed May 20, 1970, Ser. No. 39,145
Claims priority, application Japan, May 22, 1969, 44/39,121

Int. Cl. C07c 5/28

U.S. Cl. 260—668 A 7 Claims
Durene is produced in high yield by isomerizing other tetramethylbenzenes with a HF--BF_3 catalyst in the liquid phase in the presence of a diluent comprising benzene or methyl-substituted benzenes having 9 or less carbon atoms, whereby suppressing disproportionation and transmethylation of tetramethylbenzenes.

3,636,178 PROCESS FOR THE PRODUCTION OF NAPHTHALENE FROM HOMOLOGS OF INDENE, BY PYROLYTIC RING EXTENSION

Heinz-Gerhard Franck and Rudolf Oberkubusch, Dulsburg-Melderich, Johannes Turowski, Castrop-Rauxel, Gerd Collin, Dulsburg-Melderich, Maximilian Zander, Recep Kemalettin Erunlu, Gunter Storch, and Herbert Buffleb, Castrop-Rauxel, and Hans-Dieter Sauerland, Dulsburg, Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Nov. 4, 1969, Ser. No. 874,042
Claims priority, application Germany, Nov. 7, 1968, P 18 07 502.0-42
Int. Cl. C07c 5/26

U.S. Cl. 260—668 F 12 Claims
Naphthalene is produced by pyrolytic treatment of indene homologs by passing indene homologs, if desired in mixture with naphthalene and other hydrocarbons, at temperatures in the range of 550 to 800° C. through a pyrolysis zone, separating from the resulting pyrolysis products a condensable naphthalene-containing fraction by distillation and recovering naphthalene from said fraction in conventional manner by cooling, crystallization and centrifuging.

3,636,179 METHOD FOR PRODUCING ETHYLDIPHENYLS SUITABLE AS HEAT TRANSFER MEDIA

Hiroharu Inoue, Kitakyushu-shi, Kenichi Fujimoto, Fukuoka-ken, and Yasushi Suenaga, Kitakyushu-shi, Japan, assignors to Nippon Steel Chemical Co., Ltd., Tokyo, Japan

Filed Dec. 12, 1969, Ser. No. 884,583
Claims priority, application Japan, Dec. 21, 1968, 43/93,476, 43/93,477

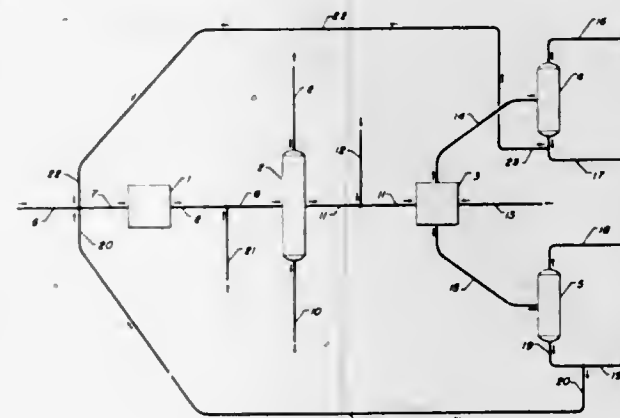
Int. Cl. C07c 15/14, 15/04 8 Claims
U.S. Cl. 260—668 R
Minimization of the formation of 2-ethyldiphenyl and 9-methylfluorene in the production of ethyldiphenyls is possible by carrying out the reaction between diphenyl and ethylbenzenes in the presence of a Friedel-Crafts catalyst with a molar ratio of ethylbenzenes to diphenyl of at least 1.5, at a temperature of 70–130° C. and keeping the conversion of diphenyl below 75% by weight.

3,636,180 COMBINATION ISOMERIZATION AND AROMATIC SEPARATION PROCESS

Donald B. Broughton, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 30, 1969, Ser. No. 889,116
Int. Cl. C07c 5/24, 7/12

U.S. Cl. 260—668 A 32 Claims



A combination process for the production and recovery of a particular aromatic hydrocarbon. The combina-

tion process comprises an isomerization zone which is operated in conjunction with a separation zone. The separation zone effects the selective adsorption of a particular aromatic compound passed to the separation zone thereby rendering two streams concentrated in certain aromatic components. One of the streams concentrated in the certain aromatics is recycled to an isomerization zone where additional production of feed components is effected allowing an eventual complete production of a particular product produced by the isomerization zone. Feed streams can be passed directly into the adsorption zone or into the isomerization zone depending on the feed composition.

3,636,181 DIFUNCTIONAL MONOMERS FROM VINYL SUBSTITUTED BENZYL CHLORIDES AND CHLOROMETHYL BUTADIENE AND POLYMERS PREPARED THEREFROM

Giffin D. Jones and Mary R. Thomas, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 28, 1969, Ser. No. 820,022

U.S. Cl. 260—669 6 Claims
Int. Cl. C07c 15/10

Difunctional monomers of the type 2-(vinylphenethyl)-1,3-butadiene are prepared by making the Grignard of the vinyl benzyl chloride compounds followed by inverse Grignard coupling with 2-chloromethyl 1,3-butadiene. The monomers are useful in making graft, branched or cross-linked polymers and copolymers.

3,636,182 PREPARATION OF STYRENES

George J. Kallos, Saginaw, and Che-I Kao, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 14, 1969, Ser. No. 877,002

U.S. Cl. 260—669 17 Claims
Int. Cl. C07c 15/10

The vapor phase reaction for producing styrenes from toluenes and methyl chloride is promoted by methyl bromide, methyl iodide, hydrogen bromide, hydrogen iodide, bromine, and iodine.

3,636,183 PROCESS FOR THE DEHYDROGENATION OF ORGANIC COMPOUNDS

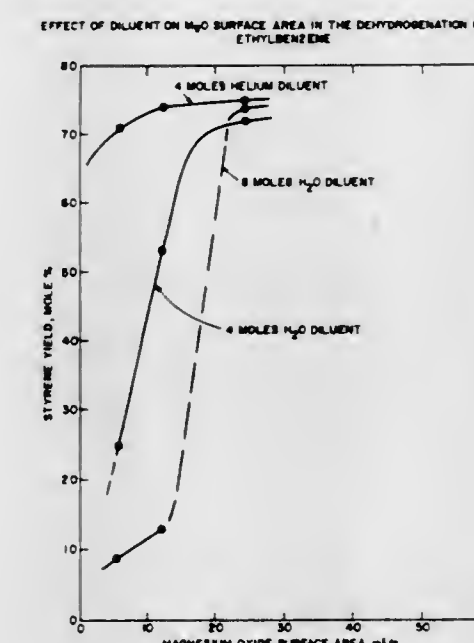
Israel S. Pasternak, Noel J. Gaspar, Abraham D. Cohen, and Mohan Vadekar, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company

Continuation-in-part of application Ser. No. 780,528, Dec. 2, 1968. This application Dec. 19, 1969, Ser. No. 886,582

U.S. Cl. 260—669 18 Claims
Int. Cl. C07c 5/20, 11/02, 15/10

Organic compounds having a dehydrogenatable carbon to carbon bond, e.g. ethylbenzene, are dehydrogenated in a vapor phase reaction by contact with a sulfur oxide in the presence of steam over a critically defined low surface area magnesium oxide catalyst. The temperature at which the reaction is conducted is generally in the range of from about 800 to about 1500° F. The molar ratio of the steam to the dehydrogenatable organic compound is at least about 1:1, preferably a molar ratio of about 10 moles of steam per mole of dehydrogenatable compound is employed. The amount of sulfur oxide employed in the reaction is in the range of from about 0.01 to 1.0 and more

preferably from about 0.2 to 0.7 mole of sulfur dioxide per mole of hydrogen extracted from the dehydrogenatable organic compound. For example, the dehydrogenatable compound is ethylbenzene, which is converted by the



above-described reaction to styrene, an important petrochemical intermediate for the production of synthetic rubber and of polystyrene plastics.

3,636,184 PROCESS FOR PRODUCTION OF 1,3-DIMETHYL-5-ISOPROPYLBENZENE

Gunter Strehle, Moers, and Gundolf Fuchs, Steinbeck-Meilsen, Germany, assignors to Deutsche Texaco Aktiengesellschaft

No Drawing. Filed Dec. 1, 1969, Ser. No. 881,269
Claims priority, application Germany, Dec. 5, 1968, P 18 12 781.6

U.S. Cl. 260—672 T 7 Claims
Int. Cl. C07c 3/50, 3/58

A multiple step reaction process produces a product composed primarily of high purity 1,3-dimethyl-5-isopropylbenzene with lower concentrations of dimethyldiisopropylbenzenes than obtained heretofore. In the process, a mixture of xylenes is combined with dimethyldiisopropylbenzene in the presence of aluminum chloride for over seven hours, then propylene is added to complete the reaction.

3,636,185 PROCESS OF MODIFYING THE SURFACE OF FIBROUS MATERIALS

James Nelson Ruddell, Portadown, and Herbert Alexander Conway Todd, Lisburn, Northern Ireland, assignors to Lambeg Industrial Research Association

No Drawing. Filed May 3, 1967, Ser. No. 637,317
Int. Cl. B28b 11/04; B29d 7/24

U.S. Cl. 264—131 3 Claims

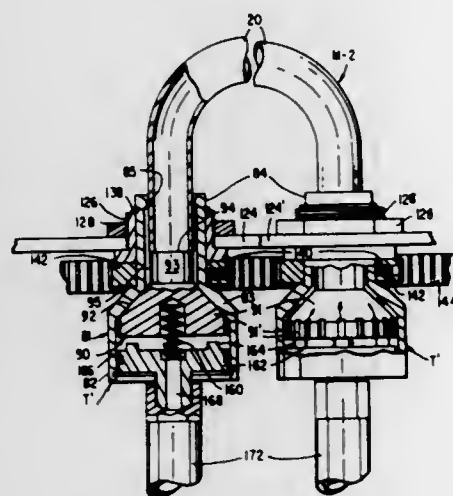
Plastic film is drawn in a single direction to orient its molecules, and thereafter fibrillated. Prior to drawing, or subsequent to drawing but prior to fibrillation, or after fibrillation has begun, one or both surfaces of the film are modified in a way such that the effect of the modification is present in the resulting fibrous material. Modification may be vacuum deposition of metal, embossing, embedding particles, printing, or flocking.

3,636,186

BONDING OF TUBE JOINTS

Richard A. Sturley, Kirkville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed May 19, 1969, Ser. No. 825,696
Int. Cl. B29c 17/10; B29f 1/10
U.S. Cl. 264—135

1 Claim



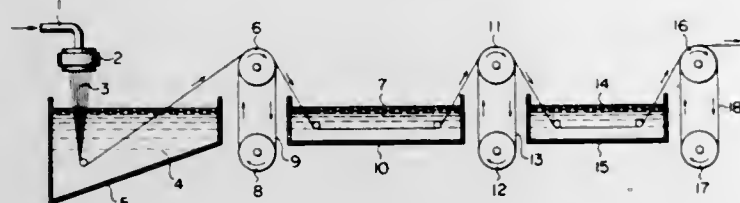
The present invention is directed to the bonding of tube joints exemplified by the securement of bell and spigot tube ends on plate fin or spiral fin coil units employed in refrigeration apparatus, the bonding process being characterized in part by accurate metering of a predetermined quantity of a thermosetting structural adhesive to particular locations on the mating tube joint members and productive of an extremely high strength bond therebetween resistive to deterioration after long exposure to normal environmental conditions.

3,636,187

PROCESS FOR THE MANUFACTURE OF ACRYLONITRILE SYNTHETIC FIBERS

Toshio Ohfuka, Hideo Sato, and Kazunori Sagara, Fuji, Shizuoka Prefecture, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Japan
Filed Nov. 4, 1968, Ser. No. 772,955
Claims priority, application Japan, Nov. 9, 1967, 42/71,692
Int. Cl. D01f 7/00
U.S. Cl. 264—182

5 Claims



This invention concerns a process for the manufacture of acrylonitrile synthetic fibers wherein an acrylonitrile polymer is dissolved in nitric acid for providing a spinning liquid which is extruded into a coagulation bath and coagulated filaments are then taken out from the coagulation bath and washed with fresh water and finally dried. In this process, said spinning liquid is passed through a gaseous medium space provided above the free liquid surface of said bath under conditions such that evaporation of the solvent nitric acid contained in the extruded

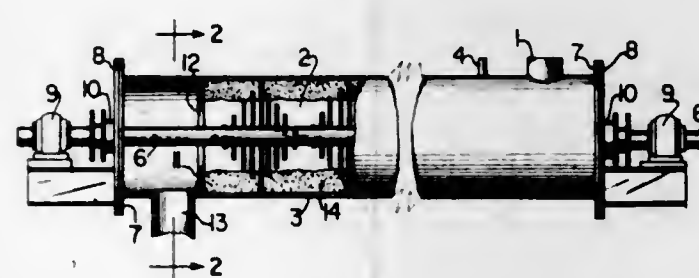
spinning liquid is suppressed and the degree of swelling of the produced filaments is maintained to less than 350 wt. percent and less than 300 wt. percent when measured upon the coagulation and water-washing operations for obtaining improved characteristics of the produced fibers.

3,636,188

PROCESS FOR WET PELLETIZING CARBON BLACK

Richard E. Driscoll, Monroe, La., assignor to Cities Service Company
Filed Nov. 26, 1969, Ser. No. 880,017
Int. Cl. B01j 2/12
U.S. Cl. 264—117

5 Claims



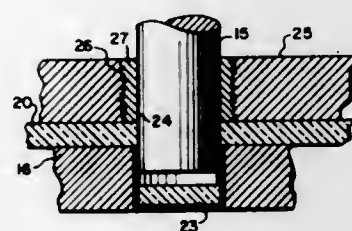
Wetted particles of carbon black are agitated in an elongated cylindrical conduit to form wet pellets of the particles. Agitation is accomplished by means of revolving agitation members which also move the particles toward a discharge outlet through which wet pellets are removed from the zone of agitation. The amount of work expended in agitating and axially advancing the particles within the conduit is increased by (1) revolving the agitating members fast enough to sling the particles out toward the conduit wall and thus shape the particles into an annular bed by centrifugal force, and (2) compressing the axially advancing bed, by revolution of the members, against a dam which extends around the periphery of the pelletizing zone and projects inwardly toward the center of the zone.

3,636,189

METHOD FOR PRODUCING A PUNCH PRESS GUIDE

Helmuth Wurm, Mariaballstr. 15, Sprendlingen, Hesse, Germany, and Kurt Wurm, 42 Herrarotherstr., 6079 Sprendlingen, Hesse, Germany
Filed Apr. 25, 1969, Ser. No. 819,388
Claims priority, application Germany, Apr. 26, 1968, P 17 78 405.3
Int. Cl. B29c 1/02
U.S. Cl. 264—219

5 Claims



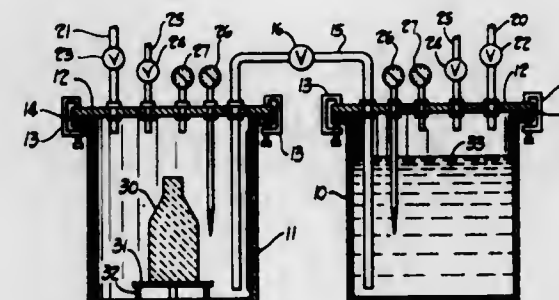
An accurately centered guide for a punch is produced by placing a pliable transparent sheet over the die, moving the punch through an oversized guide bore into contact with the sheet, accurately centering the punch in the bore with the aid of pressure marks stamped into the surfaces

3,636,190

METHODS OF REMOVING PATTERNS FROM INVESTMENT MOLDS

Robert A. Horton, Chesterland, Ohio, assignor to Precision Metal Smiths, Inc.
Filed Sept. 25, 1967, Ser. No. 670,050
Int. Cl. B22c 9/04; B29c 1/02
U.S. Cl. 264—221

12 Claims



A method of removing patterns from an investment mold including the steps of subjecting the mold to a heated medium at a temperature sufficient to melt or soften the pattern material and to an external pressure sufficient to resist the cracking forces produced by the pattern material as it is heated.

3,636,191

VACCINE AGAINST VIRAL HEPATITIS AND PROCESS

Baruch S. Blumberg, Glenside, and Irving Millman, Willow Grove, Pa., assignors to The Institute for Cancer Research, Philadelphia, Pa.
Filed Oct. 8, 1969, Ser. No. 864,788
Int. Cl. A61k 27/00
U.S. Cl. 424—89

9 Claims

A vaccine against viral hepatitis is derived from blood containing Australia antigen, having particles resembling viruses which are substantially free from nucleic acid, of a size range of 180 to 210 A., substantially free from infectious particles. The vaccine where required is attenuated or altered. The preferred procedure for removing impurities including infectious components involves centrifugation, enzyme digestion, column gel filtration, differential density centrifugation in a solution of sucrose, dialysis, differential density centrifugation in a solution of cesium chloride, and dialysis.

3,636,192

MENINGOCOCCAL POLYSACCHARIDE VACCINES

Emil C. Gotschlich, Hastings-on-Hudson, N.Y., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Jan. 13, 1970, Ser. No. 2,661
Int. Cl. A61k 27/00
U.S. Cl. 424—89

7 Claims

This disclosure describes a process for preparing and isolating antigenic group-specific polysaccharides of serologic group A and group C meningococci used as vaccines. The process employs a cationic substance, such as hexadecyl trimethylammonium bromide, to precipitate the polysaccharide from the whole culture. The antigenic polysaccharides isolated by this process are of high molecular weight (molecular weight 60,000–5,000,000). The main constituent of the antigenic group A polysaccharide

3,636,193

METHOD OF IMPROVING THE CONCEPTION RATE IN COWS

Jack F. Wagner and Edward L. Veenhuizen, Greenfield, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 750,489, Aug. 6, 1968, which is a continuation-in-part of application Ser. No. 541,086, Apr. 8, 1966, both now abandoned. This application Mar. 7, 1969, Ser. No. 805,344
Int. Cl. A61k 17/06
U.S. Cl. 424—100

5 Claims

The pregnancy rate in cows is improved by the administration of a gonadotropin within 72 hours after the onset of estrus, each cow being bred shortly after onset of estrus.

3,636,194

COMPOSITION AND METHOD FOR TREATING MASTITIS WITH THERAPEUTIC AGENTS

Douglas G. Parizeau, 842 Cedar Terrace, Westfield, N.J. 07090
No Drawing. Continuation-in-part of application Ser. No. 580,862, Sept. 21, 1966. This application Oct. 23, 1969, Ser. No. 868,907
Int. Cl. A61k 21/00
U.S. Cl. 424—115

16 Claims

Preparations and methods for treating animal mastitis as by intramammary infusion involve a composition comprising therapeutic agent material in an oil base containing lecithin-type material that consists essentially of alcohol-soluble phospholipid or phospholipids, whereby distribution of the composition in the affected region is promoted, with further improved results, e.g. in avoiding adverse effects on the therapeutic agent material and in affording short milk-out times.

3,636,195

GROWTH STIMULATING ANIMAL FEEDS

William Joye Monson, Elgin, Ill., assignor to Borden, Inc., New York, N.Y.
No Drawing. Filed Sept. 10, 1968, Ser. No. 758,706
Int. Cl. A61k 27/00
U.S. Cl. 424—115

10 Claims

This invention relates to animal feeds containing nutritionally balanced basal feeds and a growth promoting composition consisting essentially of a feed supplement selected from the group consisting of fermentation products, distillers' products and mixtures thereof, and a taurine compound being present in amount sufficient to promote growth at a rate greater than said feed supplement alone, greater than said taurine compound above, and greater than the additive effects thereof.

3,636,196

ETHYLETHYLENIMINE AS AN INACTIVATION AGENT

Kurt Bauer, Gunther Wittman, and Manfred Musagay, Tubingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 8, 1970, Ser. No. 35,932
Claims priority, application Germany, May 13, 1969, P 19 34 303.9
Int. Cl. A61k 27/00
U.S. Cl. 424—89

12 Claims

Ethylethylenimine is used as an inactivation agent in the production of inactivated antigens such as virus vaccines for pharmaceutical preparations.

3,636,197

JOSAMYCIN AND PRODUCTION THEREOF

Hamao Umezawa and Takashi Osono, Tokyo, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

Continuation of application Ser. No. 462,307, June 8, 1965. This application Dec. 8, 1966, Ser. No. 600,274

Claims priority, application Japan, June 9, 1964, 39/32,400

Int. Cl. A61k 21/00

U.S. Cl. 424—121

14 Claims

Josamycin, a new antibiotic substance, is produced by culturing a strain of *Streptomyces narbonensis* var. *josamyceticus*. Josamycin is useful in the treatment of infections in animals, because it is effective in inhibiting the growth of Gram-positive bacteria.

3,636,198

VENTURICIDIN B AND X AND PROCESS FOR THEIR MANUFACTURE

Hans Zaehner, Tübingen, Germany, and Walter Keller, Dübendorf-Zürich, Switzerland, assignors to Ciba Corporation, New York, N.Y.

Filed June 25, 1968, Ser. No. 739,713

Claims priority, application Switzerland, June 30, 1967, 9,324/67; Dec. 20, 1967, 17,886/67

Int. Cl. A61k 27/00

U.S. Cl. 424—122

9 Claims

Ventricidin B and/or X useful especially as antifungal agents and process for their manufacture.

3,636,199

SYNTHETIC BOARD INLAID WITH MOISTURE-CURE URETHANE AND METHOD THEREFOR

Theodore E. Jenks, Hopewell, Va., and Edward R. Bittner, Carteret, N.J., assignors to Allied Chemical Corporation, New York, N.Y., and Essex Chemical Corporation, Clifton, N.J., fractional part interest to each

No Drawing. Filed Feb. 4, 1969, Ser. No. 796,576

Int. Cl. B29c 19/20; B29j 5/60; B32b 27/40

U.S. Cl. 264—134

8 Claims

Production of synthetic boards inlaid with moisture-cure urethane compositions by compressing cellulosic material and resin binder containing moisture at a temperature within the range of 60–100° F. to form a synthetic board substrate. A moisture-cure urethane coating composition having free-isocyanate groups is applied to the synthetic board substrate which is then compressed at a temperature above 200° F. for at least 1 minute.

3,636,200

PHARMACEUTICAL SUSPENSION

Margaret Rose Zentner, Montclair, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed June 9, 1969, Ser. No. 831,721

Int. Cl. A61k 27/06

U.S. Cl. 424—154

9 Claims

Palatable, stable, thixotropic pharmaceutical suspensions with desirable viscosity, suspendability, and reversible gel-sol-gel forming flow properties consisting of an active ingredient comprising in combination (a) a reaction product of a therapeutically active drug substance which is otherwise bitter tasting because it is weakly basic and which contains a secondary or tertiary nitrogen in combination with a complex magnesium aluminum silicate

and (b) a product consisting essentially of microcrystalline cellulose containing from about 8 to about 12% by weight sodium carboxymethylcellulose, are disclosed.

3,636,201

ACCELERATING THE LYSIS OF BLOOD CLOTS WITH UROKINASE AND N-GLYCYPYRROLIDINE OR SALT THEREOF

Robert Phillip Johnson, Jacksonville, Fla., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 771,370, Oct. 28, 1968. This application June 19, 1970, Ser. No. 47,909

Int. Cl. A61k 19/00, 27/00

U.S. Cl. 424—94

5 Claims

N-Glycylpyrrolidine and its salts have been found to potentiate blood clot lysis induced by urokinase when a combination of urokinase and this substituted pyrrolidine is brought in contact with clots of blood from vertebrate animals.

3,636,202

TREATMENT OF RHEUMATOID ARTHRITIS AND RELATED DISEASES

Lewis A. Klein, Silver Spring, Md.
(2901 16th St. NW., Washington, D.C. 20009)

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,565

Int. Cl. A61k 27/00

U.S. Cl. 424—183

10 Claims

There are provided compositions and methods for the treatment of rheumatoid arthritis and related diseases. A first composition contains Histamine, Serotonin and Heparin which is effectively administered with a second composition of oxytetracycline, lincomycin and nicotinic acid. The two compositions are periodically administered according to a regimen of increasing dosages of the first mentioned composition. Thereafter, the first mentioned composition is discontinued and the second mentioned composition is administered on a sustaining basis.

3,636,203

POULTRY FEED ADDITIVE FOR TREATING FATTY LIVER

Tibor L. Kopjas, Collinsville, Ill., assignor to Ilona Kopjas, executrix of the estate of Tibor L. Kopjas, deceased

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,911

Int. Cl. A61k 27/00

U.S. Cl. 424—195

2 Claims

An additive for conventional poultry feed comprising no less than one percent (1%) by weight of said feed of granulated dehydrated garlic, with the latter being intermixed with the mash to regenerate fatty liver caused by a diet high in cholesterol.

3,636,204

BICYCLOALKYL PHOSPHATE INSECTICIDES

Peter E. Newallis, Leawood, Kans., and Zafarullah K. Cheema, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 24, 1969, Ser. No. 819,536

Int. Cl. A01n 9/36

U.S. Cl. 424—211

14 Claims

S-(N-bicycloalkylcarboxamido) esters of phosphoro (di)thioic acid, phosphono(di)thioic acid, and phosphino

3,636,208

METHOD FOR TREATING MALARIA

Yuichi Yamamura and Tetsuo Yoshinaga, Osaka, and Kiyoshi Tsumoda, Yoshiatsu Tsutsumi, and Kazuhiko Hoji, Tokyo, Japan, assignors to Daiichi Selyaku Company Limited, Tokyo, Japan

No Drawing. Filed Jan. 2, 1970, Ser. No. 378

Claims priority, application Japan, Oct. 28, 1969, 44/85,707

Int. Cl. A61k 27/00

U.S. Cl. 424—229

3 Claims

6-sulfanilamido-4-methoxypyrimidine (sulfamonomethoxine) is clinically useful for treating malaria, and was found to be effective against both the erythrocytic form (blood form) and the exoerythrocytic form (tissue form) of malaria parasites.

3,636,209

COCCIDIOSIS TREATMENT

Leonard M. Weinstock, Rocky Hill, Roger J. Tull, Metuchen, and Peter I. Poliak, Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Application Aug. 1, 1966, Ser. No. 569,014, now Patent No. 3,467,653, dated Sept. 16, 1969, which is a continuation-in-part of application Ser. No. 496,700, Oct. 15, 1965. Divided and this application Apr. 11, 1969, Ser. No. 835,840

Int. Cl. A61k 27/00

U.S. Cl. 424—229

16 Claims

Anticoccidial 3-alkenyloxy (alkynyloxy or alkoxy)-4-sulfanilamido-1,2,5-thiodiazoles, or the N⁴-acyl derivatives thereof, are prepared by treating a 3-chloro-4-alkenyloxy (alkynyloxy or alkoxy)-1,2,5-thiodiazole with sulfanilamide or an N⁴-acylsulfanilamide in the presence of an alkali metal base to produce an alkali metal salt of the sulfathiadiazole which is converted to the free base by acidification of the reaction mixture. It is contemplated that compositions containing such sulfathiodiazoles as the essential active ingredient will be administered orally in treatment and control of coccidiosis in poultry.

3,636,210

CHOLANIC ACID AND CHOLENIC ACID COMPOSITIONS AND METHOD OF TREATMENT

Eugene E. Howe, Somerset, and Jesse W. Huff, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Feb. 2, 1968, Ser. No. 702,510

Int. Cl. A61k 27/00

U.S. Cl. 424—238

18 Claims

Pharmaceutical compositions containing (1) a cholanolic acid, (2) a nuclear unsaturated cholenic acid or (3) a nuclear hydroxy substituted cholanolic acid as the active ingredient. The compositions reduce plasma cholesterol and triglyceride levels in blood serum and, therefore, are useful in the treatment of conditions associated with atherosclerosis.

3,636,211

METHOD FOR FINISHING SWINE FOR MARKET

Charles E. Jordan, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of application Ser. No. 480,131, Aug. 16, 1965. This application June 2, 1969, Ser. No. 829,782

Int. Cl. A61k 17/06

U.S. Cl. 424—240

4 Claims

Hogs are finished by the simultaneous oral administration of an estrogen and an androgen with improved feed efficiency and carcass quality.

(di)thioic acid are prepared by condensing a salt of the acid with chlorinated N-bicycloalkylcarboxamide. The compounds are useful as insecticides.

3,636,205

INSECTICIDAL PARA-THIOCARBAMOYL-PHENYL PHOSPHOROTHIOATES

Bernard Miller, Amherst, and Howard Margulies, Stoneham, Mass., assignors to American Cyanamid Company, Stamford, Conn.

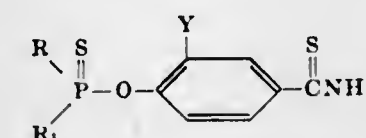
No Drawing. Continuation-in-part of application Ser. No. 524,496, Feb. 2, 1966, now Patent No. 3,480,697. This application Nov. 18, 1969, Ser. No. 877,864

Int. Cl. A01n 9/36

U.S. Cl. 424—211

10 Claims

A process for controlling insect pests which comprises treating an area infested with the same with an effective amount of a compound represented by the formula:



wherein R represents alkoxy having from 2–3 carbon atoms; R₁ represents a lower alkoxy from 1 to 3 carbon atoms, phenyl, chloro- or bromo-substituted (lower)-alkoxy of from 1 to 3 carbon atoms or di(lower alkyl)-amino; and Y is hydrogen, chloro or bromo.

3,636,206

CERTAIN THIOLOPHOSPHONAMIDES AS INSECTICIDES AND ACARICIDES

Edmund J. Ganghan, Kensington, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

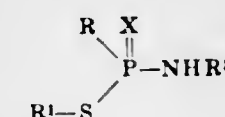
No Drawing. Filed Aug. 16, 1968, Ser. No. 753,050

Int. Cl. A01n 9/36

U.S. Cl. 424—219

20 Claims

Compounds of the formula



in which R is an alkyl group and R¹ is an alkyl, alkenyl or alkynyl group, X is oxygen or sulfur, and R³ is hydrogen alkyl or alkenyl as insecticides and acaricides.

3,636,207

CASTOR OIL STABILIZED DIMETHYL DICHLOROVINYL PHOSPHATE INSECTICIDAL VAPOR-EMITTING SOLUTIONS

René J. Bouvet, Boulogne, and Jean Georges Daenleux, Saint-Denis, France, assignors to Societe Anonyme Dite: L'Oreal

No Drawing. Filed Dec. 16, 1969, Ser. No. 885,638

Claims priority, application France, Dec. 20, 1968, 179,697

Int. Cl. A61k 27/12

U.S. Cl. 424—219

2 Claims

A stable and long lasting active insecticidal vapor emitting liquid solution product, which retains insecticidal power for at least three months, is a miscible mixture of dimethyl dichlorovinyl phosphate and 1–99 weight percent castor oil based on the weight of the mixture.

3,636,212
METHOD FOR CONTROLLING RODENTS
WITH CERTAIN BIS-AZIRIDINE ACETYL
CHEMOSTERILANTS

Wilfred A. Skinner, Portola Valley, and Homer H. C. Tong, San Jose, Calif., assignors to Stanford Research Institute, Menlo Park, Calif.
 No Drawing. Filed May 1, 1969, Ser. No. 821,121
 Int. Cl. A01n 9/22

U.S. Cl. 424-244 1 Claim
 Management or control of mammals, e.g. live pests of the type of rodents, such as rats or mice, is accomplished by placing, in an area in which these rodents are to be managed, an effective amount of a certain bis-aziridine acetyl derivative or derivatives of a class defined below.

3,636,213
SOLUBILIZATION OF HEAVY METAL SALTS OF
1-HYDROXY-2-PYRIDINETHIONE

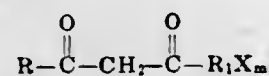
Terry Gerstein, Brooklyn, and William Perlberg, Bellmore, N.Y., and Milton Schwarz, Westport, Conn., assignors to Revlon, Inc., New York, N.Y.
 No Drawing. Filed Feb. 19, 1968, Ser. No. 706,604
 Claims priority, application Great Britain, Feb. 20, 1967, 8,055/67

U.S. Cl. 424-245 6 Claims
 Method for solubilizing heavy metal salts of 1-hydroxy-2-pyridinethione by admixture with an amine. Solutions of such salts in amines.

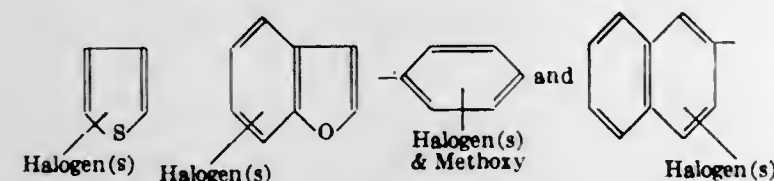
3,636,214
CERTAIN SUBSTITUTED 1,3 DIKETONES AS
SOIL FUNGICIDES

Elton L. Clark, Brookeville, Md., assignor to W. R. Grace & Co.
 No Drawing. Continuation-in-part of application Ser. No. 754,971, Aug. 23, 1968. This application July 3, 1969, Ser. No. 846,625
 Int. Cl. A01n 9/12

U.S. Cl. 424-245 1 Claim
 A soil fungicide and a method for protecting seeds and seedlings from attack by pathogenic organisms which inhabit soil is disclosed which comprises applying an effective amount of selective, substituted 1,3 diketones having the general formula



wherein R represents the following groups



and R₁ represents an alkylene radical containing from 1 to 3 carbon atoms, X is selected from the group consisting of chlorine, bromine, fluorine and iodine, and m is an integer from 1 through 7. The diketone can be applied as such or as the metal chelate.

3,636,215
DERIVATIVES OF MALEOPIMARIC ACID,
USEFUL AS NEMATOCIDES

Walter H. Schuller and Jacob C. Minor, Lake City, Seymour S. Block, Gainesville, and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture
 No Drawing. Filed Nov. 21, 1969, Ser. No. 878,921
 Int. Cl. A01n 9/00, 9/38

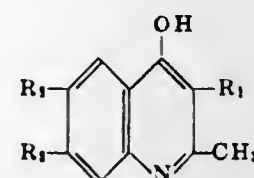
U.S. Cl. 424-245 10 Claims
 This invention relates to the use of dialkylaminoalkyl imides of maleopimaric acid as nematocides. It also relates

to the analogs, such as salts of the carboxyl group as well as to the quaternary ammonium salts of the dialkylaminoalkyl group as effective nematocides.

3,636,216
COCCIDIOSIS CONTROL WITH QUINALINOL
DERIVATIVES

Robert R. Baron, Edward W. Berndt, Harold E. Van Essen, and Edwin L. Brunsting, Charles City, Iowa, assignors to Salsbury Laboratories
 No Drawing. Filed Sept. 26, 1968, Ser. No. 763,018
 Int. Cl. A61k 27/00

U.S. Cl. 424-258 5 Claims
 Veterinary compositions for the prevention and control of poultry coccidiosis which comprises a solid or liquid ingestible carrier and dispersed therein compounds of the general configuration:



wherein R₁ is H or alkyl groups with 1 to 12 carbon atoms and R₂ and R₃ are H, OH, or alkoxy substituents with 1 to 12 carbon atoms and physiologically acceptable salts of such compounds. The compounds 3-n-heptyl-7-methoxy-2-methyl-4-quinolinol is described as an example.

3,636,217
MILDEWCIDAL COMPOSITION AND
METHOD OF USE

Donald R. Arnold, Lincolnale, N.Y., and Anthony A. Sousa, Raleigh, N.C., assignors to Union Carbide Corporation, New York, N.Y.
 No Drawing. Application Mar. 23, 1966, Ser. No. 536,662, now Patent No. 3,478,043, dated Nov. 11, 1969, which is a continuation-in-part of application Ser. No. 324,183, Nov. 18, 1963. This application June 25, 1969, Ser. No. 836,638
 Int. Cl. A01n 9/00, 9/22

U.S. Cl. 424-263 6 Claims
 Novel compositions containing oxetanes, such as the 3-oxatricyclo[4.2.1.0]nonanes, as the active ingredient, are useful for controlling mildew.

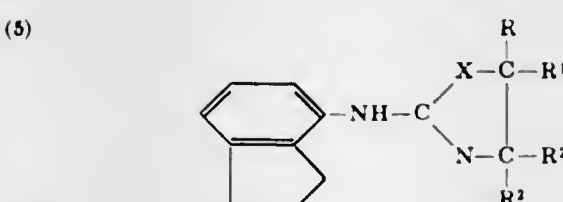
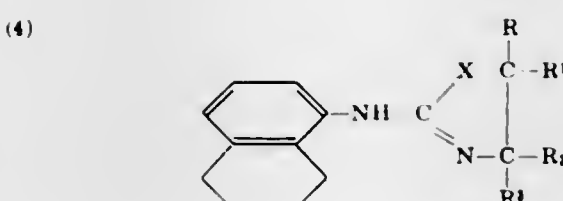
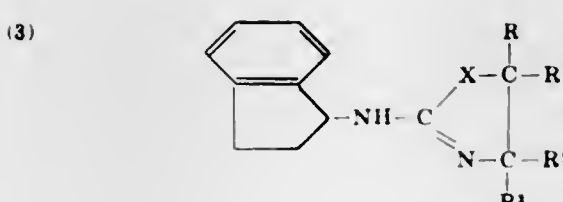
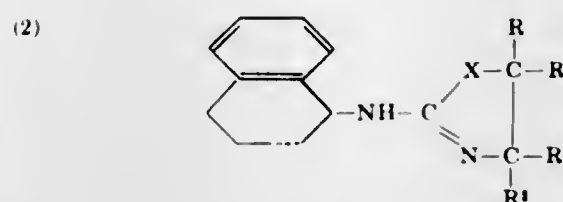
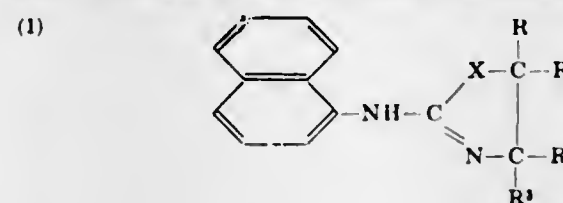
3,636,218
PHARMACEUTICAL COMPOSITIONS AND METH-
ODS CONTAINING 1,2,3,4-TETRAHYDROBENZO-
THIENO[2,3-c]PYRIDINES

John T. Suh, Mequon, Wis., assignor to Colgate-Palmolive Company, New York, N.Y.
 No Drawing. Continuation-in-part of applications Ser. No. 705,909, Feb. 16, 1968, now Patent No. 3,520,895, and Ser. No. 809,003, Mar. 20, 1969, now Patent No. 3,518,278, which is a continuation-in-part of application Ser. No. 621,475, Mar. 8, 1967. This application Oct. 22, 1969, Ser. No. 868,573
 Int. Cl. A61k 27/00

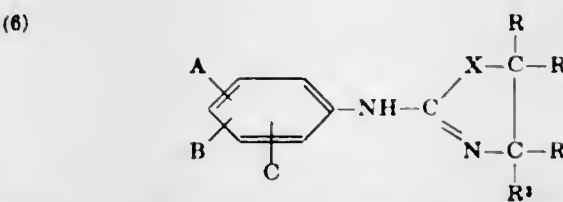
U.S. Cl. 424-263 7 Claims
 The compositions contain in combination a pharmaceutical diluent and a 1,2,3,4-tetrahydrobenzothieno[2,3-c]pyridine and are useful as central nervous system depressants and tranquilizing agents. A composition disclosed contains 6-chloro-1,2,3,4-tetrahydrobenzothieno[2,3-c]pyridine in combination with a pharmaceutical diluent.

3,636,219
ANTICHOLINERGIC COMPOSITIONS CONTAIN-
ING CERTAIN THIAZOLINES OR IMIDAZOLINES
 Rudolf Culik, Kennett Square, Pa., and Jurg A. Schneider, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 No Drawing. Filed Mar. 2, 1964, Ser. No. 348,884
 Int. Cl. A61k 27/00

U.S. Cl. 424-265 48 Claims
 25. A composition comprising from 0.5 to 30 parts by weight of a centrally acting anticholinergic agent and 1 part by weight of a compound of the formula



and



where in each of the Formulas 1 through 6 X is selected from the group consisting of sulfur and nitrogen; R, R¹, R² and R³ are each separately selected from the group consisting of hydrogen and alkyl of 1 through 4 carbons with the total number of carbons in these four substituents being a maximum of 8; where in each of Formulas 1 through 5, 1 through 3 hydrogen atoms in the moiety selected from the group consisting of naphthyl, partially reduced naphthyl and indanyl can be replaced with a member selected from the group consisting of halogen, alkyl of 1 through 4 carbons, alkoxy of 1 through 4 carbons, alkylthio of 1 through 4 carbons, trifluoromethyl and trifluoromethoxy; and where in Formula (6) A is selected from the group consisting of hydrogen, alkyl of 1 through 4 carbons, alkoxy of 1 through 4 carbons and halogen; B is selected from the group consisting of alkyl of 1 through 4 carbons, alkoxy of 1 through 4 carbons and halogen; and C is selected from the group consisting of hydrogen, alkyl of 1 through 4 carbons, alkoxy of 1 through 4 carbons, halogen, alkylthio of 1 through 4 carbons, al-

koxyalkyl wherein the alkoxy portion has 1 through 2 carbons and the alkyl portion has 1 through 2 carbons, alkylamino of 1 through 2 carbons, dialkylamino where each alkyl group has 1 through 2 carbons, trifluoromethyl and trifluoromethoxy.

3,636,220
1 - (SUBSTITUTED)-PHENYL - 5 - AMINOTETRA-
ZOLES FOR THE TREATMENT OF INFLAMMA-
TION AND COMPOSITIONS THEREFOR

Takashi Enokji, Park Forest, and Charles D. Bossinger, Olympia Fields, Ill., assignors to Armour Pharmaceutical Company, Chicago, Ill.
 No Drawing. Continuation of application Ser. No. 585,251, Oct. 10, 1966. This application July 24, 1969, Ser. No. 844,640
 Int. Cl. A61k 27/00

U.S. Cl. 424-269 7 Claims
 Therapeutic treatment of the animal organism with 1-(substituted)-phenyl-5-aminotetrazoles, particularly treatment methods and compositions containing 1-(substituted)-phenyl-5-aminotetrazoles employed to provide relief from inflammatory conditions and muscle tension.

3,636,221
LOCAL ANESTHETICS COMPRISING α-PHENYL-
α-ALKYLSUCCINIMIDES

Rune Verner Sandberg, Jarna, Sweden, assignor to Aktiebolaget Astra, Sodertalje, Sweden
 No Drawing. Filed Nov. 8, 1968, Ser. No. 774,482
 Claims priority, application Sweden, Nov. 29, 1967, 16,406/67
 Int. Cl. A61k 27/00

U.S. Cl. 424-274 19 Claims
 New α-phenyl-α-alkylsuccinimides substituted at the nitrogen atom with an alkylaminoalkyl group are disclosed which are effective as local anesthetics.

3,636,222
AGENTS INHIBITING FUNGUS GROWTH AND
METHOD OF CONTROLLING THEREWITH

Jorg Bader, Arlesheim, and Karl Gatzl, Basel, Switzerland, assignors to Gelgy Chemical Corporation, Ardsley, N.Y.
 No Drawing. Original application Feb. 19, 1968, Ser. No. 706,614, now Patent No. 3,527,867. Divided and this application Apr. 13, 1970, Ser. No. 32,474
 Int. Cl. A61k 13/00

U.S. Cl. 424-267 5 Claims
 Agents for inhibiting the growth of fungi, which contain as active component 5-amino-1,2-dithiol-3-ones substituted at the amino group and also in 4-position, and method of controlling phytopathogenic and other noxious fungi with such agents, which are of surprisingly low phytotoxicity.

3,636,223
THERAPEUTIC TREATMENT OF PARKINSON'S
DISEASE

Pier Nicola Giraldo, Milan, and Vittorio Marloti, Pesaro, Italy, assignors to Carlo Erba S.p.A., Milan, Italy
 No Drawing. Continuation-in-part of application Ser. No. 769,441, Oct. 21, 1968. This application Mar. 13, 1969, Ser. No. 840,070
 Claims priority, application Italy, Sept. 23, 1966, 21,973/66; Dec. 31, 1966, 31,818/66 (Filed under Rule 47(a) and 35 U.S.C. 116)
 The portion of the term of the patent subsequent to Nov. 30, 1988, has been disclaimed
 Int. Cl. A61k 27/00

U.S. Cl. 424-267 4 Claims
 1-oxo-2-methyl - 3-(aminophenyl-p-ethoxypiperidino)-isoindoline and the process of making the same, is disclosed. This compound has anti-parkinson activity and is therapeutically useful.

3,636,224

METHODS OF INDUCING HYPNOSIS

Sidney Robert Safir, River Edge, N.J., and Eugene Newton Greenblatt, Spring Valley, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Nov. 20, 1970, Ser. No. 91,593
Int. Cl. A61k 27/00

U.S. Cl. 424-270

4 Claims

Compositions containing 5 - acetylmino - N-ethyl - 4-methyl - Δ^2 - 1,3,4 - thiadiazoline - 2 - sulfonamide and their method of use is described. The compositions are useful for their ability to produce hypnosis when given orally to warm-blooded animals.

3,636,225

METHOD OF IMPROVING MICROCIRCULATION

Eric T. Fossel, Cambridge, Mass., assignor to Unimed, Inc., Morriston, N.J.
No Drawing. Filed May 1, 1969, Ser. No. 821,111
Int. Cl. A61k 27/00

U.S. Cl. 424-273

8 Claims

This invention relates to the improving microcirculation and the treatment of conditions which result in impaired microcirculation, according to which invention 4(5)-[2-amino-3-bromo (or chloro) propyl]imidazole or 3-(4-(5)-imidazole) propylene imine (1,2) is administered in order to achieve these results.

3,636,226

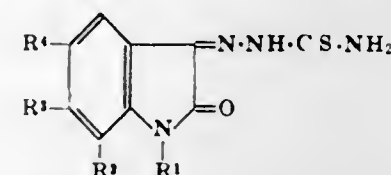
TREATMENT OF ADENOVIRUS INFECTIONS

Denis J. Bauer, London, England, assignor to Burroughs Wellcome Co.
No Drawing. Filed Sept. 11, 1967, Ser. No. 666,976
Int. Cl. A61k 27/00

U.S. Cl. 424-274

4 Claims

A method of both treating and preventing adenovirus infections in mammals, which comprises administering to a mammal a therapeutically effective amount of a compound (I)



(I)

wherein R^1 is selected from the class consisting of hydrogen, acetyl, alkyl, alkenyl and alkynyl, having not more than 5 carbon atoms, which may carry substituents elected from the class consisting of halogen and hydroxy which may be esterified with a lower aliphatic carboxylic acid radical having a total of not more than 5 carbon atoms; R^2 is selected from the class consisting of hydrogen, halogen and lower alkyl; and R^3 and R^4 are selected from the class consisting of hydrogen and halogen, at least two of R^2 , R^3 and R^4 being hydrogen.

ELECTRICAL

3,636,227

CONTROL SYSTEMS

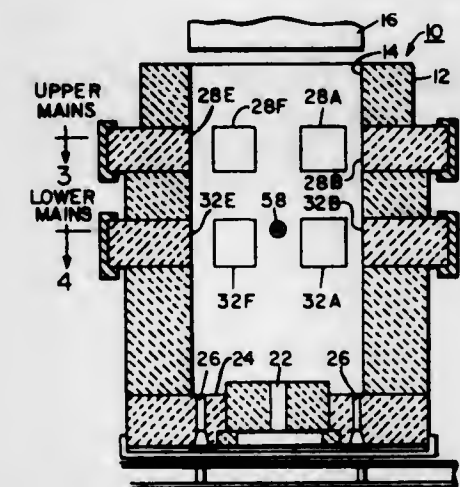
Gerald J. McQuaid, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Oct. 22, 1970, Ser. No. 82,997

Int. Cl. F27d 11/04; H05b 3/00

U.S. Cl. 13-6

10 Claims



Systems for controlling an electric melting furnace containing a bath of molten material acting as a resistance to electric currents passing therethrough; with the systems including first and second control loops for controlling both the level and distribution of energy supplied to first and second position of the bath; a third control loop for controlling the temperature of the bath; and if desired, a further control loop for controlling the energy ratio between the first and second control loops.

3,636,228

APPARATUS FOR MONITORING ARC ROTATION ON AN ELECTRODE

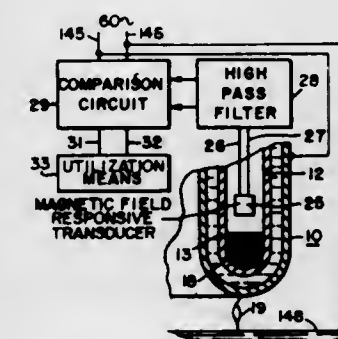
George Comenetz, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 564,341, July 11, 1966, now abandoned. This application Sept. 4, 1970, Ser. No. 69,669

Int. Cl. H05f 7/18; F27d 11/10

U.S. Cl. 13-12

24 Claims



A transducer, which may be responsive to vibration, sound, light, stress, or a magnetic field, is mounted on or in the electrode, and produces a signal which increases in intensity when the arc, or current filaments in the electrode supplying the arc, pass near the transducer. Where alternating current supplies the arc, comparison circuit means compares the transducer output signal in time with the 60 cycle or other frequency alternating current supplying the arc, and if a transducer signal is not produced once per alternation, or once per cycle, the comparison circuit supplies an output signal to utilization means which may shut off the arc cur-

rent, give an alarm, increase the strength of the magnetic field exerting a force on the arc to cause it to rotate, or be used for other purposes. Where direct current produces the arc, the comparison circuit means produces a time duration reference signal. In some embodiments, the transducers are sealed in a moisture proof manner and mounted within a fluid passageway within the electrode; fluid passageways are provided to conduct heat flux from the arcing surface or electrode tip. In another embodiment, three transducers circumferentially spaced 120° from each other provide three signals to a comparison circuit; as long as the three signals, or if desired, two of the three signals occur with reasonable symmetry with respect to time, the arc is deemed to be rotating normally; when the symmetry is no longer present, the comparison circuit supplies an output to utilization means.

3,636,229

ELECTRICALLY RESISTIVE CRUCIBLE

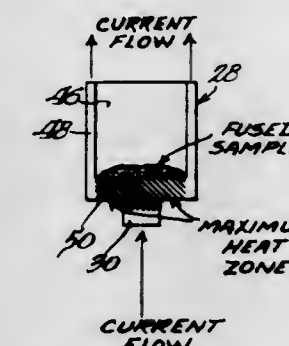
George J. Sitek, Stevensville, and Robert N. Revesz, Berrien, both of Mich., assignors to Laboratory Equipment Corporation, St. Joseph, Mich.

Filed Oct. 26, 1970, Ser. No. 83,786

Int. Cl. F27d 11/02; H05b 3/10

U.S. Cl. 13-25

2 Claims



An electrically resistive carbon crucible for an impulse or resistance furnace designed to have improved heating characteristics.

3,636,230

DIDACTIC APPARATUS

Charles Arthur Tacey, London, England, assignor to Philograph Publications Limited, London, England

Filed July 8, 1970, Ser. No. 53,100

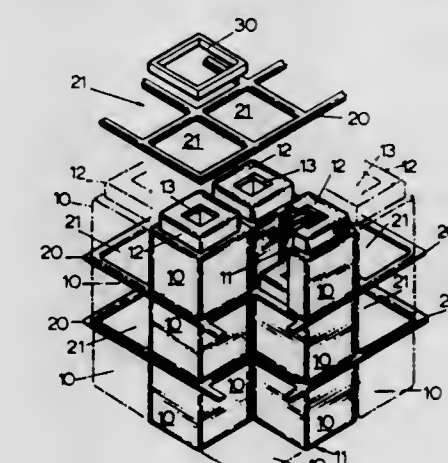
Claims priority, application Great Britain, July 10, 1969,

34,815/69

Int. Cl. G09b 19/02; A63h 33/12

U.S. Cl. 35-34

4 Claims



This invention is concerned with didactic structural apparatus and comprises a plurality of uniformly shaped and

dimensioned cuboidal units and connecting means therefore whereby said units can be assembled to provide stable examples of areas and three-dimensional solids which can be used in the teaching of arithmetic and geometry.

3,636,231

DC KEYED SYNTHESIS ORGAN EMPLOYING AN INTEGRATED CIRCUIT

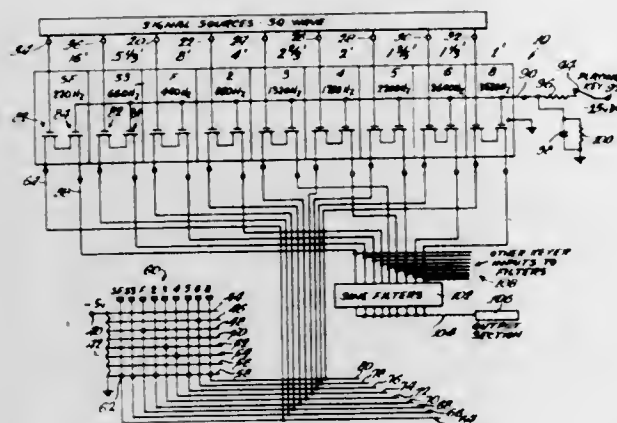
Ray B. Schrecongost, Park Ridge, Ill., and David Millet, Cambridge, Mass., assignors to Hammond Corporation, Deerfield, Ill.

Filed Apr. 19, 1971, Ser. No. 135,050

Int. Cl. G10h 1/06

U.S. Cl. 84-1.23

11 Claims



A synthesis-type organ with direct current keying, envelope shaping and individual harmonic scaling particularly adapted to be compatible with frequency divider and MOSFET integrated circuit techniques. A DC voltage is scaled to several appropriate selected levels for the fundamental and individual harmonics and chopped by tone signals for the fundamental and selected harmonics to provide a collection of appropriately scaled square wave signals at the chopping frequencies. These square waves are individually keyed with appropriate envelope control through band pass sine filters adapted to reject all but the fundamentals of the keyed signals. The filtered outputs are mixed to supply output musical signals of appropriate harmonic quality having a desirable attack and decay envelope.

3,636,232

TOUCH-RESPONSIVE TONE ENVELOPE CONTROL CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENTS

Ryu Hiyama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

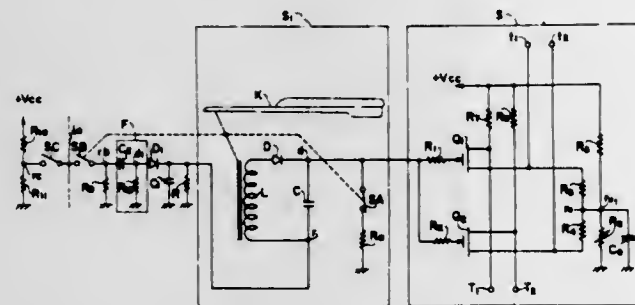
Filed June 30, 1970, Ser. No. 51,211

Claims priority, application Japan, July 4, 1969, 44/63581; 44/63582; July 23, 1969, 44/69772; 44/69773

Int. Cl. G10h 1/02

U.S. Cl. 84-1.24

7 Claims



In a keying system for an electronic musical instrument in which an individual keyer is controlled in response to the intensity of depression of a corresponding playing key so that a keyed tone signal has an amplitude in accordance with the

key depression intensity, an impulse supply means associated with the operation of the key is provided to additively control the keyer individually. The impulse signal applied to the keyer determines the buildup envelope (amplitude) characteristic of the keyed tone signal. The system is simple in construction and easy to manufacture and provides a variety of excellent tonal effects.

3,636,233

GAS INSULATED BUS BAR INSTALLATION

Christy Edward Selvanayagam Swampillai, Tadworth; Eric John Savage, Perivale, and John Edward Lawton, London, all of England, assignors to British Insulated Callender's Cables Limited, London, England

Filed Nov. 10, 1970, Ser. No. 88,300

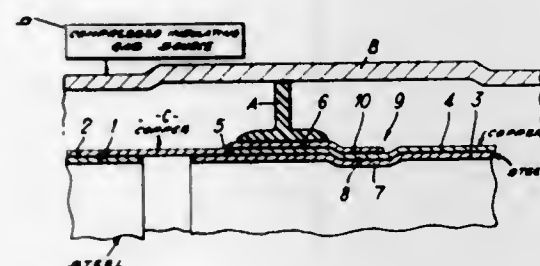
Claims priority, application Great Britain, Nov. 19, 1969,

56,712/69

Int. Cl. H01b 9/06

U.S. Cl. 174-16 B

11 Claims



In a gas insulated phase bus bar system for service at or above 22 kv. and 1,000 A., the load-carrying conductor comprises an outer tube of high-conductivity metal and a plurality of inner reinforcing tubes longitudinally spaced apart by distances small in comparison with their lengths. Straight joints, expansion joints and terminations are also disclosed.

3,636,234

COMMUNICATION CABLE

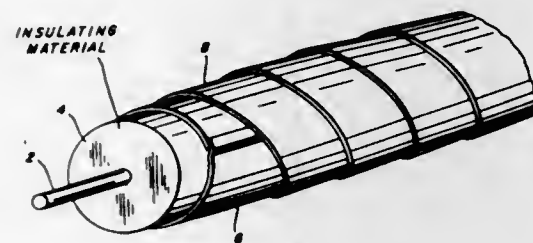
Frederick W. Wakefield, Northboro, Mass., assignor to United States Steel Corporation

Filed Dec. 4, 1969, Ser. No. 882,251

Int. Cl. H01b 11/06

U.S. Cl. 174-36

2 Claims



Communication cable with improved audio and radio frequency transmission and shielding characteristics uses a tinned annealed steel foil tape for shielding.

3,636,235

HEADER HAVING HIGH-DENSITY CONDUCTOR ARRANGEMENT AND METHOD OF MAKING SAME

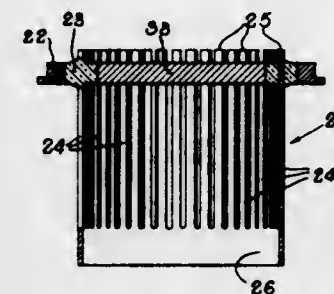
Neal T. Williams, Bloomfield, N.J., assignor to Sealtronics, Inc., Clifton, N.J.

Filed June 11, 1970, Ser. No. 45,335

Int. Cl. H01J 5/40; H05k 5/06

U.S. Cl. 174-50.56

10 Claims



A header having a high-density density conductor arrangement having a plurality of equally spaced-apart conductors held in place by a sealing, electrical insulating material.

A method of forming such a header with a high-density conductor arrangement by chemically milling or stamping the conductors from a single sheet of material, leaving them joined by strips at both ends. The conductors are formed in the shape desired and fused to a base, after which the upper strip is ground off and the conductors are plated. The conductors are now ready for use in the final manufacture of electronic assemblies such as transistors, integrated circuits, etc.

3,636,236

REPLACEMENT COVER PLATE FOR ELECTRIC OUTLET BOX

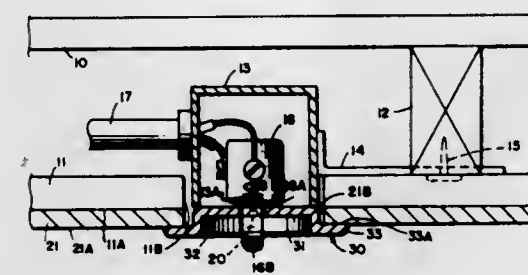
Earl E. Smith, Charlevoix, Mich., assignor to Lexalite Corporation, Charlevoix, Mich.

Filed May 1, 1970, Ser. No. 33,769

Int. Cl. H02g 3/14

U.S. Cl. 174-66

2 Claims



A replacement cover plate for an electric outlet box installed in a building structure with an open outer end thereof adjacent an original wall surface which is subsequently covered with a new wall covering means of substantial thickness forming a new outer wall surface spaced outwardly of the original. The cover plate of the invention comprises a central segment adapted to close and normally seal against the open end of the box without requiring relocation thereof,

a peripheral wall means around the central segment extending outwardly thereof an amount substantially equal to the thickness of said wall covering means, and a peripheral edge flange around said peripheral wall means and parallel of the central segment having an inner face adapted to abut the new outer wall surface.

3,636,237
BUS DUCT

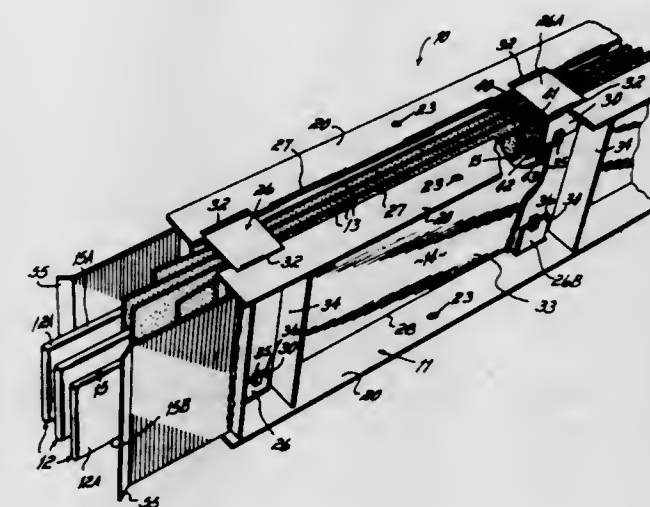
Paul M. Hafer, Florence, Ky., assignor to Arrow-Hart, Inc., Hartford, Conn.

Continuation-in-part of application Ser. No. 832,405, June 11, 1969, now abandoned. This application Sept. 8, 1970, Ser. No. 70,010

Int. Cl. H01b 7/08; H02g 15/08

U.S. Cl. 174-68 B

24 Claims



A bus duct comprised of a group of elongated, flat bus bars positioned in side-by-side relation within an elongated housing, the housing having sidewalls of a height substantially greater than the width of the bus bars. In preferred form, the bus duct of this invention includes bus bars separated one from the other and from the sides of the housing only by insulator sheets positioned therebetween to form a sidewall-insulator sheet-bus bar "sandwich." Further, the sidewall-insulator sheet-bus bar "sandwich" is maintained in functional assembly by (a) at least two clips spanning the sidewalls at separate positions longitudinally spaced one from the other along the top edges of the sidewalls, the spanning portion of each of the clips being substantially spaced above the bus bar group, and (b) at least two clips spanning the sidewalls at separate positions longitudinally spaced from one another along the bottom edges of the sidewalls, the spanning portion of each of the clips being substantially spaced below the bus bar group. Thus, the clips serve to restrain mechanically the bus bar group, insulator sheets, and the housing's sidewalls in compact, assembled, side-by-side relation.

3,636,238

SOLDERLESS CONNECTOR FOR INSULATED ELECTRICAL CONDUCTORS

Erwin Biebach, Soecking, (near Starberg), Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 25, 1970, Ser. No. 49,748

Claims priority, application Germany, July 15, 1969, P 19 35 976.3

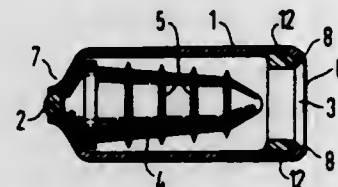
Int. Cl. H02g 15/08

U.S. Cl. 174-87

7 Claims

Solderless connector for electrically connecting the conducting cores of insulated electrical conductors, and particularly the plastic-insulated conductors of telephone cables. The connector includes a conical contact pin having a series of sharp edge contact points in the form of annular ridges spaced along and projecting from the periphery of the pin. A

cylindrical shell having a closed end and an open end, extends about the contact pin. The contact pin abuts the closed end of the shell and tapers toward the open end of the shell. The shell is made from a polymerized plastic material which shrinks under the influence of heat and sets to its shrunk condition as it cools. The open end of the shell has an intumed lip containing a plastic ring to the interior open end portion



of the shell, which melts as it is heated. A series of insulated conductors are inserted into the shell. As the shell is heated it will shrink and engage the conductors with the sharp-edged contact points of the contact pin with sufficient force to force the contact points or ridges through the insulation into contact with the conducting cores of the conductors. The plastic ring at the same time will melt as the shell is heated and seal the conductors to the shell.

3,636,239

ANGULAR RF CONNECTOR

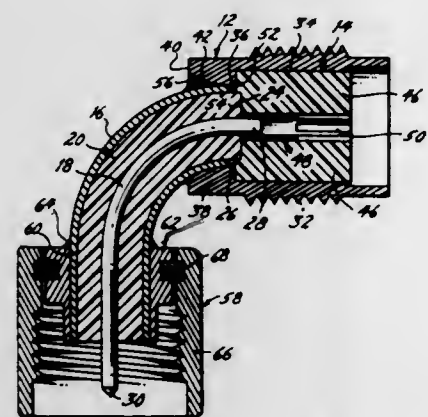
Arthur M. Robbins, Lambertville, N.J., assignor to Uniform Tubes, Inc., Collegeville, Pa.

Filed Nov. 13, 1970, Ser. No. 89,275

Int. Cl. H02g 15/08

U.S. Cl. 174-87

8 Claims



An angular RF connector comprised of an arcuate coaxial cable section and an adapter consisting of an outer conductor, inner tubular contact and a dielectric therebetween, one end of the outer conductor having a socket opening therethrough conforming to the surface generated by rotating the arcuate coaxial cable section around the axis of the adapter, the socket matingly receiving one end of the coaxial cable section and being conductively secured thereto.

3,636,240

CABLE SPLICE PROTECTOR

Hermann Quante; Peter Neumann, both of Wuppertal, and Walter Rose, Dahl, all of Germany, assignors to Firma Wilhelm Quante, Wuppertal-Elberfeld and Firma Walter Rose KG, Hagen, Germany

Filed Nov. 10, 1970, Ser. No. 88,330

Claims priority, application Germany, Apr. 23, 1970, P 20 19 543.1

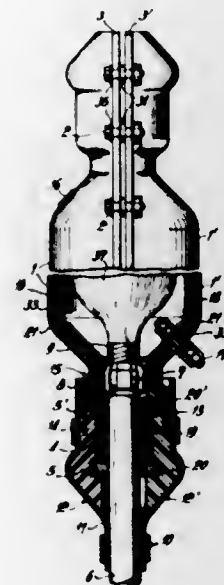
Int. Cl. H02g 15/08

U.S. Cl. 174-92

23 Claims

A sleeve for protecting a cable splice is composed of at least two elongated shell sections having abutting sealing

faces and being composed of synthetic plastic material. Longitudinal grooves are provided in the sealing faces and permanently plastomeric sealing material is accommodated in



these grooves. Moisture barrier means is embedded in the shell sections in form of a foil, preferably a compound foil of metal to which thermoplastic material is adhered.

3,636,241

TELEPHONE CABLE SPLICE CASE

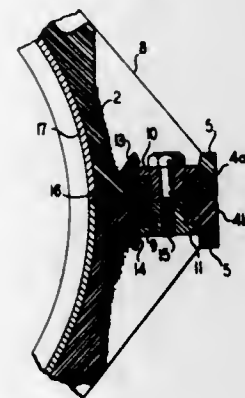
Robert Garland Baumgartner, Baltimore, and Kenneth Chambers Maclean, Phoenix, both of Md., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 23, 1970, Ser. No. 91,843

Int. Cl. H02g 15/08

U.S. Cl. 174-92

10 Claims



This disclosure describes a splice closure for telephone cable pairs. The closure consists of a pair of plastic covers with metal lining or coating, and end plates of differing designs to accommodate from one to six cables. Internally, the closure includes a metallic harness at each end with outer and inner metal clamps placed around the cable and linked

together with insulated metal tie bars. The closure is hermetically sealed at the faceplate-cover interface by a butyl rubber sealing compound. An air escape is included in the end plate to avoid air entrapment at the interface.

3,636,242

AN ELECTRIC CONDUCTOR WIRE

Hans Olof Hansson, Sollentuna, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Nov. 24, 1969, Ser. No. 879,567

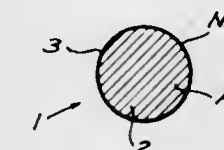
Claims priority, application Sweden, Dec. 9, 1968, 16795/68;

May 27, 1969, 7440/69

Int. Cl. H01b 5/08

U.S. Cl. 174-128

7 Claims



An electric conductor wire of aluminum or aluminum alloy with a diameter less than 5 mm., is covered with a layer containing nickel with a thickness in the range of from 0.1 to 10 μ . In order to improve the adhesiveness of the layer, the layer consists of an alloy of nickel and zinc with a proportion of zinc up to 75 percent.

3,636,243

LONG-DISTANCE COMMUNICATION DIAL EXCHANGE INSTALLATION WITH CENTRAL CONTROL

Alfred Bachner, Olching; Karl Schneider, Krailing; Martin Ertel, Munich, and Erika Schraml, Munich, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 9, 1969, Ser. No. 831,309

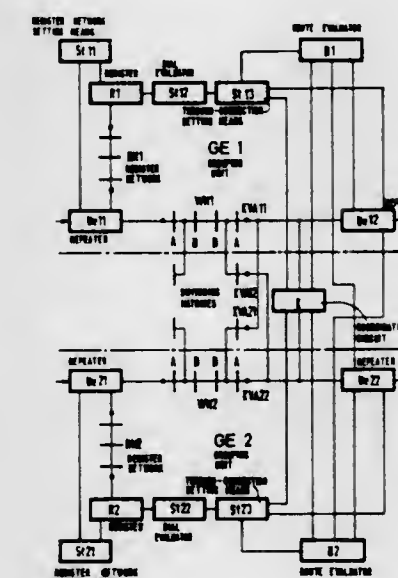
Claims priority, application Germany, June 11, 1968, P 17 62

405.4

Int. Cl. H04I 11/00

U.S. Cl. 178-3

10 Claims



A long-distance communication teletype dial exchange installation wherein the establishment of the connection is centrally controlled. A plurality of line grouping units or exchange installations (GE), each having a through-connec-

tion network (WN), connection establishment systems, and a control unit, the lines of the plurality of grouping units being connected thereto in even distribution, are provided. Each control unit, operating independent from the control units of other exchanges, is operative to connect through the lines assigned to it over multiple lines (VL) between the through-connection networks and all receiving lines of every other exchange. At least one coordinating circuit (K) prevents the multiple seizure of outgoing lines and determines the succession sequence during testing for the seizure state of receiver lines by several simultaneously requesting control units.

3,636,244

SEQUENTIAL DOT INTERLACED COLOR TELEVISION SYSTEM

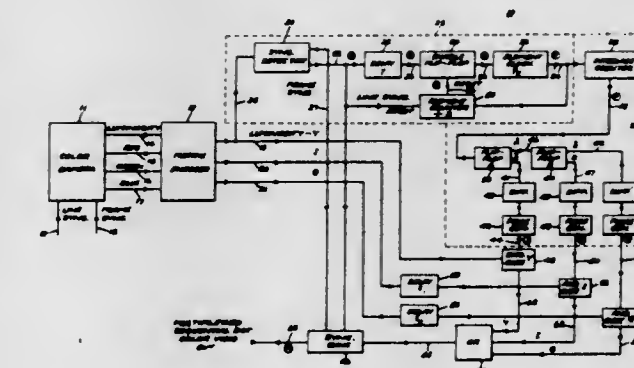
Edward S. Smierciak, and Thomas R. Butler, both of Fort Wayne, Ind., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 3, 1969, Ser. No. 796,947

Int. Cl. H04n 9/36

U.S. Cl. 178-5.2 R

22 Claims



A sequential dot interlaced color television system having a color television camera with a plurality of output circuits respectively providing luminance and chrominance signals. A plurality of trains of recurrent sampling signals are generated equal in number to the number of camera output circuits, and a plurality of sampling gates are provided which couple each of the camera output circuits to a transmission facility in response to a different one of the trains of sampling signals so as to pass a train of sampled video signals from the respective output circuit to the transmission facility, the trains of sampling signals being respectively phase-displaced so that the sampled video signals are multiplexed in the transmission facility. A color television display tube is provided having a plurality of video signal input circuits equal in number to the camera output circuits for respectively receiving luminance and chrominance signals. Another plurality of trains of recurrent sampling signals are generated equal in number to the sampling signal trains generated at the transmitting station and respectively having the same frequencies and phase displacement, and another plurality of sampling gates are provided for coupling each of the display tube video signal input circuits to the transmission facility in response to a different one of the second trains of sampling signals thereby passing to the video signal input circuits trains of sampled video signals respectively corresponding to those passed by the sampling gates at the transmitting station. Thus, the color information-conveying signals provided by the camera tube are converted into sequential dot format and then multiplexed for application to the transmission facility. At the receiver, the multiplexed chain of information-conveying pulses is demultiplexed and routed to the respective guns of the display tube.

3,636,245

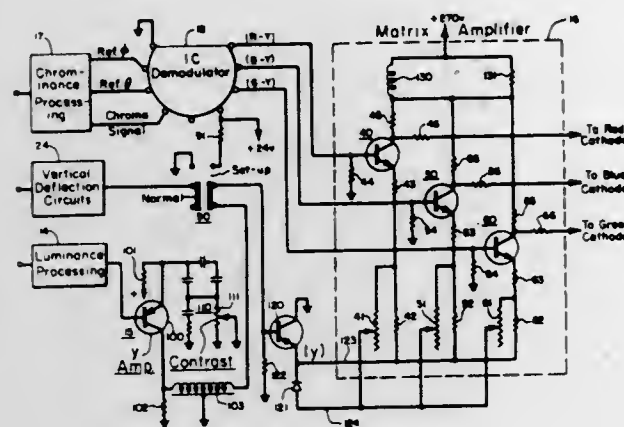
MATRIX AMPLIFIER WITH GAIN ADJUSTING MEANS INEFFECTIVE TO ALTER THE COLOR OF BLACK

John L. Rennick, Elmwood Park, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 13, 1970, Ser. No. 63,572
Int. Cl. H04n 9/50

U.S. Cl. 178—5.4 MA

10 Claims



A solid-state matrix amplifier network is set forth and described for selectively combining three color-difference signals from a chrominance demodulator with a luminance signal to form suitable color-control drive signals for a three-gun image reproducer of a color television receiver. The matrix amplifier network includes a novel gain adjustment arrangement for obtaining correct grey scale tracking which does not interact with the controls effecting DC setup for the image reproducer nor alter the color of black established during such setup procedures.

3,636,246

TELEVISION SIGNAL CONVERSION APPARATUS

Werner Steiger, Birmensdorf/Zurich, Switzerland, assignor to Eidopher, A.G., Glarus, Switzerland

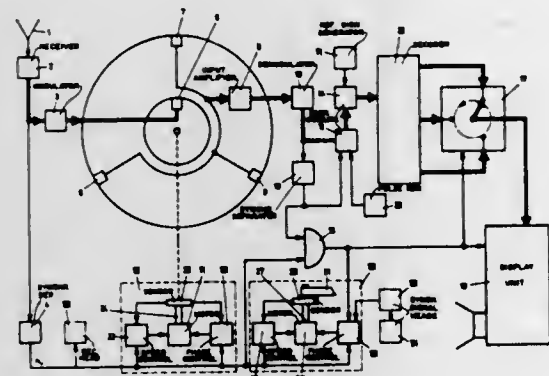
Filed Nov. 21, 1969, Ser. No. 878,802

Claims priority, application Switzerland, Nov. 26, 1968, 17681/68

Int. Cl. H04m 5/78

U.S. Cl. 178—5.4 CR

9 Claims



A television signal conversion apparatus for converting one type of television signals into another. More specifically an apparatus for sequentially reproducing simultaneous composite color television signals by using a simultaneous-to-sequential signal converter in the form of a magnetic tape recording and reproducing machine. The magnetic tape is guided in a helical path around two coaxially mounted cylinders.

ders. The rotatable magnetic heads for recording the incoming television signals on the tape and for reproducing the recorded signals are mounted on a common rotor, which is coaxially disposed inside the cylinders.

3,636,247

COLOR TELEVISION IMAGE PICKUP SYSTEM

Yasuo Takemura, Kawasaki-shi, and Kazuo Hamaguchi, Yokohama-shi, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

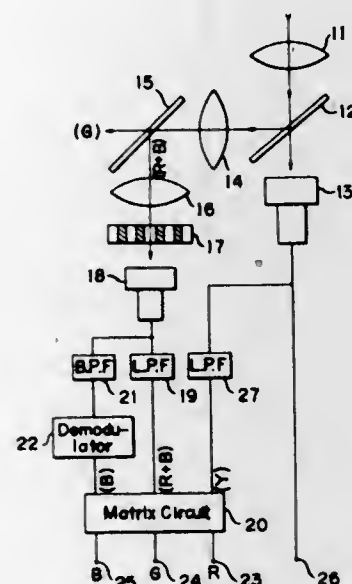
Filed Nov. 2, 1967, Ser. No. 680,202

Claims priority, application Japan, Nov. 10, 1966, 41/73470; Mar. 8, 1967, 42/14161; Jan. 18, 1967, 42/3142; Feb. 8, 1967, 42/7702

Int. Cl. H04n 9/06

U.S. Cl. 178—5.4 ST

1 Claim



A light from the picked-up object is divided into two portions by a first optical system. A luminance signal is produced from one of the divided portions and a chromaticity signal is obtained from the other divided portion by a second optical system. This second optical system picks up first and second color lights and is arranged such that the first color light is left intact and the second color light is intercepted in the form of stripes. The chromaticity and luminance signals are then combined to produce a three-color signal.

3,636,248

ACOUSTICAL HOLOGRAPHY BY OPTICALLY SAMPLING A SOUND FIELD IN BULK

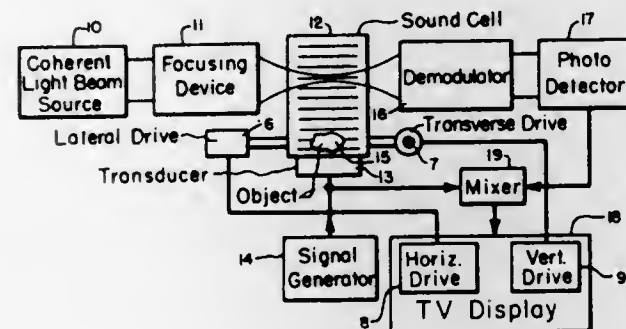
Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Mar. 5, 1970, Ser. No. 16,873

Int. Cl. H04n 1/04

U.S. Cl. 178—6

12 Claims



A coherent monochromatic light beam is directed into a light-sound interaction cell in which a spatially modulated

sound field of constant frequency-carrying image information is propagated nominally transversely to the beam by means of a transducer attached to the sound cell and driven by an appropriate constant frequency signal. The beam is focused about any desired point in the sound field so that a scattering interaction is obtained. The focal region is maintained narrower than the sound wavelength so that a temporal and spatial modulation is imparted to the light representative of the phase and amplitude of the sound field at the focal region. Interposed in the path of such modulated light is a photodetector preceded by a demodulator comprised of either a spatial filter or quarter-waveplate and analyzer. The photodetector extracts an output signal at the sound frequency whose phase and amplitude is representative of that of the sound field about the desired focal region. Such a signal may be recorded or displayed either conventionally, or holographically, if the output signal is mixed with a reference signal derived from the constant frequency transducer signal.

3,636,249

HETERODYNE SCANNING SYSTEM FOR HOLOGRAM TRANSMISSION

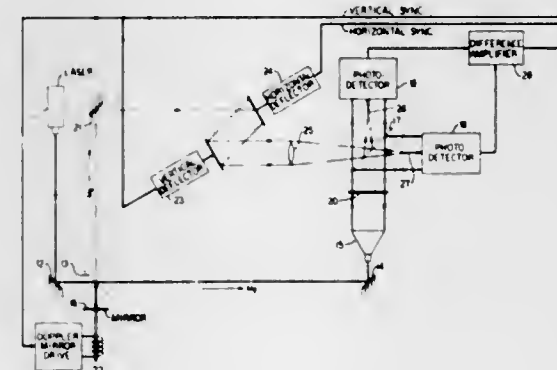
Arthur B. Larsen, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 28, 1969, Ser. No. 845,230

Int. Cl. H04n 9/56

U.S. Cl. 178—6.5

7 Claims



A hologram heterodyne scanner wherein a stationary coherent light beam illuminates the subject and is then optically relayed via a beamsplitter to a photodetector. The other phase-locked optical frequency, needed for the reference beam, is derived from the first-mentioned beam by means of a Doppler technique. The Doppler-shifted reference beam is orthogonally disposed with respect to the stationary beam and it is likewise relayed to the photodetector via the beamsplitter. The reference beam is focused to define a small spot and the latter is raster scanned with respect to the stationary beam. A random interlace scan is utilized, which helps to eliminate the scanning structure from the hologram. The photodetector is purposely placed at an out-of-focus location with respect to the locus of the scanning beam waist.

3,636,250

APPARATUS FOR SCANNING AND REPRODUCING A THREE-DIMENSIONAL REPRESENTATION OF AN OBJECT

Andrew V. Haeff, 11134 Bellagio Road, Los Angeles, Calif.

Filed Feb. 26, 1964, Ser. No. 347,603

Int. Cl. H04n 9/56

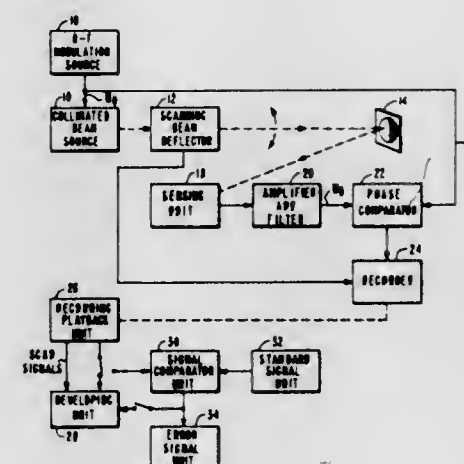
U.S. Cl. 178—6.5

22 Claims

The surface of the object to be reproduced is scanned in successive lines with a narrow beam of collimated radiation, preferably light, the intensity of which is modulated at a fixed frequency. The radiation reflected from the object is received by a detector which generates a signal which is compared in phase with the modulating signal to generate a signal

indicative of the relative distance between successive points as they are scanned on the object surface. This latter signal is then used to form successive solid cross sections of variable thickness in a developing medium to reproduce the relative distances measured to the object along each of the scan lines, so that the solid cross sections located adjacent one another in the order of the scanning pattern reproduce the surface of the object.

In particular, the surface of the object is scanned by a laser beam which is amplitude modulated at a selected radiofrequency. The beam passes through an absorption cell containing a pressurized gas corresponding to that in the laser so that application of sufficient direct current excitation raises a nominal number of electrons to an energy state capable of absorbing photons of the laser energy. The beam passes through a portion of the cell surrounded by a cavity resonator tuned to one-half the desired modulation frequency which produces an oscillatory electric field that periodically varies the number of absorption electrons at the desired



modulation frequency, thus modulating the intensity of the beam emerging from the cell.

A full color replica of the object is provided by coloring the different cross-sectional profiles of the object as they are formed. By correctly phasing the color information with respect to the operation of cutting the successive cross section profiles in a tape medium, three paint atomizers, each containing a primary color, are used to direct the paint colors in the selected proportions to the edges of the tape medium. The atomizers consist of half wavelength mechanical resonators with piezoelectric driving crystals that transmit ultrasonic vibrations to quarter wave sections extending on either side of a central holding point. The amplitude of the electrical signal driving the crystal of each atomizer at a fixed ultrasonic frequency is modulated in accordance with the color information. Paint or other coloring fluid is drawn through small capillary holes extending from the center of the atomizer to its upper surface where it is broken up into small droplets and directed upward towards the tape in quantities corresponding to the driving signal amplitude.

3,636,251

LASER FACSIMILE SYSTEM FOR ENGRAVING PRINTING PLATES

Richard T. Daly, Huntington, and Robert A. Kaplan, South Huntington, both of N.Y., assignors to Quantromix Corporation, Farmingdale, N.Y.

Filed Aug. 28, 1968, Ser. No. 755,951

Int. Cl. H01s 3/09; H04n 1/08, 1/26

U.S. Cl. 178—6.6 B

7 Claims

A system for engraving intaglio printing plates in which tiny uniformly sized cells are formed in the printing plate by

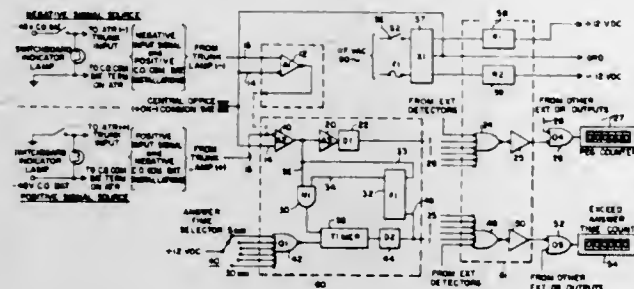
3,636,259

ANSWERING TIME RECORDER FOR TELEPHONE APPARATUS

Ernest C. Karras, 1643 N. Natoma, Chicago, Ill.
Continuation of application Ser. No. 810,600, Mar. 26, 1969.
This application Feb. 26, 1970, Ser. No. 14,563
Int. Cl. H04m 3/36

U.S. Cl. 179-8 A

18 Claims



A separate, independently controlled electronic timer is provided for each trunk in a trunk group to be monitored. Each timer develops an output pulse if an incoming call in the associated trunk is not answered within a predetermined answering interval. The output pulses of all of the timers are combined and supplied to a solenoid-operated counter which stores and indicates the total number of calls which are not answered within the predetermined interval. The pulses supplied to the counter may also be supplied to a set of print wheels under the control of a printout interval timer so that a permanent record in numerical form is made of the number of calls which exceed the predetermined answering interval during each printout interval. Lockout facilities are also provided for preventing the transmission of output pulses to the print wheels during the actual printing operation. Also, facilities are provided for terminating the printout interval only at a time when no output pulses are being transmitted to the print wheels.

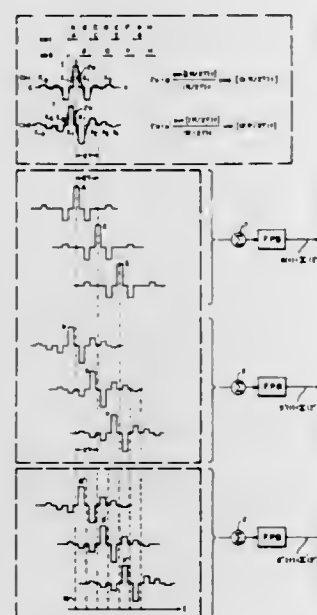
3,636,260

DATA TRANSMISSION SYSTEM

Michel F. Choquet, Vence, France, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed May 8, 1970, Ser. No. 35,758
Claims priority, application France, May 16, 1969, 6915338
Int. Cl. H04j 1/20

U.S. Cl. 179-15 BC

4 Claims



A plurality of phase-modulated signals are multiplexed upon a transmission line by the formation of a suitable

summed composite signal. An algebraic analog adder is used to combine over an appropriate signal space the modulation product formed from two alternately selected and modulated signals selected from a serial data stream.

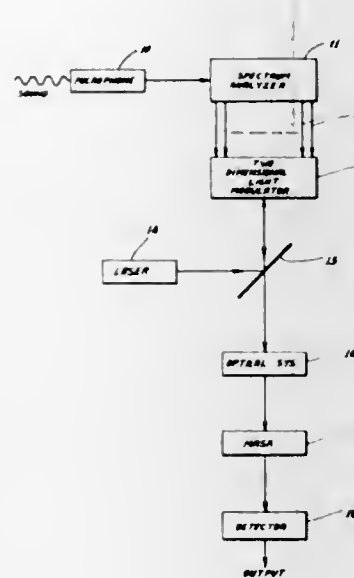
3,636,261

METHOD AND APPARATUS FOR OPTICAL SPEECH CORRELATION

Kendall Preston, Jr., New Haven, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed Apr. 25, 1969, Ser. No. 819,257
Int. Cl. G10l 1/00

U.S. Cl. 179-1 SB

6 Claims



A system for speech correlation which comprises a coherent light modulating system which accepts a two-dimensional array of information corresponding to a speech spectrogram and superimposes this information two dimensionally on the cross section of a coherent light beam. The correlator further comprises means for imaging the modulated beam on a series of comparison means which correspond to words stored in a library. Preferably, the means provided is capable of simultaneously producing multiple images of the input so as to enable simultaneous comparison. Finally, means are provided for indicating correlation between the input and one of the words in the library. The method embodiment of this invention preferably comprises the steps of modulating the two-dimensional cross section of a coherent beam with speech spectrogram information, the depth of the modulation corresponding to intensity in the spectrogram. The method also includes the steps of comparing the modulated beam with a set of masks corresponding to a predetermined vocabulary and producing an indication whenever correlation occurs between the input and one of the words in the vocabulary.

3,636,262

TRANSLATION DATA CHANGE CIRCUITS FOR TELEPHONE SWITCHING SYSTEMS

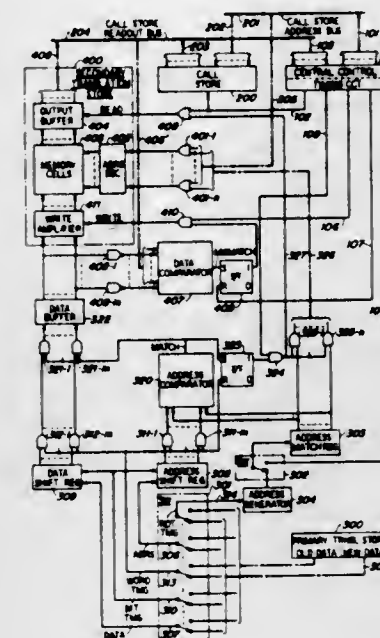
Glover Douglas Johnson, Naperville, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jan. 8, 1970, Ser. No. 1,376
Int. Cl. H04q 3/47

U.S. Cl. 179-18 ET

12 Claims

A translation data recent change arrangement for a telephone switching system in which the data is normally available to central control from a first store during one part of the control cycle. During another part of the cycle the same or updated data in a second store is compared with the corresponding data in the first store. If the two data groups fail to match, the more recent data from the second store is

written into the corresponding location of the first store. The translation data available to central control is thus maintained current. The second store is provided with two storage



areas; while one is providing data for comparison, the other is available for the introduction of later changes, the second store readout alternating between the two areas.

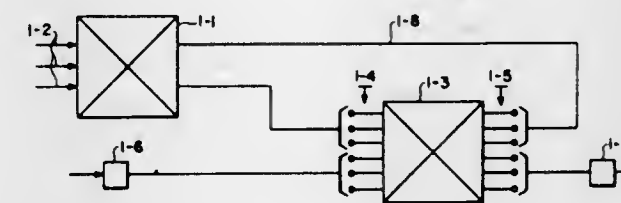
3,636,263

TELEPHONE SWITCHING SYSTEM

Joseph S. Jezioranski, Stittsville, Ontario; Robert Kenedi, and Real Gagnier, both of Ottawa, Ontario, all of Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Dec. 17, 1968, Ser. No. 785,072
Claims priority, application Canada, Oct. 31, 1968, 034044
Int. Cl. H04q 3/42

U.S. Cl. 179-18 E

30 Claims



A telephone switching office with a unique arrangement of path interconnections wherein originating junctors and incoming trunks enter one side of a route network, and terminating junctors and terminating trunks leave the other side of the route network. Both types of junctors are connected to a line circuit switching network. This structure allows the concentrating of service circuits which are connected to a service network. The service network interfaces the originating junctors, allowing line access to the service circuits without need to set up a path through the route network.

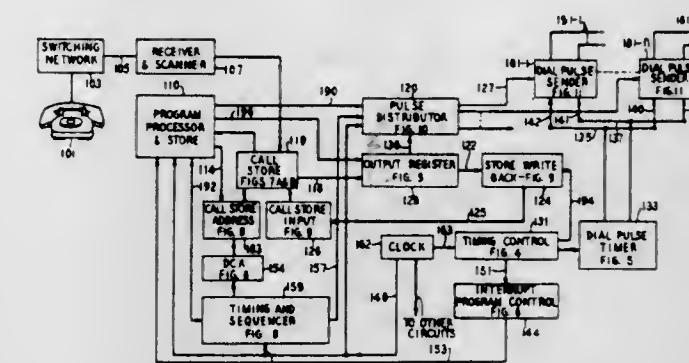
3,636,264

DIAL PULSE SENDING ARRANGEMENT

Thomas M. Quinn, West Chicago, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 3, 1969, Ser. No. 813,202
Int. Cl. H04m 7/00

U.S. Cl. 179-18

2 Claims



A dial pulse sender is described wherein a common generator supplies dial pulse timing signals to a group of dial pulse transmitters. Control apparatus connected to each transmitter gates a predetermined number of timing signals in accordance with stored calling signal information. The occurrence of gated timing pulses alters a stored calling signal code, and gating of timing pulses is inhibited after a predetermined code is obtained.

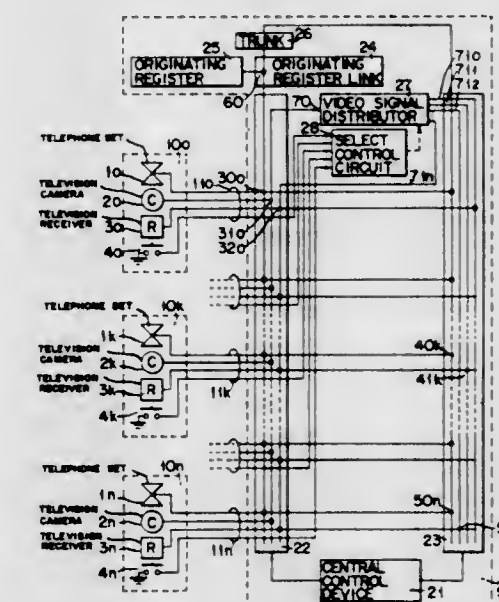
3,636,265

TELEVISION CONFERENCE TELEPHONE SYSTEM

Masao Kikuchi, Tokyo; Toshihide Kawashima, Kawasaki-shi; Koichi Kasahara, Yokohama-shi, and Saneyoshi Nagayoshi, Tokyo, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Mar. 18, 1969, Ser. No. 808,068
Claims priority, application Japan, Mar. 22, 1968, 43/18201
Int. Cl. H04m 3/56

U.S. Cl. 179-18 BC

12 Claims



In a conference telephone system utilizing a telephone exchange and terminal equipments, a television image transmitter and receiver are provided for each terminal equipment and the telephone exchange is provided with means to interconnect audio signal lines from subscribers attending a conference, and a video signal distributor to supply the video signal transmitted from a terminal equipment to all subscribers attending a conference.

3,636,266

NEGATIVE IMPEDANCE LINE ISOLATORS

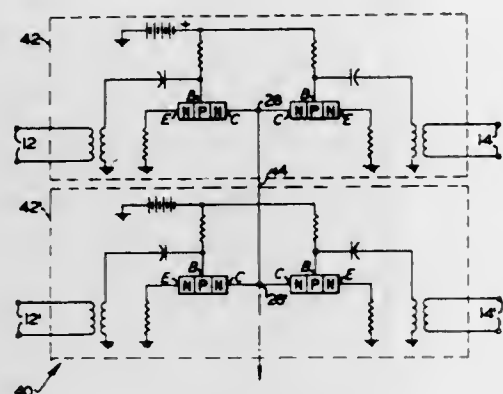
Stephen J. Martin, 1777 S.W. 17th Street, Miami, Fla.

Filed Nov. 7, 1969, Ser. No. 874,833

Int. Cl. H04b 3/18; H04m 3/56

U.S. Cl. 179-1 CN

9 Claims



Bidirectional, symmetrical negative impedance transmission line isolators having a high-impedance midpoint junction between a plurality of transistors for providing high-impedance isolation and enabling interconnection of any desired number of such circuits to form a telephone system conferencing network.

3,636,267

ARRANGEMENT FOR THE RECIPROCAL ACCEPTANCE OF CALLS

Robert Fritz, Horst Beckh, and Norbert Torggler, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

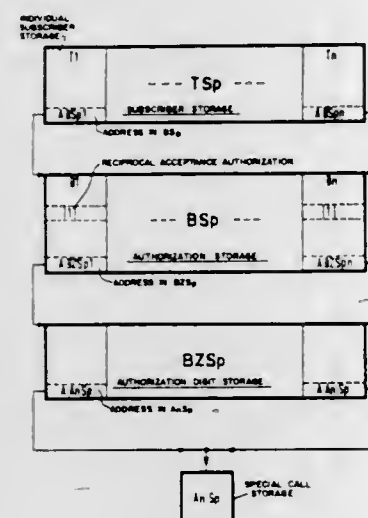
Filed June 9, 1969, Ser. No. 831,308

Claims priority, application Germany, June 10, 1968, P 17 62 398.2

Int. Cl. H04m 3/54

U.S. Cl. 179-18 BD

3 Claims



A centrally controlled telephone exchange installation having a plurality of subscriber stations authorized to accept

calls for each other wherein a call from a calling repeater for one subscriber station is indicated to the other subscriber stations with an arrangement for the acceptance of a call for a subscriber station by another authorized subscriber station. A centrally arranged storage means is provided and assigned to all subscriber stations authorized for the reciprocal acceptance of calls to mark a call for one of the subscriber stations, and store the address of the calling repeater. An authorization storage, the authorization for the reciprocal acceptance of calls for the subscriber stations being marked therein to determine the address of the centrally arranged storage means corresponding to the assignment of the said one of the subscriber stations to the centrally arranged storage means, is also included.

3,636,268

HIGH-SPEED RAPID RESPONSE INTERCOMMUNICATION SYSTEM

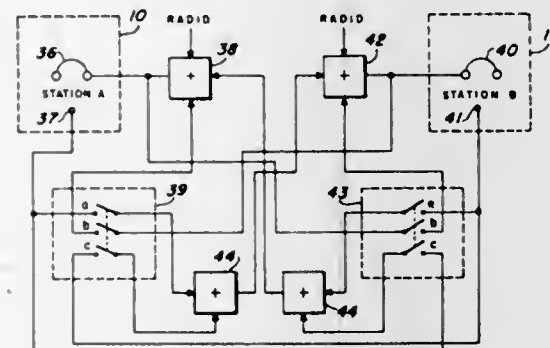
Hallett R. Stiles, and John D. Vinatieri, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Oct. 6, 1969, Ser. No. 864,080

Int. Cl. H04m 9/06

U.S. Cl. 179-37

1 Claim



A rapid response intercommunication system is disclosed. A plurality of intercom stations among which audio connections are required are connected to a central switching unit wherein novel digitally controlled switching circuitry is selectively actuated by a calling station to thereby automatically establish two-way audio paths between the calling station and a selectively predetermined number of called stations without any action being required on the part of the called stations. Monitoring means are provided at the calling station whereby the calling station can monitor the called stations to prevent the calling station from interrupting any conversation that may be in progress between the called stations and other stations. Means are also provided at the calling station and at each called station such that any station can cut off the audio connection between it and the calling station. The calling station can also automatically establish a party line among a selectively predetermined number of called stations.

3,636,269

ARRANGEMENT FOR VOICE-FREQUENCY SIGNALLING IN TELEPHONE SYSTEMS

Nils Herbert Edstrom, Vallingby, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Oct. 10, 1969, Ser. No. 865,279

Claims priority, application Sweden, Nov. 5, 1968, 15002/68

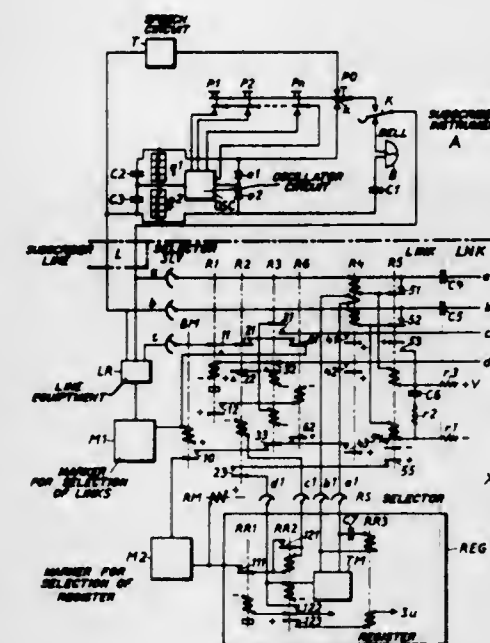
Int. Cl. H04m 1/50

U.S. Cl. 179-84 VF

2 Claims

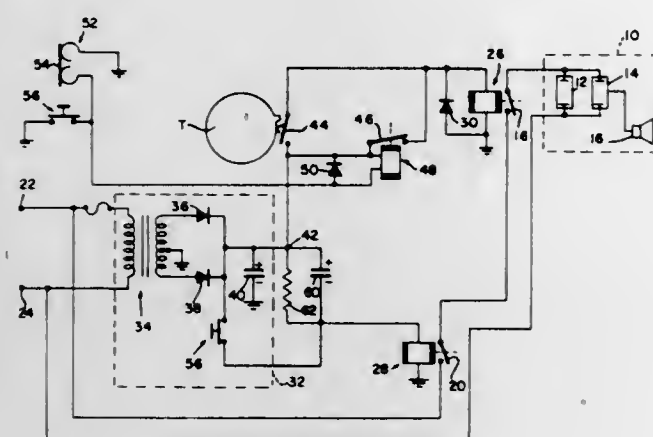
In an automatic telephone system a subscriber's instrument has a key set and voice-frequency signal transmitter for the sending of different signals through the subscriber's line to receivers in a telephone exchange. For the initiation of a

voice-frequency signal and starting of the said transmitter and for marking the release of the pressed key a pnnp-diode



sound system includes a tape recorder and the control system includes a first bistable relay through which the sound system is energized and deenergized and a second bistable relay through which the sound system is energized and deenergized. The first bistable relay is operated periodically by a timer to energize the sound system and, each time the sound system is energized, by signals produced by the tape recorder to deenergize the sound system. The first bistable relay is preferably controlled by a monostable relay which is

tride and driving same during the transducing operation to permit movement of the tape past a transducing means. In one form, tape-driving mechanism is normally retracted out of the way of the tape cartridge and projects to engage the hub of the reel mounted in the cartridge so as to effect driving coupling therewith while a cooperating drive mechanism simultaneously is projected from a retracted position against the tape in the cartridge to frictionally engage and drive the tape during the transducing operation.



operated either by the signals produced by the tape recorder or by signals produced by operating a control switch. The second bistable relay is a power-failure relay arranged to open circuit the sound system when power is reapplied a predetermined time after there is a power failure. The time period is determined by a resistor-capacitor network. When the capacitor is fully discharged after the time period and power is reapplied, the charging current for the capacitor is sufficient to operate the second bistable relay.

3,636,273

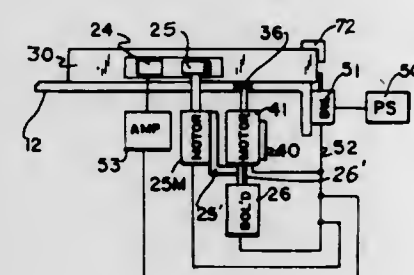
APPARATUS FOR DRIVING TAPE IN A CARTRIDGE

Jerome H. Lemelson, 85 Rector Street, Metuchen, N.J.
Continuation-in-part of application Ser. No. 463,097, June 11, 1965, now Patent No. 3,555,245, and a continuation-in-part of 142,748, July 28, 1961, which is a continuation-in-part of application Ser. No. 515,417, June 14, 1955, now Patent No. 3,003,109. This application July 6, 1970, Ser. No. 52,205

Int. Cl. G11b 5/54, 23/04

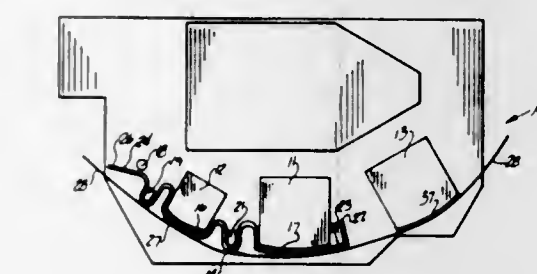
U.S. Cl. 179-100.2 Z

9 Claims



A tape cartridge and record player unit therefore are provided whereby the cartridge is releasably positioned on the player unit for transducing relative to the tape therein by automatically engaging the hub of a tape storage reel in the car-

A headblock assembly of a magnetic video tape recorder, comprising a baseplate adapted for being detachably yet rigidly mounted to a chassis panel of the video tape recorder



A head cap adapted for use with a tape machine having a plurality of heads which contact the tape, wherein the head cap is removably mountable between at least one of the heads and the tape, thus holding the tape away from the head for preventing unnecessary wear thereto.

3,636,275

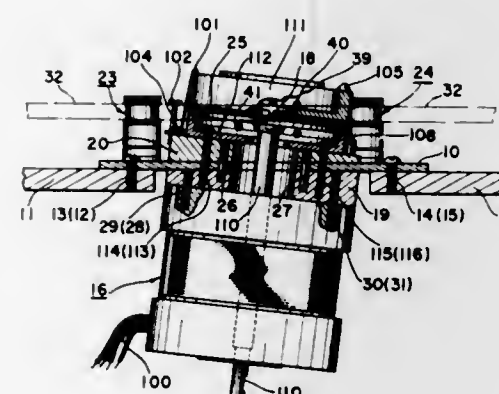
HEADBLOCK ASSEMBLY OF A MAGNETIC VIDEO TAPE RECORDER

Noboru Sato, and Tatsumi Nakano, both of Tokyo, Japan, assignors to Akai Electric Company Limited, Tokyo, Japan
Filed July 1, 1969, Ser. No. 838,136

Claims priority, application Japan, July 3, 1968, 43/56568; July 13, 1968, 43/49226
Int. Cl. G11b 5/48, 21/16

U.S. Cl. 179-100.2 T

3 Claims



which mounts in turn an upper mounting element and a lower mounting element, these mounting elements being inclined to contacting surface with the said baseplate and relative to the common axis of said elements, a driving electric motor attached to said lower mounting element, a tape drive drum attached to said upper mounting element, a pair of stationary tape guide means mounted on the said upper mounting element and a pair of tape guide-roller means adapted to the said baseplate.

3,636,276

TAPE CARTRIDGE PLAYER TRANSDUCER HEAD CLEANER

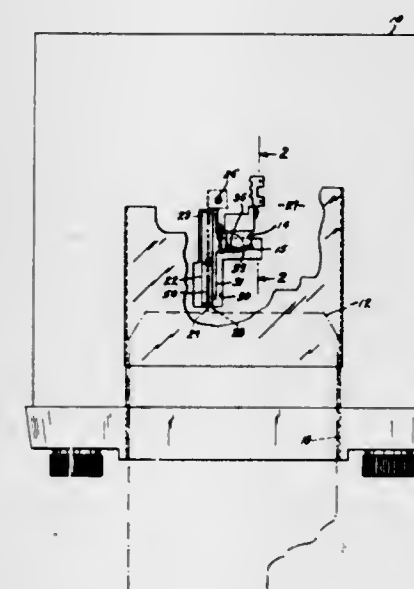
Harry J. Rose, University, Ohio, assignor to Tenna Corporation, Cleveland, Ohio

Filed Nov. 26, 1969, Ser. No. 880,223

Int. Cl. G11b 5/40

U.S. Cl. 179-100.2 Z

6 Claims



A transducer assembly for a cartridge-type tape player which has a wiper arm movable over the pickup surface of the magnetic transducer in wiping engagement therewith so as to clean such surface prior to playing a tape. The wiper arm is operated by the insertion and withdrawal of a conventional tape cartridge into and from the tape player structure so as to move across the playing surface of the transducer to maintain such surface substantially clean of extraneous dust, magnetic materials, and/or other contaminants.

3,636,277

VIDEO TAPE RECORDER WITH SINGLE MOTOR-DRIVING HEAD WHEEL AND CAPSTAN THROUGH RESPECTIVE MAGNETIC CLUTCHES

Herbert Pohler, Rosenstrasse 17,6055, Hausen bei Offenbach/Main, Germany

Filed Dec. 23, 1969, Ser. No. 887,799

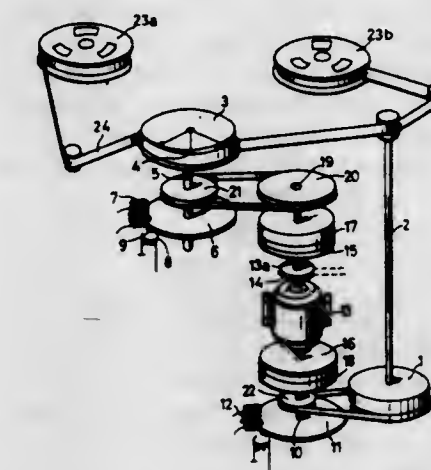
Int. Cl. G11b 21/04; H02k 49/10

U.S. Cl. 179-100.2 T

4 Claims

In a magnetic video tape recorder having one or more rotating magnetic heads, a single motor is provided and is connected with the rotating head or heads by a coupling. The coupling has an input element of a material having high remanence and permeability and requiring but a small coercive force, a so-called hysteresis material, and a permanently

magnetic output element which rotates coaxially with the input element and is connected with the drive mechanism of



3,636,278

ACOUSTIC TRANSDUCER WITH A DIAPHRAGM FORMING A PLURALITY OF ADJACENT NARROW AIR SPACES OPEN ONLY AT ONE SIDE WITH THE OPEN SIDES OF ADJACENT AIR SPACES ALTERNATINGLY FACING IN OPPOSITE DIRECTIONS

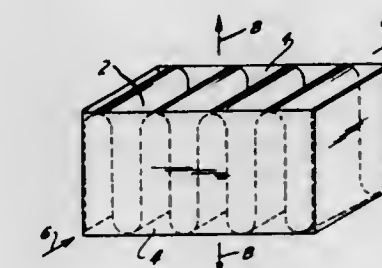
Oskar Heil, San Mateo, Calif., assignor to Heil Scientific Laboratories, Inc., Belmont, Calif.

Filed Feb. 19, 1969, Ser. No. 800,579

Int. Cl. H04r 9/02

U.S. Cl. 179-115.5PV

34 Claims



An acoustic transducer with a new kind of diaphragm geometry and a new kind of acoustical or vibratory excitation of the diaphragm. The diaphragm comprises a plurality of substantially equal spaced and substantially parallel diaphragm portions which define between themselves small air spaces, and means connecting the diaphragm portions to each other in such a manner so as to close each of the air spaces at three sides while the fourth side is left open and with the open sides of adjacent air spaces respectively facing in opposite directions. As a result of this arrangement, the narrow air spaces between adjacent diaphragm portions get alternately enlarged or reduced and alternately air is sucked in or expelled from the adjacent air spaces during vibration of the diaphragm portions. During each half-cycle of the vibration air is sucked in one direction into every second of the adjacent air spaces and expelled in the opposite direction from the other air spaces and during the next half-cycle the motion of air into and out of adjacent air spaces is reversed. Such diaphragm arrangement moves more air with less kinetic energy than conventional diaphragms. The vibratory diaphragm portions may be directly driven by

applying an audio current, respectively an audio voltage to conductors attached to the diaphragm portions and located in a strong magnetic field, or the diaphragm portions may be indirectly driven by a pair of voice coils alternately attached to adjacent vibratory diaphragm portions to move the latter toward and away from each other. On the other hand, the vibratory diaphragm portions may be acoustically driven and audio currents, respectively audio voltages, may be produced in conductors attached to the diaphragm portions and moving in a strong magnetic field.

3,636,279

ADJUSTABLE HEADSET

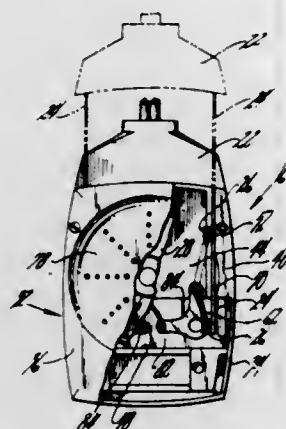
Justin L. Turner, Branford, Conn., assignor to Educational Service Programs, Inc., New Haven, Conn.

Filed Nov. 3, 1969, Ser. No. 873,350

Int. Cl. H04m 1/05

U.S. Cl. 179-156

10 Claims



A headset of adjustable size including a pair of headphones each having a pair of parallel tracks formed therein and receiving a pair of electrical conductors associated with a headband assembly adjustably connecting the headphones. Each headphone is adjustable relative to the headband assembly between fully extended and retracted positions of the conductors. An electrically conductive coil spring connects the end of each conductor disposed within an associated headphone case to an associated terminal mounted in the case. The length of each spring remains substantially unchanged as the headset is adjusted to its various sizes.

3,636,280

TELEPHONE LINE TESTING FROM REMOTE LOCATIONS

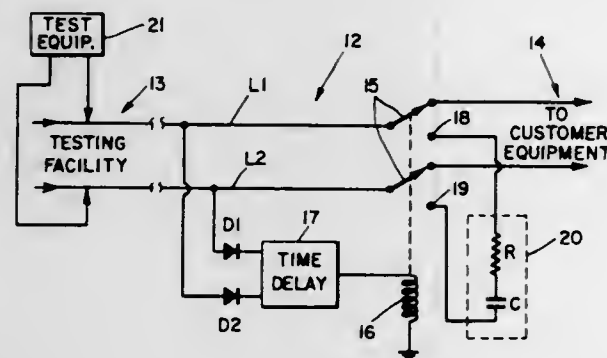
Louis Emery Wetzal, Santa Monica, Calif., assignor to General Telephone Company of California, Santa Monica, Calif.

Filed Sept. 17, 1970, Ser. No. 73,122

Int. Cl. H04b 3/46

U.S. Cl. 179-175.3

4 Claims



Telephone line testing from a remote location such as a testing facility is accomplished by providing a disconnect

switch at the interface connection of the line to suitable customer equipment. A known impedance is provided at the interface connection point such that by passing a signal from the testing facility to the interface connection point the switch will disconnect the customer equipment and connect into the circuit the known impedance. Tests may then be made by passing current down the telephone line from the testing facility to the interface point, any failure to measure the known impedance indicating that trouble exists between the testing facility and the interface connection point. In this event, the customer need not be bothered by telephone men in effecting repairs. If the telephone line shows proper continuity between the testing facility and the interface connection point, it is then known that the customer's equipment is causing the trouble. The equipment can then properly be repaired by telephone men if authorized by the customer or by the customer himself.

3,636,281

LOUDSPEAKER USING WALL AS DIAPHRAGM

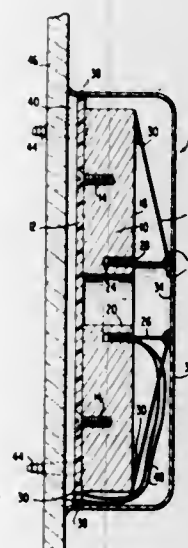
Robert T. Cozart, 52 Ladoga, Tampa, Fla.

Filed Jan. 13, 1969, Ser. No. 790,665

Int. Cl. H04r 9/06

U.S. Cl. 179-181 W

6 Claims



An electroacoustic transducer including a drive coil mounted within the airgap of an annular permanent magnet. The drive coil is connected to the transducer case which in turn is attached to a suitable support structure such as a wall or ceiling. Electrical signals within the drive coil cause it to move, and this vibration is transmitted to the support structure which then acts as a sounding surface for the transducer.

3,636,282

SWITCH ASSEMBLY WITH IMPROVED PLUG-ACTUATING MEANS AND CONNECTION MATRIX INCLUDING STACKED PRINTED CIRCUIT BOARDS

Josef Kirchdorf, Gerlafingen, Switzerland, assignor to Ghilmetti AG, Solothurn, Switzerland

Filed Oct. 31, 1969, Ser. No. 872,901

Claims priority, application Switzerland, Nov. 7, 1968, 16633/68

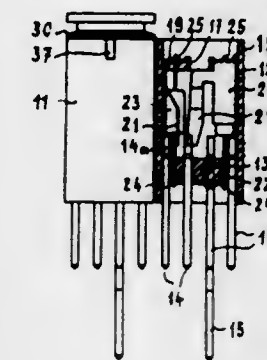
Int. Cl. H01h 15/00

U.S. Cl. 200-16 R

4 Claims

A multicontact data feeder is disclosed, the data feeder being utilized with a connection matrix having an input chan-

nel and a plurality of output channels. The data feeder comprises a switching body means having a hollow internal cavity; fixed contact pins for electrical connections to the input channel and the plurality of output channels of the connection matrix, said fixed contact pins extending into said hollow internal cavity of said switching body means; spring contact means disposed within said hollow internal cavity of said switching body means for each of said fixed contact pins, said spring contact means, when actuated, effecting electrical



connections between said fixed contact pins; plug member means adapted to be inserted into said hollow internal cavity of said switching body means, said plug member means including cam means for selective ones of said spring contact means, said plug member means, when inserted into said hollow internal cavity of said switching body means serving to deflect selective ones of said spring contact means against the associated fixed contact pins, whereby a given data distribution mode is effected.

3,636,283

LIMIT SWITCH OPERATOR

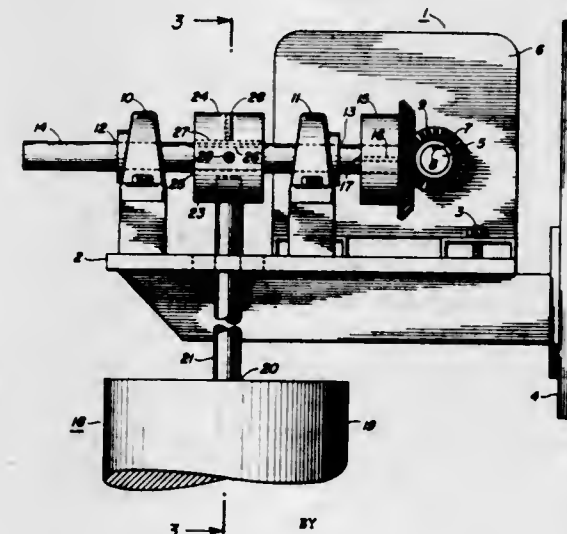
Robert A. Yohe, Steelton, and George L. McCall, Harrisburg, both of Pa., assignors to Bethlehem Steel Corporation

Filed Nov. 23, 1970, Ser. No. 91,722

Int. Cl. H01h 3/16

U.S. Cl. 200-61.48

5 Claims



An apparatus for operating a rotating cam limit switch. The switch is fastened to the framework of a tilting electric

arc furnace. The apparatus is a limit switch operator consisting of a pendulum suspended from a horizontal shaft and a pair of bevel gears. The bevel gears are mounted in meshing engagement on the limit switch shaft and the horizontal shaft respectively. As the furnace tilts, the limit switch moves in an arc around the pendulum. The pendulum remains vertical and provides the torque to the bevel gears that is required for initiating the limit switch contacts.

3,636,284

ELECTRICAL SNAP ACTION SWITCH APPARATUS

Donald F. Wilkes, Albuquerque, N. Mex., assignor to Rolamite Technology Incorporated, San Francisco, Calif.

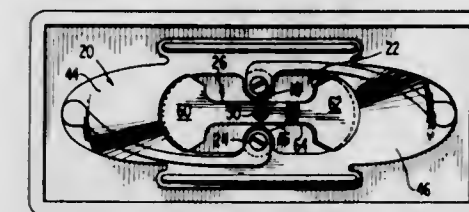
Continuation of Ser. No. 717,090, Mar. 29, 1968

Filed Oct. 27, 1970, Ser. No. 84,534

Int. Cl. H01h 13/48

U.S. Cl. 200-67 DA

22 Claims



An elastically coned bistable blade carries electrical contact surfaces at its outer free end and is caused to snap back and forth between opposed spaced-apart stationary contacts in response to movements of an inner portion of the blade. In one of its contacting positions, the blade is coned in one direction and, in the other, it is coned in the opposite direction.

3,636,285

VACUUM CLEANER HOSE ASSEMBLY

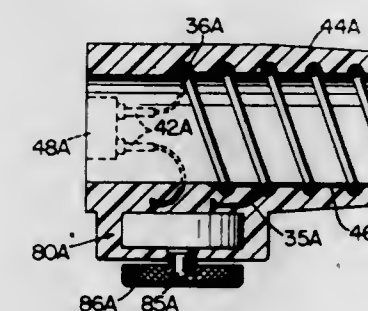
William T. Wickham, Waynesville, N.C.; Frank Brown, Dayton; Donald L. Kleykamp, West Carrollton, and Otto Kossuth, Dayton, all of Ohio, assignors to Dayco Corporation, Dayton, Ohio

Filed Aug. 7, 1969, Ser. No. 848,272

Int. Cl. H01r 33/30

U.S. Cl. 200-51 R

11 Claims



A vacuum hose is provided having a plurality of reinforcing wires in the form of electrical conductors which are made as an integral part of the hose and each conductor has electrical components fixed to its opposite ends. A pair of hose connectors is provided at opposite ends of the hose end formed substantially as an integral part thereof to define an

assembly with each hose connector having associated electrical components embedded therein and providing the sole support therefor.

3,636,286

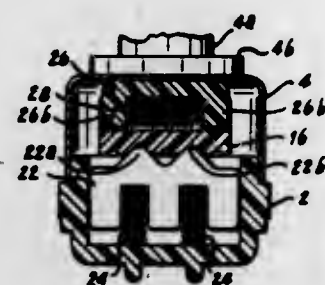
MINIATURE POSITIVE ACTION TOGGLE SWITCH
Harold W. Huitts, New Berlin, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Feb. 26, 1970, Ser. No. 14,446

Int. Cl. H01h 13/28

U.S. Cl. 200—68

10 Claims



A snap-action toggle switch of the positive action type. That is, after the toggle lever has been moved to load the drive spring, a direct driving connection from the toggle lever to the contacts forces contact movement in the event they stick together. The drive spring then causes snap-action movement of the switch contacts. The return spring and drive spring mechanisms are designed to fit into a smaller space to provide a miniature switch. The switch positioning, spring-biased plunger mechanism is designed for optimum trip point relative to contact operation for nontearing switch operation.

3,636,287

PRESSURE ACTUATABLE SNAP-ACTION SWITCH WITH SLIDE- AND CAM-ADJUSTING MEANS

Jorgen Jorgensen, Sonderborg; Nils B. Iversen, and Jens N. Andresen, both of Nordborg, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

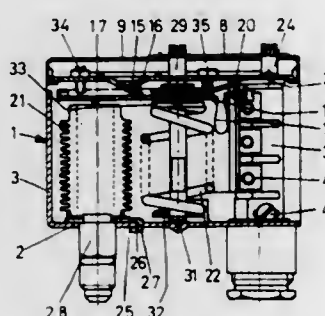
Filed Jan. 15, 1970, Ser. No. 3,067

Claims priority, application Germany, Feb. 14, 1969, P 19 07 426.1

Int. Cl. H01h 35/32

U.S. Cl. 200—83 P

5 Claims



The invention relates to a snap-action switch assembly of the type having a main lever arm and an omega spring. The lever arm is acted upon by a bellows and a coil spring which

are adjacently positioned on the opposite sides of a fulcrum which pivotally supports the lever arm. The omega spring engages one end of the lever arm and an adjustment feature for the omega spring is provided. The force of the omega spring can be adjusted over a relatively wide range because it does not have to perform the additional function of providing sufficient force to press the lever arm against its pivoting bearing. The adjustment means includes a slide member and a cam means accessible to an operator and for operating said slide member.

3,636,288

PRESSURE RESPONSIVE SWITCH WITH DIFFERENTIAL AND RANGE ADJUSTING MEANS INCLUDING A DIFFERENTIAL NUT

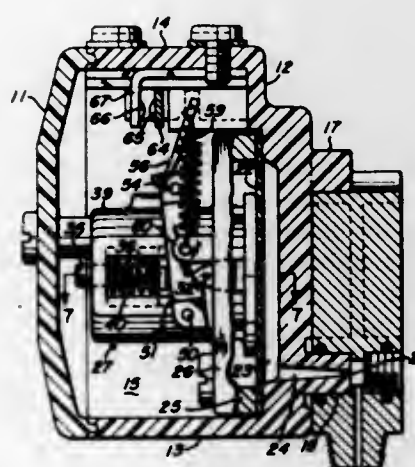
Linus E. Russell, Springfield, Ohio, assignor to Peters and Russell, Inc., Springfield, Ohio

Filed Oct. 10, 1969, Ser. No. 865,286

Int. Cl. H01h 35/34

U.S. Cl. 200—83 SA

12 Claims



A pressure-sensitive switch is diaphragm controlled to operate through the medium of a spring loaded actuator. The actuator seats a nut which may be differentially positioned to control the interval required for moving the switch between "on" and "off" positions. The nut follows movement of pressure responsive seat means, and is adjustable relative thereto. The switching contacts are caused to function by the actuator through the medium of the aforementioned nut and hingedly related elements. Embodiments of the invention are distinguished by spring controls which insure a positive and flutter-free snap action.

3,636,289

DIFFERENTIAL FLUID PRESSURE ACTUATED ELECTRICAL SWITCH

Clarence R. Possell, 4842 Vlane Way, San Diego, Calif.

Filed Oct. 20, 1969, Ser. No. 867,437

Int. Cl. H01h 35/32; F01b 19/04; F16j 3/00

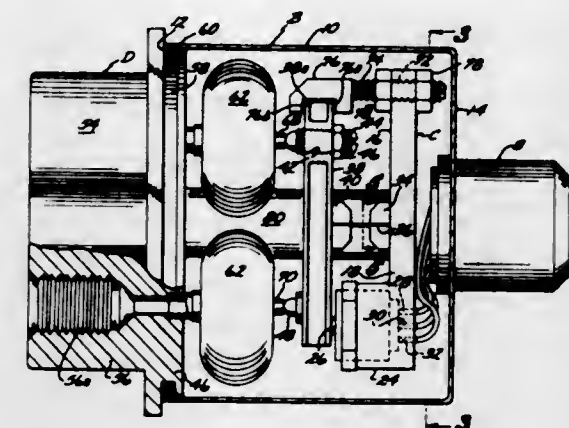
U.S. Cl. 200—83 D

1 Claim

A differential fluid pressure actuated electrical switch that includes first and second resilient hollow deformable bodies, the interiors of which are connected to first and second sources of fluid at variable pressures, with said first source normally being at a higher fluid pressure than that in said second source. Parallel first and second force-exerting members project from said bodies, and bear against an elongate, movable actuator, which actuator when moved in a first direction, moves a spring-actuated member of an electrical switch from a first to a second position to either open or

close said switch. The actuating member is moved from said first to said second position only when the pressure of fluid in

switch structure is constructed and arranged such that the position of the contacts can be readily determined by visual inspection from the front of the enclosure when the enclosure cover is in the open position. Means are provided for



said second body is at a predetermined, elevated pressure differential relative to the fluid in said first body.

3,636,290

ONE-PIECE SLIDING CONTACT

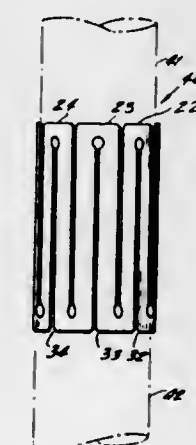
Leonard J. Kucharski, Chester, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed June 2, 1970, Ser. No. 42,734

Int. Cl. H01h 1/46

U.S. Cl. 200—166 D

4 Claims



A one part contact of highly flexible multifinger construction particularly useful for high-current applications.

3,636,291

ELECTRIC SWITCHGEAR WITH CONTACT VIEWING AND CONTACT MOUNTING MEANS

Alexander R. Norden, New York, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application June 8, 1965, Ser. No. 462,361, now Patent No. 3,525,835. Divided and this application Dec. 12, 1969, Ser. No. 889,804

Int. Cl. H01h 1/58, 9/16

U.S. Cl. 200—166 BG

4 Claims

An improved switch device comprises an enclosure and a switch structure supported within the enclosure, which



supporting the contact arm structures on an insulating support member comprising a U-shaped receiving aperture on said insulating support member, and a U-shaped contact snappable into said aperture.

3,636,292

VACUUM SWITCH FOR ALTERNATING CURRENT INTERRUPTION

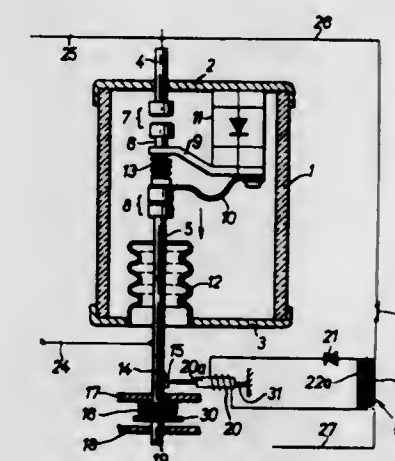
Adrian W. Roth, Aarau, Switzerland, assignor to Sprecher & Schuh A.G., Aarau, Switzerland

Continuation-in-part of application Ser. No. 706,384, Feb. 19, 1968, now abandoned. This application Oct. 16, 1970, Ser. No. 81,375

Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

3 Claims



A vacuum switch for alternating current interruption comprises two pairs of separable operating contacts arranged in a vacuum chamber and connected in an alternating current circuit. A semiconductor diode is mounted within the vacuum chamber and connected for bridging one of the pairs of operating contacts. Drive means are provided for actuating said pairs of contacts in such manner that for interrupting the alternating current circuit the pair of contacts which is bridged by the semiconductor diode is caused to separate prior to separation of the other pair of contacts.

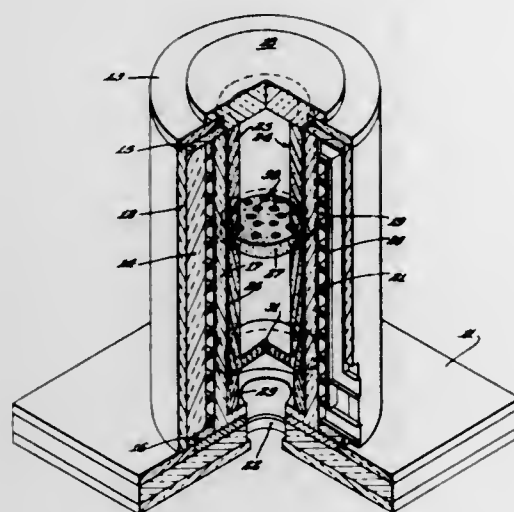
3,636,293 METHOD AND APPARATUS FOR MELTING VITREOUS-TYPE MATERIALS

Harry E. Schneider, Elmhurst, and William J. Plankenhorn, Lombard, both of Ill., assignors to Eagle-Picher Industries, Inc., Cincinnati, Ohio

Filed Apr. 15, 1970, Ser. No. 28,643
Int. Cl. H05b 5/00, 9/00

U.S. Cl. 219-10.49

5 Claims



Method and apparatus for melting vitreous-type materials utilizing induction heating in a continuous process. The materials to be melted, in particle or pellet form are supported within an electrically conductive susceptor, and temporarily supported on a refractory support. The heat radiated from the inductively heated susceptor serves to render the pellets fluid whereupon they pass through suitable orifices in the refractory support into a lower chamber where they are held with additional heating for a time sufficient to complete the required time-temperature relationship.

3,636,294

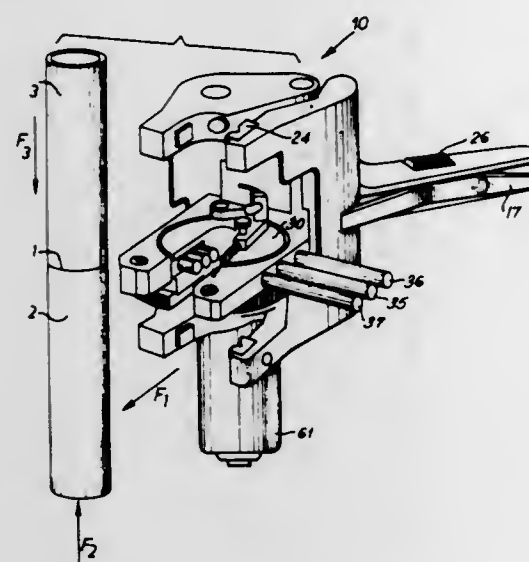
SELF-CENTERING TUBE-BUTTING CLAMP

Jean Pierre Peyrot, 8 Domaine du Bel Abord, Chilly-Mazarin, Essonne, France

Filed Dec. 30, 1969, Ser. No. 889,163
Claims priority, application France, Dec. 31, 1968, 182,992
Int. Cl. B23k 9/02

U.S. Cl. 219-60 A

12 Claims



A self-centering clamp for welding, machining and checking cylindrical parts. The clamp is mounted astride two

tubes butted against each other, upon which it centers and finally fixes itself. Once fixed on the tubes, the clamp permits a toothed wheel in the shape of a C to drive in rotation round the tubes, tools for welding, machining or checking same under automatic control and with programmed sequences.

3,636,295

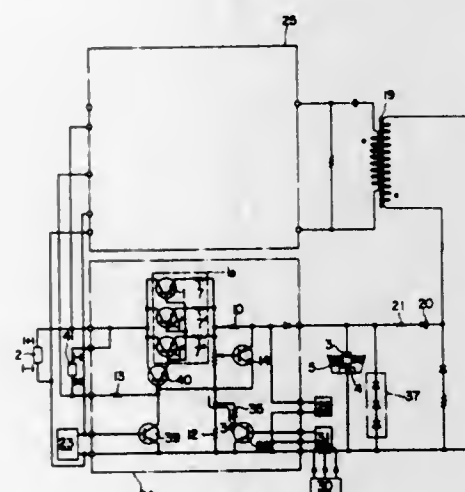
POWER SOURCE DEVICE FOR ELECTRICAL DISCHARGE MACHINING

Iwao Kondo, 39-9 Kita-machi 1-chome, Nerima-ku, Tokyo, Japan

Filed Jan. 21, 1970, Ser. No. 4,538
Claims priority, application Japan, Jan. 21, 1969, 44/4538
Int. Cl. B23k 9/16

U.S. Cl. 219-69 C

9 Claims



A power source device for electrical discharge machining, in which a large machining current in excess of a certain present limit is automatically reduced while continuing the machining operation. A current-detecting resistor is provided in series with a discharge gap for machining, which resistor generates an output when the machining current becomes too large. A switching element responds to the output from the current-detecting resistor and reduces the machining current.

3,636,296

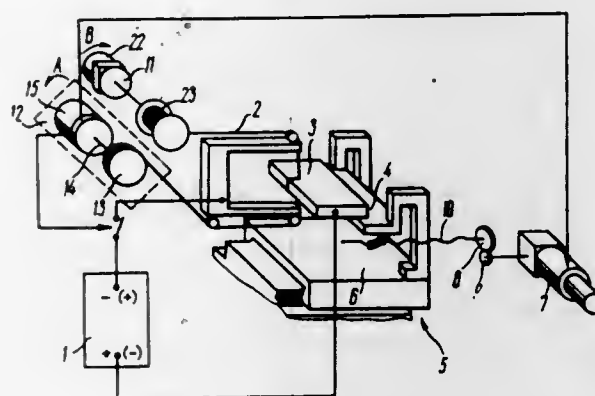
ARRANGEMENT FOR STOPPING AUTOMATICALLY AN ELECTRIC SPARK ERODING MACHINE HAVING ITS WORK-PERFORMING ELECTRODE TOOL IN THE SHAPE OF A WIRE OR BAND

Gennady Gavrilovich Semin, ulitsa Tsentralnaya, 15, kv. 31, Fryazino Moskovskoi Oblasti, U.S.S.R.

Filed Dec. 15, 1970, Ser. No. 98,274
Int. Cl. B23p 1/08

U.S. Cl. 219-69 S

4 Claims



An arrangement for stopping an electric spark-eroding machine having a work-per-

forming electrode tool thereof in the shape of a wire or band, wherein deenergization of the electric drives of the machine is effected by means of a mechanism including an overrunning clutch. The driving member of this overrunning clutch is the driving shaft of an electric motor, while the driven member of the clutch is a sleeve mounted eccentrically with respect to this driving shaft and rotatable relative thereto. The sleeve is provided with a projection adapted to engage a stationary abutment which is thus adapted to check the rotation of the sleeve and cause interruption of a source of electric power supplying an electrode which is in the shape of a wire or band to stop the machine in the event of an accidental wire or band breakage.

3,636,297

REFRACTORY METAL BRAZING WITH NIOBIUM PENTOXIDE FLUX

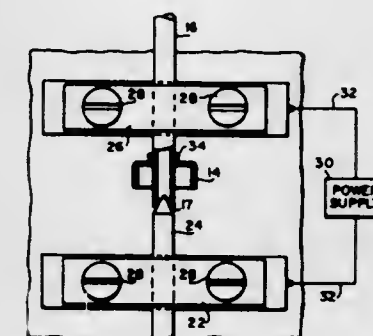
Willard M. Pakutka, Orange; Nicholas F. Cerulli, North Caldwell, and Gerald T. Scanlon, Somerset, all of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 15, 1970, Ser. No. 80,987

Int. Cl. B23k 1/04

U.S. Cl. 219-85

7 Claims



A method for sealing the niobium end cap of a ceramic arc tube to the tantalum exhaust and fill tubulation which comprises the steps of: placing the tubulation through a close fit aperture in the end cap, painting the areas of the tubulation and end cap to be brazed with a pastelike solution of niobium pentoxide, positioning a niobium, or a niobium and a titanium, ring or wire about the tubulation in a position contacting both the end cap and the tubulation at their juncture, and passing sufficient electric current through the tubulation to cause the ring or rings to melt and seal the end cap to the tubulation.

3,636,298

STATIC SQUARE-WAVE RESISTANCE TUBE WELDING SYSTEM

Robert L. Risberg, and Blakeslee G. Wheeler, both of Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Oct. 20, 1969, Ser. No. 867,703

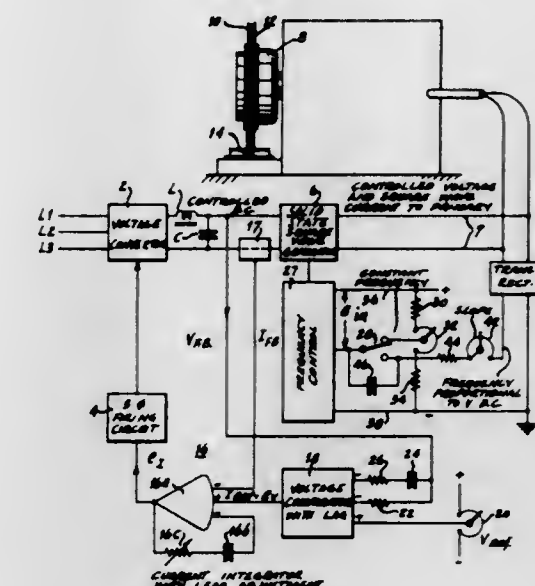
Int. Cl. B23k 11/24

U.S. Cl. 219-108

13 Claims

A resistance welder system for welding a continuous seam throughout the length of a tube or pipe having controlled thyristors for generating a square-wave current of a desired amplitude and at constant or variable frequency. The power is generated and transmitted at high voltage low current and transformed at the welder electrodes to low voltage high current. The system includes a controlled DC link for obtaining a desired voltage and current from a constant voltage source, and a static square-wave generator consisting of an inverter

with forcing to generate a square-wave AC current from the DC link output. The voltage converter for controlling the DC link is regulated by a voltage regulator to maintain an



average value of AC voltage at the electrode transformer, and a fast responding minor loop current regulator to maintain constant current in the presence of transient changes in resistivity or contact resistance.

3,636,299

LAZY SUSAN HOTPLATE

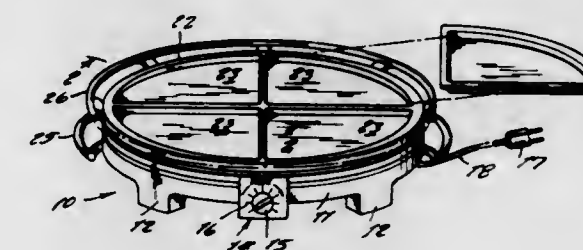
Luther H. Stewart, Jr., P.O. Box 5242, San Mateo, Calif.

Filed Nov. 12, 1970, Ser. No. 88,868

Int. Cl. H05b 1/00

U.S. Cl. 219-201

2 Claims



A hotplate is which to serve foods upon, the device incorporating the advantages of a hotplate and a conventional lazy susan so that the food may be maintained in a heated condition and which can be conveniently brought into convenient proximity for a person to serve. The device comprising a selective heating coil selectively controlled in temperature by a manually regulated potentiometer, the base having an up-standing central post about which a Pyrex-type of plate is pivotable, the plate being dishd with individual compartments into each of which a separate Pyrex plate of corresponding shape to the compartment is fitted and each one of which is adaptable for containing a specific food intended to be kept heated while upon a dining table.

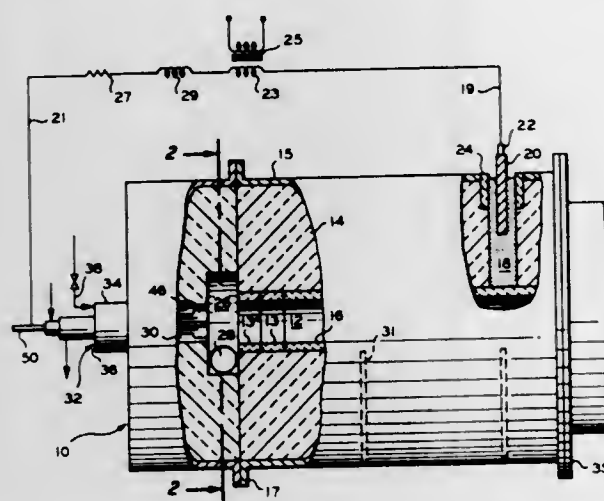
3,636,300 METHOD FOR THE PRODUCTION OF HIGH-TEMPERATURE GASES

Thomas J. Gunnell, and Albert F. Stegelman, both of Bartlesville, Okla., assignors to Phillips Petroleum Company
Continuation of application Ser. No. 518,332, Jan. 3, 1966, now abandoned. This application Jan. 30, 1969, Ser. No. 795,323

Int. Cl. H05b 7/00

U.S. Cl. 219-121 P

5 Claims



Hot gases are formed by establishing an electrical discharge in substantially uniform distribution throughout a zone, passing a gas through said zone in the absence of a flame and in contact with said discharge to increase the temperature of said gas, said electrical discharge being distributed substantially uniformly through said gas. High-temperature gases formed by said method are useful in the production of carbon black.

3,636,301 FLUX FOR WELDING LIGHT ALLOYS

Anatoly Yakovlevich Ischenko, ulitsa Sholom Aleikhema, 26/23, kv. 122, and Anatoly Grigorievich Sinchuk, ulitsa Krasnoarmeiskaya, 51, kv. 37, both of Kiev, U.S.S.R.

Filed May 7, 1970, Ser. No. 35,568

Claims priority, application U.S.S.R., May 30, 1969, 1335972
Int. Cl. B23k 25/00, 35/36

U.S. Cl. 219-137

2 Claims

Fluxes for welding light alloys such as aluminium or aluminium-based alloys, composed essentially of the following substances by weight percentage:

sodium chloride, 30-35 percent;

sodium fluoride, 28-30 percent;

potassium chloride, 15-20 percent; and

lithium fluoride, 20-22 percent.

The flux is mostly applicable in machine building for electrolag welding of heavy objects made of light aluminium-based alloys.

3,636,302 METAL VAPOR GENERATORS

Paolo Della Porta, and Carlo Emili, both of Milan, Italy, assignors to S.A.E.S. Getters S.p.A., Milan, Italy

Filed Sept. 10, 1969, Ser. No. 856,567

Claims priority, application Italy, Sept. 13, 1968, 21175 A/68

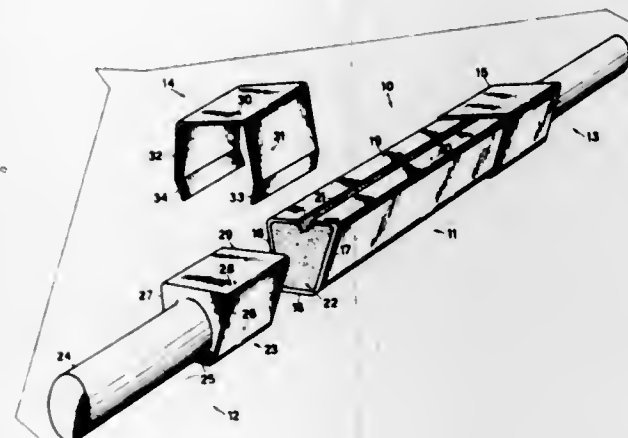
Int. Cl. C23c 13/00

U.S. Cl. 219-271

19 Claims

A metal vapor generator comprising: a hollow tube containing a metal vapor releasing substance, the tube having an

opening to permit escape of the metal vapor; a terminal having a cross section of the same size and geometric shape as the cross section of the tube; and a retainer holding the end of the terminal against the end of the tube; whereby the



metal vapor releasing substance is held within the tube. The generator can optionally have a flexible member for temperature compensation. These generators are useful for releasing metals such as cesium in tubes such as image intensifiers.

3,636,303 APPARATUS FOR METAL VAPORIZATION COMPRISING A REDUCED CROSS SECTION HEATER AND A REFRACTORY VESSEL

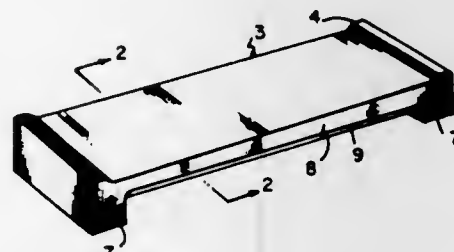
Edmund M. Passmore, Wilmington, Mass., assignor to GTE Sylvania Incorporated

Filed Mar. 10, 1971, Ser. No. 122,792

Int. Cl. C23c 13/02

U.S. Cl. 219-271

10 Claims



An improved evaporation source for vacuum deposition of metals comprises a refractory vessel heated and supported by a separate heater. The vessel has a cavity to contain the metal to be evaporated and has a uniform wall thickness beneath the cavity. The heater comprises an electrically conductive refractory material shaped so as to support the vessel only at the ends thereof but to be in efficient heat transfer relationship therewith. Additionally, the heater has a reduced cross section between its ends in order to provide higher end contact area than cross-sectional area and to also prevent buckling when the heater is supported by axial compressive contacts.

3,636,304 APPARATUS FOR METAL VAPORIZATION COMPRISING A HEATER INSERTED INTO A REFRACTORY VESSEL

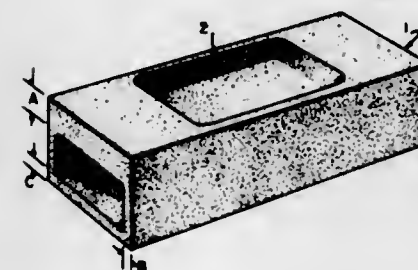
Edmund M. Passmore, Wilmington, Mass., assignor to GTE Sylvania Incorporated

Filed Mar. 10, 1971, Ser. No. 122,791

Int. Cl. C23c 13/02

U.S. Cl. 219-271

7 Claims



An improved evaporation source for vacuum deposition of metals comprises a refractory vessel heated and supported by a separate heater inserted in the vessel. The vessel has a cavity to contain the metal to be evaporated and has a uniform wall thickness beneath the cavity. The heater comprises an electrically conductive refractory material shaped so as to support the vessel only at the ends thereof but to be in efficient heat transfer relationship therewith.

3,636,305 APPARATUS FOR METAL VAPORIZATION COMPRISING A HEATER AND A REFRACTORY VESSEL

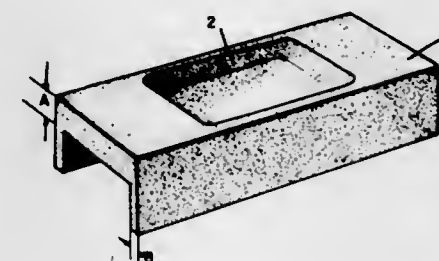
Edmund M. Passmore, Wilmington, Mass., assignor to GTE Sylvania Incorporated

Filed Mar. 10, 1971, Ser. No. 122,799

Int. Cl. C23c 13/02

U.S. Cl. 219-271

7 Claims



An improved evaporation source for vacuum deposition of metals comprises a refractory vessel heated and supported by a separate heater. The vessel has a cavity to contain the metal to be evaporated and has a uniform wall thickness beneath the cavity. The heater comprises an electrically conductive refractory material shaped so as to support the vessel only at the ends thereof but to be in efficient heat transfer relationship therewith.

3,636,306 INFRARED HEATER AND VENTILATOR UNIT

Ward H. Bumpus, Newark, N.Y., assignor to Fasco Industries, Inc., Rochester, N.Y.

Filed Apr. 23, 1970, Ser. No. 31,079

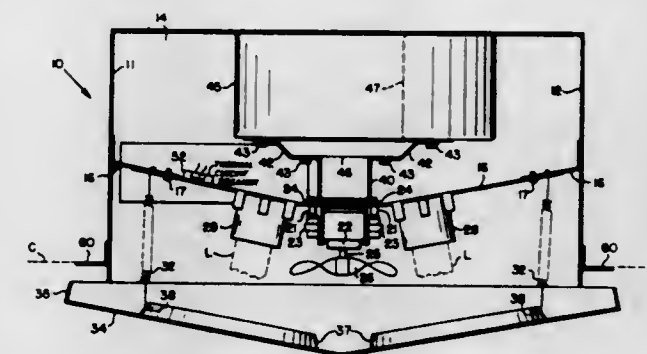
Int. Cl. F24h 3/04; H05b 3/06

U.S. Cl. 219-361

2 Claims

An infrared heater and ventilator unit comprises a rectangular, sheet metal housing adapted to be mounted in the ceiling of a room with the lower end of the housing approximately flush with the ceiling. Two infrared lamps are mounted in

sockets that are fastened to the underside of a narrow bar or strap that extends centrally across the housing. A small fan is mounted on the strap between the lamps to blow heat therefrom downwardly into the room; and a ventilator blower



is mounted above the fan to draw air upwardly into the housing from the room, and to exhaust the air into the space above the ceiling. The fan motor is wired to operate whenever one or more of the lamps is energized; and the blower is operable independently of the lamps.

3,636,307 ELECTRIC ARTIFICIAL FIREPLACE

Richard A. Pearce, Rochester, N.Y., assignor to Fasco Industries, Inc., Rochester, N.Y.

Filed July 17, 1970, Ser. No. 55,819

Int. Cl. F24h 3/04; H05b 1/00; F24h 9/02

U.S. Cl. 219-370

3 Claims



The fireplace includes a hearth section having a screen-covered opening in its front wall, and a hollow canopy section fastened over the hearth section and extending beyond the sides and front thereof so that spaces are formed between the sections at the front and sides of the fireplace. An andiron and imitation logs may be placed in the hearth section. A fan and electrical heating elements are mounted in a chamber within the canopy. This chamber has an inlet opening on the interior of the canopy, and an outlet opening at the front of the fireplace. When the fan operates, air is drawn into the chamber through the screened opening in the hearth section and the lateral spaces between the sections, and is heated by the electrical elements to be discharged through the outlet and send heat into the room.

3,636,308

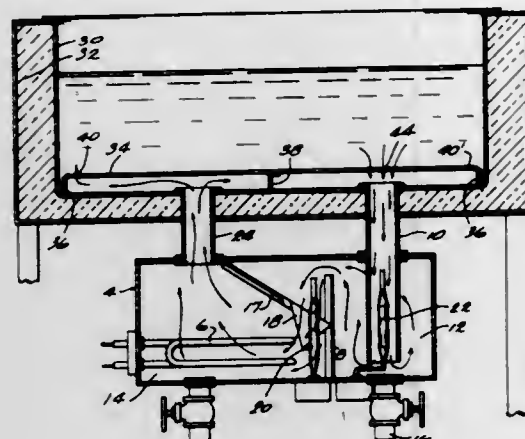
APPARATUS FOR RECONSTITUTING FROZEN FOOD
Kenneth G. Hatch, Milwaukee, Wis., assignor to Hatco Corporation, Milwaukee, Wis.

Filed Apr. 9, 1970, Ser. No. 26,907

Int. Cl. B01J 11/74

U.S. Cl. 219-439

4 Claims



To thaw and cook frozen food the food is placed on a supporting baffle in a container in which it is completely immersed in water or other cooking liquid and the liquid is caused to circulate rapidly through all parts of the food for uniform heating at an accelerated rate of heat exchange. Rapidity of circulation is achieved by heating the water in one part of a closed circuit and directing it by baffles.

3,636,309

CERAMIC-TOP COOKING ASSEMBLY FRACTURE DETECTOR

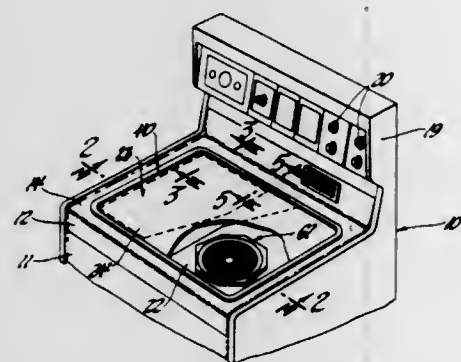
Homer W. Deaton, Centerville; Robert R. Gould, Jr., and Roy R. Smith, both of Dayton, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 19, 1970, Ser. No. 90,948

Int. Cl. H05b 3/68

U.S. Cl. 219-452

3 Claims



A protective circuit arrangement for an infrared radiant-type cooking assembly including a frangible utensil-supporting cover plate of infrared transmissive material with underlying heater blocks in contact with the cover plate and having an open-coil uninsulated resistance element supported on the heater blocks in spaced relation to the plate. A conductive stripe located around the periphery of the cover plate is connected in the circuit having an electronic switch arrangement for sequentially open circuiting the powerlines to the cooking

assembly should breakage of the cover plate occur to obviate any shock hazard.

3,636,310

HEAT-RESPONSIVE TEMPERATURE CONTROL DEVICE

Tomoyuki Hosokawa, Takarazuka; Toshii Tsugeki, Takatsuki, and Shigeru Kusunoki, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

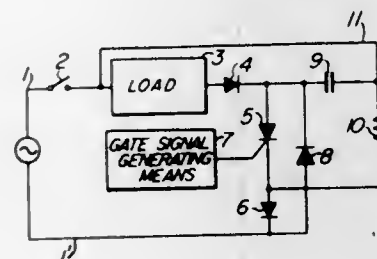
Filed Apr. 17, 1970, Ser. No. 29,460

Claims priority, application Japan, Apr. 22, 1969, 44/32423

Int. Cl. H05b 1/02

U.S. Cl. 210-501

6 Claims



An improved heat-responsive temperature control device used for electric blankets, electric carpets and the like in which the reliability thereof is improved and the radio interference thereby is obviated by performing nonmechanical contacting temperature control and zero-voltage switching of the heater.

3,636,311

HEATING DEVICES FOR VEHICLE WINDOWS

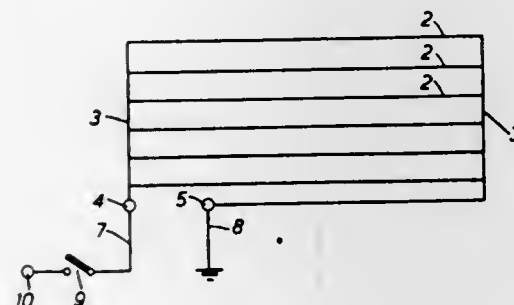
Robert Hugo Steger, Waldburgstrass 29, Boblingen, Baden Wuttemberg, Germany

Filed Nov. 21, 1969, Ser. No. 878,847

Int. Cl. H05b 3/06

U.S. Cl. 219-522

1 Claim



A heating device for attachment to a vehicle window for deicing, defrosting or demisting purposes. The device comprises a sheet of flexible transparent material and means, such as an adhesive border, for attaching it to the vehicle window, and an electrical resistance heating element in the form of a layer of electrically conducting material, formed for example from metallic particles carried in a binder, bonded to the surfaces of the sheet.

3,636,312

LIVESTOCK WATER TANK WATER TEMPERATURE CONTROL APPARATUS

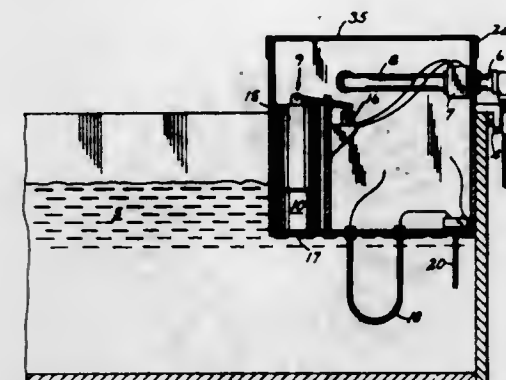
Robert F. Dreher, 7861 Kenwood, and Albert H. Dreher, 6873 Brighton Blvd., both of Commerce City, Colo.

Filed Feb. 6, 1970, Ser. No. 9,156

Int. Cl. A01k 7/02; H05b 3/06

U.S. Cl. 219-523

5 Claims



An apparatus for controlling the water temperature in a livestock tank is provided with a conduit including a solenoid valve for controlling the supply of water to the tank. A water level detector controls the valve operation to maintain a predetermined water level in the tank. A first electric heater, which may comprise an electric light bulb, is provided adjacent the valve for heating the valve to prevent freezing. A second electric heater is provided for heating the water in the tank. In one embodiment, the conduit, valve, water level detector and first and second heaters are supported by a closed housing arranged to be removably mounted in the tank from the top edge thereof. This embodiment also includes separate thermostats for controlling operation of each of the first and second heaters. In another embodiment, the conduit, water level detector, valve and first and second heaters are permanently mounted to the tank.

3,636,313

HIGH-RESOLUTION MAGNETIC CLOCK GENERATOR

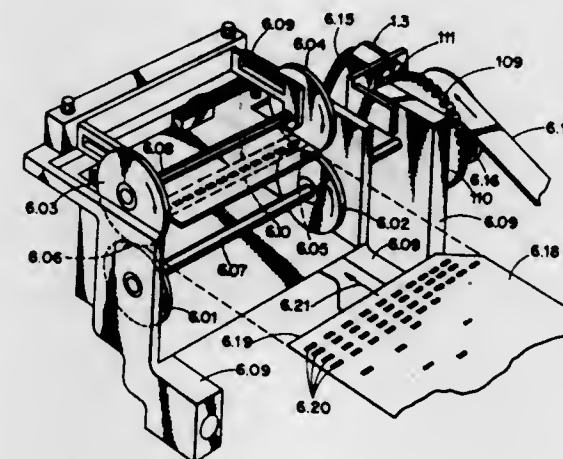
Ivan N. Markowitz, Framingham, and Abraham Cherian, Marlboro, both of Mass., assignors to Honeywell, Inc., Minneapolis, Minn.

Filed May 6, 1970, Ser. No. 34,934

Int. Cl. G06k 7/016

U.S. Cl. 235-61.11 D

21 Claims



An improved high-resolution magnetic clock generator is disclosed for generating timing pulses particularly useful in combination with an electronic punched card reader for timing or synchronizing the reading and/or transmission of information

being stored in uniformly spaced columns of punched cards. A magnetoresistor assembly in combination with a rotating toothed wheel or gear generates two sinusoidally varying electric signals 90° out of phase with each other, said signals being subsequently processed through a circuit means to convert said sinusoidally varying signals to an electric pulse train whose frequency is proportional to wheel speed and independent of wheel eccentricity.

3,636,314

DIGITAL INCREMENTAL PLOTTER SYSTEM

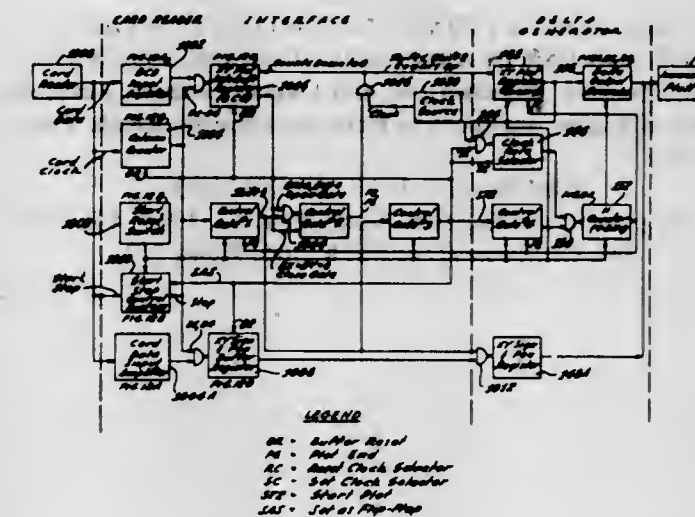
Philip T. Kan, Glendale, and Andrew S. Huson, Northridge, both of Calif., assignors to Benson-Lehner Corporation, Van Nuys, Calif.

Filed Apr. 6, 1967, Ser. No. 628,923

Int. Cl. G01d 11/00; G05b 19/16; G06g 7/64

U.S. Cl. 235-61.6 R

3 Claims



An improved digital incremental plotter system is provided in which information to be plotted is derived from an associated digital computer in the form of successive blocks of data each comprising a series of instructions, either directly on-line, or in an off-line manner from a magnetic tape transport or equivalent storage unit.

3,636,315

GUEST IDENTIFICATION APPARATUS AND METHOD

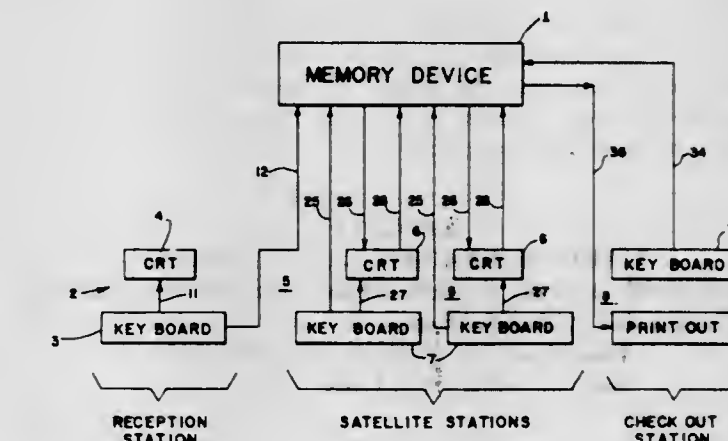
Charles P. Comeau, Oreland, Pa., assignor to Captain International Industries, Ltd., Vancouver, British Columbia, Canada

Filed Nov. 10, 1969, Ser. No. 875,146

Int. Cl. G06k 15/00

U.S. Cl. 235-61.7 B

7 Claims



Apparatus and method to rapidly check the identity of a person against known identifying information prior to per-

mitting that person to charge incurred expenses to the account of a known person. The apparatus and method also provide a system for rapidly recording charged expenses, after checking identity, as being incurred by the known person. The system is particularly useful in hotels and motels where a guest or other known person is permitted to incur expenses at various locations, such as a restaurant, where that person may not be known to the cashier. The person who wishes to make a charge provides the cashier or other employee with his name and other identifying information such as a room number or account number and, prior to recording this charge against the account of the person so identified, the cashier or other employee is provided with a visual display of correct descriptive information for comparison. If the information given by the charging guest is correct, the charges incurred are then recorded against the account of the known person.

3,636,316

DEVICE FOR DETERMINING INITIAL POSITION OF CARDS FOR USE IN A DATA PROCESSING EQUIPMENT
Takami Suzuki, Fujisawa-shi, and Osamu Uozumi, Zushi-shi, both of Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

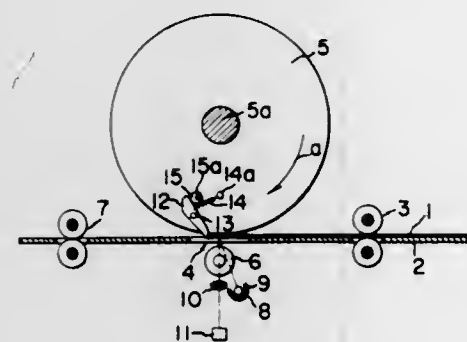
Filed Jan. 27, 1970, Ser. No. 6,130

Claims priority, application Japan, Feb. 12, 1969, 44/11996

Int. Cl. G06k 7/14; B65h 9/06; H04q 1/02

U.S. Cl. 235—61.11 E

3 Claims



A device for determining the initial position of a card for use in a data processing equipment, said device having a positioning member which is retractably extended beyond the outer peripheral surface of a feed roller. When upon rotation of said feed roller said positioning member reaches a predetermined position and when the card exists at said position, the leading end of said positioning member makes contacts with said card and is then retracted inwardly of said feed roller. Even when the length of a card is longer than the circumference of the feed roller, the transportation of cards is not adversely affected at all.

3,636,317

MACHINE READABLE CODE TRACK

Bradford M. Torrey, Carlisle, Mass., assignor to Charecogn Systems, Inc., Allston, Mass.

Filed Apr. 28, 1969, Ser. No. 819,760

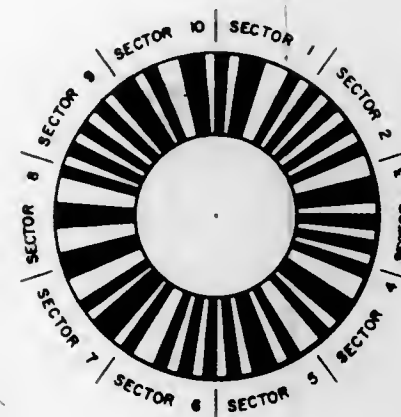
Int. Cl. G02b 5/14; G06k 7/10, 19/00

U.S. Cl. 235—61.12 N

6 Claims

Encoded information is contained in a circular track having sector patterns formed by abutting segments. The segments are all of equal angular extent and extend around the track with each sector containing the same number of segments. Each segment has a binary value and the sequence of binary segments in a sector represents the encoded informa-

tion. Each different sequence can, for example, represent a different decimal numeral. An encoded "start" sector is employed that is not duplicated by any sequence of segments that can occur from assembling the decimal coded sectors in any order whatsoever. The circular track is thereby assured of containing within it only one "start" pattern regardless of



the other information encoded in the track. The sector codes are chosen so that when the sectors are assembled in abutting relation, no more than two like valued segments occur in succession in the track. The transitions between differently valued segments provide the timing information for decoding the markings.

3,636,318

VERIFIABLE IDENTIFICATION DOCUMENT

Gunnar Lindstrom, and Gunde Schullstrom, both of Linköping, Sweden, assignors to Saab Aktiebolag, Linköping, Sweden

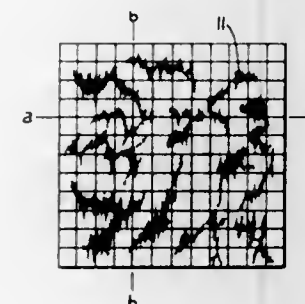
Filed June 24, 1969, Ser. No. 836,000

Claims priority, application Sweden, June 24, 1968, 8489/68

Int. Cl. G06k 7/08

U.S. Cl. 235—61.12 M

4 Claims



A document used to assert a personal right has a randomized unique pattern of normally invisible but mechanically detectable material (e.g., finely divided ferromagnetic material) in a zone overlapping any visible indicia identifying the owner. The document is presented to a mechanical reader which scans the pattern along predetermined lines and records resultant output signals, along with an identifying record. Upon subsequent presentation, it is similarly scanned, for comparison with the recording to confirm its authenticity. Methods of producing appropriate patterns are disclosed.

3,636,319

CIRCUIT FOR DISPLAYING DATA KEYED INTO DATA SYSTEM

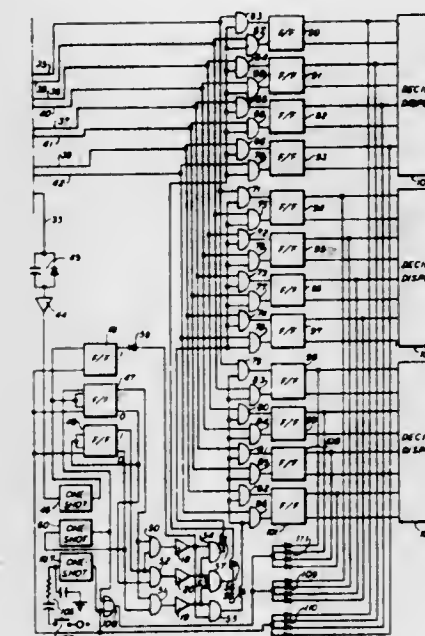
Earl H. Nixon, Greensboro, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 19, 1970, Ser. No. 12,665

Int. Cl. H03k 21/22

U.S. Cl. 235—92 EA

2 Claims



Data from a keyboard entered into a data system is displayed on decimal output units. A counter stepped by each digit entered operates a plurality of gates to direct the data to a particular register which operates a display unit in accordance with the significance of the order of the digit. In an alternative embodiment, each digit is entered into an end display unit and then successively shifted across the display units as the next digit is entered.

3,636,320

NONREVERSIBLE ODOMETER

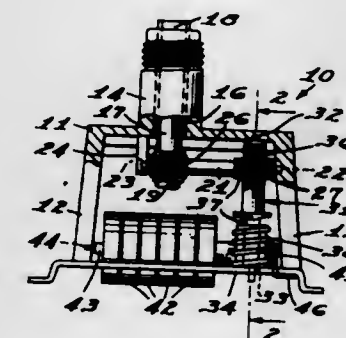
George C. Wallis, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 23, 1970, Ser. No. 64,049

Int. Cl. G01c 22/00

U.S. Cl. 235—95

2 Claims



A nonreversible odometer for a driven vehicle includes a plurality of driven number wheels which display the total distance traveled by the vehicle. The gear train of the odometer is designed so that an input thereto which increases the total indicated travel of the vehicle is transmitted through the gear train to increase the travel distance displayed on the

number wheels. On the other hand, if the input to the odometer is one which would decrease the total displayed travel of the vehicle, the drive between the input shaft and the number wheels is interrupted and no decrease is effected.

3,636,321

AIRCRAFT REFERENCE PROGRAM GENERATOR
Robert K. Kirchner, Bellevue, Wash., assignor to Sundstrand Data Control, Inc.

Filed Dec. 10, 1969, Ser. No. 883,852

Int. Cl. G06g 7/26, 7/78

U.S. Cl. 235—150.2

12 Claims



An analog position transducer connected to an aircraft flap generates a linear voltage representing flap position. Separate switching stages are responsive to different potential levels of the linear voltage to produce separate output waveforms which are summed by an operational amplifier for each reference program which is to be generated. The disclosed reference programs correlate desired angle of attack to flap position for an aircraft approach program and a climbout program.

3,636,322

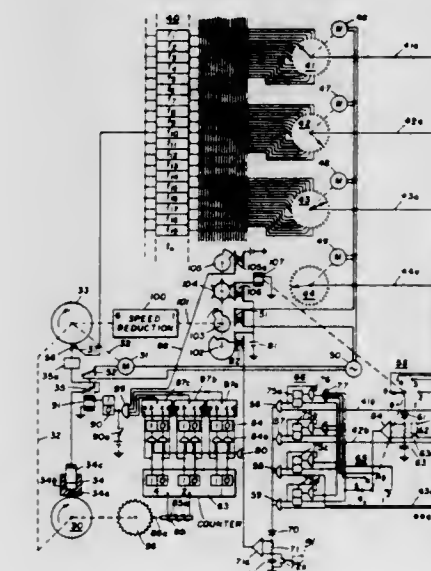
OPTIMIZATION WITH FUNCTION GENERATORS
Robert F. Wheeling, Mullica Hill, N.J., assignor to Mobil Oil Corporation

Filed Feb. 15, 1963, Ser. No. 258,791

Int. Cl. G05b 13/02

U.S. Cl. 235—150.1

5 Claims



Method and apparatus for optimizing a system which includes the selection from a plurality of function models of a

fractional portion of such models as a test group. Thereafter, a member of the group having characteristics most nearly corresponding with a selected function characteristic is then optimized. The system is then sampled at a point in the region of the point corresponding with the optimum of the member selected from the test group.

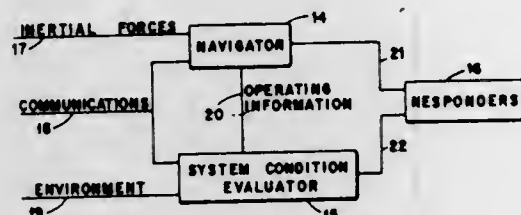
3,636,323

GEOGRAPHIC POSITION LOCATOR

John D. Salisbury, Livermore; Marvin R. Gustavson, Danville, both of Calif., and John S. Foster, Falls Church, Va., assignors to The United States of America as represented by the United States Atomic Energy Commission
Filed May 1, 1970, Ser. No. 33,803
Int. Cl. G06F 15/50

U.S. Cl. 235-150.25

9 Claims



A system and method for tracking its own geographic position, comparing that position with stored boundary data, i.e., a "map," and responding whenever the apparatus crosses the boundary as defined on the "map." In operation, inertial measurements are processed to produce signals representative of computed position. These signals are compared with stored positional data, whereupon a response mechanism may be activated. The system includes a means for determining its motion state so that the system can calibrate itself when there is no significant motion. Thus, the system offers new options for the use of conventional as well as nuclear weapons, as well as for other type of vehicle position determination.

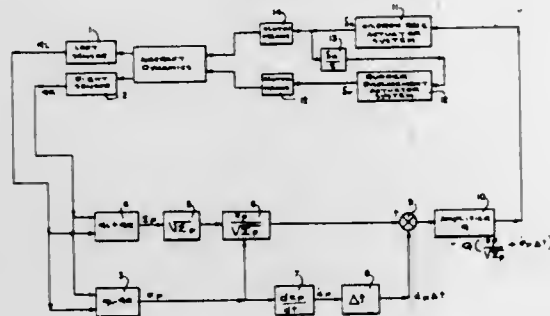
3,636,324

AIR DATA LATERAL-DIRECTIONAL STABILITY AUGMENTATION SYSTEM

Daniel O. Dommasch, Blawenburg, N.J., assignor to The United States of America as represented by the Administrator of the Federal Aviation Administration
Filed Jan. 28, 1970, Ser. No. 6,636
Int. Cl. G06g 7/78

U.S. Cl. 235-150.2

6 Claims



A system designed to augment lateral-directional stability of aircraft without the use of conventional gyroscopic sensing

elements. A logic control system is used to interpret the dynamic pressure signals sensed near each wingtip, and the output of this logic can be used to provide actuation by pneumatic, electrical, or hydraulic actuators. Operation of both ailerons and rudder is normally involved, although aileron only control is possible in aircraft having inherently high directional damping.

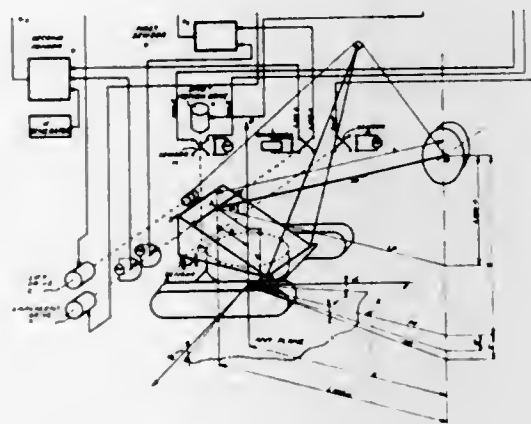
3,636,325

ANALOG-PROGRAMMED CONTROL SYSTEM FOR EXCAVATORS HAVING JIBS

Josef Chytil, Hlavošice, Czechoslovakia, assignor to Unicovské strojírný, národní podnik, Unicev, Czechoslovakia
Filed Sept. 16, 1968, Ser. No. 761,393
Claims priority, application Czechoslovakia, Sept. 14, 1967, 6552/67
Int. Cl. G06g 7/48

U.S. Cl. 235-151

5 Claims



An analog control system automatically controls the operation of an excavator having a jib and a wheel mounted on the jib and determines the position of the axis of the wheel in a system of coordinates derived from the motion of the excavator. A first sensor senses a coordinate x representing the normal distance from the axis of the wheel to the pivot axis of the excavator. A second sensor senses coordinate z representing the normal distance from the axis of the wheel to the plane of travel of the excavator. A third sensor senses an angle ϵ representing the angular displacement of the projection of the normal distance from the axis of the wheel to the pivot axis to the plane of travel and the pivot motion of the excavator. A fourth sensor senses an angle δ representing the angular displacement of the plane of travel from the horizontal plane in the direction of the angular displacement ϵ . A control circuit is electrically connected between each of the first, second, third and fourth sensors and each of the displacement drive, the lift drive and the pivot motion drive of the excavator. Each of the drives is mechanically coupled to a corresponding one of the sensors.

3,636,326

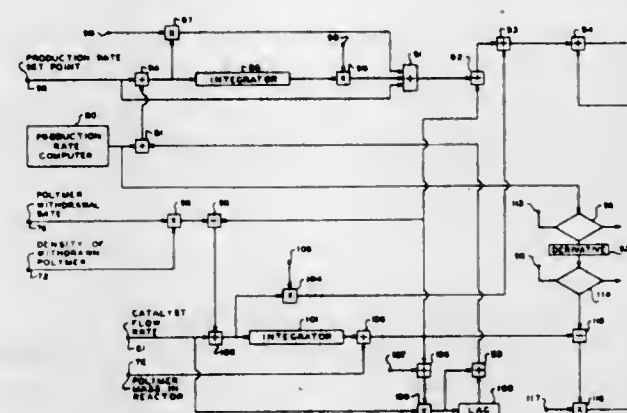
CONTROL SYSTEM FOR POLYMERIZATION REACTORS

Dexter E. Smith, and William S. Stewart, both of Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed July 24, 1970, Ser. No. 58,041
Int. Cl. G06g 7/58; G05b 11/42; B01J 9/00
U.S. Cl. 235-151.12

6 Claims

The flow of catalyst to a polymerization reactor is controlled in response to a computation of the polymer produc-

tion rate. A signal representative of the computed production rate is passed through a gated derivative controller and di-



vided by a signal representative of the catalyst productivity. The quotient is employed to modify the computer production rate control signal.

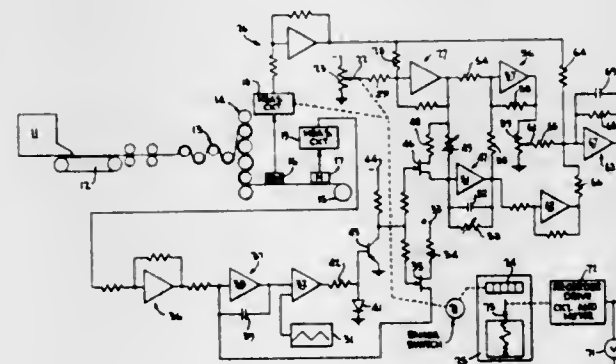
3,636,327

TOTAL CONDITIONED WEIGHT COMPUTER

Paul H. Troutman, Columbus, Ohio, assignor to Industrial Nucleonics Corporation
Filed Dec. 22, 1969, Ser. No. 887,084
Int. Cl. G01n 5/02

U.S. Cl. 235-151.33

10 Claims



A system for computing total conditioned weight of a fiber sheet during manufacture responds to signals derived from moisture and basis weight gauges, as well as indications of suppressed zero value for basis weight and a conditioned weight factor. The signals and indications are combined in accordance with:

$$\Delta CW = K_{cw}(BW_t + \Delta BW)(1 - M) - (BW_t + \Delta BW)M + BW$$

(a),

where:

ΔCW = the total conditioned weight deviation from a suppressed zero basis weight value;

 K

BW_{cw} = conditioned weight factor;

BW_t = suppressed basis weight value;

ΔBW = basis weight gauge output, as a deviation of basis weight from suppressed zero basis weight value; and

M = moisture percentage of total weight as derived from a moisture gauge.

3,636,328

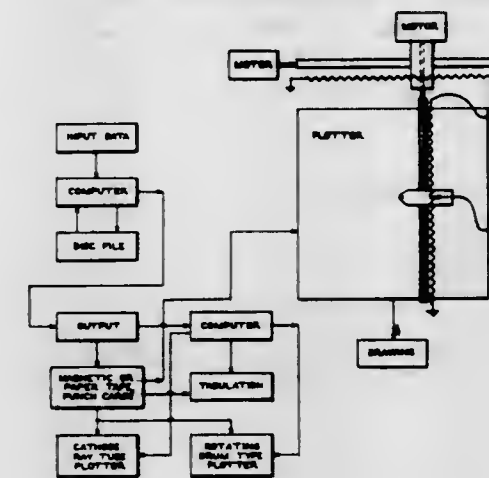
AUTOMATIC DESIGNING

Theodore H. Korelitz, Newton, and Alvin C. Brodie, Greenbush, both of Mass., assignors to The Badger Company, Inc., Cambridge, Mass.

Continuation-in-part of application Ser. No. 419,466, Dec. 18, 1964, which is a continuation-in-part of application Ser. No. 223,324, Sept. 13, 1962, now abandoned. This application
Sept. 3, 1968, Ser. No. 767,891
Int. Cl. G06g 7/48

U.S. Cl. 235-151.1

8 Claims



An automated designing system which includes the steps of orienting mechanical units into a plot plan, converting the orienting plot plan data to algorithmic form acceptable to a computer, orienting the plot plan elements dimensionally within the memory of the computer, imposing design-significant limits upon the computer operation, operating the computer to produce within its memory linear-significant data interconnecting elements of said plan and then converting said data from the memory of said computer to visible form either directly or from intermediate storage form.

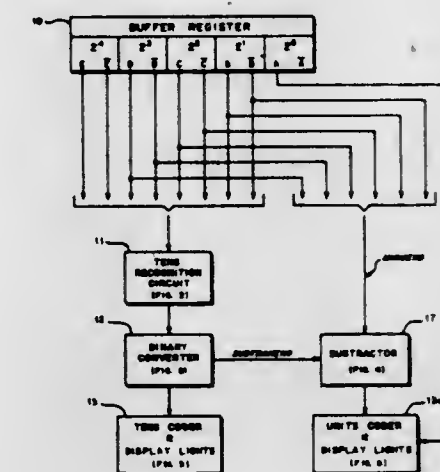
3,636,329

FIVE-BIT BINARY TO DECIMAL TRANSLATOR

Richard G. De Sippo, Warminster, and Patrick J. Finnegan, Philadelphia, both of Pa., assignors to The United States of America as represented by the Secretary of the Navy
Filed Apr. 28, 1970, Ser. No. 32,673
Int. Cl. H03k 13/24

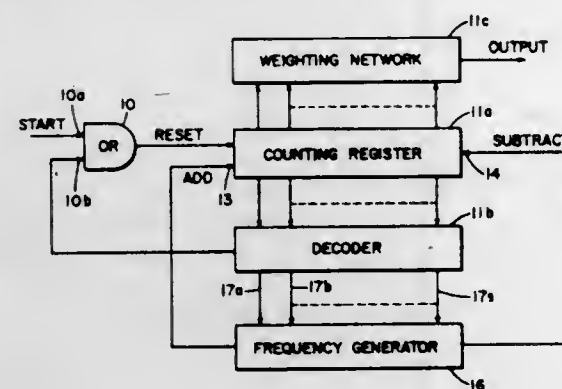
U.S. Cl. 235-155

4 Claims



A five-bit binary word is displayed as an alpha-numeric tens digit and an alpha-numeric units digit on adjacent seven-segment display tubes. The five-bit binary word is processed

counter reset is thus related to the pulse repetition frequency of the pulses. Scaling of the system parameters permits the system to generate a sequence of straight line segments



which approximate a desired function. In particular, proper scaling of the system parameters permits the system to operate as a digital altitude rate generator if the pulses represent fixed values of altitude change.

3,636,337

DIGITAL SIGNAL GENERATOR FOR GENERATING A DIGITIZED SINUSOIDAL WAVE

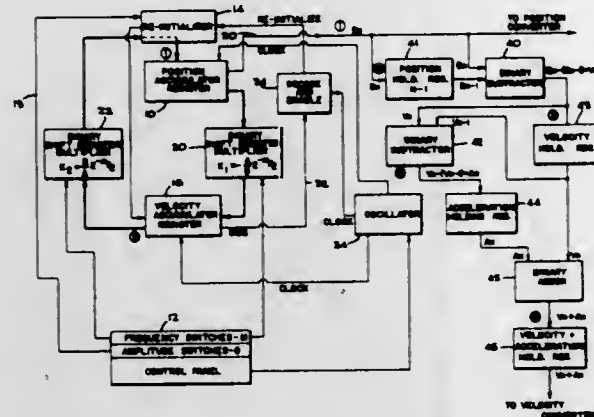
James B. Dietel, Minneapolis; Charles J. Wacker, New Brighton, and George W. Miller, Anoka, all of Minn., assignors to FMC Corporation, San Jose, Calif.

Filed Oct. 29, 1969, Ser. No. 872,297

Int. Cl. G06f 15/34

U.S. Cl. 235-197

10 Claims



Digital signals are generated representative of successive positions on a sinusoidal curve by means of a pair of accumulator registers and a pair of binary shift registers with the registers being alternately positioned and serially connected in a closed-loop system and activated by a split-phase clock so that each accumulator register alternately receives an incremental number from one of the adjacent shift registers representing the number in the other accumulator register multiplied by a predetermined factor. The output of one of the accumulator registers defines a new positional signal at each clock pulse which order can then be processed to provide a corresponding digital velocity signal.

3,636,338

CONTINUOUS FUNCTION GENERATION

Albert C. Abnett, Westerville, and Jack S. Alexander, Columbus, both of Ohio, assignors to Reliance Electric Company, Columbus, Ohio

Filed July 31, 1969, Ser. No. 846,485

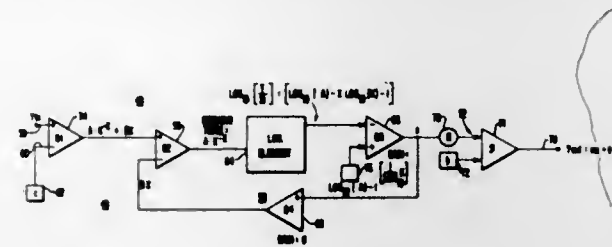
Int. Cl. G06g 7/26

U.S. Cl. 235-197

16 Claims

There is disclosed a method and apparatus for transforming an input signal $Y_{in}=f(x)$ into an output signal $Y_{out}=g(x)$

involving approximation of the input by a function having a plurality of terms which are functions of the independent variable, generating electrical signals representing each of the terms of the approximating function except for a designated remainder term, and subtracting the signals representing the generated terms from the input signal thereby yielding the designated remainder term, the latter being employed to generate the signals to be subtracted. In one embodiment, a circuit is provided to convert an input signal into a linear output signal in the form $Y_{out}=mx+b$. In



another embodiment, a circuit is provided for converting an input signal into an output signal in power series forms. The circuits are closed loop signal processors in which the forward loop operates to subtract the terms of the approximating function from the input signal to yield the designated remaining term, and the feedback operates to convert the designated remaining term into the necessary signals for subtraction. A separate output path appropriately modifies some or all of the signals generated by the feedback and combines the modified signals to form the output.

3,636,339

LIGHTING CASINGS

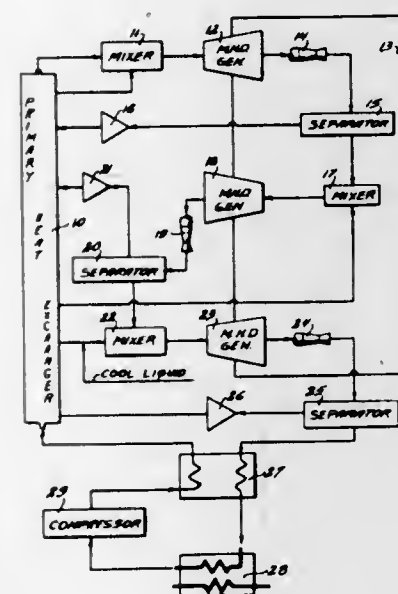
Edwin F. Osborne, Jr., Houston, Tex., assignor to Esquire, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 681,516, Nov. 8, 1967, now Patent No. 3,525,142. This application Mar. 26, 1970, Ser. No. 22,974

Int. Cl. F21p 5/00

U.S. Cl. 240-3

3 Claims



Lighting casings are provided, the individual panels of which are formed from a plurality of interlocking extruded metal sections. The sections are relatively long and narrow, and include a tongue along one longitudinal edge and a groove along the other. A plurality of individual sections form a composite panel, and the panel may be either planar or curved. The casings provided are economical and simple of construction and yet attractive in appearance.

3,636,340

AIR-HANDLING CEILING CHANNEL STRUCTURE

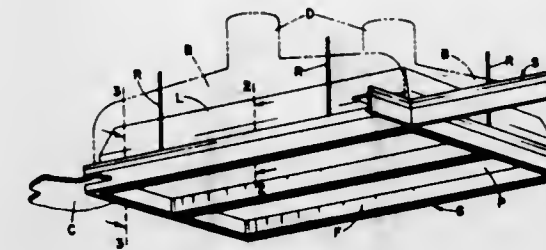
Gerard Edmund Mulvey, 36 Castle Frank Road, Toronto, Ontario, Canada

Filed Aug. 15, 1969, Ser. No. 850,454

Int. Cl. F21v 21/04; F24f 13/06

U.S. Cl. 240-9 R

7 Claims



An air-handling channel structure for ceilings in which recessed channels are provided around lighting fixtures in the ceiling, and openings in the upper ends of the channels are connected to air delivery and return systems, each channel system being defined on one side by a ceiling support strut member, and on the other side by an inner frame member forming part of the lighting fixture, the strut and the frame members being formed separately, thereby enabling them to be provided with different finishes, and also enabling the ceiling and the strut members and the air-handling facilities to be erected and installed separately from the installation of the lighting fixtures. Locating means on the strut and frame members maintain those members in their desired spaced-apart positions.

3,636,341

LAMP AND HOUSING ASSEMBLY

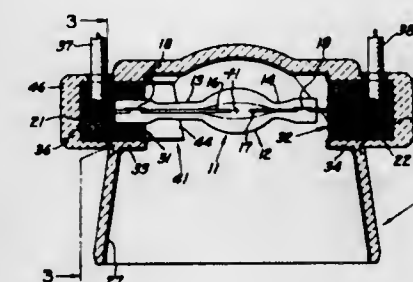
Charles J. Miller, Bellevue, Ohio, assignor to General Electric Company

Filed Nov. 14, 1969, Ser. No. 876,708

Int. Cl. F21l 15/08

U.S. Cl. 240-11.4 H

12 Claims



A heat-confining member is provided adjacent to a lead-seal portion of a lamp, and is positioned and proportioned so as to cause a sufficiently uniform temperature gradient at the seal to prevent the seal from cracking. The arrangement is particularly useful with arc tube lamps which operate at high temperatures.

3,636,342

MOUNTING BRACKET FOR PHOTOGRAPHIC FLASHGUNS

Richard Blount, South Euclid, Ohio, assignor to General Electric Company

Filed Dec. 8, 1969, Ser. No. 882,961

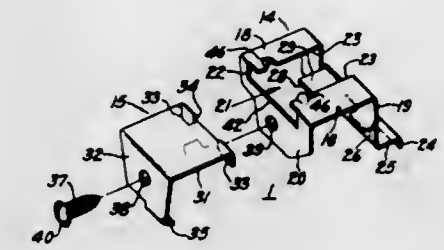
Int. Cl. F21v 21/08; E01c 5/00

U.S. Cl. 240-52.1

10 Claims

A bracket for mounting a photographic flashgun on a camera is comprised of complementary front and back

slidably interfitted members held together in assembled rela-



tion and clamped in place on the camera body by a fastening means.

3,636,343

SELF-LEVELLING VEHICLE LAMPS

Frederick R. P. Martin, Bromley Kent, England, assignor to Martin Ward Developments Limited, London, England

Filed May 8, 1969, Ser. No. 822,978

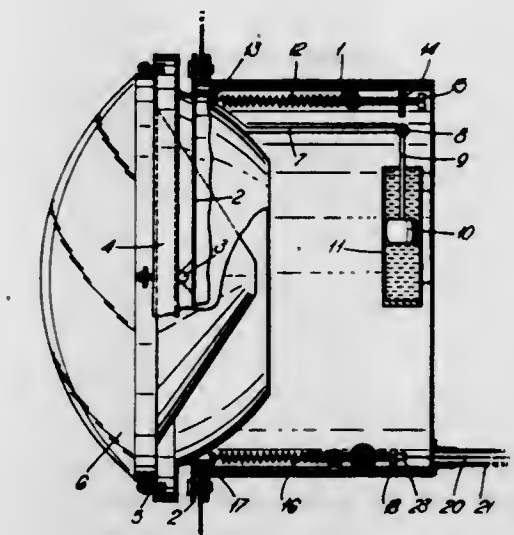
Claims priority, application Great Britain, May 13, 1968,

22601/68; Feb. 21, 1969, 9618/69

Int. Cl. B60g 1/10

U.S. Cl. 240-7.1 LJ

8 Claims



A self-levelling vehicle light system in which a control from the vehicle suspension provides a signal in accordance with changes in attitude of the vehicle relative to the road. A lamp support is tiltable about a horizontal pivotal axis in response to the signal, a resilient connection being provided both between the signal and the lamp support and the lamp support and a fixed mounting and a damper being provided for damping sudden movements of the lamp support.

3,636,344

LONG LENGTH TRACK CIRCUIT

Richard D. Campbell, Harmarville, Pa., assignor to Westinghouse Air Brake Company, Swinsvale, Pa.

Filed Dec. 15, 1969, Ser. No. 885,085

Int. Cl. B611 21/06

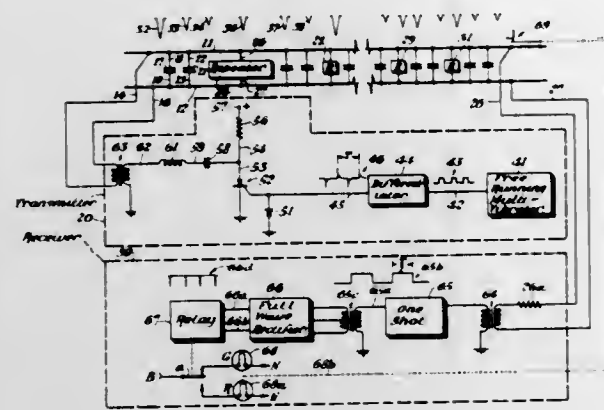
U.S. Cl. 246-40

6 Claims

This invention relates to a long length track circuit for electrically continuous tracks having a signal-transmitting end and a signal-receiving end which includes interposed therebetween at least one signal repeater coupled across the rails without interrupting the electrical continuity of the rails

of the track circuit to provide a repeated signal to the receiving end. The circuit further includes a plurality of capacitors

electron gun chamber containing therein the electron gun and the anode, wherein either an electrical insulation layer is formed on the inner surface of the electron gun chamber or a



coupled across the rails to thereby decrease signal attenuation and thereby improve overall track circuit performance.

3,636,345

MASS SPECTROMETER DETECTOR ARRAYS

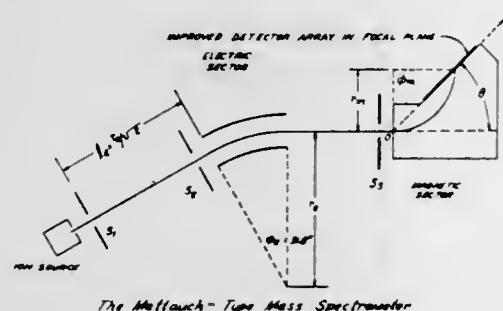
Joel Hirschel, 253 West 72nd St., New York, N.Y.

Filed Oct. 27, 1969, Ser. No. 870,509

Int. Cl. H01J 39/34

U.S. Cl. 250-41.9 D

12 Claims



The Mattauch-type mass spectrometer normally records the mass spectrum of a chemical compound on a photographic plate. It would be desirable to replace this plate with an array of electronic detectors whose outputs would be stored for computer analysis.

A new class of detector array configuration is proposed which matches the resolution of the array to the inherent resolution of the instrument. In so doing, a 64 percent saving in circuitry and data storage requirements is typically achieved when compared with the requirements of a uniform linear array which is capable of utilizing the full resolution of the instrument over the entire mass scale. This saving accrues when an array 25 cm. long is located in the focal plane of the instrument starting from a point 5 cm. from the mean ion entry point to the magnetic sector of the instrument.

3,636,346

ELECTRON BEAM GENERATOR FOR ELECTRON MICROSCOPE OR THE LIKE APPARATUS

Hiroshi Akahori, Katsuta; Yoshiro Ohnuma, Hitachi, and Morioki Kubozoe, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 16, 1970, Ser. No. 19,682

Claims priority, application Japan, Mar. 17, 1968, 44/19593

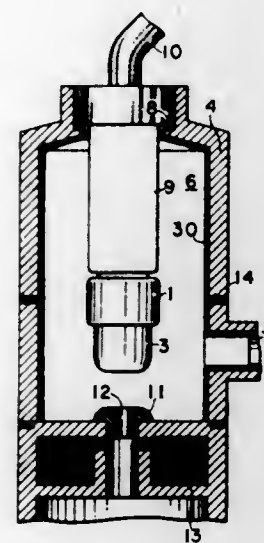
Int. Cl. H01J 37/26

U.S. Cl. 250-49.5 A

6 Claims

An electron beam generator for electron microscopes or the like apparatus comprising an electron gun, an anode placed in a position opposite to the electron gun, and an

A goniostat for a diffractometer or an instrument of similar type which goniostat is rotatable about a first axis, the omega axis, and comprises a goniometer head rotatable about its central axis, the phi axis, which intersects the omega axis in the center of the instrument. The goniometer head is supported on one end of a supporting arm, which at its other end is mounted in the goniostat for rotation about a third axis, the kappa axis, which likewise intersects the omega and phi axes in the center of the instrument. The angles enclosed between the kappa axis and the omega axis and between the kappa axis and the phi axis, respectively, are equal and are in the range of 45°-60°.



cylinder of an electrically insulating material is provided to enclose the electron gun and the anode.

3,636,347

GONIOMETRIC APPARATUS FOR AN X-RAY DIFFRACTOMETER

Simon Poot, Pijnacker, Netherlands, assignor to N.V. Verenigde Instrumentenfabrieken, Enraf-Nonius, Netherlands

Filed Dec. 8, 1969, Ser. No. 882,820

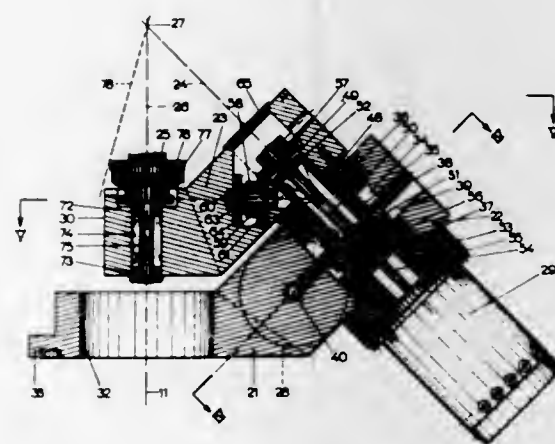
Claims priority, application Netherlands, Dec. 10, 1968,

6817709

Int. Cl. G01n 23/20

U.S. Cl. 250-51.5

12 Claims



3,636,348

METHOD OF TESTING POLYMER STABILIZERS

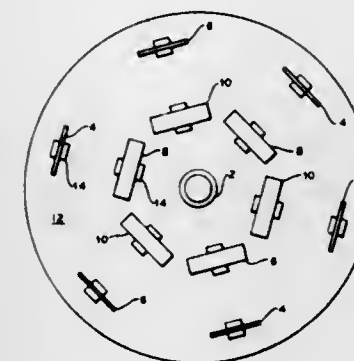
Jack P. Guillory, and Charles F. Cook, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Feb. 5, 1970, Ser. No. 8,980

Int. Cl. G01n 21/00, 23/00

U.S. Cl. 250-52

6 Claims



A method for isolating the ultraviolet-screening effects of a stabilizer in a stabilized polymer for testing other effects of said stabilizer on the polymer.

3,636,349

CONTINUOUS ORBIT PANOGRAPHIC X-RAY

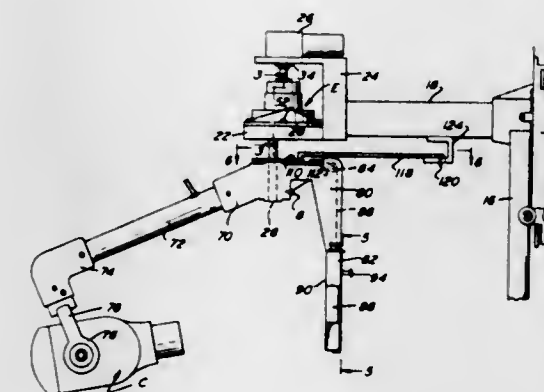
Jack Herman Faude, Brooklyn, and Henry Hollman, Sea Cliff, both of N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed Jan. 27, 1970, Ser. No. 6,065

Int. Cl. G01n 21/00; H01J 37/00

U.S. Cl. 250-61.5

8 Claims



X-ray apparatus for taking panoramic radiographs of structures, such as teeth, arranged in an arcuate line without shifting the subject. The X-ray source and film carrier are mounted on a common support which is adapted to revolve about the subject while the axis of revolution is driven in an arcuate path located within and substantially concentric with the arch of the structures'curvilinear configuration.

3,636,350

THERMAL COPYING MACHINE

Harlan L. Krinke, May Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 2, 1970, Ser. No. 15,411

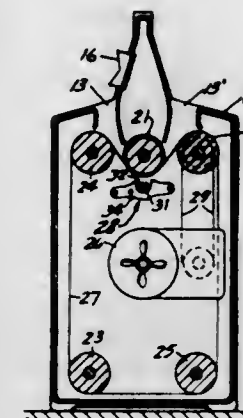
Int. Cl. G03b 41/00

U.S. Cl. 250-65 T

10 Claims

Exposure control is achieved in a simplified thermographic

copy machine by adjusting the spacing of the radiation



source with respect to the print roll while maintaining constant speed and constant radiation output.

3,636,351

COMBINED X-RAY FILM CHANGER AND X-RAY TRANSDUCER ASSEMBLY FOR DIAGNOSTIC APPARATUS

Pierre Lajus, Meudon, France, assignor to Compagnie Generale de Radiologie, Paris, France

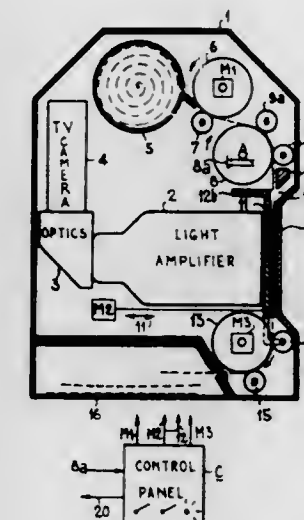
Filed Sept. 29, 1970, Ser. No. 76,418

Claims priority, application France, Oct. 10, 1969, 69/34687

Int. Cl. G03b 41/16

U.S. Cl. 250-65 R

2 Claims



A film changer has a film supply portion with a roll of unexposed X-ray film therein, an exposure portion with movable image intensifying screens, leaving a gap therebetween, and an exposed film collecting and storage portion; behind the image intensifying screens lies the input screen of a picture amplifier tube. As desired, presentation of X-ray images on a TV monitor can be obtained or film fed by means of a separate motor connected to the supply reel between the intensifying screens; upon movement of the screens together, the film is cut off the roll, can be exposed by X-rays, and then, upon reopening, fed into the exposed film storage chamber by an independently driven ejection roller. Sequencing of operations and selection of mode (radiographic or radiosopic) is selectively controllable by a control console.

3,636,352

STRONTIUM PYROPHOSPHATE AS ADHESIVE IN LUMINESCENT SCREENS

Willem Lambertus Wanmaker, and Marinus Gerardus Antoine, both of Tak, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

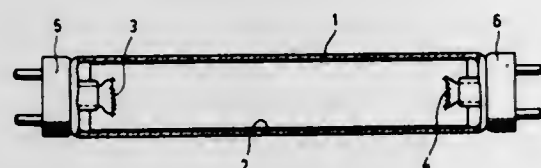
Filed Dec. 2, 1969, Ser. No. 881,473

Claims priority, application Netherlands, Dec. 4, 1968, 6817327

Int. Cl. H01J 1/62

U.S. Cl. 250—80

3 Claims



The invention relates to a luminescent screen including a luminescent calcium halophosphate phosphor using a strontium pyrophosphate adhesive layer provided on a transparent support. Furthermore the invention relates to a gas discharge lamp provided with such a luminescent screen.

3,636,353

METHOD AND APPARATUS FOR THE NONDESTRUCTIVE ASSAY OF BULK NUCLEAR REACTOR FUEL USING 1 KEV. TO 1 MEV. RANGE NEUTRONS

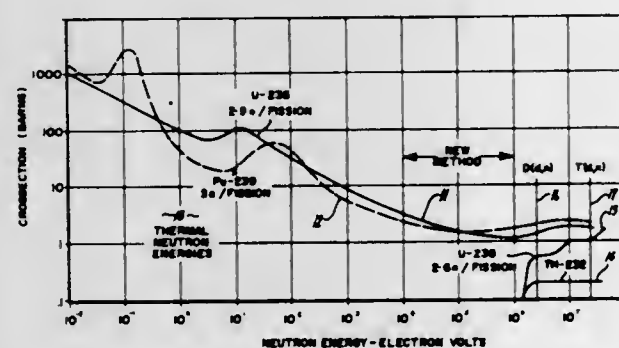
Samuel Untermyer, Los Altos, Calif., assignor to National Nuclear Corporation, Palo Alto, Calif.

Filed May 13, 1968, Ser. No. 728,463

Int. Cl. G01t 3/00, 3/02

U.S. Cl. 250—83.1

15 Claims



Neutrons having energies confined to a range above thermal and below fast are used to interrogate bulk reactor fuel. Prompt and delayed neutron counting of the reaction products is used to obtain an assay of the valuable fissionable species content of the fuel.

3,636,354

NEAR-INFRARED DETECTOR EMPLOYING CADMIUM TIN PHOSPHIDE

Robert Francis Leheny, Little Silver, and Joseph Leo Shay, Marlboro, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Mar. 23, 1970, Ser. No. 21,852

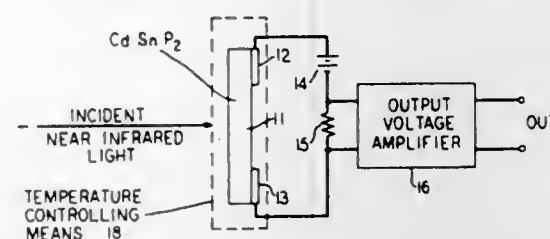
Int. Cl. G01J 5/28, 5/20

U.S. Cl. 250—83.3 H

9 Claims

There is disclosed a detector for near-infrared radiation employing a single crystal of cadmium tin phosphide, which is provided with electrodes and doped so that its effective bandgap at room temperature coincides in wavelength with

the wavelength of the coherent light output of a neodymium ion solid-state laser. Photoconductive, PN junction-type, and



barrier-layer-type detectors are disclosed. A modified device is useful as a saturable absorber for near-infrared light.

3,636,355

STARTING VOLTAGE SUPPRESSOR CIRCUITRY FOR AN X-RAY GENERATOR

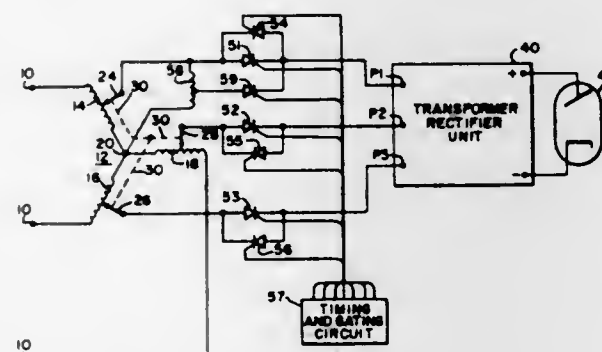
Jack L. James, Baltimore, and Fred J. Euler, Ellicott City, both of Md., assignors to CGR Medical Corporation, Cheverly, Md.

Filed Sept. 24, 1969, Ser. No. 860,686

Int. Cl. H05g 1/18, 1/32

U.S. Cl. 250—102

4 Claims



Circuitry for eliminating or reducing overshoot of the direct current high voltage of an X-ray tube by reducing the magnitude of an initial single-phase voltage to the transformer-rectifier unit compared to the magnitude of subsequent phase voltages applied thereto during an exposure.

3,636,356

APPARATUS AND METHOD FOR ELIMINATING FREQUENCY MODULATION FROM MODULATED LIGHT

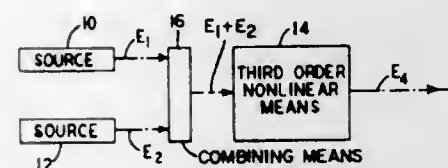
Joseph A. Giordmaine, Summit, N.J., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Dec. 27, 1968, Ser. No. 787,516

Int. Cl. H04b 9/100

U.S. Cl. 250—199

24 Claims



The proposed apparatus and method removes the frequency modulation from an incident light beam having an arbitrary combination of amplitude and frequency modulation, and produces a purely amplitude modulated beam with an envelope simply related to the envelope of the incident beam.

The apparatus comprises a third order nonlinear system for producing an output signal with amplitude proportional to the amplitude product of the square of the incident beam and a second purely sinusoidal local oscillator beam. This output beam contains the amplitude modulation information of the incident beam but does not contain any of the frequency modulation. The third order nonlinear system may include simply a single crystal such as strontium titanate or alternatively a more complex system of phase-matched difference and sum frequency generators.

3,636,357

THRESHOLD DETECTOR FOR INCIDENT RADIATION

Giorgio Del Zotto, Milan, Italy, assignor to Ates Componenti Elettronici S.p.A., Milan, Italy

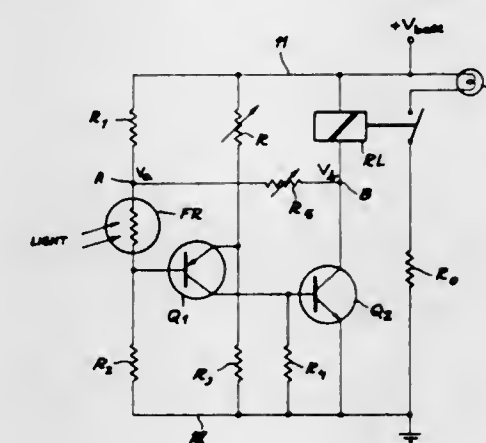
Filed Apr. 28, 1970, Ser. No. 32,658

Claims priority, application Italy, May 9, 1969, 16618 A/69

Int. Cl. H01J 39/12

U.S. Cl. 250—210

6 Claims



A resistance bridge, having one diagonal connected across a source of direct current, includes in its other diagonal the base/emitter circuit of an input transistor controlling a switching transistor of the opposite conductivity-type. The latter transistor controls a relay which operates when a photoreceptor in one of the arms of the bridge is illuminated; a regenerative feedback connection from the output of the switching transistor exerts a toggle effect by modifying the bias of the input transistor to vary the sensitivity of the detector in a sense tending to maintain the relay in either its operated or its unoperated state.

3,636,358

INTEGRATED OPTICAL-ELECTRONIC SOLID-STATE SYSTEM HAVING TWO SUPERIMPOSED CIRCUIT PLANES LINKED BY OPTICAL AND/OR ELECTRONIC AND HORIZONTAL AND/OR VERTICAL CONNECTIONS

Eberhard Groschwitz, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

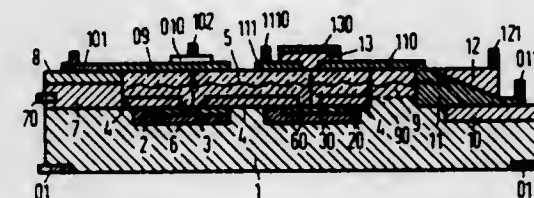
Filed Nov. 26, 1969, Ser. No. 880,147

Claims priority, application Germany, Dec. 2, 1968, P 18 12 199.8

Int. Cl. H01J 39/12

U.S. Cl. 250—211 J

38 Claims



At least two superimposed circuit planes are linked by either optical or electronic and either horizontal or vertical

connections for permitting in each of the circuit planes and between the circuit planes horizontal, vertical, optical and electronic communication operations via a matrix. The matrix functions at least partially as a carrier of electrical current paths and optical and electrical elements of the system and has vertical and horizontal recesses formed therein for permitting the penetration of information-carrying light beams in predetermined regions and in predetermined directions. At least one optically conductive member transfers light within and parallel to itself in any desired direction.

3,636,359

OPTICAL NONMECHANICAL FEEDBACK CONTROL OF ELLIPTICITY MODULATORS

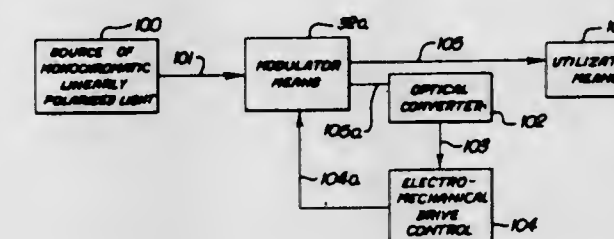
Paige B. Hooper, Glendora, Calif., assignor to Cary Instruments, Monrovia, Calif.

Filed Apr. 13, 1967, Ser. No. 630,591

Int. Cl. G01J; H01J 39/12; G02I 1/26

U.S. Cl. 250—217

4 Claims



The invention concerns simplified automatic control of the peak birefringence of a modulator which is operable upon a linearly polarized beam of radiation to derive a modified beam having cyclically varying elliptical polarization. Simplified automatic compensation of the electrical drive signal applied to the modulator drive transducer functions solely in response to variations in the character of a beam of radiation that has passed through the modulator.

3,636,360

APPARATUS FOR DETECTION OF LIQUID LEVEL IN TRANSPARENT TUBE COMPRISING PHOTOCELL LOCATED TO RECEIVE LIGHT WHICH HAS BEEN TOTALLY REFLECTED

Aso Oishi; Takashi Yabuki, and Kazuo Moriguti, all of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

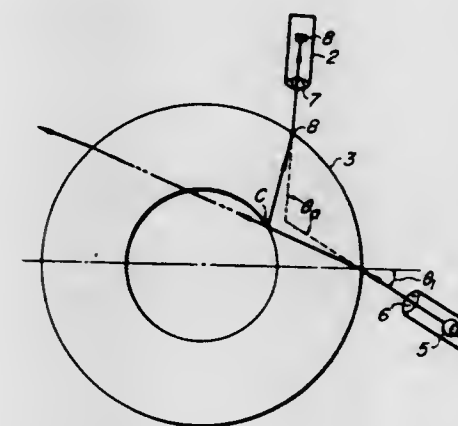
Filed May 12, 1969, Ser. No. 823,747

Claims priority, application Japan, May 13, 1968, 43/32057

Int. Cl. G01F 23/00, 23/02; G01N 21/46

U.S. Cl. 250—218

5 Claims



A method for photoelectrically detecting a liquid level by projecting a light beam to a transparent tube communicating

with a pressure liquid tank and detecting the redirected light beam, utilizing the difference of relative refractivity at the inner wall of the tube when liquid fills the tube and when not, and the apparatus. Means for receiving the light beam redirected from the tube is so disposed as to receive the light beam only when the tube is empty, or the liquid is lower than the detector.

3,636,361

RADIATION-SENSITIVE GLOSSMETER WITH MEANS TO COMPENSATE FOR ENVIRONMENTAL CONTAMINANTS

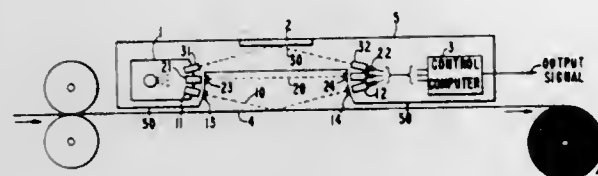
Kenneth Bowers, 1075 Space Parkway, Space 53, Mountain View, Calif.

Continuation-in-part of application Ser. No. 811,769, Apr. 1, 1969, now abandoned. This application May 28, 1970, Ser. No. 41,559

Int. Cl. G01n 21/48

U.S. Cl. 250-219 DF

7 Claims



The gloss of material, such as paper, is measured by continuously comparing a first light beam reflected from the material both with a second light beam used to measure the effect of dirt and environmental contaminants on the intensity of the first light beam, and with a third light beam reflected from a gloss reference standard. Because a measure of the environmental contaminants is obtained by the second light beam, the output signal from the system gives solely the deviation of the gloss of the material from the reference gloss.

3,636,362

DEVICE FOR MEASURING HOLE SIZES

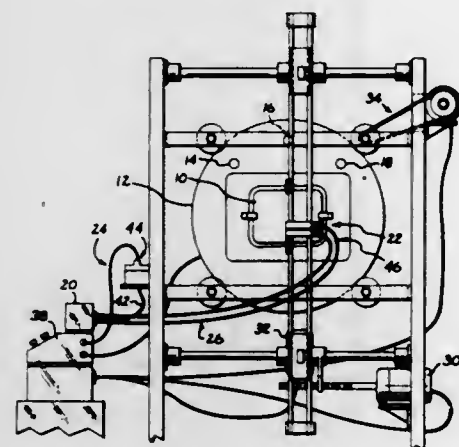
James F. Beeman, 1754 N. W. 61st Terrace, Gainesville, Fla.; Glenn H. Roberts, R.D. #1, Towanda, Pa., and Charles W. Smith, R.D. #2, Ulster, Pa.

Filed Aug. 14, 1970, Ser. No. 63,744

Int. Cl. G01n 21/30

U.S. Cl. 250-219 FR

7 Claims



A device for measuring the size of apertures in a thin metal sheet having a table that can rotate, preferably in a stepwise manner, and having the sheet to be measured and a standard sheet mounted over openings in the table. A light source is conducted to a movable head and a stationary head.

Phototubes in registry with the heads provide two electrical currents, one that is generated from light which has not passed through the sheet and one generated from light that has passed through either the standard or the sheet to be measured. A means for comparing the two currents provides a highly accurate measurement of the hole sizes since the device compensates for changes in light source intensity due to external factors. The device is particularly suited for measuring the size of holes where a high degree of accuracy is required such as in television aperture masks, fine mesh screens and the like.

3,636,363

AUTOMATIC ACCUMULATOR FOR CIGARS

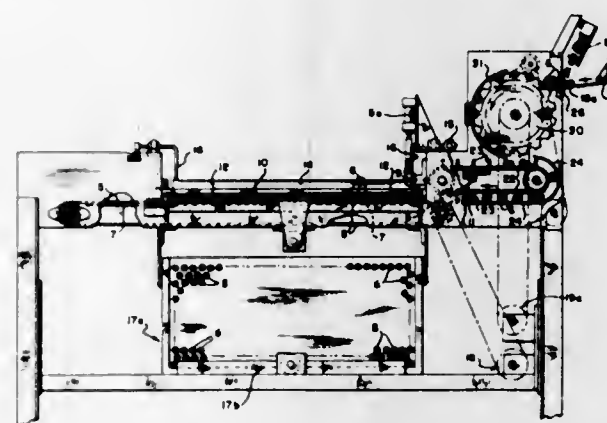
J. Harold Black, Quinton; Edward W. Reed, and Vernon C. Stant, both of Richmond, all of Va., assignors to American Brands, Inc., New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,523

Int. Cl. G06m 7/00

U.S. Cl. 250-223 R

2 Claims



An automatic accumulator for cigars comprises a conventional traveling belt which collects cigars sidewise in a single layer between the belt and a parallel spaced cover, a conventional rotating fluted drum which delivers the cigars sidewise to the collector from an irregular source of cigars, and a downwardly sloping ramp on which cigars from the source are charged sidewise to the drum, and a sensing device is positioned along the ramp so as to stop both the belt and the drum whenever there is less than a predetermined number of cigars on the ramp at one time.

3,636,364

RADIATION SENSITIVE DESYNCHRONIZATION DETECTION SYSTEM

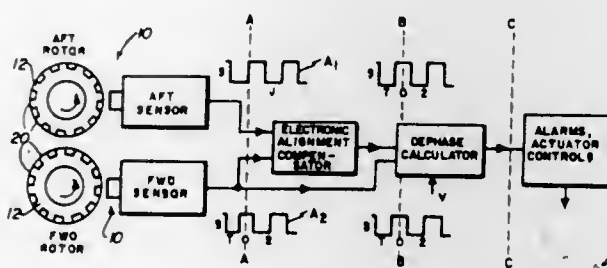
Samuel Stempler, Brooklyn; Carl A. Listl, New Hyde Park, and Leonard Baron, Syosset, all of N.Y., assignors to Kollsman Instrument Corporation, Syosset, N.Y.

Filed Sept. 19, 1969, Ser. No. 859,417

Int. Cl. H01J 39/12

U.S. Cl. 250-220 R

5 Claims



A method and apparatus for detecting the incidence of rotational desynchronization between a pair of rotating body

portions are disclosed herein. The apparatus includes an optical transmitter having an aperture for directing a beam of light energy at a rotating body portion. A modulator wheel assembly is rigidly connected to the rotating body for rotation therewith and positioned thereon to intercept and intermittently reflect the beam along a predetermined axis. A photosensor is located along the axis which is responsive to the intermittently reflected beam to provide a high-resolution pulse train having a frequency proportional to the rotational speed of the rotating body portion. A pulse train is produced in the above manner for each of the rotating body portions. Electronic circuitry is provided for comparing the phase of the pulse trains and an error signal is generated when the phase difference between the pulse train reaches a predetermined magnitude.

3,636,365

MECHANICAL RASTER SCANNER MEANS USING FIBER OPTICS FOR PATTERN RECOGNITION OR DISPLAY

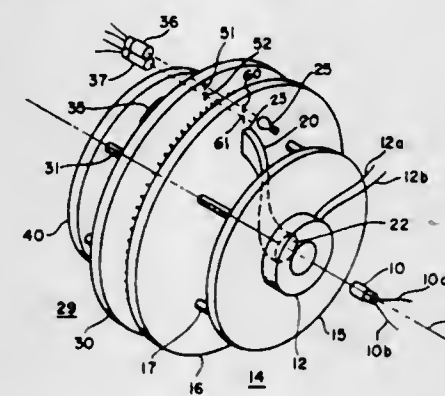
George Porter Houston, Jr., Baltimore, Md., assignor to The Bendix Corporation

Filed June 17, 1970, Ser. No. 47,072

Int. Cl. G02b 5/14

U.S. Cl. 250-227

13 Claims



An image field centrally located on a stationary disk is comprised of layered coherent fiber sections of high-light transmissivity, each section extending from the image field to termination at the disk face equally spaced radial lines. A rotating disk concentric with the stationary disk and adjacent thereto includes an incoherent or coherent high-light transmissivity fiber section having a line input end generally skewed with respect to a radial so as to scan consecutively each element of each coherent section termination as the disks rotate relative to one another. The incoherent section terminates in a generally circular bundle centrally located on the rotating disk and is observed by a photocell through a light modulator.

In a second embodiment the mechanical raster scan means is used to reproduce on the image face a desired visual display by replacing the photocell with a constant light device and by means of the light modulator modulating the light which illuminates the circular bundle end in accordance with signals corresponding to the desired visual display. If these signals are properly synchronized with the rotation of the disk the desired visual display will be reproduced at the image face.

3,636,366

OPTO-ELECTRIC SCREENS PROVIDED WITH LIGHT-CONDUCTING MEMBERS

Edward Emanuel Sheldon, New York, N.Y.

Original application May 8, 1964, Ser. No. 366,038, now Patent No. 3,286,087. Divided and this application Sept. 22, 1966, Ser. No. 584,318

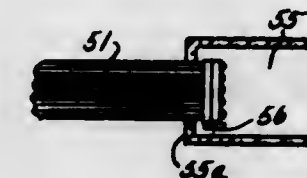
Int. Cl. G02b 5/14; H01J 39/00

U.S. Cl. 250-227

16 Claims

This invention relates to novel composite photoelectric screens characterized by the construction in which the sup-

porting member for the photoelectric means is radiation transparent and is made of an array of said radiation-conducting fibers. The light-conducting fibers operate by the in-



ternal reflection and are arranged spatially in such a manner that they can transfer the radiation image across said support without any appreciable loss of resolution, contrast and brightness.

3,636,367

FOURIER TRANSFORM OPTICAL OBJECT ANALYZER

Andre J. Girard, Chatillon, France, assignor to Office National D'Etudes et de Recherches Aeronautiques, Chatillon-Sous-Bagneux, France

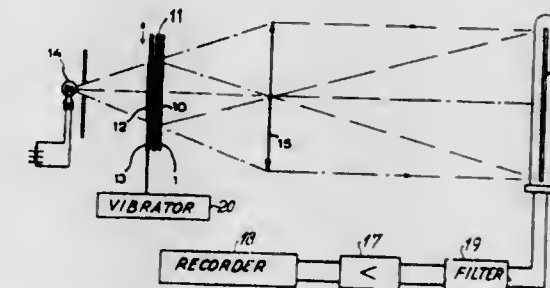
Filed Sept. 28, 1970, Ser. No. 76,027

Claims priority, application France, Sept. 30, 1969, 6933343

Int. Cl. H01b 5/18

U.S. Cl. 250-237

4 Claims



Fourier transform optical object analyzer comprising a plane support for an optical object to be analyzed, a mask formed with a slit registering with a line of the optical object and movable in a plane parallel to the object plane for line-by-line unmasking of the object and a grid including contiguous transparent and opaque zones bounded by curves in the form of equilateral hyperbolae. The mask is shifted step by step relatively to the optical object support and takes a plurality of discrete positions with regard to said object support. The grid is continuously shifted relatively to the mask for each position thereof and a photosensitive detector receives the light flux from the object which has passed through the slit and the grid. Means are provided for vibrating the grid relative to the object at a predetermined frequency, and for filtering the component of the output of the photosensitive detector at said frequency.

3,636,368

TRANSFER SWITCH AND GENERATOR CONTROL MEANS, AND NEW AND IMPROVED METHOD OF OPERATION THEREOF

Joseph B. Sia, Yonkers, N.Y., assignor to Onan Eastern Corporation, Long Island City, N.Y.

Filed June 29, 1970, Ser. No. 50,522

Int. Cl. H02J 9/00

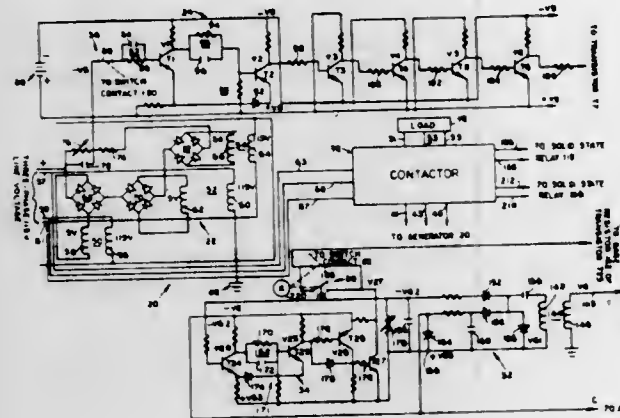
U.S. Cl. 307-64

35 Claims

New and improved transfer switch and generator control means are provided and take the form of a substantially solid state electronic circuit which comprises operatively associated line voltage sensor means, circuit operating signal generating means, timer means to provide a readily adjustable time delay prior to retransfer to normal line voltage,

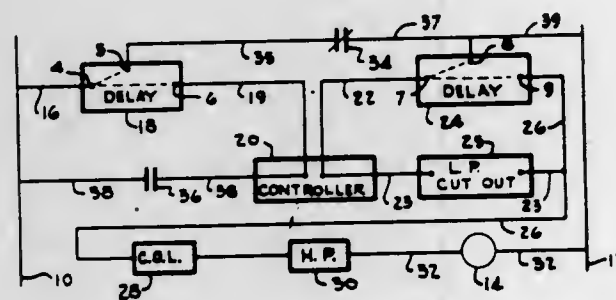
timer means to provide a readily adjustable time delay prior to generator drive-engine shutdown, timer means to provide a readily adjustable time delay prior to generator drive-engine start, load transfer control means, retransfer to line voltage control means, readily adjustable generator output voltage sensor means and line voltage failure simulation test switch means, respectively.

The transfer switch and generator control means are operable, upon a fall in line voltage below a predetermined minimum level thereof, to energize emergency generator



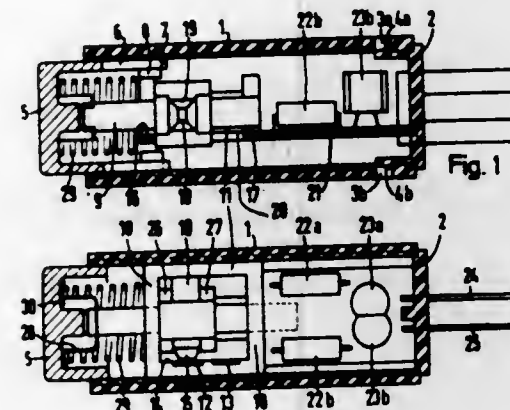
means after the expiration of an adjustable time delay and transfer the load thereto as soon as the output from said emergency generator means has come up to a predetermined minimum level thereof. Upon the return of the line voltage to said predetermined minimum level thereof, the transfer switch and generator control means are operable, following an adjustable time delay, to retransfer the load to said line voltage and, following another adjustable time delay, to deenergize said emergency generator means.

3,636,369
REFRIGERANT COMPRESSOR CONTROL-RELAY TO CONTROL TWO TIME DELAYS
Donald G. Harter, Scarsdale, N.Y., assignor to American Standard Inc., New York, N.Y.
Filed Apr. 23, 1970, Ser. No. 31,199
Int. Cl. F25b 1/00
U.S. Cl. 307-141.4
7 Claims



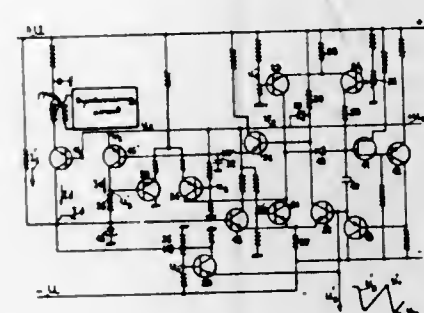
An air conditioner refrigerant compressor control having a first time delay means automatically keeping the compressor deenergized for a predetermined period after each stop cycle, a second time delay means operable under certain conditions to keep the compressor energized for at least a predetermined period at initiation of each start cycle, and a single relay means operable to correctly program the two time delay means.

3,636,370
CONTACT-FREE PUSHBUTTON SWITCHING DEVICE
Konrad Samberger, Gallon; Ulrich Hruschka, and Karl Greger, both of Amberg, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Mar. 27, 1970, Ser. No. 23,375
Claims priority, application Germany, Mar. 29, 1969, P 19 16 336.1
Int. Cl. H01h 35/00
U.S. Cl. 307-116
8 Claims



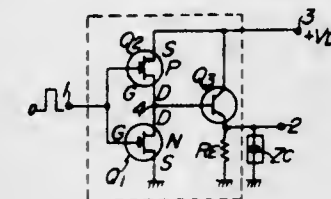
A permanent magnet having a pole shoe is affixed to a moving device for moving the magnet in directions transverse to the axis of magnetization of the magnet and into and out of close proximity with a galvanomagnetic resistance affixed to an iron yoke.

3,636,371
SAW-TOOTH VOLTAGE WAVE GENERATOR INCLUDING RAMP VOLTAGE SOURCE CONTROLLED BY DUAL STABLE STATE TUNNEL-DIODE SWITCHABLE PERIODICALLY BY A GATING CIRCUIT
Jean Georges Quillier, Saint-Etienne, France, assignor to Constructions Radioelectriques et Electroniques du Centre, Saint-Etienne (Loire), France
Filed Aug. 13, 1969, Ser. No. 849,755
Claims priority, application France, Aug. 14, 1968, 162982
Int. Cl. H03k 4/50, 4/56
U.S. Cl. 307-228
6 Claims



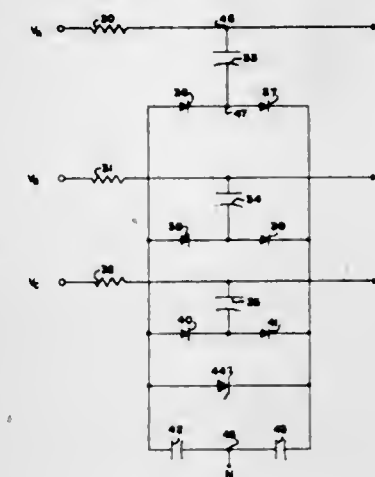
A saw-tooth wave voltage generator comprises an integrator formed by a capacitor charged by means of an invariable current associated with a stable two-state tunnel-diode, triggering circuit. One of the states of the diode controls return of the saw-tooth wave voltage to a starting reference level by means of a control amplifier which includes a comparator stage to which is applied the reference voltage and the output voltage of the generator, and the other state of the tunnel-diode releases operation of the generator. A second control amplifier interconnected with the first one and which takes its input voltage from the comparator stage of the latter functions to detect arrival of the saw-tooth wave voltage near the value of the reference voltage and applies it to the triggering circuit to control the biasing of the tunnel diode.

3,636,372
SEMICONDUCTOR SWITCHING CIRCUITS AND INTEGRATED DEVICES THEREOF
Minoru Hujita; Minoru Nagata, both of Kodaira-shi, and Seiji Kube, Kokubunji-shi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Dec. 3, 1968, Ser. No. 780,690
Claims priority, application Japan, Dec. 6, 1967, 42/77974
Int. Cl. H03k 17/60
U.S. Cl. 307-251
4 Claims



A switching circuit with small consuming power and high-switching speed, in which a bipolar transistor and a resistor are connected in the emitter follower configuration to the output terminal of insulated gate-type field effect transistors in complementary connection.

3,636,373
LIMIT DEFINING FIRING WAVE GENERATOR
Charles E. Rettig, Brookfield, Wis., assignor to The Louis Allis Company
Filed Sept. 2, 1969, Ser. No. 854,429
Int. Cl. H03k 1/12, 17/00
U.S. Cl. 307-252 P
9 Claims

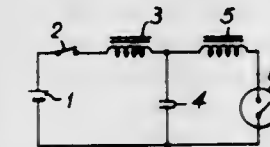


A firing wave generator for a phase controlled rectifier which generates a square wave in addition to a cosine wave. The square wave is added to the cosine wave to provide a firing wave with the end points defined by the sides of the square wave to insure coincidence of the firing wave with the direct voltage command of the phase controlled rectifier.

3,636,374
NONLINEAR CIRCUIT DEVICE
Seiji Sumi, and Isao Kaneda, both of Otsu, Japan, assignors to New Nippon Electric Company Ltd., Osaka, Japan
Filed Feb. 26, 1970, Ser. No. 14,324
Claims priority, application Japan, Sept. 10, 1969, 44/71845
Int. Cl. H03k 3/00
U.S. Cl. 307-106
19 Claims

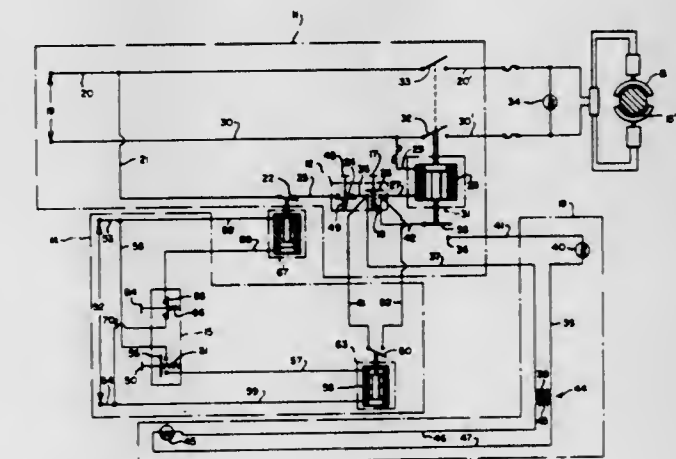
A nonlinear circuit consisting of first and second circuits. The first circuit comprises a power source, an inductance element L_1 and a capacitance element C connected in an oscillating arrangement. The second closed circuit comprises said capacitance element, an inductance element L_2 and a

voltage responsive switching element. The second closed circuit is controlled for operation under either oscillating or



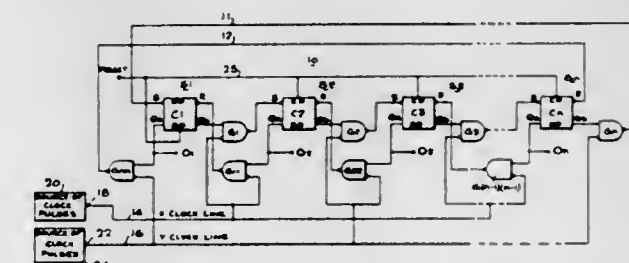
nonoscillating condition depending on the necessary output voltage.

3,636,375
MAGNETIC LOOM-BRAKING DEVICE
Stanley E. Armstrong, 143 Nassau Ave., Kenmore, N.Y.
Filed Jan. 29, 1970, Ser. No. 6,691
Int. Cl. H01h 47/00
U.S. Cl. 307-114
9 Claims



An electrical system for selectively energizing and deenergizing a magnetic brake associated with a loom from both a local station and a remote station regardless of the station at which the previous energization or deenergization occurred, and including a high-voltage primary circuit containing such local station for locally energizing and deenergizing the brake, and a low-voltage secondary circuit which is electrically insulated from the primary circuit and contains such remote station for remotely energizing and deenergizing the brake. A pilot circuit in the primary circuit includes pilot lamps at the local and remote stations and at the production maintenance department to indicate that the loom brake has been energized.

3,636,376
LOGIC NETWORK WITH A LOW-POWER SHIFT REGISTER
Kurt Hoffmann, Sunnyvale, Calif., assignor to Fairchild Camera and Instrument Corporation, Long Island, N.Y.
Filed May 1, 1969, Ser. No. 821,019
Int. Cl. H03k 17/00; G11c 19/00
U.S. Cl. 307-221 B
15 Claims



A low-power binary shift register in which power consumption is a function of the binary content rather than the number of stages. Each stage includes a pair of transistors

which are either in saturated conduction, representing a binary 1, or in a cutoff state of conduction, representing a binary 0. Two clockable gates are also included in each stage. One of these gates switches the transistors of an adjacent stage to conduction to store a 1 if the transistors of its stage store a 1, while the other gate resets the transistors of its stage to a cutoff state to thereby define the storing of a binary 0.

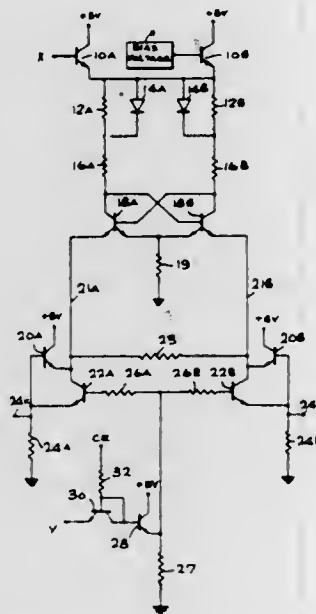
3,636,377

BIPOLAR SEMICONDUCTOR RANDOM ACCESS MEMORY

Panayotis C. Economopoulos, Scottsdale, and Thomas W. Hart, Jr., Phoenix, both of Ariz., assignors to Semi-Conductor Electronic Memories Incorporated, Phoenix, Ariz.
Filed July 21, 1970, Ser. No. 56,778
Int. Cl. G11c 11/36; H03k 3/286

U.S. Cl. 307-238

20 Claims



A bipolar semiconductor random access memory (RAM) cell is provided, suitable for use in the form of memory arrays fabricated as an integrated circuit. The storage transistors employed are well isolated from the addressing portion of the circuitry so as not to be affected thereby. The cell operates in three modes of power dissipation comprising very low power when it is in the unselected mode, slightly higher power when half selected, and the highest power dissipation when in the fully selected mode.

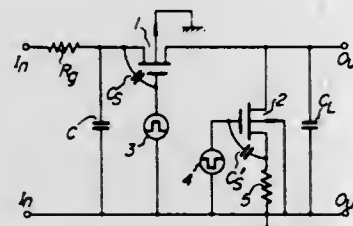
3,636,378

SERIES-SHUNT-TYPE SEMICONDUCTOR SWITCHING CIRCUIT

Shin-Ichi Chashi, Kodaira-shi, and Hiroshi Nomoto, Hachioji-shi, both of Japan, assignors to Hitachi Ltd., Tokyo, Japan
Filed Aug. 7, 1969, Ser. No. 848,262
Claims priority, application Japan, Aug. 9, 1968, 43/56150
Int. Cl. H03k 17/60

U.S. Cl. 307-251

9 Claims



A series-shunt-type semiconductor switching circuit in which at least one impedance element is provided in an elec-

trical path consisting of a connection point of a capacitance element across the input terminals and the signal applied to one of the input terminals of the switching circuit, two switching elements connected in a series-shunt fashion and excited alternately to ON and OFF states and a common terminal. By this construction spike noise and offset voltages heretofore encountered with the conventional switching device can be removed.

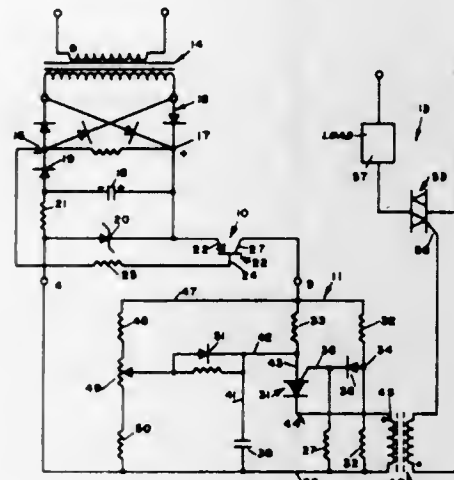
3,636,379

PHASE CONTROL

John L. Moe, and Charles H. Russell, both of Winona, Minn., assignors to Wayco, Inc., Winona, Minn.
Filed July 25, 1968, Ser. No. 747,744
Int. Cl. H03k 17/00

U.S. Cl. 307-252 F

1 Claim



A novel phase control circuit provides wider control range and a greater percentage of power delivered by synchronous switching of a triggering circuit through a unique notched square wave signal. The output of a triggering circuit is then used to actuate a power device in a synchronized phased relationship with an AC supply voltage.

3,636,380

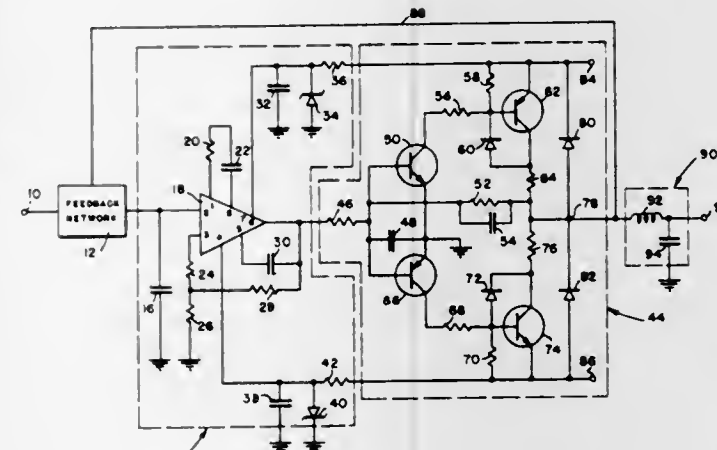
POWER AMPLIFIER

Vernou A. Anderson, Boulder, Colo., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 4, 1970, Ser. No. 69,680
Int. Cl. H03k 5/00; H03t 3/18

U.S. Cl. 307-261

2 Claims



An amplifier using a Schmitt trigger. When the amplifier provides a positive signal the input to the Schmitt trigger in-

creases due to a feedback network. When the input signal becomes more positive than the voltage at the noninverting terminal, the Schmitt trigger reverses state and supplies a negative output. When the input, due to the feedback network, is more negative than the voltage at the noninverting terminal, the Schmitt trigger once again reverses state. An inductor and a capacitor function as a low-pass filter at the output.

3,636,381

TRANSISTORIZED LOAD CONTROL CIRCUIT COMPRISING HIGH- AND LOW-PARALLEL VOLTAGE SOURCES

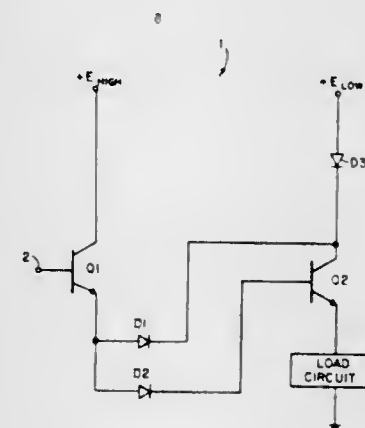
Meyer Press, Sharon, Mass., assignor to GTE Sylvania Incorporated

Filed Feb. 16, 1971, Ser. No. 115,529

Int. Cl. H03k 1/02; H02j 1/10

U.S. Cl. 307-296

6 Claims



A transistorized load control circuit including first and second transistors for supplying current to a load circuit from a high-voltage source or from a low-voltage source. The base of the first transistor is connected to an input terminal, the collector is connected to the high-voltage source, and the emitter is connected through a first diode to the collector of the second transistor and also through a second diode to the base of the second transistor. The collector of the second transistor is connected through a third diode to the low-voltage source and the emitter is connected to a load circuit. When a predetermined first control voltage condition is present at the input terminal, current is supplied to the load circuit from the low-voltage source via a current path including the third diode and the second transistor. When a predetermined second control voltage condition is present at the input terminal, current is supplied to the load circuit from the high-voltage source via a current path including the first transistor, the first diode, and the base-emitter circuit of the second transistor and also via a current path including the second diode. During operation of the load control circuit, the base-emitter circuit of the second transistor is prevented from receiving and conducting excessive values of current.

3,636,382

AUTOMATIC DELAY EQUALIZER

William G. Crouse, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 665,074, Sept. 1, 1967, Pat. No. 3,539,826
Filed Mar. 9, 1970, Ser. No. 17,651

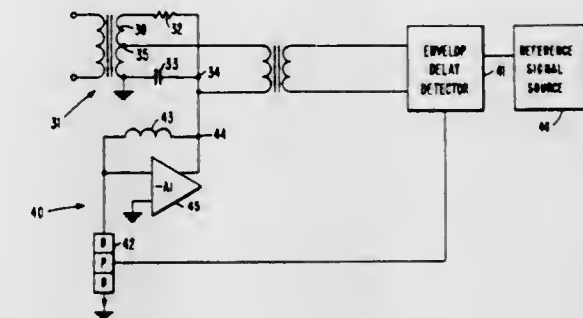
Int. Cl. H03k 1/12

U.S. Cl. 307-262

3 Claims

An inverting amplifier includes a shunt feedback impedance element connected between its input and output terminals. The feedback current is divided between a series input resistance R_{in} and an impedance R_s shunting R_{in} . Either R_s or R_{in} is in the form of a variable impedance semiconductor device and a suitable source of control signals

is applied to the semiconductor device to cause it to have a variable impedance. This variable impedance causes the output impedance Z_o of the amplifier to vary as a function of the input control signals to the semiconductor device. The output impedance is resistive, capacitive, inductive, or the



3,636,383

ACCURATELY SWITCHING BISTABLE CIRCUIT

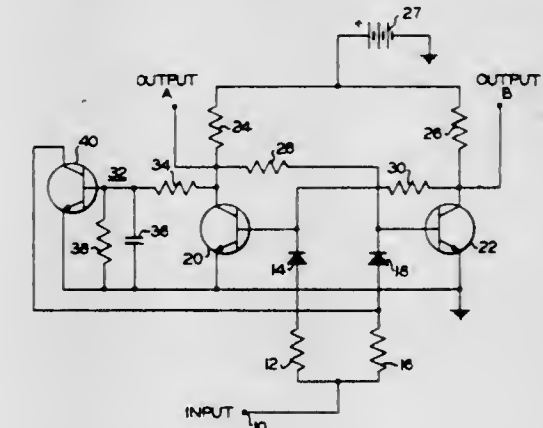
Walter W. Clubbe, Coral Gables, Fla., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Dec. 31, 1969, Ser. No. 889,618

Int. Cl. H03k 3/26

U.S. Cl. 307-291

16 Claims



A bistable circuit including an input steering gate having first and second branches for alternately applying input signals to respective sides of the bistable circuit, and an RC delayed transistor operative to disable one branch of the steering gate for a preselected time interval sufficient to permit complete switching of the circuit in response to slow rise time input pulses.

3,636,384

BASE-TO-EMITTER COMPENSATION FOR CURRENT SWITCH EMITTER-FOLLOWER CIRCUITS

David Dewitt, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,715

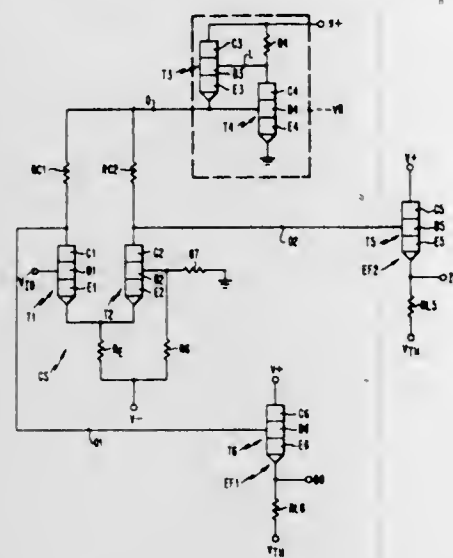
Int. Cl. H03k 1/12

U.S. Cl. 307-297

13 Claims

A current-switch emitter-follower is provided with a circuit which compensates for the variations in base-to-emitter voltage due to variations in temperature. The circuit comprises a regulated power supply which maintains its output at a predetermined level with respect to a reference potential such as ground. The power supply includes a transistor hav-

ing its emitter at said reference potential. The base of this transistor is connected to the power supply output terminal which is therefore maintained at a predetermined level, the base-to-emitter voltage, with respect to said ground reference



potential. The base-to-emitter voltage of this transistor tracks the base-to-emitter voltage of the emitter-follower circuits so as to compensate for the variations in the latter.

3,636,385 PROTECTION CIRCUIT

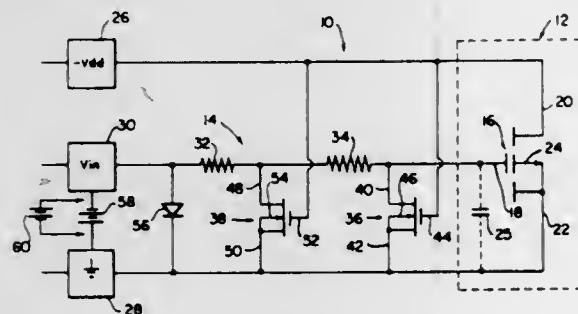
Ronald L. Koepp, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Feb. 13, 1970, Ser. No. 11,181

Int. Cl. H03k 17/60

U.S. Cl. 307--304

7 Claims



A protection circuit is disclosed for protecting a P-channel enhancement-type metal oxide semiconductor transistor from rupturing due to static voltage building up between its gate and source electrodes. The protection circuit includes at least one N-channel depletion-type transistor having its drain and source electrodes connected between the gate and source electrodes of the enhancement-type transistor and its gate electrode coupled to a negative power supply terminal. A resistor is also included between the gate of the enhancement-type transistor and the terminal to which an input signal is applied. There is also included a diode, in shunt with the resistor and the depletion-type transistor, which is poled to be reverse biased by the input signal.

3,636,386

HIGH-VOLTAGE SOURCE DEVICES UTILIZING PIEZOELECTRIC ELEMENTS

Takehiko Kawada, Yokohama, Japan, assignor to Denki Onkyo Company, Limited, Ohota-ku, Tokyo, Japan

Filed May 4, 1970, Ser. No. 34,157

Claims priority, application Japan, May 8, 1969, 44/42113

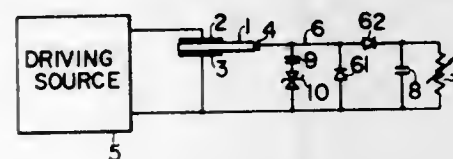
Int. Cl. H01v 7/00

U.S. Cl. 310--8.1

4 Claims

In a high-voltage source device comprising a piezoelectric element including a driving electrode and an output elec-

trode, a driving source for applying a driving voltage to the driving electrode and a rectifier circuit connected to the output electrode to supply a high DC voltage to a load, there are provided a constant voltage element connected to the output



electrode in parallel with the rectifier circuit to shunt the increments of the output from the piezoelectric element thus providing a constant output voltage.

3,636,387 PIEZOELECTRIC ACCELEROMETER

Rudolf A. Hatschek, Fribourg, Switzerland, assignor to Vibro-Meter AG, Fribourg, Moncor, Switzerland

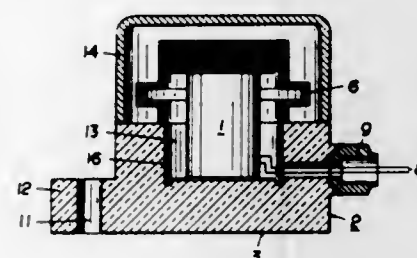
Filed June 24, 1969, Ser. No. 836,098

Claims priority, application Austria, July 4, 1968, A 6402/68

Int. Cl. H01v 7/00

U.S. Cl. 310--8.4

5 Claims



A piezoelectric accelerometer in which a measuring element is mounted in a housing of ceramic material with a part adapted to rest on the object to be measured to achieve a high degree of heat resistance together with heat insulation and good transfer of mechanical oscillations.

3,636,388 ELECTROHYDRODYNAMIC GENERATOR WITH COLLECTOR EXTENSION

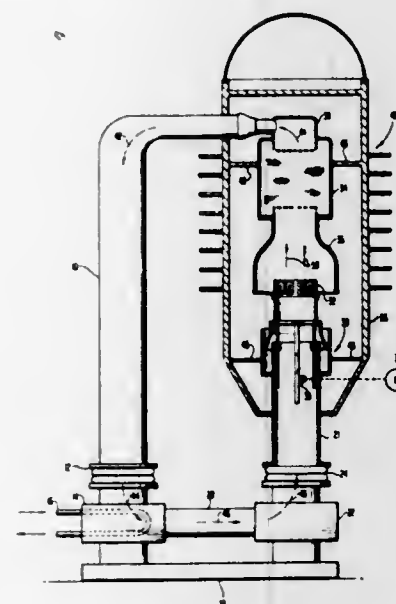
Philip E. Secker, Anglesey, North Wales, and John F. Hughes, Boulder, Colo., assignors to KDI Corporation

Filed June 25, 1970, Ser. No. 49,723

Int. Cl. H02m 3/00

U.S. Cl. 310--10

4 Claims



In an electrohydrodynamic generator, a collector extension covers the collector/injector interspace region and prevents

radial dispersion of charge carriers. The collector extension is tubular leaving the main body of the collector and opens into a wide mouth at the top of the injector assembly. The mouth is even with or extends past the top of the injector assembly.

3,636,389

MAGNETOHYDRODYNAMIC METHOD AND SYSTEM

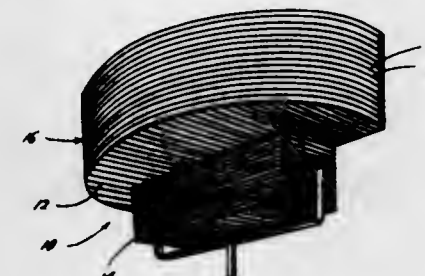
Michael Petrick, Joliet, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 22, 1971, Ser. No. 126,711

Int. Cl. H02m 4/02

U.S. Cl. 310--11

5 Claims



A magnetohydrodynamic (MHD) power plant containing a plurality of MHD generators arranged in a number of stages operates on a two-phase working fluid consisting of an inert gas dispersed in an electrically conductive liquid. Heat is added to the working fluid by reconstituting the working fluid with conductive liquid heated to the original temperature between stages. All stages are operated essentially isothermally, the last MHD generator being operated under conditions such that vapors of the conductive liquid present in the working fluid are condensed therein. The gas phase from the last MHD generator is cooled by regenerative heat exchange and recompressed prior to being returned to the heat source. Also, each MHD generator is surrounded by a separate magnetic field which is separately adjustable to minimize the velocity difference between phases as the working fluid passes through the MHD generator.

3,636,390

EXPLOSIVE PULSE GENERATOR

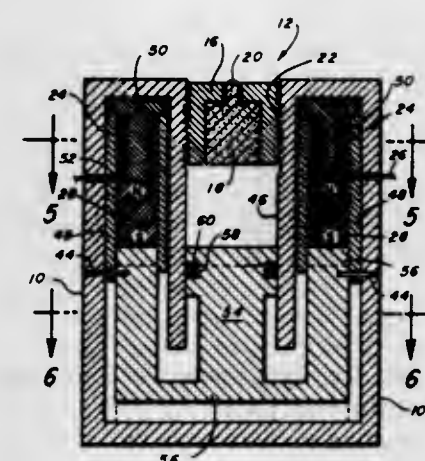
Bob E. Stauder, and William O. Christianson, both of Tulsa, Okla., assignors to Dorsett Electronics, A Division of La Barge, Inc., Tulsa, Okla.

Filed Jan. 26, 1970, Ser. No. 5,629

Int. Cl. H02k 35/02

U.S. Cl. 310--14

2 Claims



This invention relates to a power supply for generating an electrical pulse. More particularly, the invention is a power supply for generating an electrical pulse including a housing,

a coil of wire supported by the housing, a magnetic member supported by the housing and removable relative to the coil, and an explosive element having an igniter cap which, when physically distorted, ignites the explosive element, the explosive element being carried by the body and arranged to move the magnetic member by explosive force to induce a voltage pulse in the coil.

3,636,391

RECIPROCATING MOTOR WITH MAGNETIC DRIVE MEANS

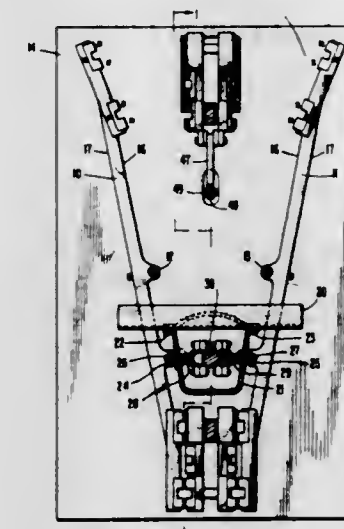
Jack E. Horner, 233 E. Bay Street, Jacksonville, Fla., and Jack K. Lanier, 5863 Hyde Park Circle, Jacksonville, Fla.

Filed Oct. 7, 1970, Ser. No. 78,747

Int. Cl. H02k 7/06

U.S. Cl. 310--24

13 Claims



A motor which operates by mechanically reversing the polarity of a pair of permanent magnets by solenoid means, to alternately attract and repel a pair of similar magnets disposed at the opposite ends of oscillatable rocker arms which through proper timing thereof imparts a rotary motion to a power shaft. Through the use of a multiplicity of rocker arms disposed either in series or parallel arrangements, an increase in output power can be obtained in proportion to the number of magnet pairs used.

3,636,392

ELECTRICAL GENERATOR HAVING NONSALIENT POLES FOR METERING SHAFT ROTATION

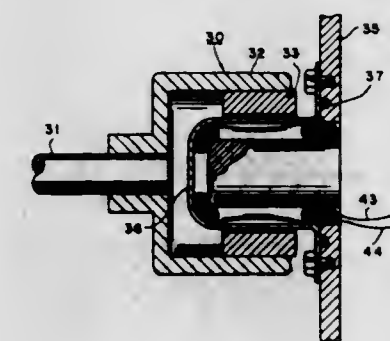
Paul W. Gerry, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Oct. 16, 1969, Ser. No. 866,850

Int. Cl. H02k 7/00

U.S. Cl. 310--67

3 Claims



A cup-shaped member is attached to a rotating shaft as might be associated with a turbine meter for measuring fluid

flow or volume. A permanent magnet ring is mounted internal to the cup member, the ring having a plurality of equispaced alternating north and south poles. A second cup-shaped member is mounted within the permanent magnet ring having a plurality of coils mounted on an iron core therein having nonsalient poles to maintain uniform reluctance in the magnetic circuit regardless of the angular position of the shaft.

In an alternative embodiment, the ring is iron, having the coils mounted thereon, and the permanent magnet is made to rotate in the center portion of the ring.

3,636,393

COUPLING COMPONENTS FOR ELECTRIC MACHINE
Wolfgang Pieper, Würzburg, Germany, assignor to Siemens Aktiengesellschaft

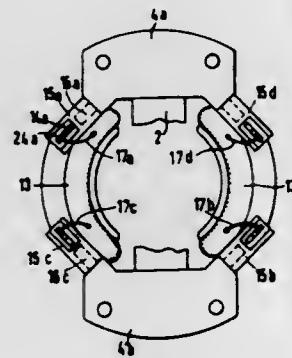
Filed Feb. 26, 1970, Ser. No. 14,435

Claims priority, application Germany, Mar. 4, 1969, P 19 10 868.0

Int. Cl. H02k 13/00

U.S. Cl. 310-71

9 Claims



An electric machine has a rotor, bearing plates for the rotor, a stack of stator laminations affixed to the bearing plates and a winding mounted on the stator laminations. Each of a plurality of insulating members is mounted on a corresponding one of a plurality of attachments and recesses for holding the insulating members. Each of a plurality of socket connections is mounted on a corresponding one of the insulating members. Electrically conductive means are electrically connected at one end to each of the socket connections and are adapted to be connected at the other end of each to a component of the machine.

3,636,394

ELASTIC CONTACTS FOR CARBON COLLECTOR RINGS HAVING INSULATING BODIES IN ELECTRIC MOTORS

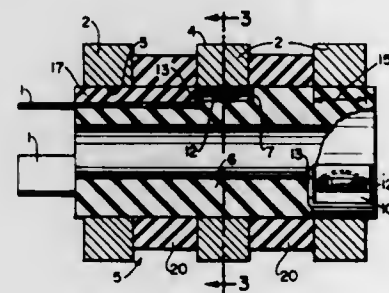
Walter Forste, Suhl/Thuringia; Joachim Schreiber, Leipzig, and Hans Stark, Suhl/Thuringia, all of Germany, assignors to VEB Elektrogeratewerk Suhl, Suhl/Thuringia, Germany

Filed May 18, 1970, Ser. No. 38,438

Int. Cl. H02k 13/02

U.S. Cl. 310-232

12 Claims



Contacts for carbon collector ring assemblies in electric motors, having a centrally disposed insulating boss and a plu-

ality of contact laminae or flags, inserted between the insulating bodies of the assemblies and the boss, corresponding in their number to that of the collector rings, the laminae being inserted under pressure within the rings and having specially shaped portions both to adapt to the curvature on the inside surface of the rings and to the insulating pieces in the assembly.

3,636,395
LIGHT SOURCE

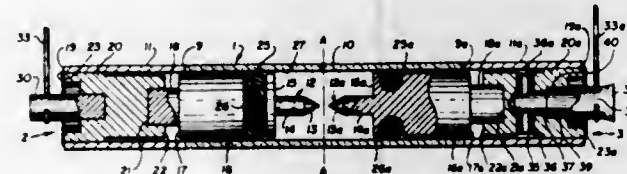
Nathan M. Banes, Jr., and James H. Bottcher, both of Gainesville, Fla., assignors to Sperry Rand Corporation

Filed Feb. 19, 1970, Ser. No. 12,655

Int. Cl. H01j 61/98

U.S. Cl. 313-8

8 Claims



A compact, short arc, high-pressure, xenon-filled light source provides high-intensity radiation with reliability and tolerance of severe environments. Specially shaped thoriated tungsten electrodes are fixed in opposed relation to nickel support blocks welded within a composite, uniform diameter, cylindrical envelope portion formed of a tube of alumina ceramic sealed to nickel-iron-cobalt alloy sleeves.

3,636,396

NONELECTRODE RF LIGHT SOURCE

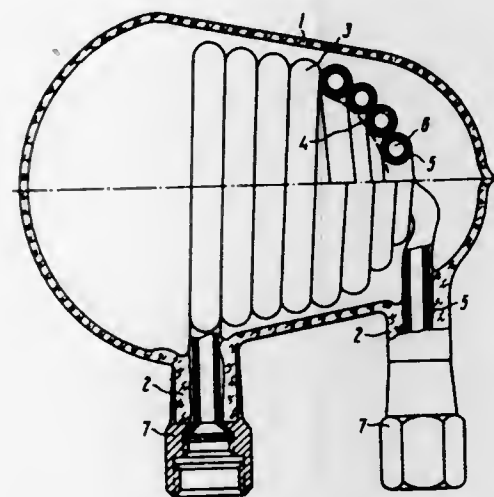
Valentin Anatolevich Gruzdev, korpus 338 "B," kv. 37; Boris Vasilievich Skvortsov, korpus 308, kv. 25; Nikolai Vasilievich Propkopenko, korpus 445, kv. 215, and Evgeny Alexandrovich Nedzvetsky, korpus 329, kv. 69, all of Zelenograd Moskovskoi Oblasti, U.S.S.R.

Filed Feb. 12, 1970, Ser. No. 10,721

Int. Cl. H01j 1/02, 7/26

U.S. Cl. 313-31

2 Claims



A nonelectrode RF light source of directional radiation which is an optically transparent bulb filled with a discharge gas, holding a starting inductor having turns of a monotonically decreasing diameter. For its whole length and shape, the inductor is enclosed in an insulating tube whose inner surface has a coating acting as an optical reflector.

The said light source produces a discharge with luminous and spectral characteristics constant with time and uniform in spatial distribution.

3,636,397
SINGLE-CRYSTAL SILICON CARBIDE DISPLAY DEVICE

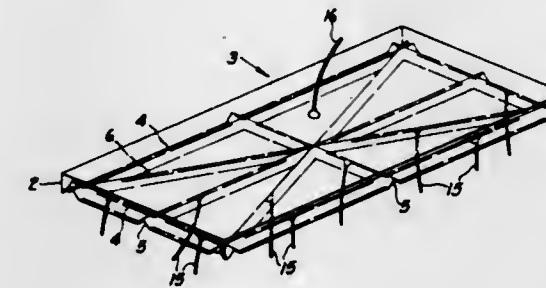
Arrigo Addamiano, Willoughby, and Ronald J. Perusek, Chardon, both of Ohio, assignors to General Electric Company

Filed Apr. 10, 1969, Ser. No. 815,047

Int. Cl. H05b 33/16; H01k 7/04

U.S. Cl. 313-108

8 Claims



The display device is a wafer of N-type silicon carbide having lines or segments of lines scribed into one face in a selected design such as an alpha-numeric or a grid of closely spaced dots. After scribing, the wafer is diffused with P-type dopants such as boron and aluminum. Contact to the P-type material within the scribed lines is made by vacuum evaporation of copper-silver. The wafer faces are then lapped to remove the metallizing and P-type layer except within the scribed lines. A connection is then made to the N-type material, and individual connections to each P-type scribed-line segment. By selective energization of line segments, various luminous letters, numerals or characters may be formed which are seen through the N-type material.

3,636,398

SUBMINIATURE ELECTRIC LAMP HAVING A COMPOSITE ENVELOPE

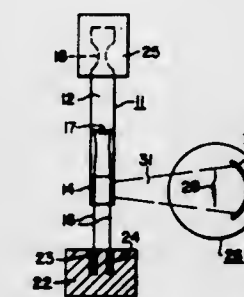
Walter A. Boyce, Glen Ridge, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 31, 1969, Ser. No. 889,663

Int. Cl. H01j 5/00, 61/40; H01k 1/28

U.S. Cl. 313-317

5 Claims



The lamp, which may be of the incandescent or photoflash-type, has an envelope composed of segments of light-transmitting and infrared-radiation absorbing glass tubing that are sealed together in abutting relationship. The infrared-radiation absorbing end portion of the composite envelope is hermetically sealed to the lead wires and the seal is formed by focusing a beam of infrared radiation on the seal assembly. The envelope is evacuated, and filled with gas if desired, through its opposite end which is then tipped off. Oxidation of the lead wires is reduced to a minimum by forming the seal inside a chamber that is evacuated, or filled with an inert gas, and has walls which transmit infrared radiation. In the case of chamber sealing, the free end of the light-transmitting portion of the envelope is sealed before the envelope-mount assembly is placed into the chamber so that

the sealing and evacuation (or gas filling) operations are performed simultaneously.

3,636,399

RARE EARTH CHALCOGENIDE THERMIONIC EMISSION CATHODES

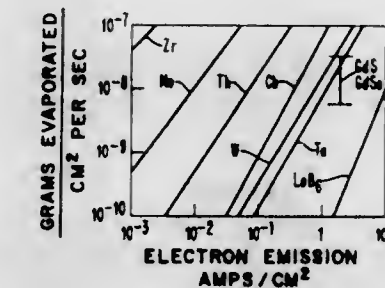
Dean E. Eastman, Route 3, Putnam Valley, N.Y.; Frederick Holtzberg, Cradle Rock Road, Pound Ridge, N.Y., and Siegfried I. Methfessel, Hustadtring 24, Bochum 463 W., Germany

Filed Oct. 21, 1970, Ser. No. 82,659

Int. Cl. H01j 1/14, 19/06

U.S. Cl. 313-346

9 Claims



This disclosure provides rare earth chalcogenide thermionic emission cathodes. Illustrative examples of such cathodes are GdS and GdSe films.

3,636,400

APPARATUS FOR ATTACHING A DISPENSER CATHODE TO A SUPPORT

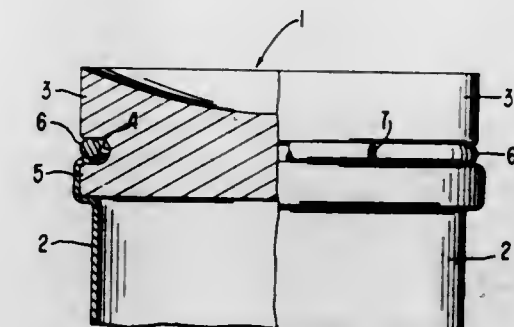
Charles A. Duchmann, San Mateo, and George V. Miram, Daly City, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed July 22, 1969, Ser. No. 843,570

Int. Cl. H01j 1/14

U.S. Cl. 313-346 R

4 Claims



Method and apparatus for attaching a dispenser cathode to a support structure is disclosed. The dispenser cathode body includes a peripherally directed groove into which the end of a tubular support structure is crimped. A retaining wire is forced into the groove containing the crimped end of the support to produce an interference fit between the retaining wire, support structure and the cathode body.

3,636,401

LIQUID-COOLED ELECTRODE FOR HIGH-PRESSURE COMPACT ARC

Salvatore Cortorillo, West New York; George A. Shaffer, Union, and Herbert S. Strauss, Paramus, all of N.J., assignors to Duro-Test Corporation, North Bergen, N.J.

Filed Dec. 22, 1969, Ser. No. 887,274

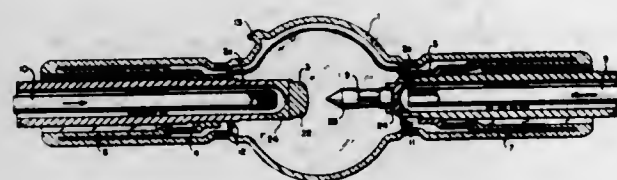
Int. Cl. H01j 1/02

U.S. Cl. 313-352

11 Claims

Anode and cathode electrodes for arc discharge lamps comprising an electrode holder, a tip and a joining piece of

high-heat conductivity material which are cast to form a complete electrode without the need for brazing. The casting apparatus includes a mold for holding the electrode holder,



tip and joining piece which permits movement of the electrode holder relative to the tip as the joining piece is heated.

3,636,402

COUPLED CAVITY-TYPE SLOW-WAVE STRUCTURE

Toshinori Horigome, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan

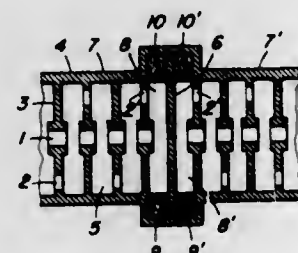
Filed Aug. 21, 1970, Ser. No. 66,041

Claims priority, application Japan, Aug. 30, 1969, 44/68987

Int. Cl. H01J 25/34

U.S. Cl. 315-3.6

6 Claims



A slow-wave structure for a travelling-wave tube, comprising a tubular waveguide member, a plurality of electric conductive plates transversely affixed to the member and coaxially disposed in mutually spaced relation on a longitudinal axis of the member in a manner perpendicular thereto, the respective plates having aligned apertures for passing an electron beam therethrough and for propagating high-frequency energy in a state of electromagnetic interaction with the electron beam, and an attenuation section disposed substantially in the middle of the member and including two vessels disposed coaxially with the member longitudinal axis at juxtaposed ends of input and output sides of the member, at least a part of each of the vessels being made of high-frequency energy-permeable material, and water substantially filling the respective two vessels, whereby the high-frequency energy is attenuated in the respective vessels while the water therein serves as a coolant therefor.

3,636,403

FERRITE MODE SUPPRESSOR FOR MAGNETRONS

Robert E. Edwards, Lexington, and John M. Osepchuk, Concord, both of Mass., assignors to The United States of America as represented by the Secretary of the Navy

Filed Sept. 9, 1970, Ser. No. 70,707

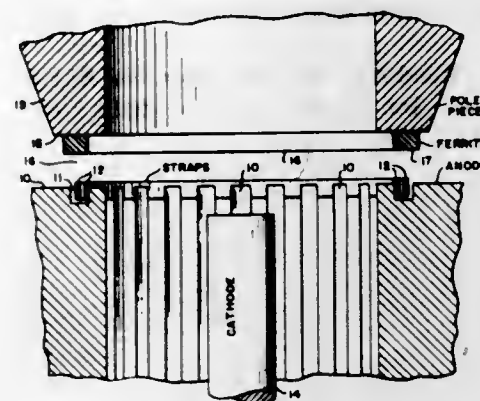
Int. Cl. H01J 25/50

U.S. Cl. 315-39.51

4 Claims

A ferrite mode suppressor for magnetrons having a ferrite annular member affixed in a region of a magnetron cavity

where the radiofrequency magnetic field of a competing mode is strong and where the radiofrequency magnetic field



of the π -mode is weak to suppress or absorb the competing mode or modes.

3,636,404

EMERGENCY LIGHT CIRCUIT FOR MERCURY VAPOR LAMPS

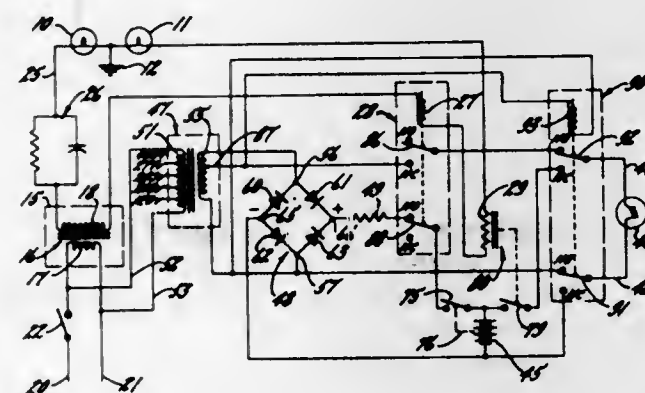
Arthur I. Appleton, 1713 West Wellington Ave., Chicago, Ill.

Filed Nov. 10, 1969, Ser. No. 875,113

Int. Cl. H05b 41/46

U.S. Cl. 315-87

13 Claims



An auxiliary or emergency lighting system for use with electric discharge lamps, and more particularly mercury vapor lamps. Means are provided for detecting the loss of energy or illumination in the primary discharge lamps and responding thereto to turn on an emergency lamp. In one embodiment, the emergency lamp may be selectively supplied with electricity from either the primary power source or from a battery, depending upon whether the electrical discharge lamps are momentarily or permanently deprived of energy. The battery for the emergency lamp is charged by a charging circuit connected to the primary power source and operative during normal operation of the electrical discharge lamp. A second embodiment uses a light-detecting device for triggering the emergency lamp into operation and includes means for providing both a fast charge and a trickle charge to the battery, depending upon the charge state of the battery.

3,636,405

SPLIT ELECTRODE GAS CELL

William L. Cotter, Beverly, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Oct. 1, 1969, Ser. No. 862,866

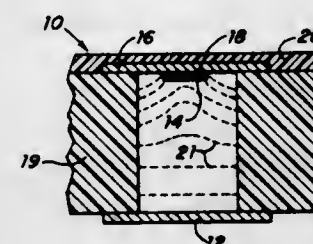
Int. Cl. H05b 37/00

U.S. Cl. 315-169 R

5 Claims

A system for selectively firing one bistable gas cell in a matrix of bistable gas cells forming a display or data storage

system. A voltage is applied across the gas cell which is sufficient to sustain a discharge in the gas cell but insufficient to fire the gas cell. Each gas cell within the matrix has a split



anode, and a gas cell is selectively fired by applying a positive voltage pulse to one part of the anode and a negative voltage pulse to the other part of the anode.

3,636,406

ELECTRONIC FLASH UNIT

Karl Ackermann, Berlin, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart-Unterturkheim, Germany

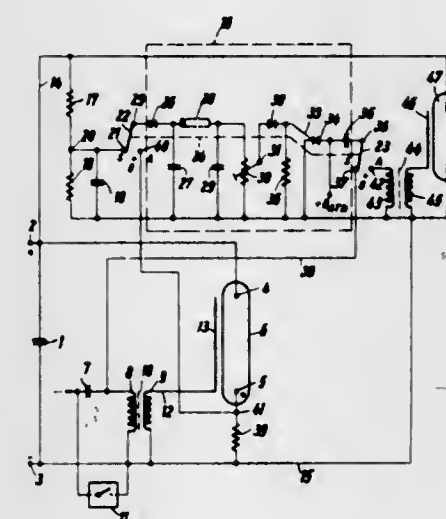
Filed Dec. 15, 1969, Ser. No. 884,794

Claims priority, application Germany, Apr. 19, 1969, P 19 20 036.3

Int. Cl. H05b 41/00

U.S. Cl. 315-241

10 Claims



A quench tube is connected in parallel with the flash tube. A control signal for initiating the flash or the quenching operation is derived selectively from a measuring and control circuit by the operation of a switch. Thus the unit may be used alternatively to provide automatic flash control or to initiate the flash in response to light from another flash unit.

3,636,407

GAS-DISCHARGE DEVICE WITH MAGNETIC MEANS FOR EXTINGUISHING THE DISCHARGE

Basil Offor Baker, Rickmansworth, England, assignor to The M-O Valve Company Limited, London, England

Filed July 15, 1970, Ser. No. 55,142

Claims priority, application Great Britain, July 15, 1969, 35683/69

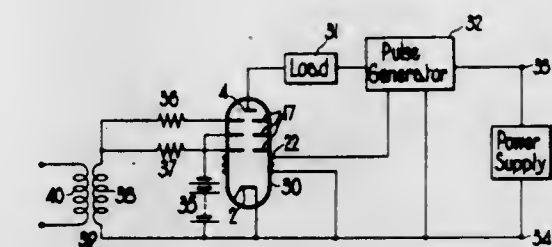
Int. Cl. H05b 37/00, 39/00

U.S. Cl. 315-344

9 Claims

An electric circuit interrupting device comprising a gas-filled envelope containing an anode and a cathode, and between them a screen with an aperture through which a discharge can pass between anode and cathode. Means are provided for producing a magnetic field adjacent the aper-

ture, and directed parallel to the path of the discharge, the maximum transverse dimension of the aperture being sufficient



3,636,408

TAPE DISPENSER WITH STATIC ELECTRICITY NEUTRALIZER

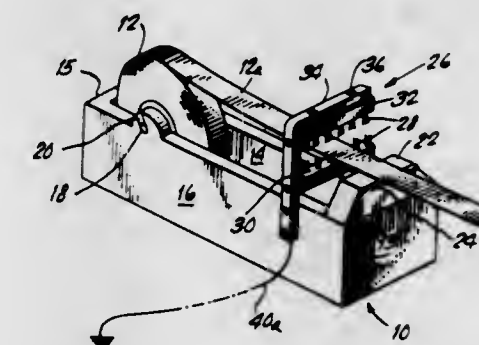
Joseph George Shuman, Scotch Plains, N.J., assignor to Technical Tape Corp., New Rochelle, N.Y.

Filed May 26, 1970, Ser. No. 40,501

Int. Cl. H05f 3/00

U.S. Cl. 317-2 R

8 Claims



Dispenser for film tapes such as pressure-sensitive adhesive tapes includes a rotatable mounting for a coil of tape so that the tape may be progressively uncoiled upon rotation of the coil and a selective device for dispensing portions of the tape as it is uncoiled. Static electricity on the tape is neutralized during uncoiling by either drawing the tape past a number of electrical conductors, e.g., grounded wires, disposed near the tape or applying to the tape a static neutralizing volatile fluid which is permitted to evaporate before or as the tape is dispensed.

3,636,409

ELECTRICAL GROUND FILTER MEANS FOR BOATS SUPPLIED WITH A SHORE-BASED SOURCE OF ALTERNATING CURRENT POWER

Frank H. Stephens, Jr., Morristown; Paul B. Byrne, Warren, and Edward P. Anderson, Livingston, all of N.J., assignors to Engelhard Minerals & Chemicals Corporation

Filed Nov. 17, 1970, Ser. No. 90,254

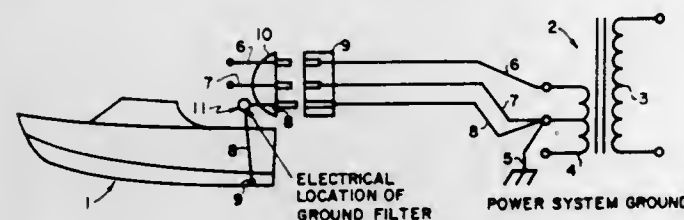
Int. Cl. H01b 7/28

U.S. Cl. 317-18 D

5 Claims

An electrical ground filter means for boats or other vessels supplied with a shore-based source of alternating current power having current leads and an electrical grounding lead connected between the alternating current source and a boat, the ground filter means comprising a first pair of rectifiers in series with each other, a second pair of rectifiers in series

with each other and of opposite polarity with the first pair, a capacitor means, the first and second pairs of rectifiers and



the capacitor means being connected electrically in parallel of each other.

3,636,410

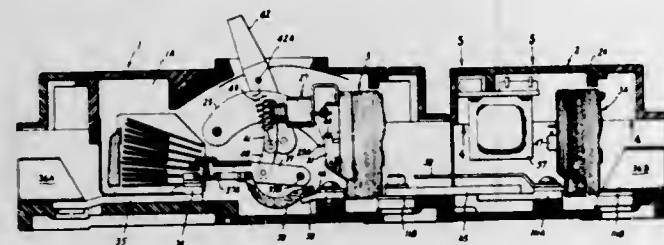
AUTOMATIC MOLDED CASE CIRCUIT BREAKER WITH TIME-DELAY OVERCURRENT TRIPPING

Franco Pardini, Via Biancospini 3, Milan, Italy
Continuation of application Ser. No. 721,236, Apr. 15, 1968, now abandoned. This application July 24, 1970, Ser. No. 64,063

Int. Cl. H02h 3/02, 3/08

U.S. Cl. 317—36 TD

9 Claims



A molded case electric circuit breaker of the type including inverse-time characteristic tripping means such as a bimetallic element for releasing a latch on the occurrence of sustained moderate overload conditions and magnetic-acting means also for releasing the same latch on the occurrence of sudden high-overload conditions such as a short circuit condition; release of the latch by the magnetic-acting means occurs only after a closely controlled short time-delay period, making possible the coordination of the circuit breaker in a selectivity system with other circuit breakers, allowing time for circuit breakers closer to fault to trip.

3,636,411

CONTROL LOGIC SWITCHING FOR AN ON-OFF CONTROLLER

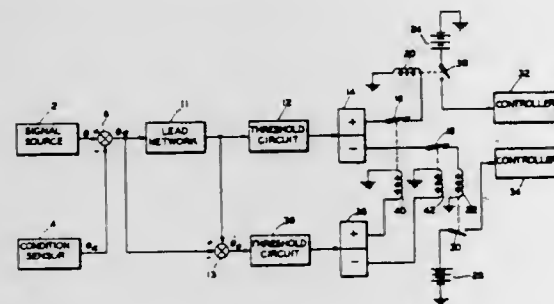
James E. Bulloch, Grenada, Miss., assignor to The Bendix Corporation

Filed May 28, 1968, Ser. No. 732,567

Int. Cl. F41g 7/00

U.S. Cl. 317—137

9 Claims



A switching device for an on-off controller. A signal corresponding to the desired value of a controlled variable is

compared with an actual value signal for providing an error signal. The error signal, upon exceeding a predetermined threshold, is gated through normally closed signal switches for opening power switches to interrupt power to the controller. An error rate signal, upon exceeding a predetermined threshold, is gated to the signal switches for opening said switches whereupon the power switches are closed to apply power to the controller.

3,636,412

TUBE SOCKET ASSEMBLY

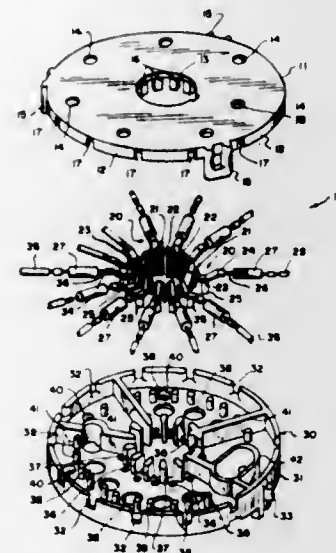
Stephen S. Simovits, Woodridge, and Christ J. Dumas, Forest View, both of Ill., assignors to American Plasticraft Company, Chicago, Ill.

Filed Oct. 20, 1970, Ser. No. 82,418

Int. Cl. H02h 9/06

U.S. Cl. 317—61

30 Claims



An improved tube socket assembly having controlled spark gaps incorporated therein and bifurcated spring-biased centrally cantilevered terminal pin contacts for improving the electrical contact between the terminal pins of a cathode-ray tube inserted therein and the terminal contacts, and the method of making same.

3,636,413

CONCEALED LOCK MEANS FOR TAMPERPROOF RECEIVER CASE

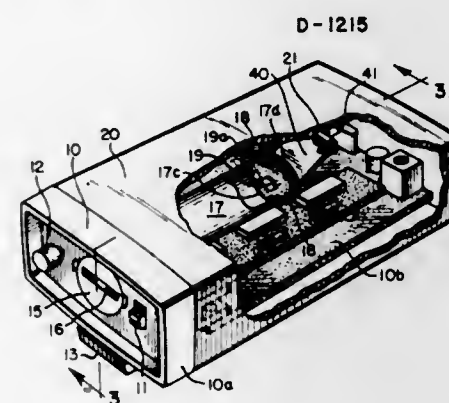
Alfred R. Ditthardt, Skokie, and Arthur W. Schmidt, Chicago, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed July 6, 1970, Ser. No. 52,319

Int. Cl. H04b 1/08; H02h 1/06

U.S. Cl. 317—120

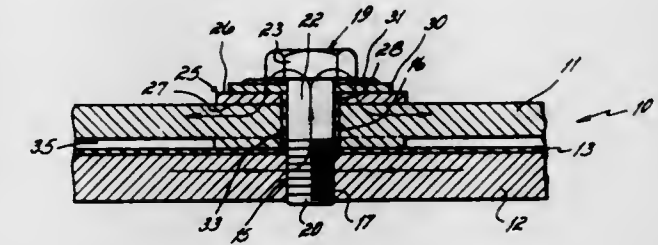
1 Claim



A tamperproof housing for a portable battery-operated electronic device has an electronics-supporting chassis with

an enclosed externally-accessible battery compartment to provide a concealed lock comprising a pair of cantilever spring members having their fixed ends attached to the chassis on the exterior of the battery compartment and their free ends each having a flange portion for engaging a corresponding notch in a housing cover to thereby secure the housing cover to the chassis. Two small openings are provided at the periphery of the interior end of the cylindrical battery compartment. The housing may be opened by use of a cylindrical tool having a shaft diameter slightly smaller than that of the battery compartment and further having a pair of prongs at the distal end of the shaft corresponding to the openings. The cover is detached from the chassis by inserting the tool into the battery compartment so that the prongs engage the openings and depress the two resilient cantilever latch members, thereby disengaging the flanges from the notches and releasing the cover from the chassis.

their inner faces. Each rectifier is a high-current device in the form of an annular washer, and is mounted to an outer face of one of the conductors. The mounting means is a fastener having a shank which passes through one or a stack of the washer rectifiers, into an aperture extending perpendicularly to the conductors. The shank of the fastener is insulated from



3,636,414

RELAY APPARATUS

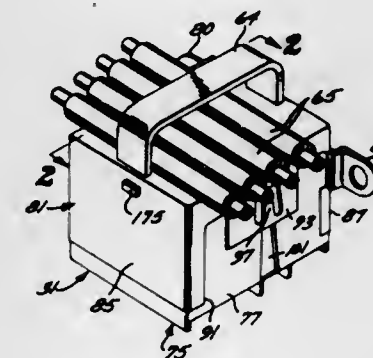
Harold A. McIntosh, South Pasadena; Hollis L. Randolph, Lakewood; William W. Chambers, Anaheim, and Marvin M. Graham, Seal Beach, all of Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Jan. 28, 1970, Ser. No. 6,529

Int. Cl. H01h 9/00, 47/32

U.S. Cl. 317—148.5 B

16 Claims



A relay apparatus to operate in response to an induction from an electric current in a conductor and including a housing having a first contact mounted thereon. A flexible blade is carried by one end from the housing and carries a movable contact on its free end. Sensing means is responsive to a predetermined electrical current in the lead to provide a signal which is amplified to operate an actuator which flexes the blade to engage the movable contact with the first contact.

The blade may be of nonlinear configuration and the actuator may move transversely thereto and engage such blade intermediate its ends to cause flexing thereof to engage the movable contact with the stationary contact and to continue flexing of such blade to move the movable contact across the surface of the first contact whereby the blade will remain flexed during contact closure and will tend to unflex when the actuator is retracted to apply a shearing force to any weld that may have developed between the contacts to thereby break such weld.

3,636,415

MOUNTING ASSEMBLY FOR RECTIFIERS

Harold H. Krueger, Ft. Mitchell, Ky., assignor to Teledyne Mid-America Corporation, Los Angeles, Calif.

Filed Apr. 14, 1971, Ser. No. 133,821

Int. Cl. H01l 1/12, 1/16

U.S. Cl. 317—234

11 Claims

An assembly for mounting a plurality of rectifiers to a pair of current conductors. The conductors are two overlying plates, separated by a layer or sheet of insulation between

the conductor against which the rectifier is held, but is in electrical contact with the other conductor and is secured relative to both. A head or nut on the fastener exerts mechanical force on, and is in electrical contact with, the upper surface of the rectifier. The rectifying circuit includes the shank of the fastener.

3,636,416

LIGHT-EMITTING DIODE WITH SUBNANOSECOND RESPONSE TIME

Junichi Umeda, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

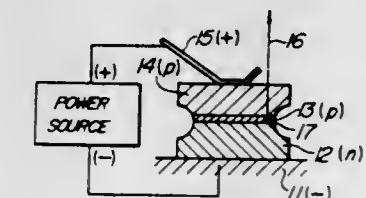
Filed Sept. 8, 1970, Ser. No. 70,120

Claims priority, application Japan, Sept. 10, 1969, 44/71245

Int. Cl. H01l 3/20, 5/00, 9/00, 1/112; H05b 33/00

U.S. Cl. 317—234 R

3 Claims



An ultrarapid luminescent semiconductor device capable of emitting light having a short response time comprising a semiconductor mixed crystal having a direct band-gap structure and a PN-junction formed therein. The composition of the part of the crystal through which light emitted by the PN-junction is transmitted is such that the component which makes the forbidden band of the semiconductor crystal narrow is increased in its proportion gradually or stepwise in the direction of light transmission so that light emitted due to the diagonal tunnelling effect can be transmitted, but light emitted by the transition between donors and acceptors is absorbed.

3,636,417

SCHOTTKY BARRIER SEMICONDUCTOR DEVICE

Akihiro Kimura, Takatsuki, Japan, assignor to Matsushita Electronics Corporation, Osaka-Prefecture, Japan

Filed Apr. 2, 1969, Ser. No. 812,753

Claims priority, application Japan, Apr. 5, 1968, 43/23015

Int. Cl. H01l 9/00

U.S. Cl. 317—234

5 Claims

A semiconductor device having a Schottky barrier is prepared by forming a hollow or recess in a major surface of a semiconductor substrate, such as silicon, germanium or gallium arsenide, and then forming a layer of metal, such as nickel, tungsten, molybdenum, vanadium, gold or palladium, in the recess. The metal contacting the semiconductor

3,636,426

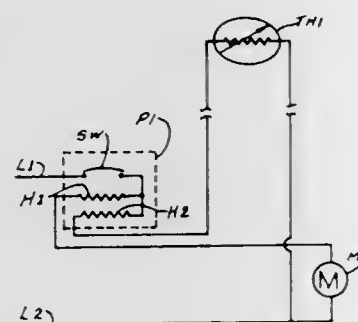
MOTOR CONTROL SYSTEM INCLUDING MOTOR PROTECTOR AND REMOTE SENSOR FOR CONTROLLING MOTOR OPERATION

Francis P. Bulting, Plainville, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of application Ser. No. 729,123, May 14, 1968, now abandoned. This application Aug. 25, 1970, Ser. No. 66,897

Int. Cl. H02h 5/04

U.S. Cl. 318-471

15 Claims



The control system employs a thermostatic motor protector for controlling a system parameter, such as temperature, at a distance from the motor as well as for protecting the motor. A thermistor is provided having a resistance which varies in response to changes in the value of the parameter. The thermistor is interconnected with a heater associated with the motor protector to cause the protector to deenergize the motor if the value of the parameter exceeds a predetermined threshold.

3,636,427

SECTOR-SCANNING SERVOMOTOR CONTROL CIRCUIT

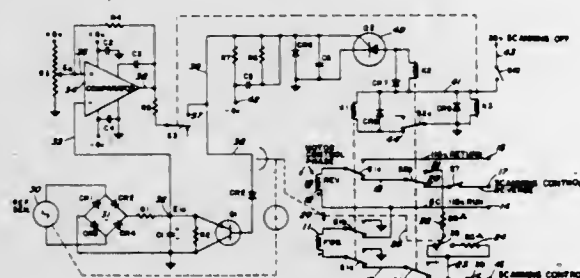
John Logis, Glen Burnie, and Ronald C. Scheerer, Baltimore, both of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Aug. 5, 1970, Ser. No. 61,249

Int. Cl. G05g 5/00

U.S. Cl. 318-627

5 Claims



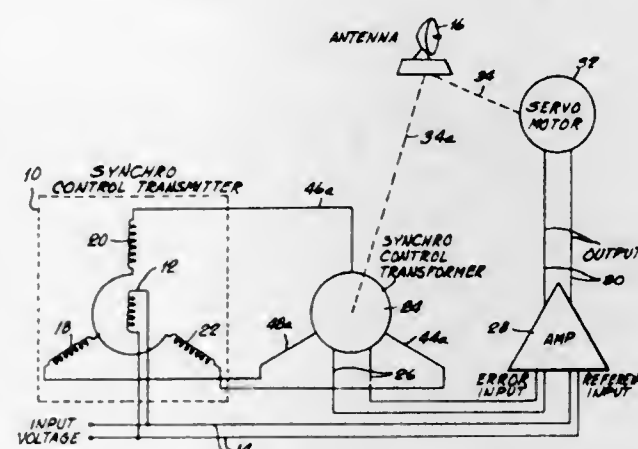
A fast stop-and-reverse two-phase motor control circuit having a solid-state timing network or a motor speed sensing network coupled to solid-state switches in relay circuits to produce a timed reverse torque on the motor proportional to torque time or motor speed to stop the motor and hold it against a limit stop with low-power torque without exceeding limit stop mechanical strength.

3,636,428 SYNCHRO SERVOSYSTEM IN WHICH A POTENTIOMETER WITH UNIQUE CHARACTERISTICS REPLACES THE RECEIVER

Joseph J. Yanosik, Huntington Station, Long Island, N.Y., assignor to Betatronix, Inc., East Northport, N.Y.
Filed Mar. 20, 1968, Ser. No. 714,684
Int. Cl. G05b 1/06

U.S. Cl. 318-663

8 Claims



Potentiometer structures for synchro systems and synchro systems utilizing such structures. One or more potentiometers are employed in place of the usual rotor and stator inductive transformer arrangements employed in the control transmitter and control transformer of a synchro system. The potentiometer employed in the synchro control transformer has a resistivity which varies in accordance with a cotangent function of the displacement of the movable wiper of the potentiometer from a reference position. Essentially the control transformer potentiometer employs three similar resistive segments, each corresponding to 120 electrical degrees of rotation of the potentiometer. The equation expressing the resistance R at a location in a segment as a function of the angle of displacement is as follows:

$$R = \left[\frac{1}{2} - \frac{\sqrt{3}}{6} \cot(30^\circ + X) \right] R_i$$

where X equals the electrical angle of displacement which, for each segment, varies from 0° to 120° , and R_i is the open circuit resistance between the ends of each segment.

The potentiometer employed as a synchro control transmitter to be used with the potentiometer-type synchro control transformer just described includes a square-shaped film of uniform resistivity against which bear three wipers of equal angular separation (120°). The wipers provide the output signal to the control transformer. The input to the square-shaped film is an AC or DC signal applied to opposing sides of the film. A midpoint of one or both of the two remaining sides is typically grounded. The signals from the three wipers are related to the DC input signal by a sine function, i.e., dependent upon the sine of the angle of rotation of the wipers from a reference position.

3,636,429

LOGIC CIRCUITRY FOR PROVIDING STOPPING CONTROL FOR STEPPING MOTORS

Marek Jakubowski, and Joseph P. Pawletko, both of Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 8, 1970, Ser. No. 35,797

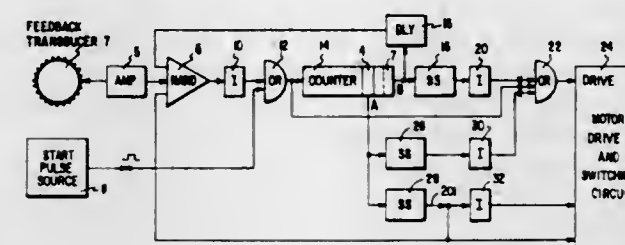
Int. Cl. G05b 19/40

U.S. Cl. 318-685

7 Claims

The invention is concerned with circuitry for providing a sequence of stopping pulses derived from motor feedback pulses. It includes means for providing an initial stop pulse

which reverses the phase of the motor to thereby develop a negative torque. Intermediate stopping pulses in the form of feedback pulses continue to apply the negative torque to the



rotor. A final stopping pulse not derived from the feedback pulses is applied to bring the motor to its equilibrium position. In this manner, a stepping motor can be stopped with substantially no oscillations after a specified number of steps.

3,636,430

ANTICIPATORY FEEDBACK CONTROL FOR INVERTERS

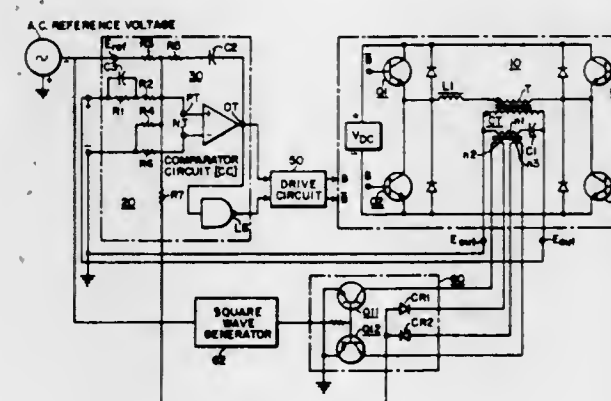
Andreas Kernick; Manvel A. Geyer, both of Lima; Glenn W. Ernsberger, Worthington, and John F. Vonderembse, Lima, all of Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 26, 1970, Ser. No. 83,958

Int. Cl. H02m 1/12, 7/52

U.S. Cl. 321-9 A

5 Claims



The invention comprises apparatus for comparing the filtered power transformer output waveform of a pulse-width-modulated inverter circuit with an AC reference voltage waveform and generating output voltage signals to control the inverter drive circuit to the extent necessary to produce an inverter output waveform substantially duplicating the reference voltage waveform and substantially void of low order harmonics. An anticipatory signal developed by a circuit which monitors the change in current with respect to time in a capacitor included in a filter circuit connected to the output of the power transformers provides optimum response of the apparatus to changes in the output waveform beyond prescribed units relative to the reference voltage waveform.

3,636,431 BYPASS CONTROL SYSTEM FOR HIGH-VOLTAGE DC CONVERTER USING SEMICONDUCTOR CONTROL RECTIFIERS

Takehiko Machida; Yukio Yoshida, both of Tokyo; Noriyoshi Fujii, and Kenjiro Yokoyama, both of Hitachi-shi, all of Japan, assignors to Hitachi Ltd. and Zaidan Hojin Denryo Chuo Kenkyusho, Tokyo, Japan

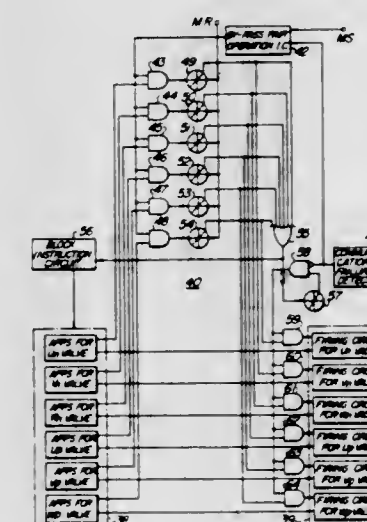
Filed Dec. 24, 1969, Ser. No. 887,934

Claims priority, application Japan, Dec. 27, 1968, 43/95466

Int. Cl. H02m 1/08, 1/18

U.S. Cl. 321-11

9 Claims



A bypass control system wherein the rectifiers or inverters in high-voltage DC power transmission, DC interconnecting frequency changer and so forth are constituted by semiconductor controlled rectifiers, and the design is made such that the semiconductor controlled rectifiers constituting two arms in series of the converter can be fired simultaneously if necessary, thereby eliminating bypass valves required for removing the conventional converter. The removal of the converter can be achieved in a short time in case that one arm has brought about commutation failure and the other arm connected in series therewith is fired.

3,636,432

DC-TO-AC TRANSFORMERLESS POWER SUPPLY

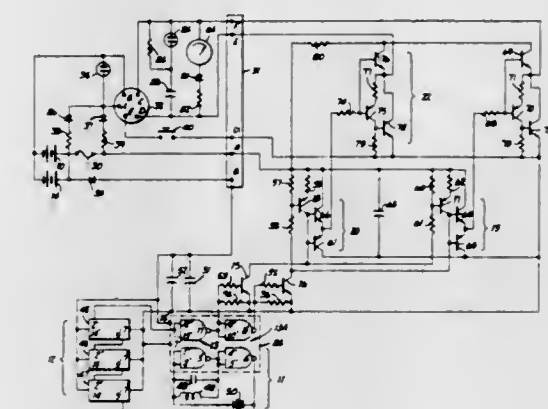
Marshall L. Sherman, Indianapolis, Ind., assignor to William E. Landrum, Indianapolis, Ind.

Filed Feb. 4, 1970, Ser. No. 8,554

Int. Cl. H02m 7/52

U.S. Cl. 321-16

9 Claims



A solid-state power supply with two, positive, 120-volt, 60-Hz. square wave outputs which are 180° out of phase from each other. The power supply contains a crystal-controlled

oscillator powered by batteries. The oscillator output frequency is divided to 60 Hz. and split into two signals with a 180° phase shift. The two waves are amplified and fed through constant-current circuits to limit the current draw on the batteries. The constant-current circuits are connected to quasi-complementary circuits by low-impedance coupling circuits.

3,636,433

VOLTAGE STABILIZER APPARATUS

Edward Philip Hyatt, Caterham, England, assignor to Brandenburg Limited

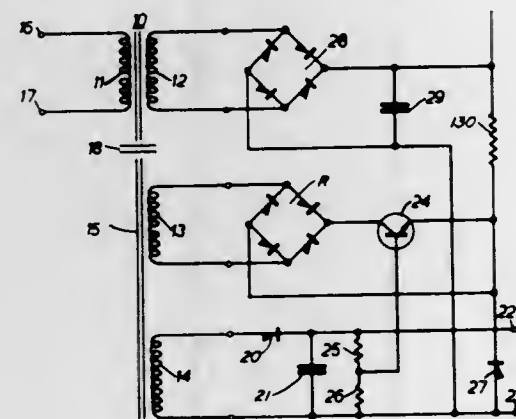
Filed Jan. 28, 1970, Ser. No. 6,475

Claims priority, application Great Britain, Jan. 29, 1969, 4,972/69

Int. Cl. H02m 7/12

U.S. Cl. 321-18

3 Claims



The invention provides a high-voltage low-current electric supply apparatus which is stabilized by use of a low-voltage transistor. A transformer with high-leakage inductance has two secondary windings, from one of which the high-voltage output is obtained; the other winding is a low-voltage winding supplying a transistor forming a controllable load. By controlling this transistor, as a function of the high-voltage output, the high-voltage output is controlled and can be stabilized.

3,636,434

VOLTAGE REGULATOR FOR PERMANENT MAGNET ALTERNATORS

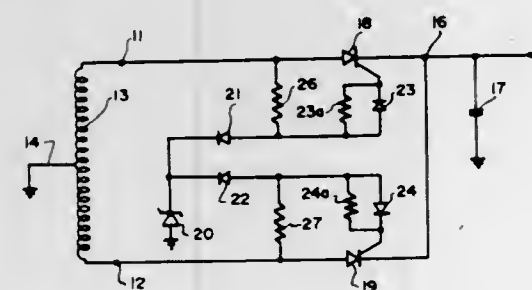
Ljubomir Beuk, Chicago, and Robert Vargas, Arlington Heights, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 4, 1970, Ser. No. 86,747

Int. Cl. H02p 9/00; H02m 7/22

U.S. Cl. 322-28

7 Claims



A voltage regulator having silicon controlled rectifiers connecting opposite ends of the output winding of an alternator to a voltage utilization circuit connected to the output ter-

minal of the voltage regulator. The voltage regulator utilizes the voltage difference between the gate cathode circuit of the silicon controlled rectifiers to establish a reference current conducting point at which the silicon controlled rectifiers will be rendered conductive.

3,636,435

METHOD OF ELECTROMAGNETIC PROSPECTING BY MEASURING RELATIVE GRADIENT OF A RESULTANT ELECTROMAGNETIC FIELD

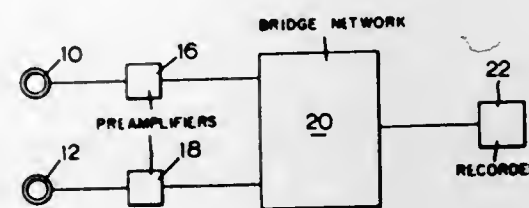
Harold O. Seigel, Willowdale, Ontario, Canada, assignor to Scintrex Limited, Downsview, Ontario, Canada

Filed June 20, 1969, Ser. No. 835,185

Int. Cl. G01v 3/10, 3/12, 3/16

U.S. Cl. 324-6

3 Claims



This invention relates to a method of electromagnetic prospecting wherein a pair of detecting coils are rigidly mounted on a common support on a moving vehicle for the purpose of measuring the relative gradient of the resultant electromagnetic field. Rigidly supporting the coils on the moving vehicle renders them insensitive to misorientation of the detectors and this is of special advantage in airborne electromagnetic survey work.

3,636,436

BELT FISSURE DETECTION DEVICE

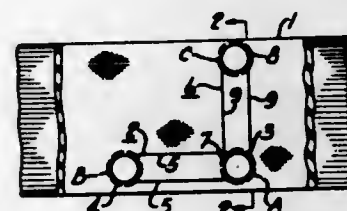
Noritaka Kurauchi; Tokio Fujimoto, both of Suita; Kenichi Yoshida, Sakai; Masamitsu Ui; Zenji Nagata, both of Komaki, and Hirokazu Kouno, Kasugai, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka and Tokai Rubber Industries, Ltd., Komaki, Japan

Filed Mar. 31, 1970, Ser. No. 24,242

Int. Cl. G01r 33/00

U.S. Cl. 324-34

17 Claims



A conveyor belt fissure detection apparatus having a plurality of pairs of fissure detecting coils buried in a conveyor belt in the transverse or belt-width direction and buried in the belt in the longitudinal direction with the pairs of coils being positioned at uniform intervals along the length of the conveyor belt to detect a fissure when it occurs either in the transverse or longitudinal direction of the belt thereby breaking any of the detecting coils. An exciting coil, excited by an oscillator and receiving coils connected to a detector circuit are positioned in proximity of the conveyor belt in aligned relation with the belt detecting coils embedded in the conveyor belt to electromagnetically couple with them when they travel by in proximity to the exciting and receiving coils. A fissure in the conveyor belt is detected by a detector circuit when one of the coils in the belt is broken causing signal interruption indicative of an occurrence of fissure in the belt.

3,636,437

METHODS FOR MAGNETICALLY MEASURING STRESS USING THE LINEAR RELATIONSHIP OF THE THIRD HARMONIC TO STRESS

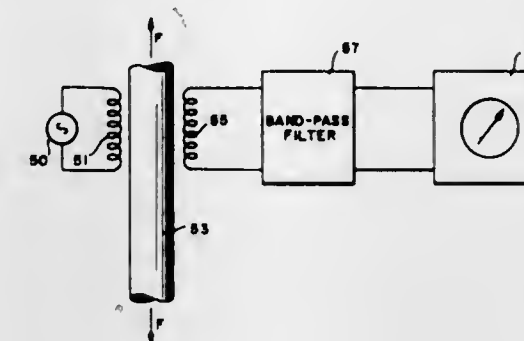
Herman A. Soulant, Jr., 501 Gillet Pl., Rockville, Md., and Henry C. Brisker, 14112 Sturtevant Road, Silver Spring, Md.

Filed Aug. 25, 1970, Ser. No. 66,750

Int. Cl. G01r 33/12

U.S. Cl. 324-34 ST

15 Claims



A method for determining applied stress, yield stress and residual stress in a magnetic material. The method utilizes the amplitude of an induced third harmonic signal as an indication of the stress. Two measurements of the third harmonic amplitude are made, one for an unstressed and a second for a stressed condition. The amplitude indicative of the stress in the material is compared to the initial third harmonic reading according to a linear relationship to determine the stress.

3,636,438

METHOD OF AND APPARATUS FOR MEASURING A TIME VARYING CHARACTERISTIC OF A MAGNETIC CORE

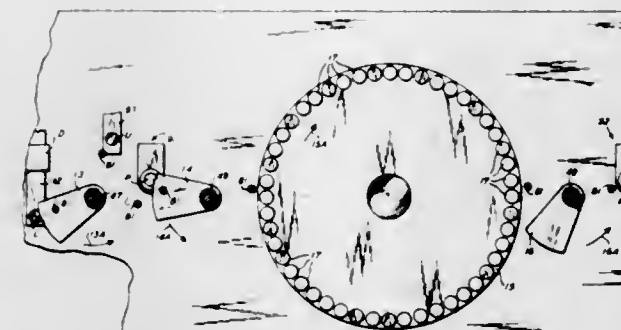
John O. Etchison, Jr., Clemmons, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Sept. 22, 1969, Ser. No. 859,653

Int. Cl. G01r 33/12

U.S. Cl. 324-34 R

9 Claims



A useful permeability characteristic value may be extrapolated for a ferrite core from permeability data obtained at two distinct instants in time, t_1 and t_2 . These instants terminate two different predetermined time periods elapsed from a demagnetizing operation performed upon the core at a time t_0 . Testing apparatus provides for the performing of demagnetizing, first permeability testing and second permeability testing steps upon a succession of ferrite cores. All permeability tests are performed in a single permeability testing station at appropriate times t_1 and t_2 for each particular core being tested, i.e., dependent upon the time t_0 for the particular core. Each core is transported about a closed loop between the two permeability tests and is returned to the permeability testing station at the time t_2 . An additional test-

ing station for performing a miscellaneous test upon each core at a time t_1 intermediate the times t_1 and t_2 is located in an appropriate position along the closed loop. A series of linear and rotary conveyors are operated in timed relationship so as to transport each successive core, demagnetized at a time t_0 , to the permeability testing station at the proper time t_1 , then along the loop to the intermediate, miscellaneous testing station at the proper time t_1 , then back to the permeability testing station to complete the loop at the proper time t_2 and, finally, to an appropriately located unloading station subsequent to the time t_2 .

3,636,439

REMOTE MEASURING TRANSFORMER COUPLED IMPEDANCE BRIDGE FOR BALANCED AND UNBALANCED CIRCUITS

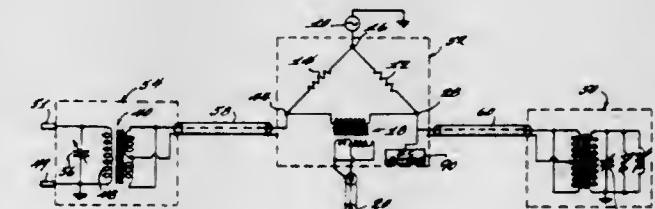
Frank S. Colligan, 5200 Oakland Road, Chevy Chase, Md.

Filed Jan. 7, 1970, Ser. No. 1,272

Int. Cl. G01r 27/00

U.S. Cl. 324-57 R

8 Claims



An impedance or admittance measuring bridge for use primarily at radiofrequencies capable of measuring balanced or unbalanced transmission lines and antennas and capable of determining the degree of balance of a transmission line and/or its associated antenna. A first balance circuit is coupled to a source of electrical energy and includes a signal detector for sensing the presence or absence of a known signal condition. A calibrated circuit having variable impedance is coupled to the first balance circuit whereby the unknown impedance/admittance is connected to the test circuit and whereby the calibrated circuit impedances are adjustable to create a null signal condition at the detector when the value of the unknown impedance is equal to the value of the calibrated circuit impedances.

3,636,440

ISOLATION-GUARDING MEASURING INSTRUMENT FOR IN-CIRCUIT COMPONENT TESTING

Melvin E. Stanford, Ballston Spa, N.Y., assignor to Systomation, Inc., Schenectady, N.Y.

Continuation of application Ser. No. 713,436, Mar. 15, 1968.

This application May 27, 1970, Ser. No. 41,717

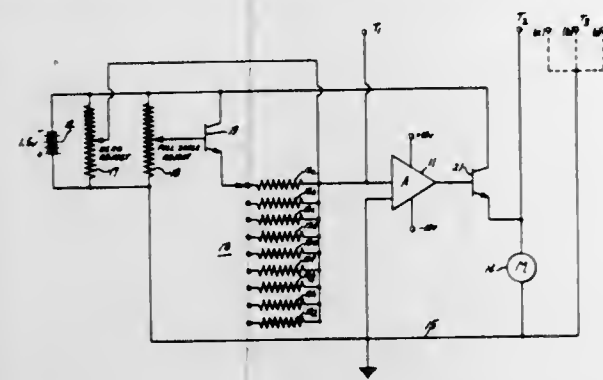
Int. Cl. G01r 27/00

U.S. Cl. 324-57 R

13 Claims

A portable, isolation-guarding measuring instrument that may be easily carried by electronic technicians, television service repairmen, etc. The instrument comprises a suitable meter movement of the voltmeter-type for providing an indication of the magnitude of an electrical signal and having first and second input measurement terminal leads for coupling the opposite terminals of an in-circuit component to be measured to the meter movement and to an excitation signal. A third isolation-guarding terminal lead maintained at essentially the same potential as the potential of one of the first and second input measurement terminal leads, is provided for connection to nodal points of other circuit components connected in parallel circuit relationship with the in-circuit component to be measured. As a result, measurement

of the actual value of the in-circuit component can be obtained without requiring that the in-circuit component be



3,636,441

METHOD OF MEASURING CRACK DEPTHS IN ELECTRICALLY CONDUCTIVE METAL WORKPIECES USING CURRENT PROBES WITH VOLTAGE PROBES LOCATED BETWEEN CURRENT PROBES BY MEASURING THE MINIMUM POTENTIAL DIFFERENCE BETWEEN THE VOLTAGE AND CURRENT PROBES
Tsutomu Fujimura, Naka-gun; Hiroshi Kamata, Mito; Tomio Yamaguchi, Kobe, and Hisanobu Fukue, Kakogawa, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan and Japan Atomic Energy Research Institute, Tokyo, Japan

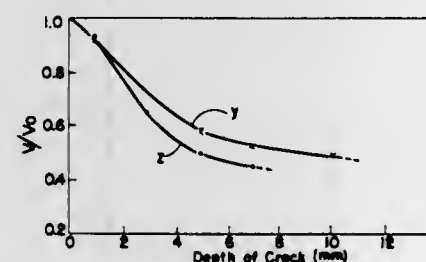
Filed Feb. 19, 1970, Ser. No. 12,607

Claims priority, application Japan, Feb. 22, 1969, 44/13065; Nov. 15, 1968, 43/83391; Dec. 25, 1968, 43/95767; Feb. 10, 1969, 44/9258; Feb. 28, 1969, 44/14559

Int. Cl. G01r 27/14

U.S. Cl. 324-64

1 Claim



A method for determining in a nondestructive manner the existence, the depth and the length of cracks in an electrically conductive metal workpiece such as a steel plate or a steel pipe, by means of an electric resistance measurement which is carried out by using a pair of current probes and a pair of voltage probes located between the current probes, and, if a defect is located between the current probes and the voltage probes, the measurement is made on the basis of the minimum potential difference detected by the voltage probes rather than by the maximum value in the measured voltage distribution.

3,636,442

DETECTION SYSTEM FOR DETECTING HOLES IN PHOTOCOPIING PAPER
Manabu Doi, Numazu-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Nov. 18, 1969, Ser. No. 877,776

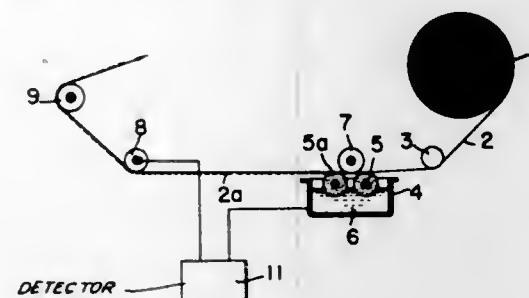
Int. Cl. G01r 27/02

U.S. Cl. 324-65

4 Claims

A device for detecting defect holes and the like in photocopying paper wherein an electrically conductive de-

tection roller is disposed in electrically insulated relation with a main body of a photographic sensitizing agent application device at a position where a base sheet passes with its back surface being wrapped over said detection roller while the agent applied to the front surface being not yet sufficiently



3,636,443

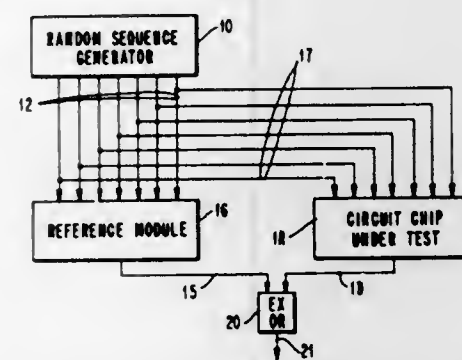
METHOD OF TESTING DEVICES USING UNTESTED DEVICES AS A REFERENCE STANDARD
Shanker Singh, Beacon, and Vijendrap P. Singh, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 29, 1970, Ser. No. 85,007

Int. Cl. G01r 15/12

U.S. Cl. 324-73 R

13 Claims



A method of testing circuit chips using untested chips as a standard. A portion of the untested chips is selected at random and used as a reference standard. A random pulse generator generates patterns of pulses which are applied to the test standard chips and also successively to each of the remaining chips. A majority logic gate is employed to determine the majority outputs of the test standard chips. Each majority output is compared with the respective outputs of the remaining chips to determine which of the latter are qualified. Some of the qualified chips are then substituted for the test standard chips and the cycle is then repeated with the qualified chips, and repeated again with the twice-qualified chips. With each successive cycle the probability of qualifying good chips converges toward unity.

3,636,444

APPARATUS FOR MEASURING SMALL CHANGES IN CONDITION-SENSITIVE CAPACITANCE TRANSDUCERS
Charles F. Strawn, Arlington, Tex., and John C. Donovan, Milwaukee, Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Filed Jan. 30, 1970, Ser. No. 7,176

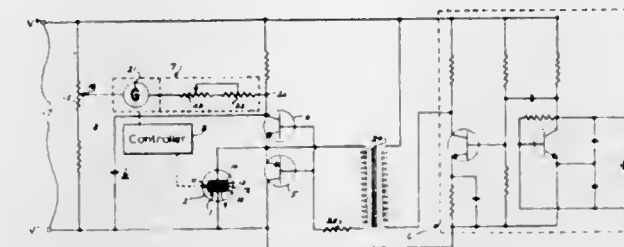
Int. Cl. G01n 27/26

U.S. Cl. 324-61 R

14 Claims

A humidity-sensitive capacitance sensor or transducer is connected in one leg of a modified Maxwell commutated DC

bridge with the other legs formed of resistors. The sensor continually senses the humidity condition and establishes a proportional output signal of the bridge in accordance with changes in capacitance over a small range on a suitable galvanometer. A crystal-controlled oscillator actuates a pair of transistors to alternately connect the condition-sensitive



capacitance transducer in a discharging circuit and in a charging circuit in the bridge network. The capacitance transducer alternately charges and discharges with a null output at a given condition and a proportionate output in response to any deviation of the condition sensed by the capacitance sensor. A span adjustment and a charge reservoir capacitor are employed to facilitate the operation.

3,636,445

NONREPETITIVE WAVEFORM PARAMETER MEASUREMENT

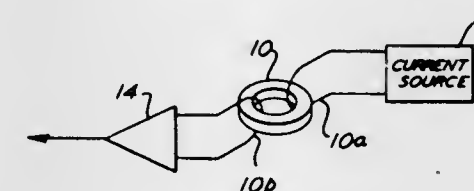
Sarkis Douaihy, Riverside; John F. Renz, Cinnaminson; William R. Blatchley, Delran, and Terry W. Stahl, Cinnaminson, all of N.J., assignors to Computer Test Corporation, Cherry Hill, N.J.

Filed Apr. 3, 1969, Ser. No. 813,078

Int. Cl. G01r 23/16

U.S. Cl. 324-77 R

14 Claims



Analyzing a nonrepetitive waveform by measuring the value of the peak amplitude A_p of the waveform, the time duration t_p between a predetermined time and the time that the peak amplitude occurs and the time duration t_d between the predetermined time and the time that the peak amplitude has decreased to 10 percent of its peak value. The peak amplitude of the waveform is detected and delayed and the difference is derived between the delayed and undelayed peak signals to provide a zero crossing when the delayed peak signal reaches its peak and is equal to the undelayed peak signal. The zero crossing is detected and a command signal produced.

3,636,446

RECEIVER FOR DETECTING SIGNALS WITHIN A PREDETERMINED BANDWIDTH

Roland E. Genter, Falls Church, Va., and Raymond S. Connell, Jr., Adelphi, Md., assignors to H. B. Engineering Corporation, Silver Springs, Md.

Filed Mar. 4, 1970, Ser. No. 16,418

Int. Cl. G01r 23/02, 23/14

U.S. Cl. 324-78 F

9 Claims

A receiver for detecting the presence of a signal, said receiver including a first multiplier for multiplying together the signal to be detected and a signal at substantially the

same frequency as the signal to be detected, a second multiplier for multiplying together the signal to be detected and a signal at substantially the same frequency as the signal to be detected, said signals provided to the second multiplier being



separated by about 90° by phase-shifting means, low-pass filters coupled to the output of each of the multipliers and a detector for combining the signals from the filters and sensing if the combined level thereof is greater or equal to a predetermined level.

3,636,447

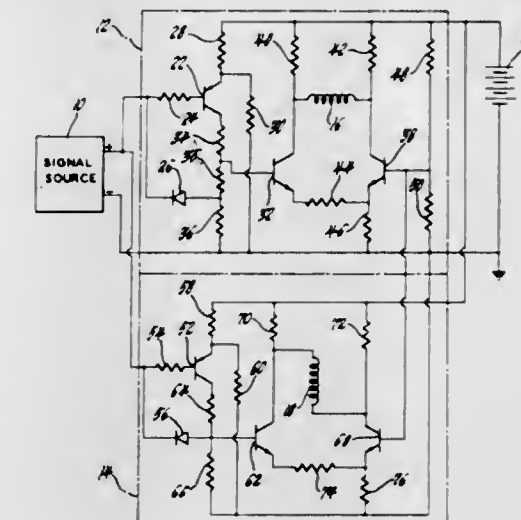
WIDE-ANGLE TWO-COIL ELECTRICAL GAUGE
Robert B. Golenius, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 6, 1970, Ser. No. 34,981

Int. Cl. G01r 7/00, 1/20

U.S. Cl. 324-140 R

3 Claims



A wide-angle electrical gauge having two coils whose magnetic axes are at right angles. A signal source supplies a signal whose magnitude is proportional to the magnitude of the condition to be indicated. A sine generator is responsive to the output of the signal source and controls the current through one of the coils in a manner such that the magnetic field along its magnetic axis varies in an approximated sinusoidal fashion. A cosine generator is responsive to the output of the signal source and controls the current through the remaining coil in a manner so as to generate a magnetic field along its magnetic axis which is phase shifted from the magnetic field generated by the sine generator so as to take the form of an approximated cosine waveform in relationship thereto. A magnetic armature aligns itself with the resultant of the two magnetic fields whose angular position corresponds to the magnitude of the condition being measured.

3,636,448

SIGNAL SOURCE DISCONNECTION-DETECTING METHOD FOR PLURAL SOURCES

Yoshiyuki Nishishi; Akira Osawa, and Hiroshi Kuwahara, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 14, 1970, Ser. No. 54,811

Claims priority, application Japan, July 18, 1969, 44/56465

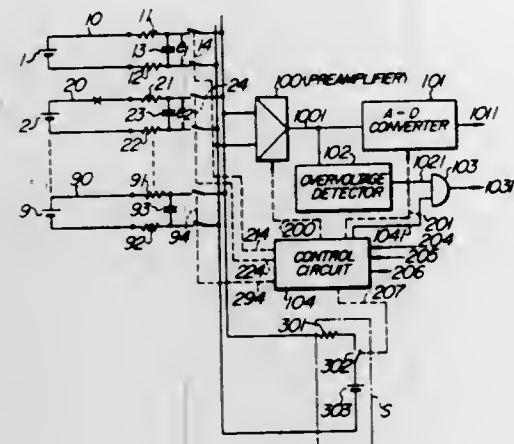
Int. Cl. G01r 31/02

U.S. Cl. 324-140

6 Claims

A disconnection-detecting method used with a system wherein analog voltages from a number of points are scanned so that the analog voltages are amplified by a preamplifier

into a predetermined range of voltage levels and are then converted into corresponding digital form, said method characterized in that upon completion of an analog to digital conversion for each point of measurement, a disconnection-



detecting voltage is applied to the input of the preamplifier for, on time-sharing basis, a predetermined time duration concurrent with the analog voltage to thereby detect a disconnection in the line.

3,636,449 POSITION SENSOR

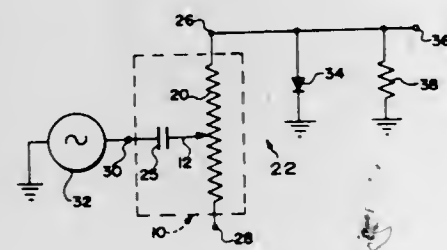
Leslie W. Partridge, Janesville, Wis., assignor to The Burdick Corporation, Milton, Wis.

Filed Feb. 12, 1970, Ser. No. 10,800

Int. Cl. G01r 15/10

U.S. Cl. 324-157

9 Claims



3,636,450

DIGITAL MOS FET CHARACTERISTIC TESTER

Ronald G. Griffin, Costa Mesa, Calif., assignor to Collins Radio Company, Dallas, Tex.

Filed Dec. 23, 1969, Ser. No. 887,692

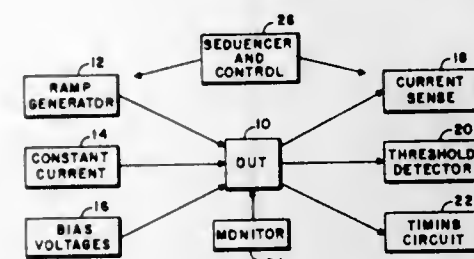
Int. Cl. G01r 31/22

U.S. Cl. 324-158 T

1 Claim

Apparatus for testing parameters of semiconductor field-effect devices wherein participation of a human operator is minimized. Sequencer and control means selectively interconnects instrumentation to a device under test, test initiation means energizes the instrumentation, and test completion means senses test completion, maintains the parameter

reading on monitoring means, and deactuates the instrumentation. The sequencer means may provide automatic



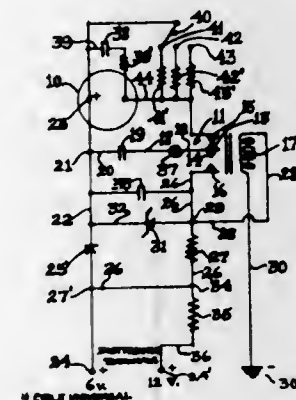
sequencing of the test apparatus through the complete testing cycle.

3,636,451 TACHOMETER CIRCUIT FOR AN INTERNAL COMBUSTION ENGINE OR THE LIKE

Vivian Luther Westberg, 3400 Westch Way, Sonoma, Calif.
Filed Nov. 12, 1969, Ser. No. 875,940
Int. Cl. G01p 3/48

U.S. Cl. 324-169

1 Claim



A tachometer wherein the current for the charging capacitor of the tachometer measuring circuit and the current for energizing the coil of the relay switch in the circuit, are from a single source, the tachometer having incorporated in its circuit an arrangement to permit its universal use on four-cycle engines with four, six, or eight cylinders, and having the further provision wherein the capacitor may be charged by the multiple pulsing from the center of low-tension magneto, assuring a sufficient amount of current per unit of time for full zener control. A further improvement in switching provides a similar universal feature on three ratios of two-cycle engines.

3,636,452

RADIO RELAY SYSTEM

Erich Nuding, Backnang, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Aug. 27, 1970, Ser. No. 67,499

Claims priority, application Germany, Aug. 28, 1969, P 19 43 735.5

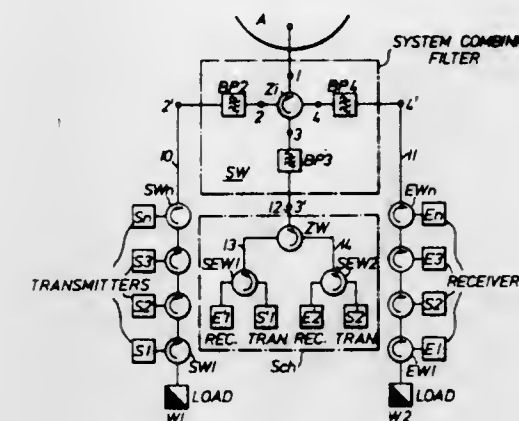
Int. Cl. H04b 1/60

U.S. Cl. 325-3

5 Claims

The antenna of a broadband radio relay system, of the type wherein all of the receivers and all of the transmitters are connected to respective common transmitting or common receiving lines and connected to the antenna via a combining or mixing filter, is utilized by an auxiliary narrow band radio relay system having a plurality of receivers and transmitters. The receiving and transmitting lines of the auxiliary system

are combined, by means of appropriate combining filters, triangular weighting to each input pulse. The baseband signal is then recovered from the filter output. In one embodiment,



system and connected to one port of a four-port circulator included in the system-combining filter.

3,636,453 CONCURRENT SAME-FREQUENCY FM RADIO REPEATER

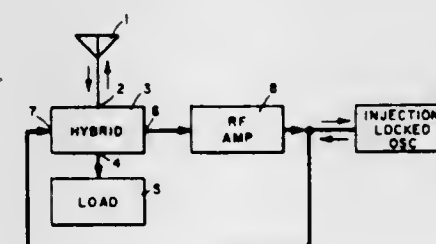
Quintin H. George, Sudbury, Mass., assignor to Cutler-Hammer, Incorporated, Milwaukee, Wis.

Filed May 7, 1969, Ser. No. 822,541

Int. Cl. H04b 7/14

U.S. Cl. 325-7

3 Claims



An antenna system, used for simultaneous reception and transmission, is coupled by way of a hybrid device to an RF amplifier having less gain than the isolation loss introduced between its output and input by the hybrid. Additional gain, beyond the finite isolation of the hybrid, is provided by an oscillator which is coupled in single-port fashion to the circuit and tends to synchronize with applied signals that are substantially weaker than its output.

3,636,454

DIGITAL CIRCUIT DISCRIMINATOR FOR FREQUENCY-SHIFT DATA SIGNALS

Gerald Philip Pasternack, Colts Neck, and Burton R. Saltzberg, Middletown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

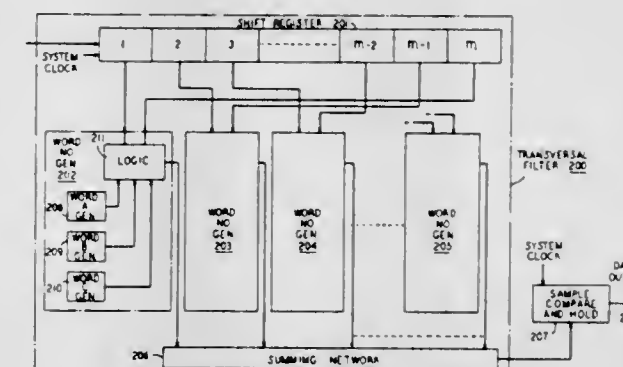
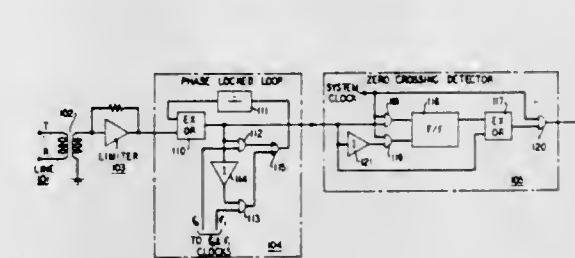
Filed July 28, 1970, Ser. No. 58,848

Int. Cl. H03k 9/06; H04l 27/14

U.S. Cl. 325-320

6 Claims

FSK data signals are applied to a phase-locked loop whose binary signal output has an average amplitude which varies with the frequency of the incoming data signal. A zero-crossing detector produces a pulse for each zero crossing of the binary signal and the pulses are processed by a transversal digital filter having finite memory and arranged to provide



the zero-crossing detector and the transversal filter are advantageously arranged to be time shared by a plurality of FSK signal channels.

3,636,455 TUNABLE INPUT CIRCUIT

Willy Minner, Ingolstadt, and Gerhard Lindner, Pfaffenhofen, both of Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm am Danube, Germany

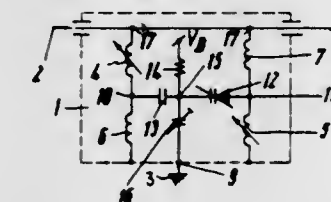
Filed Sept. 29, 1969, Ser. No. 861,924

Claims priority, application Germany, Sept. 27, 1968, P 17 91 182.9

Int. Cl. H03h 7/10; H04b 1/18

U.S. Cl. 325-379

11 Claims



A tunable input circuit with high selectivity for feeding a signal to a variable-frequency band-pass filter with tuning elements identical to those of the input circuit. The high selectivity produced by the input circuit is a minimum in the range of the received frequency and a maximum in the range of the image frequency. The input circuit is a bridge having four arms with impedances in them and four points connecting the arms. The impedances are diagonally matched, and one set is variable. One set of diagonally opposite points connecting the arms is connected between an antenna lead and ground. A voltage-variable capacitance (such as a voltage-variable diode) is connected between the other pair of connecting points. A tuning voltage is fed back to the voltage-variable capacitance means. This voltage is preferably the same voltage used to tune the band-pass filter.

3,636,456

IMPEDANCE-MEASURING NETWORK

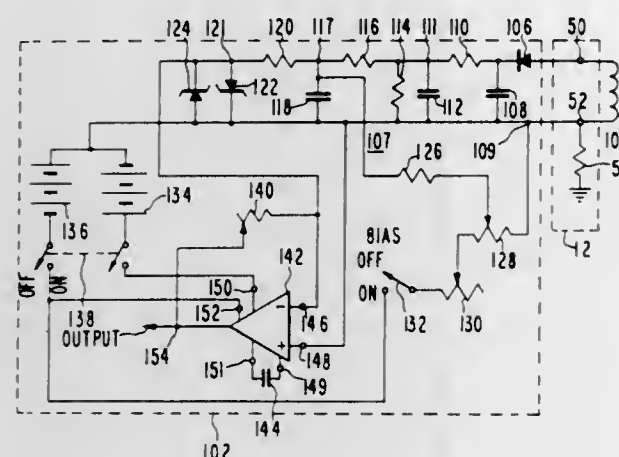
Loren G. Wright, Alameda County, Calif., assignor to Uthe Technology, Inc., Mountain View, Calif.

Filed Dec. 29, 1969, Ser. No. 888,330

Int. Cl. H03k 5/08; G01r 27/00

U.S. Cl. 328-32

4 Claims



A circuit is connected to an ultrasonic transducer being fed by a constant current or constant voltage power supply. By rectifying, differentiating, and amplifying the transducer coil voltage an output signal that is a function of the transducer and load impedance is provided that can be displayed so as to determine the operating condition of the ultrasonic apparatus.

3,636,457

QUADRATURE SQUARE WAVE GENERATOR

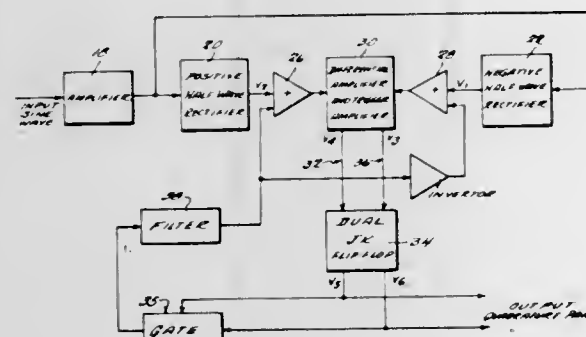
James A. Hart, Jr., Doraville, Ga., and Lorimer Clayton, Jr., Stone Mountain, both of Ga., assignors to Scientific-Atlanta, Inc., Atlanta, Ga.

Filed Feb. 24, 1970, Ser. No. 13,734

Int. Cl. H03k 1/12

U.S. Cl. 328-29

7 Claims



An improved circuit for producing two square wave electrical signals in relative phase-quadrature from an input sine wave whereby the amplitude and relation of the two output square waves do not vary with either the frequency or amplitude of the input sine wave. In one embodiment, the input sine wave is split into positive and negative rectified signals, and each signal then is used to produce intermediate signals which have a first and second output level and which change that level each time the potentials of the positive and negative rectified signals are equal. These intermediate signals are applied to logical devices to cause production of the output square wave signal in quadrature. An averaging and level shifting circuit is employed to shift the DC bias of the rectified signals so that the output signals are in quadrature.

3,636,458

PERIODIC AVERAGING CIRCUIT

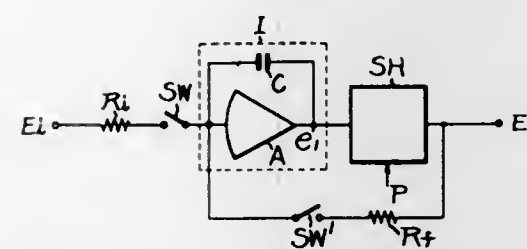
Takashi Sugiyama; Satoshi Kurata, and Keiki Yamaguchi, all of Tokyo, Japan, assignors to Kabushiki Kaisha Yokogawa Denki Selsakusho (Yokogawa Electric Works, Ltd.), Tokyo, Japan

Filed Dec. 3, 1969, Ser. No. 881,840

Claims priority, application Japan, Dec. 6, 1968, 43/89838 Int. Cl. H03k 5/00

U.S. Cl. 328-151

5 Claims



A periodic averaging circuit having an integrator supplied with an input signal, a sampling hold circuit supplied with the output of the integrator and a sampling pulse, and a feedback circuit for feeding the output of the sampling hold circuit back to the integrator, the sampling hold circuit holding the output of the integrator in accordance with the sampling pulse applied thereto.

3,636,459

SMOOTHING CIRCUIT FOR SMOOTHING PULSATING DIRECT VOLTAGES

Felix Blaschke, Erlangen, and Gerhard Hutter, Malchingen, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

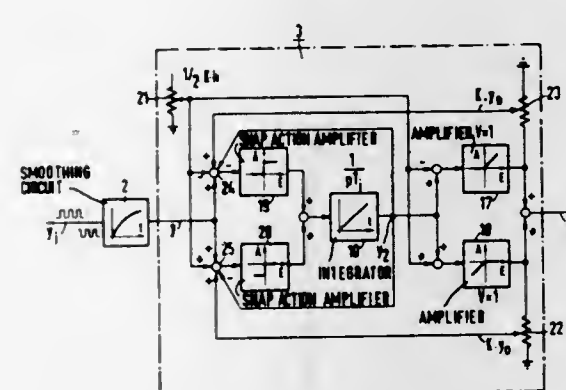
Filed Oct. 21, 1969, Ser. No. 868,193

Claims priority, application Germany, Oct. 31, 1968, P 18 06 285.6

Int. Cl. H03k 4/30, 4/56

U.S. Cl. 328-127

7 Claims



A smoothing circuit for smoothing pulsating direct voltages utilizes an electronic hysteresis circuit which produces a hysteresis loop having a width adjusted to the instantaneous direct voltage. The hysteresis circuit comprises an electronic function generator for producing a zero-symmetrical hysteresis loop of constant width and an amplifier connected to the output of the function generator. The amplifier has a sensitivity limit corresponding to half the width of the hysteresis loop and a feedback between the amplifier output and the function generator input reduces the constant width of the hysteresis loop.

3,636,460

QUADRATURE SQUARE WAVE GENERATOR

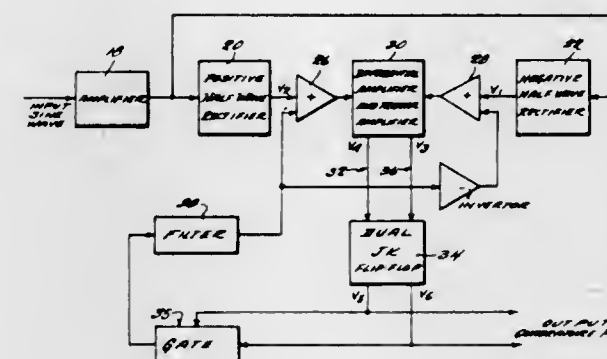
James A. Hart, Jr., Doraville, Ga., assignor to Scientific-Atlanta, Inc., Atlanta, Ga.

Filed Feb. 24, 1970, Ser. No. 13,735

Int. Cl. H03k 5/20

U.S. Cl. 328-140

10 Claims



A circuit for producing two square wave electrical signals in relative phase-quadrature from an input sine wave whereby the amplitude and relation of the two output square waves do not vary with either the frequency or amplitude of the input sine wave. In one embodiment, the input sine wave is split into positive and negative rectified signals, and each signal then is used to produce intermediate signals which have a first and second output level and which change that level each time the potentials of the positive and negative rectified signals are equal. These intermediate signals are applied to logical devices to cause production of the output square wave signals in quadrature. In one embodiment, part of the output square wave signals is fed back to shift the DC bias of the rectified signals so that the output signals are in quadrature.

3,636,461

TRANSFERRED ELECTRON AMPLIFIER WITH OSCILLATION STABILIZATION CIRCUIT

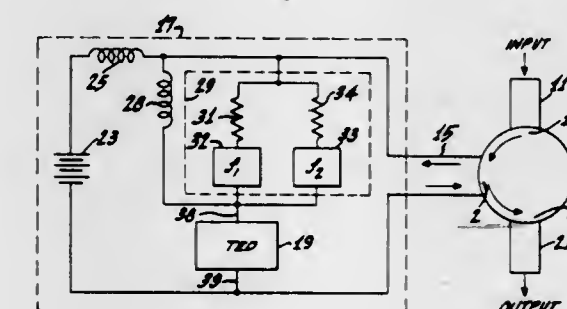
Fred Sterzer, Princeton, N.J., assignor to RCA Corporation

Filed Dec. 29, 1969, Ser. No. 888,476

Int. Cl. H03f 3/04

U.S. Cl. 330-5

3 Claims



Stabilization of transferred electron devices having the product of carrier concentration (n) and length L between terminals of the device greater than $5 \times 10^{11} \text{ cm}^{-2}$ is provided by a selective loading network.

3,636,462

AUTOMATIC DC LEVEL CONTROLLING SYSTEM FOR A DC-COUPLED AMPLIFIER

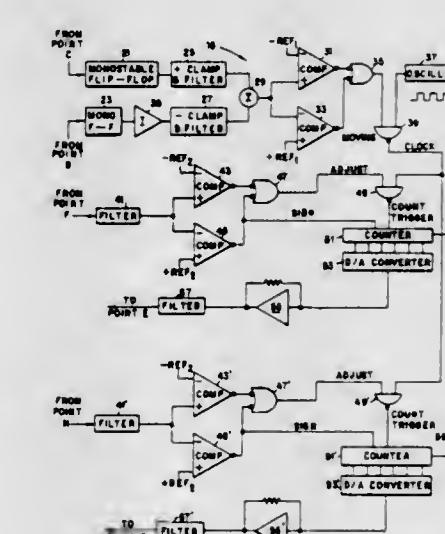
William A. Baldauf, Jr., Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 11, 1970, Ser. No. 97,233

Int. Cl. H03f 1/02

U.S. Cl. 330-9

7 Claims



A system has been provided which automatically compensates for DC level drift of the interference signal DC-coupled amplifier in a laser interferometer system. An analog feedback signal provides automatic compensation of the DC level at the input of a DC amplifier by sensing when the DC level at the output of the amplifier drifts out of a specific range. A bidirectional counter is controlled by the sensor to record increments of correction which are converted to an analog signal by a digital-to-analog converter and after appropriately amplified is fed back to the input of the amplifier to compensate for the detected drift and bring the DC level back within the specified range.

3,636,463

METHOD OF AND MEANS FOR GAIN-RANGING AMPLIFICATION

Leo Ongklehong, Rijswijk, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed Dec. 12, 1969, Ser. No. 884,429

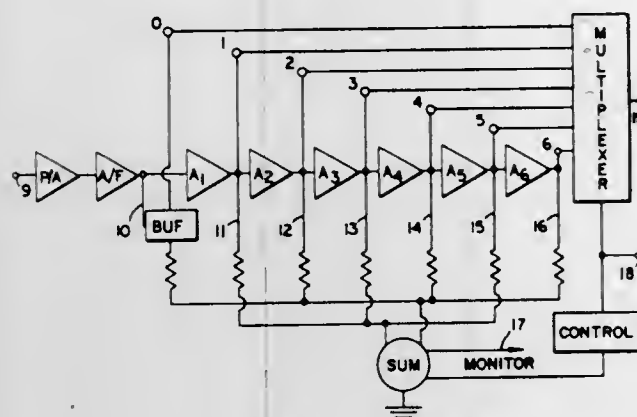
Int. Cl. H03g 3/30

U.S. Cl. 330-29

19 Claims

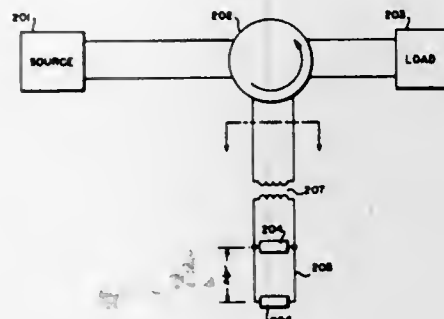
A gain-ranging amplifier is disclosed comprising a plurality of fixed gain amplifier stages connected in cascade and means for taking the output signal from any one of the fixed gain amplifier stages. Control means are described whereby such output signal is taken from the amplifier stage immediately preceding the first such stage which is being overdriven at a particular point in time by the signal which is being amplified. Specific circuits are disclosed for use in

seismic geophysical exploration applications and means for generating a signal representative of the amount of gain utilized in amplifying the input signal and for monitoring the input signal are described.



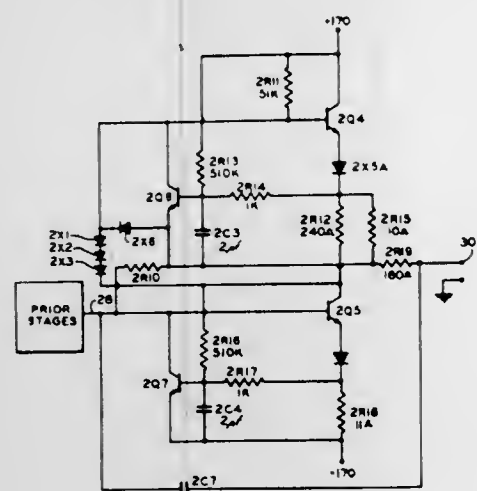
3,636,465
COMPENSATED NEGATIVE RESISTANCE DEVICE
Alan C. MacPherson, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 29, 1967, Ser. No. 671,889
Int. Cl. H03f 3/12
U.S. Cl. 330—61 A 10 Claims



ized in amplifying the input signal and for monitoring the input signal are described.

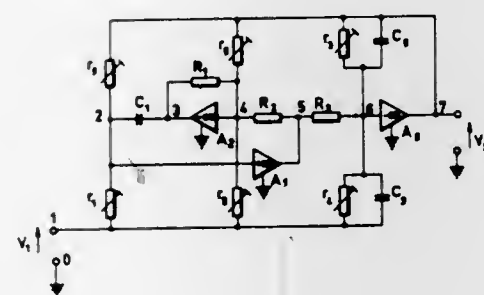
3,636,464
DC AMPLIFIER POWER-LIMITED OUTPUT STAGE
Edward O. Gilbert, Ann Arbor, Mich., assignor to Reliance Electric Company, Ann Arbor, Mich.
Original application July 9, 1965, Ser. No. 471,790, now Patent No. 3,462,697, dated Aug. 19, 1969. Divided and this application May 8, 1969, Ser. No. 822,982
Int. Cl. H03f 3/04, 3/68
U.S. Cl. 330—24 3 Claims



A direct-coupled amplifier output stage includes a pair of series-connected output transistors. The input signal from prior stages is applied to the base of one of the series transistors and the output signal is taken from in between the two transistors. A separate protective transistor is associated with each of the two series-connected transistors. Each protective transistor provides an opposing signal to the series transistor which it protects in opposition to the drive signal so as to limit the current through the series transistor. Each protective transistor is controlled to provide its opposing signal not only in accordance with the current through the series transistor which it is protecting, but also in accordance with the voltage across the series transistor which it is protecting, so that both of the series transistors are "power limited." Thus the output stage can safely supply more output current when it is providing a low-output voltage than when it is supplying a larger output voltage.

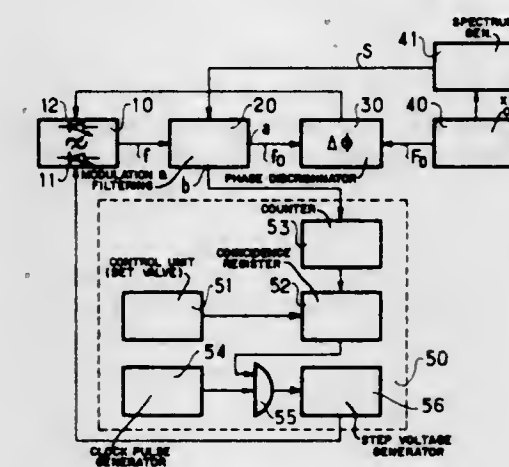
A compensated one-port negative resistance device is obtained by using two negative elements spaced one-quarter wavelength apart so that identical changes in the two negative elements produce no first-order changes in the total impedance as viewed from the single port. The resulting device is used in a reflection-type amplifier which is more stable (for the same gain) than the corresponding amplifier in which a single negative resistance is the active element.

3,636,466
BUILDING BLOCK FOR ACTIVE RC FILTERS
Kare Hjovard Mossberg, Akersberg, and Dag Eison Akerberg, Stockholm, both of Sweden, assignors to Telefonaktiebolaget L. M. Ericsson, Stockholm, Sweden
Filed Feb. 25, 1970, Ser. No. 13,955
Claims priority, application Sweden, Mar. 11, 1969, 3328/69
Int. Cl. H03f 1/36
U.S. Cl. 330—85 10 Claims



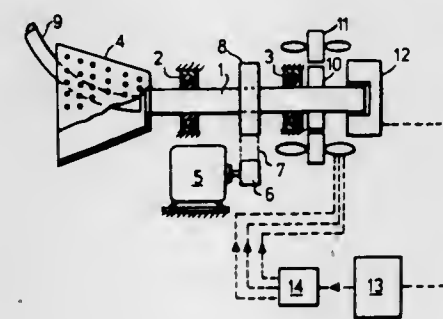
A building block for active RC filters including three amplifiers. The output of one amplifier is connected to the input of another amplifier via an impedance. Furthermore, the output of one amplifier is connected to the output terminal of the building block. The inputs of the amplifiers are each via an impedance connected to the input terminal of the building block and via another impedance to the output terminal. Because of the fact that the impedances between the input and output terminals and the inputs of the amplifiers are triable, the zeros and the poles of the transfer function can be arbitrarily located in the complex s plane.

3,636,467
FREQUENCY SYNTHESIZER WITH NUMERICALLY CONTROLLED SCANNING VOLTAGE
Lucien Babany, Blanc Mesnil, and Antoine Poussin, Neuilly-sur-Seine, both of France, assignors to C.I.T. Compagnie Industrielle Des Telecommunications, Paris, France
Filed Mar. 13, 1969, Ser. No. 807,768
Claims priority, application France, Mar. 13, 1968, 143590
Int. Cl. H03b 3/04
U.S. Cl. 331—4 5 Claims



Frequency synthesizer utilizing harmonic counting in which a designated indication of the desired frequency determines the steps of control voltage to be applied by means of a stepped voltage generator to the variable oscillator in control thereof in such a way that its frequency is advanced to the capture range of a phase discriminator providing fine control.

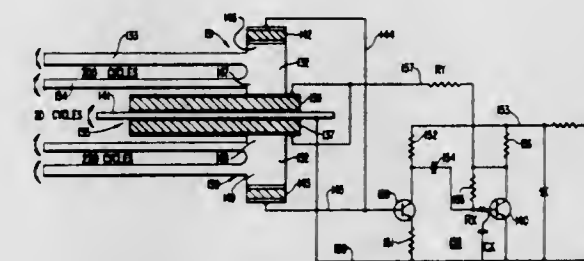
3,636,468
CONTROL SYSTEM FOR MAINTAINING A VARIABLE INERTIA-VIBRATING BODY-SUBSTANTIALLY AT RESONANCE
Brian Ellis, Huddersfield, England, assignor to Thomas Broadbent & Sons Limited, Huddersfield, England
Filed Dec. 31, 1969, Ser. No. 889,389
Claims priority, application Great Britain, Jan. 7, 1969, 850/69
Int. Cl. B04b 9/10; H03b 3/04
U.S. Cl. 331—4 9 Claims



A control system for maintaining at resonance a vibratory body of nonconstant inertia comprising a swept-frequency oscillator whose output frequency is arranged to determine the frequency of vibration of said body, a device adapted to provide a signal which is indicative of a resonance condition of the body, and means adapted to detect change of said signal and to increase the sweep range of said oscillator accordingly, such that each time the frequency corresponding to resonance of the body is passed during successive sweeps, the signal from said device acts to decrease the sweep range

of said oscillator until a predetermined sweep range, substantially centered on said frequency corresponding to resonance of the body, has been attained.

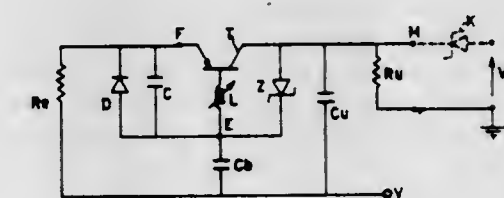
3,636,469
BEAT FREQUENCY TIME STANDARD
William E. Reefman, Santa Barbara, Calif., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed Nov. 10, 1969, Ser. No. 875,428
Int. Cl. H03b 5/30
U.S. Cl. 331—41 3 Claims



Two tuning forks, each resonant at a different frequency, are connected to generate a beat-frequency signal for a time standard. Each tuning fork is incorporated within the feedback loop of an electromechanical oscillator, the separate outputs of which are applied to a modulator. The difference or beat-frequency output signal of the modulator is used to drive an electric force transducer which, in turn, drives a clockwork.

The present invention relates to improvements in generating time standard signals for clockworks and more particularly to a two tuning fork system for generating a stable, low-beat frequency signal. Advantageously, the present invention utilizes the structural and physical characteristics of high "Q" tuning forks as described in my copending application, Ser. No. 843,923, filed July 23, 1969, for "Tuning Forks and Oscillators Embodying the Same."

3,636,470
VARIABLE INDUCTANCE-CONTROLLED OSCILLATOR SWITCHING CIRCUIT
Alfredo Olivet, and Guido Fiorentino, both of Ivrea, Turin, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea Turin, Italy
Continuation of application Ser. No. 779,993, Nov. 29, 1968, now abandoned. This application Oct. 27, 1970, Ser. No. 84,527
Int. Cl. G01p 13/00; H01h 35/00; H03b 7/06
U.S. Cl. 331—65 12 Claims



An electronic switching circuit including a transistor oscillator changeable between its oscillating and nonoscillating condition. The oscillator includes an inductor variable between an inductance at which the oscillating condition exists and an inductance at which the oscillating condition is stopped.

3,636,471

METHOD OF AND APPARATUS FOR ENHANCING RADIATION FROM INDIRECT-GAP SEMICONDUCTORS

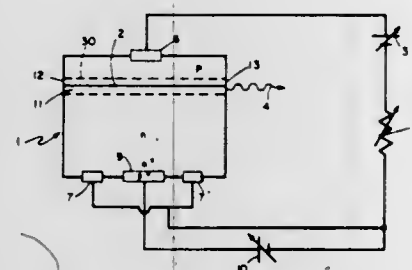
Robert H. Rediker, Newton, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed July 3, 1969, Ser. No. 838,795

Int. Cl. H01s 3/18, 3/09

U.S. Cl. 331-94.5

21 Claims



Apparatus is disclosed for injecting phonons of appropriate frequency and intensity into the luminescent regions of an indirect-gap semiconductor to enhance luminescence therein. If the luminescent region is an optical resonant cavity in which an inverted population of the electric energy levels or bands of the semiconductor exists, the injected phonons can function to initiate and/or enhance lasing action in the region.

3,636,472

PULSED LASER DEVICE EMPLOYING ELECTRODES WITH PROJECTIONS

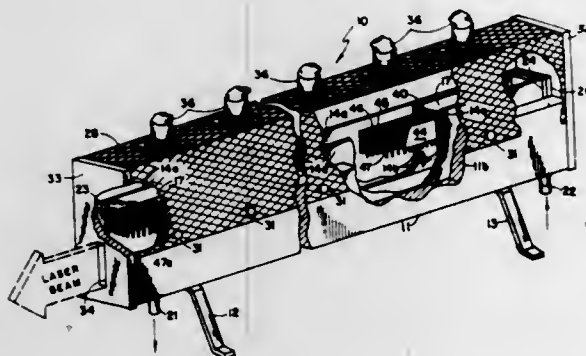
Donald A. Leonard, Stoneham, and Henry W. Smith, Essex, both of Mass., assignors to Avco Corporation, Cincinnati, Ohio

Filed July 10, 1968, Ser. No. 743,867

Int. Cl. H01s 3/00

U.S. Cl. 331-94.5

8 Claims



Electrodes for and a stabilized pulsed laser utilizing electrodes for providing a gas discharge created by a pulsed electric field. At least one of the electrodes is made uniformly rough on a scale small compared to both the interelectrode spacing and electrode width as by using freestanding wires to generally define a wire brush arrangement.

3,636,473

COMPOSITE GLASS LASER ROD

C. Gilbert Young, Storrs, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 6, 1969, Ser. No. 804,750

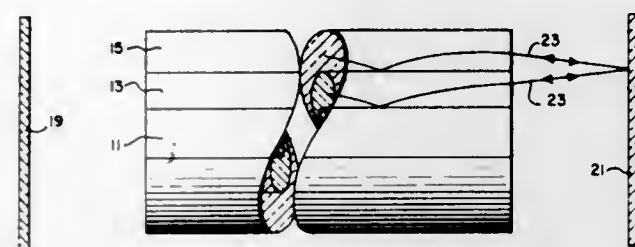
Int. Cl. H01s 3/06, 3/09, 3/16

U.S. Cl. 331-94.5

11 Claims

This specification discloses a composite glass laser rod comprising an inner cylindrical core surrounded by annuli of

laser material. The annuli have different levels of doping so that the annuli have different indices of refraction, with the



index of refraction of each inner annulus being slightly less than the index of refraction of the adjacent outer annulus.

3,636,474

ULTRASHORT OPTICAL PULSE GENERATION UTILIZING LASER-PUMPED LASERS

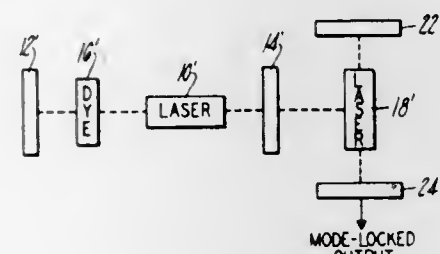
Anthony J. DeMaria, West Hartford, and William H. Glenn, Vernon, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 27, 1968, Ser. No. 779,332

Int. Cl. H01s 3/09

U.S. Cl. 331-94.5

8 Claims



A mode-locked laser generating a train of repetitive pulses is used to optically pump other lasers such as organic dye lasers. The repetitive pulses will provide an amplitude modulation of the gain of the pumped laser, and will mode-lock the oscillating modes of the pumped laser output, producing a series of repetitive pulses from the pumped laser.

3,636,475

OSCILLATOR WITH VARIABLE REACTIVE CURRENT FREQUENCY CONTROL

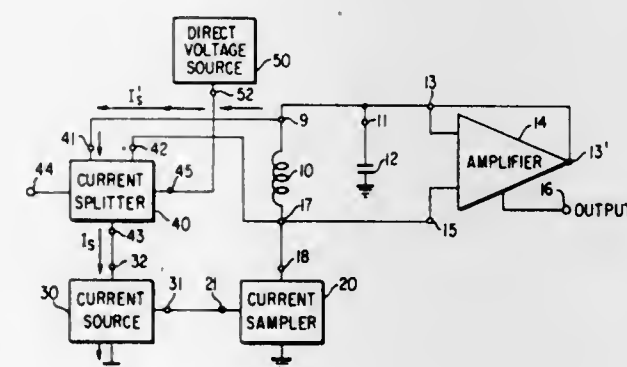
Steven Alan Steckler, Clark, N.J., assignor to RCA Corporation

Filed Oct. 1, 1969, Ser. No. 862,705

Int. Cl. H03b 3/04, 5/12

U.S. Cl. 331-117 R

19 Claims



In a controlled oscillator system, current flowing in one of the reactive elements of a frequency selective network is

sampled and a second reactive current having phase and frequency which corresponds to the phase and frequency of sampled reactive current is generated. A path of variable conductance is provided for the second reactive current which is in parallel relationship to the reactive element. As the conductance of the parallel path is varied in response to a control signal, the second shunt reactive current changes, producing a change in the total reactive current in the oscillator system, thereby varying the frequency of oscillation of the system.

3,636,476

SOLID-STATE DOUBLE RESONANT PULSER

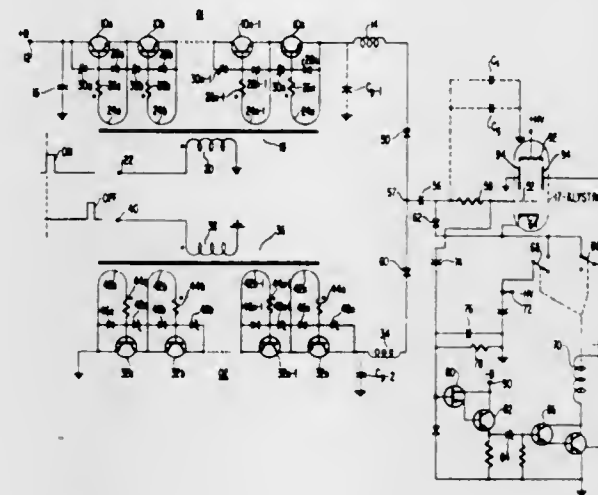
Walter E. Milberger, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 7, 1969, Ser. No. 874,755

Int. Cl. H03c 5/02

U.S. Cl. 332-7

11 Claims



A pulser circuit for high-frequency tubes such as klystrons and the like wherein the klystron is driven "on" and "off" in response to the resonant charging and discharging of the klystron's grid capacitance under the control of a pair of semiconductor switch circuits which alternately operate to first act as a voltage multiplier for the grid capacitance to produce a grid bias potential and then resonantly charge and discharge the grid capacitance to turn the tube "on" and "off" respectively. The resonant operation permits the recovery of energy normally wasted thereby increasing the efficiency of operation as well as requiring smaller power supply voltage. Cascoded transistor chains are used as switches with the base electrode of each transistor being driven by means of a coupling transformer having a multiturn primary and a plurality of single loop secondary windings which are respectively coupled to each base electrode for decreasing transformer capacitance in order to achieve high-video bandwidth.

3,636,477

FREQUENCY MODULATOR INCLUDING SELECTIVELY CONTROLLABLE DELAY LINE

Jacques Selz, Viroflay, France, assignor to C. I. T. Compagnie Industrielle Des Telecommunications, Paris, France

Filed Nov. 5, 1969, Ser. No. 874,294

Claims priority, application France, Nov. 5, 1968, 172628

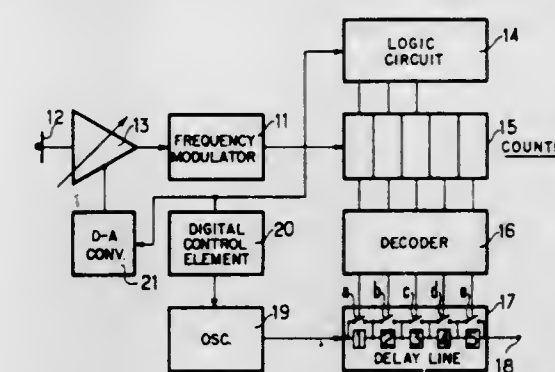
Int. Cl. H03c 3/08

U.S. Cl. 332-18

9 Claims

A frequency modulated HF wave is obtained by applying a HF carrier wave of preselected frequency to a variable phase shifter consisting of a delay line made up of a plurality of

switchable delay units controlled by a pulse counter to effect a periodic phase shift of 360°, wide band operation being en-



sured by correction of the effective capacity of the counter depending on the value of high frequency selected.

3,636,478

ACTIVE BALANCED MODULATOR CIRCUIT

Erwin Glock, Neckarrems, Germany, assignor to Licentia Patent-Verwaltungs GmbH, Frankfurt, Germany

Filed July 14, 1970, Ser. No. 54,830

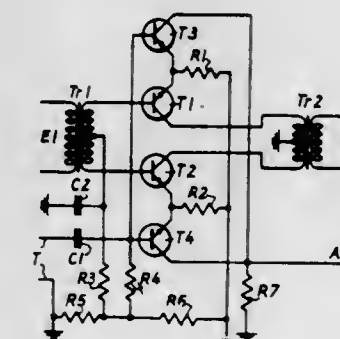
Claims priority, application Germany, July 14, 1969, P 19 35

611.7

Int. Cl. H03c 1/54

U.S. Cl. 332-43 B

9 Claims



An active balance modulator circuit wherein the active switching elements of the modulator circuit are switched suddenly or in jumps as if controlled by a square wave carrier signal but utilizing a sine wave carrier input signal. Each of the respective switching elements of the balanced modulator circuit is coupled with a further respective switching element to form a pair of differential amplifiers. The carrier wave input signal is utilized to directly control only the further one of the switching elements of each differential amplifier. Further embodiments wherein the further switching elements are simultaneously utilized as the active elements of a second balanced modulator circuit and as the active elements in the diagonal arms of a ring-type balanced modulator circuit are also disclosed.

3,636,479

MICROWAVE STRIP TRANSMISSION LINE CIRCULATOR

Norman Hartz, San Jose, and Bruce K. Horne, Palo Alto, both of Calif., assignors to Microwave Associates (West) Inc., Sunnyvale, Calif.

Filed Aug. 19, 1970, Ser. No. 65,070

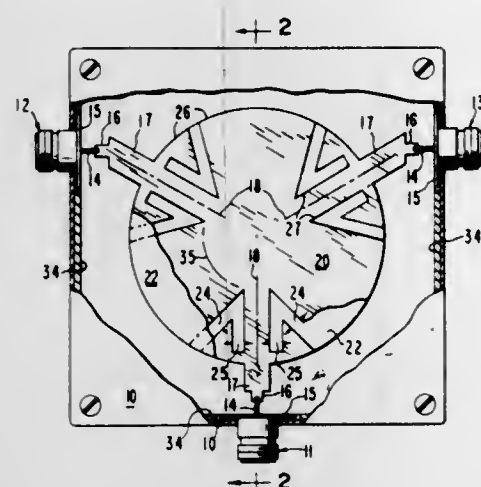
Int. Cl. H01p 1/32; H03h 7/48

U.S. Cl. 333-1.1

5 Claims

A microwave strip transmission line circulator is disclosed comprising at least one body of ferrite material, a ground plane member overlaying one surface of the ferrite body, and

a conductive disk overlaying another surface of the ferrite body. At least three strip transmission line conductors extend radially from the periphery of the conductive disk with the axes of the transmission line conductors defining equal angles. The conductive disk has at least three sets of indenta-

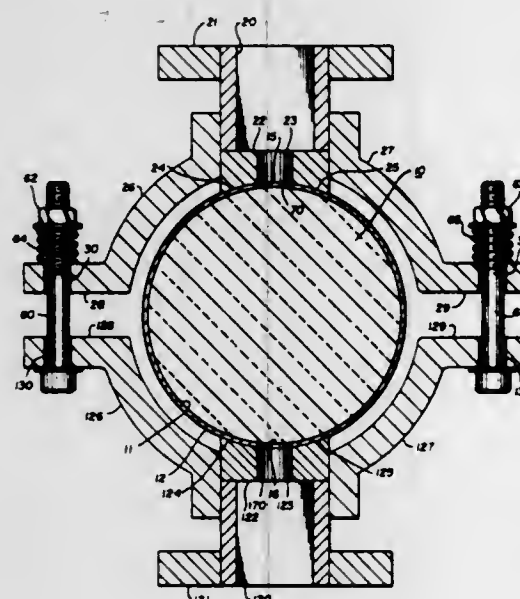


tions with each set comprising two convergent indentations extending from the periphery of the disk to two juxtaposed lines located substantially equidistant from and along opposite sides of one of said axes. Means are also provided for magnetizing the body of ferrite material.

3,636,480
STABLE SOLID DIELECTRIC MICROWAVE
RESONATOR AND SEPARABLE WAVEGUIDE MEANS
William N. Hoeck, Dunedin, Fla., assignor to Sperry Rand Corporation

Filed Jan. 28, 1970, Ser. No. 6,614
Int. Cl. H01p 1/30, 7/06; C23b 5/64
U.S. Cl. 333-83 R

3 Claims

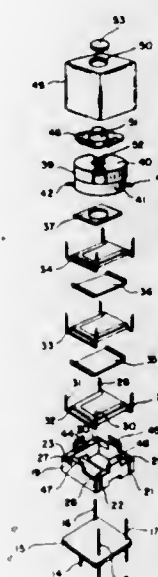


A compact, stable microwave resonator employs a solid quartz cylinder coated on its surface with a material having good electrical conductivity at very high frequencies. The coating is made up of an inner layer of chromium much thinner than the skin depth of microwave currents and a thick outer layer of a metal of high conductivity for microwave currents. The coating has a pair of diametrically positioned apertures for coupling microwave energy to hollow wave guides extending radially from the cylindrical conductive surface. The waveguides have end faces matching the

curved conductive surface and each has a mounting frame with arms extending partly around the cylindrical surface. Opposed flanges on the arms cooperate with resilient fasteners to clamp the waveguides in cooperative positions on opposite sides of the cylindrical surface.

3,636,481
MODULAR ELEMENTS FOR ELECTRICAL FILTERS
AND FILTERS EMPLOYING THE SAME
Jacques R. Boulin, Paris; Marcel R. Bertin, Sceaux, and Alexis Nepomiashtchy, Bagneux, all of France, assignors to Societe Anonyme de Telecommunications, Paris, France
Filed Mar. 30, 1970, Ser. No. 23,797
Claims priority, application France, May 2, 1969, 6913976
Int. Cl. H03h 1/00, 7/10
U.S. Cl. 333-70 S

12 Claims



Electrical filter modular elements built in the form of sealed units, having two, three, or four external connection terminals, contained in a metal casing formed by a cap and a baseplate and having a generally parallelepipedal shape, said elements comprising a variable inductance and one or more fixed capacitors disposed inside the casing and connected to one another and to said inductance and terminals, the latter consisting of connection pins extending through said baseplate in a direction perpendicular thereto. The inductance and capacitors are stacked parallel to the plane of said plate and form a block borne at the bottom on an insulated socket through which said pins extend; the capacitors are of flat shape with wrapping plates parallel to said plane, preferably without insulating coating or impregnation, and are stacked in a recess provided in said socket.

3,636,482
MODULAR CIRCUIT BREAKERS AND PANELBOARDS
WITH GROUND-FAULT PROTECTION
William Harold Edmunds, Valley Forge, Pa., assignor to Federal Pacific Electric Company, Newark, N.J.
Filed May 25, 1970, Ser. No. 40,328
Int. Cl. H01h 83/20

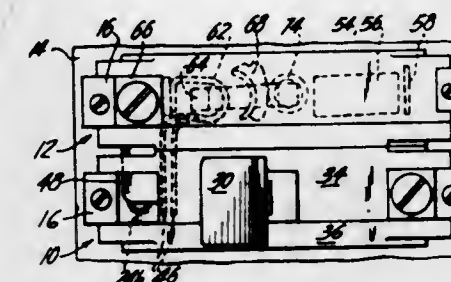
U.S. Cl. 335-6

6 Claims

Modular circuit breaker units and modular ground-fault tripping units can be stacked separately and assembled to each other by the user as required. When the units are assembled, there is a mechanical coupling from the ground fault tripper to the release mechanism of the circuit breaker, and one terminal of the circuit breaker unit is connected to a terminal of the ground-fault tripping unit. That connection completes a series circuit that extends through both units from a line terminal on one of the units to a load terminal on the other unit. The ground-fault tripping unit also has "

neutral" terminal and a second "load" terminal. The electrical connection and the trip-mechanism coupling between the units are established incidental to assembling the units, and

to be put into operative condition. These switches avoid the need of cords across a parting of the frame and its closure.

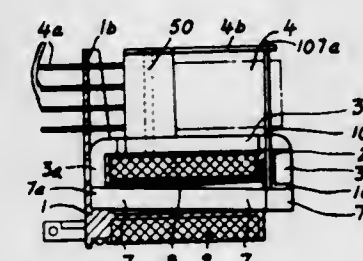


the ground-fault tripping unit has a part that prevents use of one of the circuit breaker terminals from being used as an external circuit connection.

3,636,483
ELECTROMAGNETIC RELAY
Karl Evert Jambrink, Grumagatan 3, Farsta; Per Harry Elias Claesson, Osterhagens Gard, Drevviken, and Rolf Albin Zander, Storhagsvagen 28 A, Alvsjo, all of Sweden
Continuation of application Ser. No. 723,451, Apr. 23, 1968, now abandoned. This application Aug. 26, 1970, Ser. No. 67,287

Int. Cl. H01h 50/26
U.S. Cl. 335-135

21 Claims



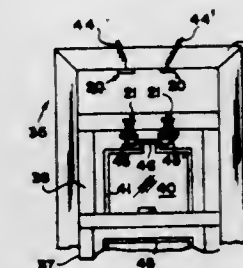
An electromagnetic relay of the miniature relay type with a contact spring group and a magnetic circuit which comprises a substantially rectangular loop formed by a magnetic core and a magnetizing coil surrounding a part of the core. The core part surrounded by the coil is the armature of the relay, the armature being pivoted at one end and movable in a direction transversally to the axial direction of the coil and to the longitudinal direction of the armature.

3,636,484
SPRINGLESS SWITCH CONSTRUCTIONS FOR USE IN
THE PROTECTIVE CIRCUIT OF BURGLAR ALARM
SYSTEMS
Lawrence N. Lea, 3601 Johnson Avenue, Bronx, N.Y.
Filed Dec. 7, 1970, Ser. No. 95,817
Int. Cl. H01h 1/54

U.S. Cl. 335-205

7 Claims

A conductive permanent magnet structure fixed on the frame of a protected opening, attracts into contact with itself, a conductive loosely slidable armature having limited movement on the closure member; such magnet and slide constituting a switch protecting the opening. In closed condition of the switch, these switch parts are contiguous portions of the current path in the protective circuit. In installations where slide movement during the attraction is vertical, gravity returns the slide to a rest position, to be ready for a reestablishment of the protective circuit. When such direction is horizontal, the slide is automatically cammed to be in proper position if necessary, for the protective circuit

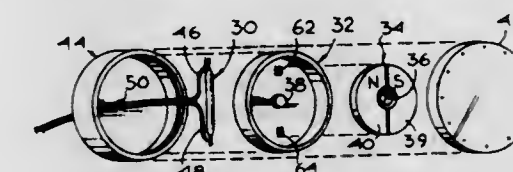


Stocking a few parts, affords the fabrication of switches of different constructions, either in the shop or on the job, to meet installation requirements and conditions.

3,636,485
SECURITY ALARM SYSTEM
Paul Weathers, 809 Station Avenue, Hadden Heights, N.J.
Filed Feb. 10, 1969, Ser. No. 797,918
Int. Cl. H01b 19/00

U.S. Cl. 335-205

5 Claims



A security alarm system for protecting restricted access areas against entry by unauthorized personnel. A switch operated by the opening of a gate or door in a wall surrounding the protected area causes a diaphragm-type horn to be operated by means of a solid-state control circuit connected between the switch and the horn. Connected in the circuit is a magnetically operated disarming switch which may be turned to a number of positions. This switch is placed on the inside of a window in the wall so that authorized personnel may through the use of a magnet and by visual reference to indicia on the face of the switch position the switch so as to disarm the system and gain access to the area without operating the horn.

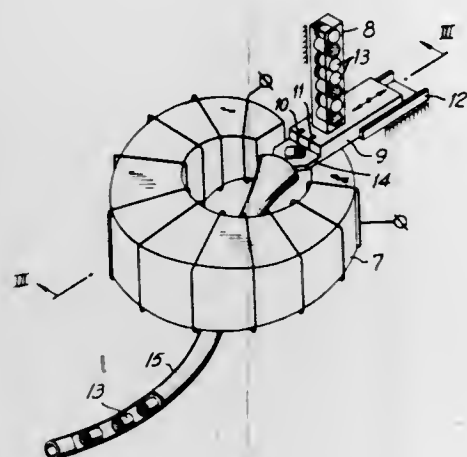
3,636,486
METHOD FOR ORIENTATION OF CURRENT-
CONDUCTING NONMAGNETIC BODIES IN A
MAGNETIC FIELD AND A DEVICE FOR CARRYING
SAME INTO EFFECT
Benjamin Alexandrovich Ioffe, ulitsa Raunas, 45/2, kv. 81, and Robert Karlovich Kalnin, ulitsa Gorkogo, 53, kv. 19, both of Riga, U.S.S.R.
Filed Dec. 16, 1969, Ser. No. 885,532
Claims priority, application U.S.S.R., Dec. 25, 1968, 1,289,057

U.S. Cl. 335-219

3 Claims

A method for orientation of current-conducting nonmagnetic bodies according to which said bodies are oriented due to the effect of an AC magnetic field with a simultaneous introduction into the orientation zone of auxiliary ferromagnetic bodies which facilitate the effect of orientation, and a device for carrying said method into effect, comprising an electromagnet fed by the alternating current between whose poles the orientation zone is arranged and a means for introduction at least two auxiliary ferromagnetic bodies thereto.

The method and device are designed for use in various branches of technology, mostly in a watchmaking industry, An outer protective shell of sheet material is fastened to the magnetic circuit by edge portions of the sheet material



received in a groove which extends in the yoke in the magnetically neutral zone of the circuit.

3,636,489

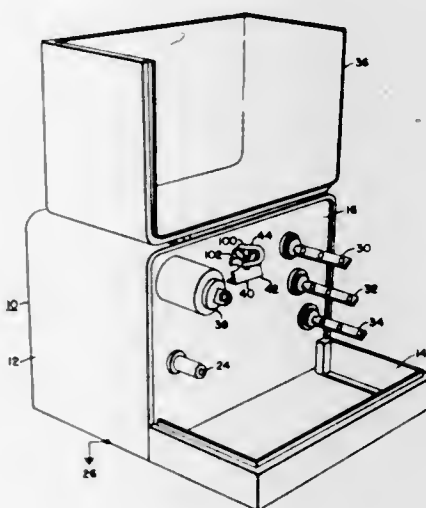
TRANSFORMER HAVING AN EXTERNALLY OPERABLE NO-LOAD TAP CHANGER

Don L. Colangelo, Sharon, and Robert J. Manes, Wheatland, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 17, 1970, Ser. No. 90,258
Int. Cl. H01f 21/12

U.S. Cl. 336—94

6 Claims



for rapid and clear orientation of small-size bodies (component members) according to a certain design feature.

3,636,487

ELECTROMAGNETIC CIRCUIT

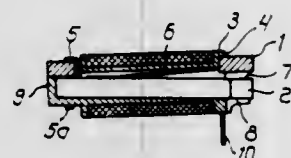
Karl Evert Jarnbrink, Grumsgatan 3, 123 44 Farsta; Rolf Albin Zander, Storchagsvagen 28 A, 125 32 Alvsjo, and Per Harry Elias Claesson, Osterhagens Gard, 142 00 Trangsund, all of Sweden

Filed Feb. 27, 1970, Ser. No. 14,941

Claims priority, application Sweden, Mar. 4, 1969, 2931/69
Int. Cl. 335 7/08

U.S. Cl. 335—270

7 Claims



An electromagnetic circuit with a yoke and a movable armature in a channel of a coil, with one end of the armature pivoted against one end portion of the yoke and with the other free end of the armature forming a working airgap with the yoke. The yoke has a substantially flat shape with a notch or an aperture for the coil to nest in so that the coil channel and the armature are situated substantially at one side of the flat yoke and the working airgap is outside of the coil.

3,636,488

TRANSFORMER OR INDUCTOR ASSEMBLY

Ernst Wiesner, Dornbirn, Austria, assignor to Dr. Walter Zumtobel, Dornbirn, Austria

Filed Jan. 27, 1971, Ser. No. 110,013

Claims priority, application Austria, Feb. 5, 1970, 1039/70
Int. Cl. H01f 15/02

U.S. Cl. 336—83

14 Claims

A transformer or inductor assembly whose magnetic circuit consists of stacked yoke and core laminations, the yoke laminations forming a channel in which the core laminations and a coil wound about the core laminations are received.

A distribution transformer having a metallic casing comprising a fluid compartment and a terminal compartment separated by a common wall. Core-winding means including a low-voltage coil and a high-voltage coil having a plurality of taps thereon located in the fluid dielectric compartment. A tap changer attached to the fluid dielectric compartment side of the common wall. The tap changer has a shaft extending through the common wall with an O-ring seal to prevent fluid dielectric from seeping into the terminal compartment. An operating member is attached to the shaft and located in the terminal compartment for operating the shaft to move a movable contact member to engage fixed contacts located inside the fluid dielectric compartment to selectively connect the taps on the high-voltage coil to the casing. An indicator is located in the terminal compartment to indicate which terminal in the fluid dielectric compartment is connected to the movable contact element.

3,636,490

THERMAL CYCLING HEAT RANGE SWITCH WITH WIPING ACTION

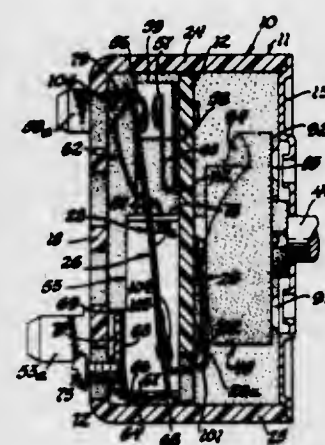
Nelson J. Pansing, Clayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1970, Ser. No. 93,689

Int. Cl. H01h 37/60, 61/08, 71/22

U.S. Cl. 337—93

3 Claims



A thermal cycling switch device including a bimetallic current carrying cycling blade operable to control the rate of energization of an electric heater particularly of the type used in range surface units. A front contact on the free end of the self-heated cycling blade is constantly biased in a contact open direction by cam loading means. A thrust spring operates on the free end of the cycling blade to apply a snap action force in both the make and break directions depending upon the thermal condition of the cycling blade. The switch employs a resiliently mounted back contact supporting blade having a radius arm substantially less than the cycling blade wherein wiping action is attained between the contacts to insure the snap action of the switch.

3,636,491

CURRENT-LIMITING FUSE

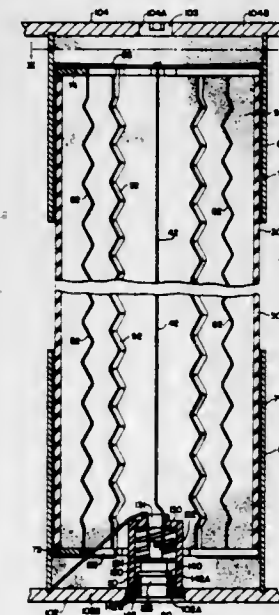
Frank L. Cameron, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 31, 1969, Ser. No. 889,598

Int. Cl. H01h 85/12, 85/30

U.S. Cl. 337—244

10 Claims



A fuse comprising a generally tubular, electrically insulating casing having a pair of terminal members or ferrules disposed adjacent to the opposite ends of said casing. One or

more fusible elements is disposed in the casing and connected between the terminal members. An additional fuse wire or restraining wire is disposed in the casing and connected between said terminal members with means provided adjacent to one end of the casing which responds to the melting of the fusible element or elements to change position. A pair of electrically conducting ring members are disposed at the opposite ends of the casing to support a plurality of fusible elements, where provided, in radially and circumferentially spaced positions inside the casing.

3,636,492

SINTERED SEMICONDUCTOR FILM AND METHOD OF MANUFACTURING SAME

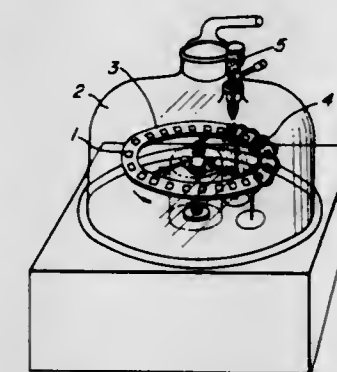
Toshio Yamashita; Tadao Ohtani, both of Hirakata-shi; Manabu Yoshida, Moriguchi-shi; Saburo Kitamura, Kyoto, and Hideaki Murakami, Ibaragi-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 5, 1968, Ser. No. 750,315

Int. Cl. B05b 13/02; H01c 7/08

U.S. Cl. 338—15

5 Claims



A method of manufacturing a sintered film composed of cadmium sulfide, cadmium selenide, etc. which is free from cracks and pinholes, and a semiconductor element having sandwich-type electrode structure comprised of the sintered film.

3,636,493

RESISTOR WITH HEAT DISSIPATING MEANS

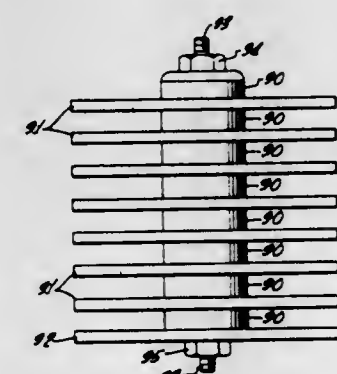
Richard E. Caddock, 640 Sandalwood Court, Riverside, Calif. Continuation-in-part of application Ser. No. 847,783, July 18, 1969, now abandoned, which is a continuation-in-part of application Ser. No. 820,538, Apr. 30, 1969, now abandoned.

This application May 25, 1970, Ser. No. 40,281

Int. Cl. H01c 1/08

U.S. Cl. 338—52

45 Claims



A disc-shaped metal body or base of anodized aluminum has an upstanding central post, the body and post being centrally bored to receive a bolt for stacking or mounting of the resistor. A ceramic wafer or washer is seated on the body and around the post, and has a resistive film provided on the

upper surface thereof. The configuration of the resistive film is such that the temperature generated in the central region of the resistor, relatively adjacent the post, is greater than is the temperature generated remote from the post, thus setting up a highly effective thermal gradient which maximizes the dissipation of heat from the resistor. Terminal lugs or leads connect to the resistive film and extend outwardly generally in the plane of the washer, there being a connection between each lug and the washer by means of a rivet the ends of which are embedded in thermosetting synthetic resin. All of the components are maintained protected from the environment by a mass of thermosetting synthetic resin which extends upwardly from the film and surrounds the post, the upper surface of the resin being flush with the top of the post and parallel to the bottom of the metal body, in order to permit stacking of the resistors. The body and/or central post incorporate undercut means to prevent axial and rotational movement of the resin relative to the body, despite high thermal and other stresses.

In accordance with the method, the preassembled body and ceramic washer (bearing the resistive film) are mounted as inserts in a mold cavity the depth of which is approximately equal to the distance between the upper end of the post and the bottom surface of the metal body. Thus, despite the absence of a plug in the central bore in the post, no molding material enters such bore. Molding is effected by transfer molding, and the mold gate is disposed adjacent the parting line and also generally adjacent or above the ceramic washer. The terminal lugs or leads extend outwardly from the mold cavity through corresponding grooves or recesses located at the parting line.

3,636,494

ELECTRICAL GROUNDING RECEPTACLE

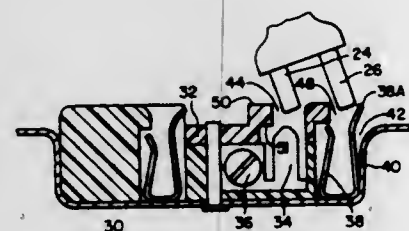
Clarence M. Smith, Bridgeport, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 7, 1970, Ser. No. 26,197

Int. Cl. H01r 3/06

U.S. Cl. 339-14 R

2 Claims



An electrical grounding receptacle is provided with means to insure that, upon insertion of a conventional three-pronged plug, contact between the grounding prong and the grounding contact is made before any contact can be made to the power contacts. The structure includes female contact elements within a housing including a grounding contact that has a portion extending within an opening of the front face in which the plug blade is received while the power contacts are disposed entirely below their corresponding openings in the front face.

3,636,495

FLOOR PLUG

Frank J. Forsyth, Jr., Marine City, Mich., assignor to Jack A. Frost, Detroit, Mich.

Filed Apr. 9, 1970, Ser. No. 26,854

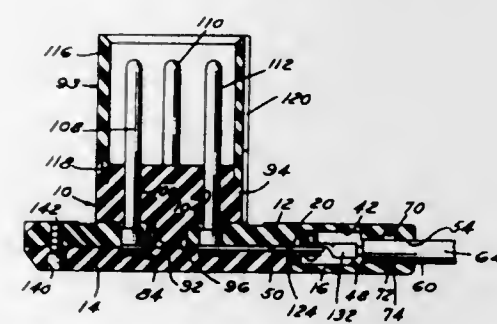
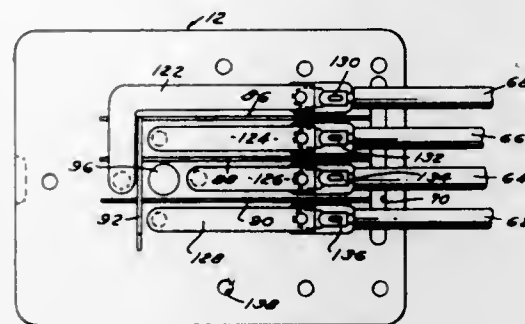
Int. Cl. H01r 3/06

U.S. Cl. 339-14 P

8 Claims

An electrical plug for three-phase, high-power electrical applications is provided. The plug is adapted for use in connection with a floor receptacle and has a generally flat, thin casing to provide a low profile on the floor. Safety means are

provided within the casing to prevent electrical flashover between the terminals and to prevent the ingress of moisture into the casing. The casing encloses electrical terminals which include relatively thin flat terminal bars received in grooves in the casing, which is made in separable halves,



from which extend terminal elements which project exteriorly of the casing for connection to an electrical receptacle. A socket is provided on the casing to act as additional support for the terminal elements and to provide an enclosure therefor.

3,636,496

AIR AND POWER CABLE APPARATUS

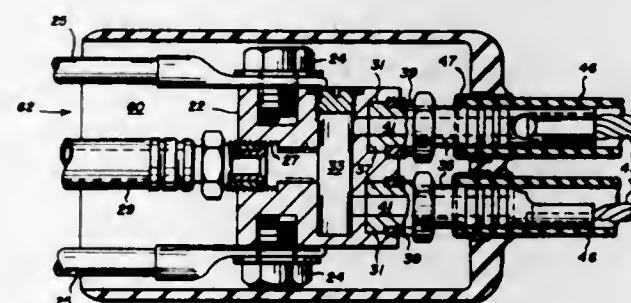
Henry H. Jenkins, 864 West Hacienda Drive, Corona, Calif.

Filed Sept. 8, 1969, Ser. No. 855,959

Int. Cl. H01r 7/16

U.S. Cl. 339-15

4 Claims



An air-cooled manifold and power cable apparatus comprising a metal manifold block contained in a rubber insulating boot with one end of the boot open to receive power supply cables and an air supply line which are attached to one end of the block. A plurality of power cable and air hose assemblies are secured to the other end of the block within the boot and extend therefrom through holes in the boot in an end opposite the open end. Each assembly comprises a cable surrounded by an air hose with a metal connector holding a given end of the cable and air hose together and connecting same to the block in an electrical and fluid conducting manner and in a manner which permits same to be connected at any angle until fixedly secured. Passages in the block connect the air supply line to the metal connector. The other end of the assembly is secured by a similar metal connector which can be fixedly connected to a work device. The holes or areas around the holes in the boot are so constructed that the air hose and cable assemblies can be easily pulled out of the boot but are difficult to pull into the boot.

3,636,497

ELECTRICAL CONNECTOR AND ASSEMBLY

Clyde Thomas Carter, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

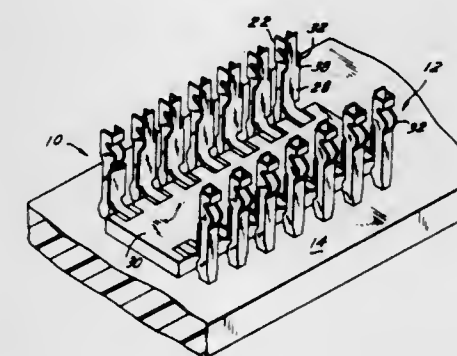
Filed Feb. 6, 1970, Ser. No. 9,304

Int. Cl. H05k 1/02

U.S. Cl. 339-17 CF

7 Claims

A connector assembly in the form of a staked array of post connectors, utilizing such connectors, electrical components, such as integrated circuit packages, can be loosely secured in place by automated means for subsequent soldering procedures. The connectors are best shaped into a modified U-shaped beam with one end adapted for point-to-point wiring and the other end having two oppositely facing longitudinal channels for receiving in one of such channels a lead from the component. The component being loosely secured



on the baseboard by at least two of its leads between a respective pair of such connectors. The component leads extend up substantially parallel to respective connectors and are secured in the facing channels of the connectors by projections from the sides of said channels which engage the industry standardized shoulders on the component leads at the appropriate height.

3,636,498

ADAPTER ASSEMBLY FOR MOUNTING A WATTHOUR METER AND LOCKING MEANS THEREFOR

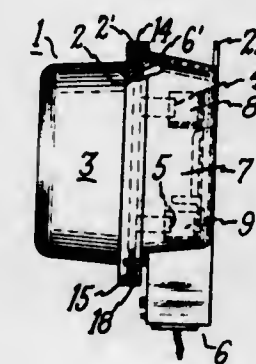
Alexander M. McQuarrie, Rochester, N.H., assignor to General Electric Company

Filed July 30, 1970, Ser. No. 59,429

Int. Cl. H02b 9/00

U.S. Cl. 339-39

9 Claims



A unique locking means is provided for a watthour meter adapter assembly to prevent a three-wire meter from being removed from the assembly and inadvertently replaced with a two-wire meter which would not perform the desired metering function.

3,636,499

ZERO FORCE CONNECTOR

Paul K. Winklebleck, North Warren, Pa., assignor to Sylvania Electric Products Inc.

Filed Aug. 28, 1970, Ser. No. 67,746

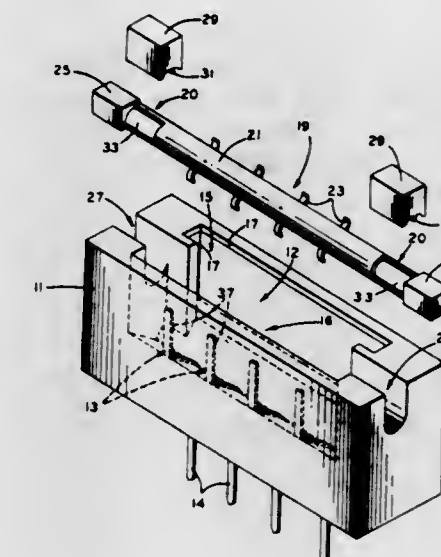
Int. Cl. H01r 13/54

U.S. Cl. 339-75 MP

9 Claims

A printed circuit board connector utilizing a rotatable cam having spring contacts molded therein, the cam being posi-

tioned within a channel which is aligned with and substantially parallel to a rectangular slot also located within the connector. Upon insertion of the circuit board into the rectangular slot, the cam is rotated, thus providing electrical



contact between specific areas on the circuit board and corresponding contacting areas of terminal members located within the channel.

3,636,500

CLIP-TYPE TERMINAL

William S. Sedlacek, Chicago, Ill., assignor to Reliable Electric Company, Franklin Park, Ill.

Filed Mar. 14, 1969, Ser. No. 807,336

Int. Cl. H01r 9/08

U.S. Cl. 339-97 R

12 Claims



A clip terminal is made from resilient strip stock. It has a notch formed at its upper end, an elongate aperture spaced below the notch, and is slitted between the bottom of the notch and top of the aperture to provide a slot which separates the body portion into two arms. The arms are prestressed apart by an upsetting operation. The bottom of the notch is rounded and the notch edges intersect the side edges of the slot to provide substantially 90° sharp corner edges. The width of the slot at the sharp corner edges is somewhat less than the diameter of the solid conductor

which is to be forced therebetween. Forcing an insulated wire between the sharp corner edges causes them to cut a notch in the insulation and bare the surface of the conductor. The lower portion of the notch is of a width sufficiently small so that with larger wire sizes, the insulation bearing on the notch edges will flex the arms outwardly to increase the width of the slot.

3,636,501

ELECTRICAL CONNECTOR

Donald K. Walsh, 26 Liberty Bell Circle, Houston, Tex.

Filed Nov. 4, 1969, Ser. No. 873,840

Int. Cl. H01r 11/08

U.S. Cl. 339-118 R

9 Claims



An electrical connector comprising a generally cylindrical electrically conductive rod having an axial bore therein forming a tube open at at least one end and having walls at least a portion of which are shaped in the form of a bellows. The bore is adapted to receive at least one electrical conductor and in its preferred form the hollow portion of the rod is filled with an electrically conductive liquid which is relatively incompressible as, for example, mercury.

3,636,502

CONNECTOR FOR AIRCRAFT WINDSHIELDS

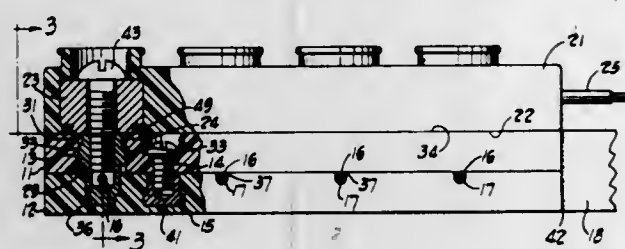
Joseph M. Wallace, 5898 Blackwelder Street, Culver City, Calif.

Filed Sept. 10, 1969, Ser. No. 856,726

Int. Cl. H01r 9/10

U.S. Cl. 339-198 R

18 Claims



A connector is provided for the leads from a resistance-type windshield heater embedded in the windshield in order to facilitate connection of these leads to a power supply. The connector is formed of a pair of insulating blocks with openings therein making a loose fit with metallic connector inserts, each having a transverse opening designed to receive the bare end of a heater lead and registering with a transverse groove in one of the blocks in order that soldered connections may readily be made. Accordingly, a block containing the leads from the power supply may be attached to the connector block of the present application with the terminals in the power supply terminal block in positive contact with the metallic inserts in order to avoid any possibility of arcing or poor electrical connection between the inserts and the terminals in the power supply connector block.

3,636,503

PRINTED CIRCUIT BOARD CONNECTOR

Johannes Bernutz, Ludwigsburg-Hoheneck, and Erich Kilvar, Ditzingen, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

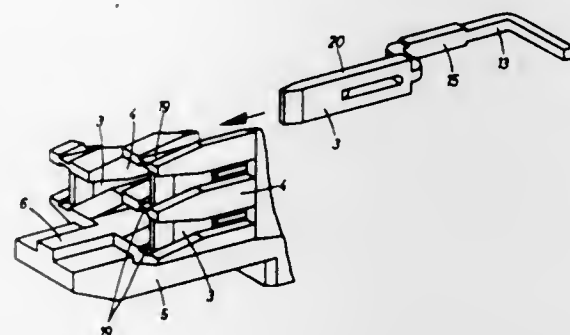
Filed Oct. 9, 1969, Ser. No. 865,045

Claims priority, application Germany, Oct. 12, 1968, P 18 02 821.2

Int. Cl. H01r 13/64; H05k 1/06

U.S. Cl. 339-217 S

1 Claim



A high-density printed circuit board connector containing a first housing having a strip of contact blades having a plurality of rows of contact blades within the housing. A body of insulating material within the first housing contains at least a plurality of rows of parallel ribs extending between guide members. The ribs are arranged so as to form guide grooves with the narrow sides of said contact blades being guided along its length and being detachably retained in position. A second housing contains a strip of contact springs formed of forked contact springs electrically inserted in the housing of the strip of contact springs. The forked contact springs contain locking springs for insertion in a contact receptacle in said second housing and are detachably locked therein.

3,636,504

NONCORROSIVE BATTERY CABLE CONNECTOR

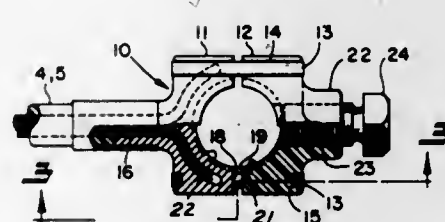
Robert B. Applegate, 4883 Grace Avenue, North Olmsted, Ohio

Filed Jan. 19, 1970, Ser. No. 3,759

Int. Cl. H01r 11/26

U.S. Cl. 339-228

11 Claims



A noncorrosive battery cable connector including two parts secured together by nonmetallic bands and having cooperating tapered notches in opposing faces for receipt of the correspondingly tapered terminal posts of a battery. One of the parts is made of lead and contains the conductor for the battery cable whereas the other part is made of a noncorrosive material such as plastic. In one form of the invention, a plastic screw has threaded engagement with the other part and when tightened draws the one part into tight gripping engagement with the terminal post; in another form of the invention, noncorrosive wedges are used for that purpose.

3,636,505

ELECTRICAL PIN WITH TAB RECEPTACLES AND METHOD OF MAKING SAME

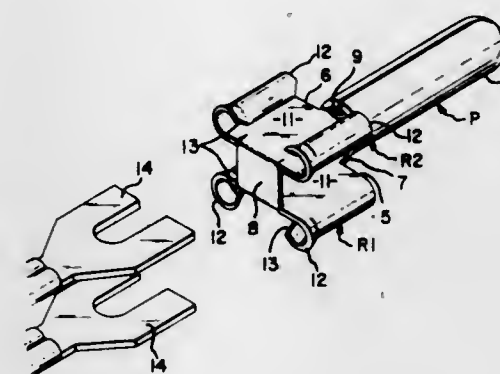
Edward Michael Pokonavage, Palmyra, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 11, 1970, Ser. No. 18,436

Int. Cl. H01r 13/12

U.S. Cl. 339-256 SP

7 Claims



A stamped and formed pin is provided with tiered receptacles at an inner end of the pin which are also stamped and formed. A tab or split ring is provided at the free end of the receptacle having an insertion axis parallel with the seam of the pin to stabilize the receptacles and maintain them in a rigid position as well as keeping the pin in a resilient condition.

3,636,506

CONTROL UNIT FOR PROJECTION-TYPE POSITION INDICATOR

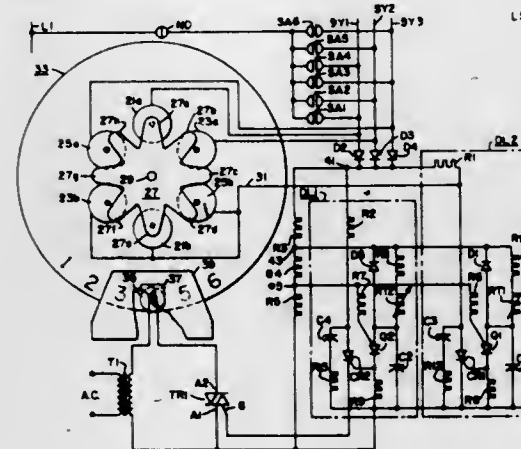
Andrew F. Kirsch, Edison, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 25, 1969, Ser. No. 852,834

Int. Cl. B66b 3/02; G08c 13/00, 19/44

U.S. Cl. 340-21

6 Claims



A control unit for use with a projection-type digital display device blanks the display prior to any change in the presentation. A timer delays advancement of the indicia until the expiration of a predetermined interval after receipt of a step signal to allow sufficient time for the display to be completely extinguished. Another timer reactivates the display upon the expiration of a longer predetermined interval, by which time the indicia has assumed the advanced position.

3,636,507

TRAFFIC SIGNAL

Eugen Harsanyi, Trierer Strasse 47, 5, Cologne, Germany

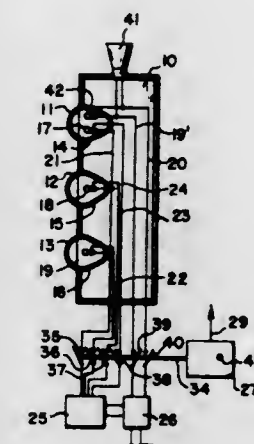
Filed Nov. 18, 1969, Ser. No. 877,799

Claims priority, application Germany, Nov. 26, 1968, P 18 10 966.5

Int. Cl. G08g 1/095

U.S. Cl. 340-32

6 Claims



An additional light bulb arranged in each red or yellow lamp of a traffic light is energized through a radio-operated switch by an approaching emergency vehicle. The switch also interrupts the normal intermittent current supply to the red, yellow, and green lamps. Movement of the emergency vehicle is facilitated by the stopping of all traffic along its route not only in transverse directions, but also in the direction of movement of the vehicle and in the opposite direction.

3,636,508

SYSTEMS FOR TRANSMITTING INFORMATION BETWEEN A RAILWAY TRACK AND MOVING TRAIN

Harry Heggie Ogilvy, Middlesex, and Clive Valentine Smith, Kempston, both of England, assignors to British Railways Board

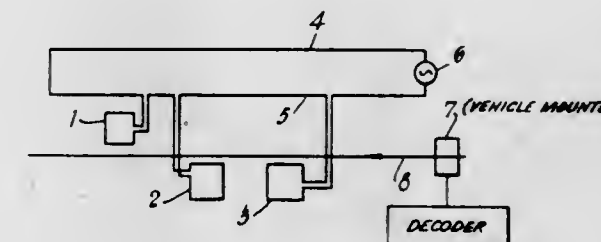
Filed Feb. 18, 1970, Ser. No. 12,360

Claims priority, application Great Britain, Feb. 21, 1969, 9,533/69

Int. Cl. B61 1/00

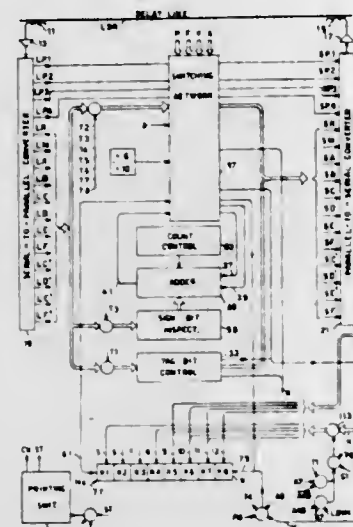
U.S. Cl. 340-47

6 Claims



A system for transmitting information between a trackway and a moving vehicle and of the kind in which one or more coils laid on the trackway become inductively coupled with aerial means on the vehicle, the bit of information transmitted by the or each coil being distinguished as "1" or "0" (using conventional binary notation) by utilizing the antiphase relationship of the flux parallel to the plane of the turn(s) of the coil associated with the two opposite sides of the coil. An additional bit of information can be derived from each coil by utilizing the flux perpendicular to the plane of the turn(s) of the coil.

sive to a predetermined instruction for interpreting the address portions of following instruction as indirect addresses. A magnetic tape cartridge is used for bulk storage of pro-



gram and data, and blocks of information may be transferred between the operational memory and the magnetic tape. Locations on the tape cartridge may be addressed directly or indirectly.

3,636,524

MULTIPLEX COMMUNICATION SYSTEM

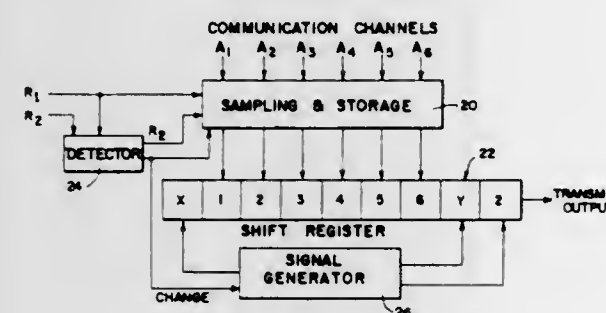
Graham Holland, Silver Spring, Md., assignor to Tel-Tech Corporation

Filed Dec. 8, 1969, Ser. No. 883,206

Int. Cl. H04j 3/00

U.S. Cl. 340—172.5

30 Claims



In the multiplex transmission of data and control information, data information from a plurality of communication channels is continuously sampled at a first repetition rate. The sampled data information is transferred into serial arrangement at a second repetition rate, which exceeds the first repetition rate. The second repetition rate provides a series of time intervals for the transmission of data information. The serially arranged data information is transmitted in the form of transmission time frames during the time intervals of the series established by the second repetition rate. Since the second repetition rate exceeds the first repetition rate, there periodically appears an open time interval in the series of time intervals established by the second repetition rate which is not required for the transmission of data information. When the open time interval occurs, the transmission of data information is temporarily discontinued and a transmission time frame containing control information from the communication channels is transmitted during the open time interval. A set of identification signals is inserted into each trans-

mission time frame, and the set of identification signals is varied in accordance with a predetermined signal pattern during the transmission of data information to identify transmission time frames containing data information. When control information is transmitted, the set of identification signals is altered from the predetermined signal pattern to identify a transmission time frame which contains control information.

3,636,525

TIME-SHARED NUMERICAL CONTROLLER FOR SIMULTANEOUS CONTROL OF A PLURALITY OF MACHINE TOOLS

Seiueemon Inaba; Norito Yoshitake, both of Kawasaki-shi; Ryoji Imazeki, Yokohama-shi, and Yoshinori Kozai, Kunitachi-shi, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

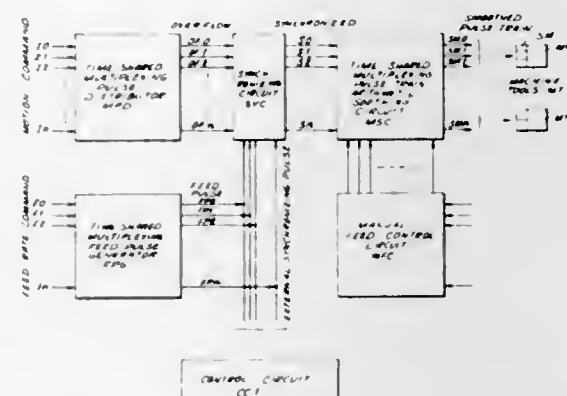
Filed Dec. 23, 1969, Ser. No. 887,619

Claims priority, application Japan, Dec. 23, 1968, 43/94721

Int. Cl. G05b 19/18; G06f 15/46

U.S. Cl. 340—172.5

4 Claims



A time-shared numerical controller for simultaneously controlling machine tools in movement along a plurality of axes comprises a time-shared multiplexing pulse distributor having a memory. An input coupled to the memory of the pulse distributor writes into the memory command data and the results of an arithmetic operation relating to the magnitude of movement of a plurality of movable axes to be controlled. An output coupled to the memory reads out from the memory the command data and the results. A selecting circuit coupled to the memory selects the place of write-in and readout of the data to and from the memory. A time-shared multiplexing pulse train arithmetic circuit coupled to the pulse distributor provides arithmetic operations and pulse distribution in common for the plurality of axes. An output coupled to the arithmetic circuit separates and provides output pulses corresponding to the plurality of axes.

3,636,526

INFORMATION-RECORDING SYSTEM EMPLOYING AMORPHOUS MATERIALS

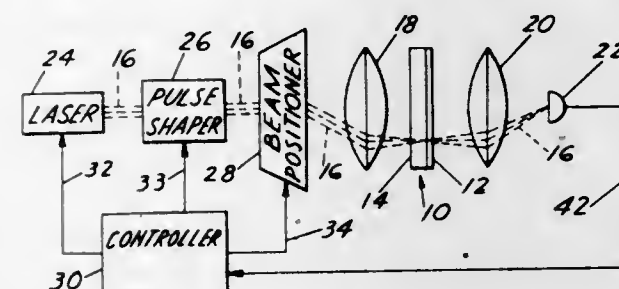
Julius Feinleib, Birmingham, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed June 8, 1970, Ser. No. 44,225

Int. Cl. G11c 13/04

U.S. Cl. 340—173 LM

26 Claims



The systems disclosed herein record information on an amorphous thin film by applying light to selected regions of

the film. The temperature in these regions increases to the point where the film softens. Upon removal of the light the film returns to the solid phase leaving enclosed voids in the film. The information can be read from the amorphous film by irradiating the film with light of a wavelength in the order of magnitude of the size of the voids. The light is scattered or absorbed by multiple reflections produced by the voids allowing the selected regions to be readily detected. In order to erase the information the amorphous film is heated to the softening point, but not to a temperature as high as the temperature reached during recording. The softened amorphous film flows into the voids erasing the stored information.

3,636,527

STORAGE CIRCUIT

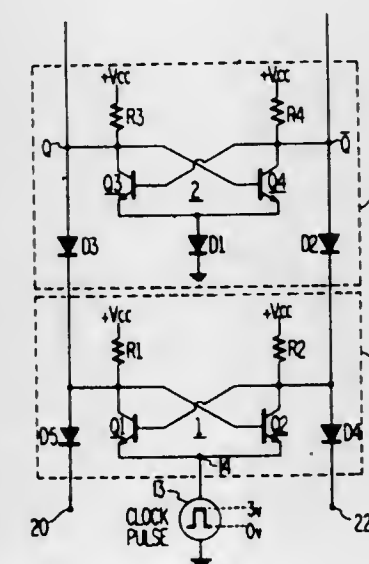
Borys Zuk, Somerville, N.J., assignor to RCA Corporation

Filed Aug. 21, 1970, Ser. No. 65,947

Int. Cl. G11c 11/40

U.S. Cl. 340—173 FF

9 Claims



A first circuit which includes a flip-flop driven by a clock pulse source and a second circuit which includes a flip-flop coupled to the first circuit by diodes. In response to a clock pulse, the first circuit flip-flop is disabled, the diodes decouple the second circuit flip-flop from the first circuit, and a data bit signal manifestation applied to the first circuit causes a voltage condition to be established there indicative of the value of the bit. Upon termination of the clock pulse, the two flip-flops assume stable states dependent on the value of the data bit.

3,636,528

HALF-BIT MEMORY CELL ARRAY WITH NONDESTRUCTIVE READOUT

Dennis E. Morris, Sunnyvale, Calif., assignor to Shell Oil Company, New York, N.Y.

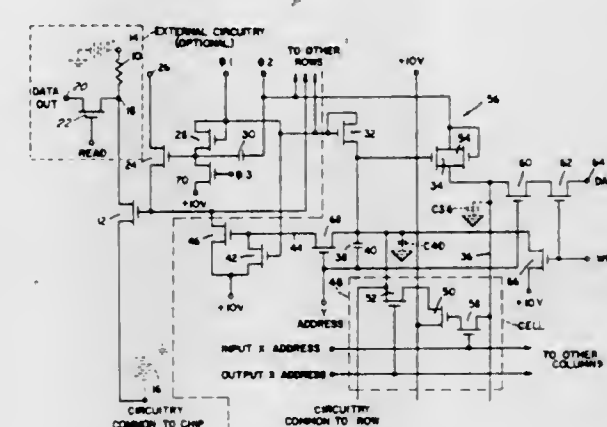
Filed Nov. 14, 1969, Ser. No. 876,622

Int. Cl. G11c 7/00, 11/34, 11/40

U.S. Cl. 340—173 FF

11 Claims

A half-bit memory array featuring nondestructive reading uses two X address circuits addressed at different times and coupled by an inverter to read the memory element in a first portion of the operational cycle, and refresh it in a second portion of the operational cycle, without disturbing the gate electrode potential of the memory element at any time during the cycle, and without the refresh signal level being dependent upon the read signal level. Writing is accomplished by disabling the inverter to prevent transfer of the read information to the refresh circuit and substituting in its place a



low-impedance data input signal. Fast switching is accomplished by reducing charge transfer operations to a minimum,

and the circuit is entirely ratioless to improve speed of operation and circuit size.

3,636,529

DRUM STORAGE SYSTEM WITH ALTERNATING LIGHT BEAMS

Manfred Borner, Ulm (Danube), and Stefan Maslowski, Aufheln, Neu-Ulm, both of Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

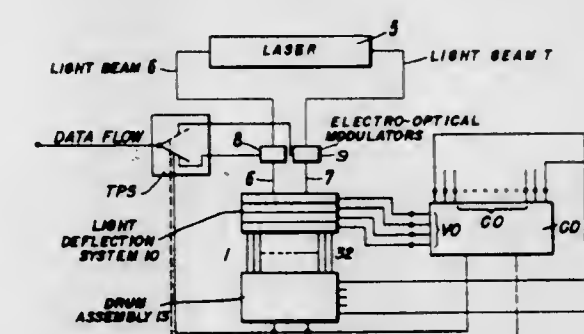
Filed Feb. 13, 1969, Ser. No. 798,882

Claims priority, application Germany, Feb. 13, 1968, P 15 74 490.8

Int. Cl. G11c 13/04; G01d 15/14, 15/28

U.S. Cl. 340—173 LM

9 Claims



In a data system having a large store capacity and short access time a rotating drum is provided the surface of which is covered with a recording material which changes color under the influence of light beams. Other features relate to arrangements for associating the data flow to a plurality of light beams.

3,636,530

NONVOLATILE DIRECT STORAGE BISTABLE CIRCUIT

John G. Mark, Pasadena, and Andrew C. Tickle, Chatsworth, both of Calif., assignors to Litton Systems, Inc.

Filed Sept. 10, 1969, Ser. No. 866,058

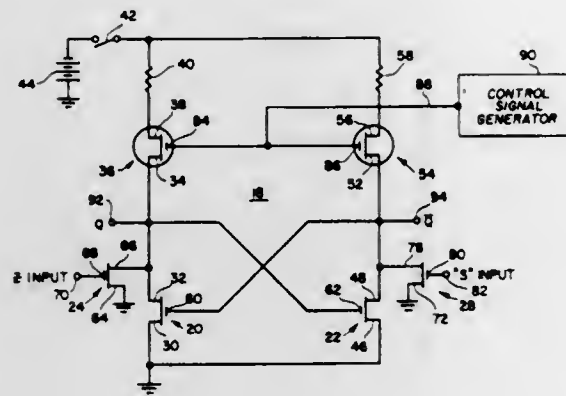
Int. Cl. G11c 11/40

U.S. Cl. 340—173 FF

18 Claims

A bistable electrical circuit incorporating semiconductor-insulator devices as load resistors in the amplifying (switching) sections of the bistable circuit. The semiconductor-insulator devices exhibit memory properties, and the binary state of the flip-flop at the time of application of a write

signal is nonvolatily stored thereby. Upon application of a read signal the circuit is initialized to the same state as supplied on corresponding write conductors, and the control circuit further supplies supplemental pulses to the write conductor pulse and not overlapping the word control pulse.



isted during the writing mode of operation. Data storage is maintained in the absence of all applied power.

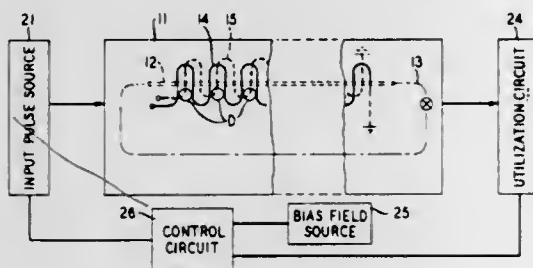
3,636,531

DOMAIN PROPAGATION ARRANGEMENT

John Alexander Copeland, III, Gillette, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed June 24, 1970, Ser. No. 49,273
Int. Cl. G11c 11/14, 19/00

U.S. Cl. 340—174 TF

12 Claims



A magnetically soft overlay strip defines a multiposition shift register path in a slice of material in which single-wall domains can be moved. The strip also defines a stable location for a single-wall domain to either side thereof for each position in the register. Domains are moved along the path by consecutively offset fields operative simultaneously to both sides of the strip, thus achieving a two-state shift register.

3,636,532

PARTIALLY SWITCHING STORAGE WITH CORES CONSISTING OF MAGNETIZABLE MATERIAL

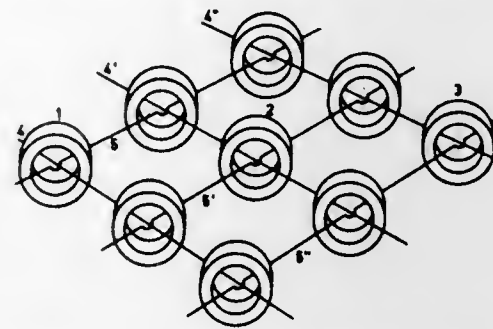
Jan Arnoldus van Stuyvenberg, Hengelo, Netherlands, assignor to N. V. Hollandse Signaalapparaten, Hengelo (Overijssel), Netherlands
Continuation of application Ser. No. 539,567, Apr. 1, 1966, now abandoned. This application Nov. 3, 1969, Ser. No. 871,547

Claims priority, application Netherlands, Apr. 3, 1965, 6504262
Int. Cl. G11c 5/02, 11/06

U.S. Cl. 340—174 M

3 Claims

A magnetic core storage device employing a plurality of cores having word and write conductors, a driving circuit for supplying word pulses having a magnitude for generating a field exceeding the saturation field required for each core. The word pulse has a short duration which restricts the core magnetization. Coincident writing and reading pulses are



ductor in a direction opposite to that of the first write conductor pulse and not overlapping the word control pulse.

3,636,533

MEMORY CORE SUBMODULE

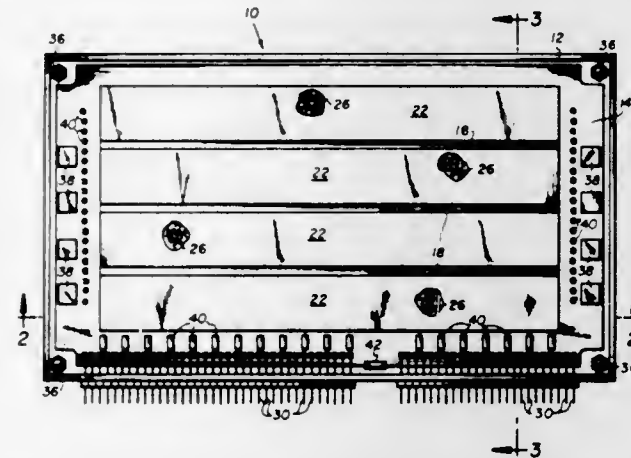
Julius Fred Rathjen, Franklin Lakes, and Morris O. Stein, Wayne, both of N.J., assignors to The Slinger Company, New York, N.Y.

Filed Nov. 28, 1969, Ser. No. 880,639

Int. Cl. G11b 5/00

U.S. Cl. 340—174 M

5 Claims



A memory core submodule wherein at least one printed circuit board is laminated to opposite surfaces of an aluminum heat sink and a shield sheet is laminated to the outer surface of each of the circuit boards. An array of magnetic core members are fixed with respect to the outer surface of each of the shield sheets, and are electrically connected to the circuit boards.

3,636,534

WRITE METHOD OF A MAGNETIC WIRE MEMORY

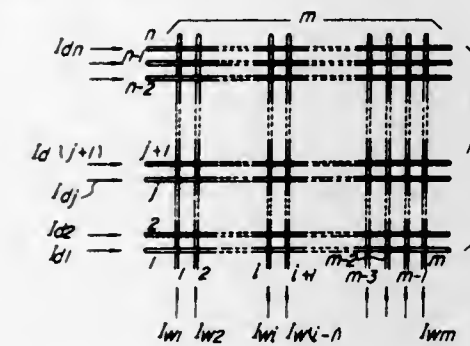
Susumu Hibi, Yokohama, and Hideo Fujiwara, Tachikawa-shi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Nov. 18, 1969, Ser. No. 877,796

Claims priority, application Japan, Nov. 25, 1968, 43/85597

Int. Cl. G11b 5/00

U.S. Cl. 340—174 TF

5 Claims



In a thin film magnetic wire memory device which is employed as a memory for the read-only use, a writing method

characterized by the steps of making a digit current (pulse) flow in the magnetic wires in which an information is to be written, making a word driving current flow through only the necessary ones of the word driving lines during the duration of said digit current thereby to write the information "1" (or "0") along said magnetic lines, next reversing the polarity of the digit current, making a word driving current flow through the other necessary ones of the word driving lines during the duration of said digit current thereby to write the information "0" (or "1"), whereby the information is written for each magnetic wire.

3,636,535

MAGNETO-OPTICAL TRANSDUCER

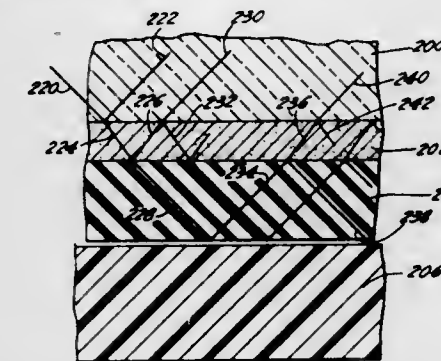
Stanton H. Cushner, Los Angeles; Patrick E. Ferguson; Henry W. Griffiths, both of Torrance, and Alfred M. Nelson, Redondo Beach, all of Calif., assignors to The Magnavox Company, Torrance, Calif.

Continuation of application Ser. No. 539,386, Apr. 1, 1966, now abandoned. This application Dec. 10, 1969, Ser. No. 880,490

Int. Cl. G11c 13/04

U.S. Cl. 340—174.1 M

21 Claims



This invention relates to a magneto-optical transducer having a thin magnetic film of a critical thickness dependent upon the characteristics of the magnetic materials comprising the film. When the film is provided with the critical thickness, the rotation of polarized light directed to the film is enhanced to an optimum value. This rotation is produced in accordance with the magnetic states provided in the thin film. The ellipticity of the rotated light is also minimized by providing the thin film with a critical thickness.

The thin film is supported by a substrate which preferably comprises an optical prism. A thin layer of a dielectric layer is preferably disposed on the thin magnetic film to enhance the reflectivity of the transducer to the portion of the polarized light passing through the thin magnetic film. This enhanced reflectivity is desirable since the provision of the thin magnetic film with a critical thickness tends to reduce the ability of the thin magnetic film to reflect the polarized light directed to the film.

3,636,536

DERIVED CLOCK CIRCUIT IN A PHASE MODULATED DIGITAL DATA HANDLING SYSTEM

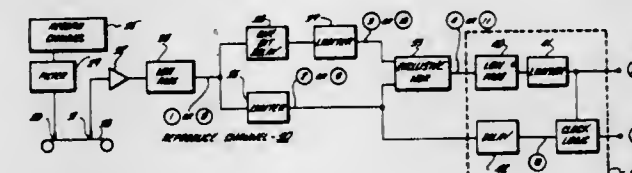
Kermit A. Norris, Azusa, Calif., assignor to Leach Corporation, San Marino, Calif.

Filed Mar. 21, 1968, Ser. No. 715,098

Int. Cl. G11b 5/06

U.S. Cl. 340—174.1 H

29 Claims



A method and apparatus for deriving a clock signal in a high-density digital data system wherein digital data levels

are obtained directly from a coded signal recovered from a magnetic medium without any initial reliance on a clock signal. Such digital levels are obtained from the recovered coded signal by employing a decoder which utilizes differential phase shift techniques including a one-bit delay circuit. After such digital data levels have been derived, they serve as logic commands to gate out pulses representative of particular transitions of the coded signal recovered from the magnetic medium. The coded signal is applied to transition detectors yielding sharp spiked outputs for both positive and negative going transitions in the coded signal. The digital data levels logically pass and inhibit selected ones of the spiked pulses so that a continuous clock signal synchronized substantially at the midbit interval of existing digital data levels is generated. Both the digital data levels initially obtained without reliance on a clock signal, and a data-synchronized clock are available to utilization circuitry such as a computer.

3,636,537

MULTICHANNEL REMOTE-MEASURING NETWORK

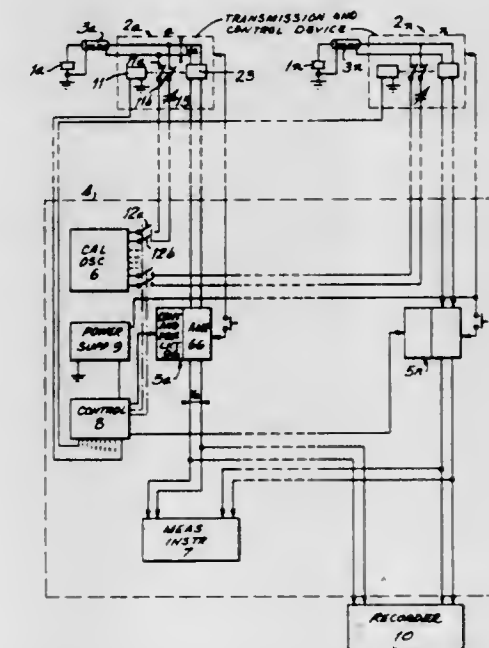
Jacques Terry, 14 Allee Diamant-Forêt de Vernon, 276 Vernon, France

Continuation-in-part of application Ser. No. 807,666, Mar. 17, 1969. This application Feb. 26, 1970, Ser. No. 14,539

Int. Cl. G08c 15/00

U.S. Cl. 340—182

15 Claims



A precision, remote-measuring network with a plurality of channels each including a local sensor. A remote control is connected to each channel and includes a calibrating oscillator. Measurement transmitter and control devices are connected to the sensors and include a variable capacitor coupled to the oscillator and a relay connected between the sensors and capacitor whereby a capacitance bridge is formed. A hermetically sealed housing encloses the capacitors.

3,636,538

APPARATUS FOR THE DETERMINATION OF THE POSITION OF TWO PARTS MOVABLE RELATIVE TO EACH OTHER

Horst Burkhardt, Stein an der Traun, Germany, assignor to Dr. Johannes Heidenhain, Traunreut nr. Traunstein, Germany

Filed Nov. 25, 1968, Ser. No. 778,538

Claims priority, application Germany, Nov. 25, 1967, P 16 23 905.7

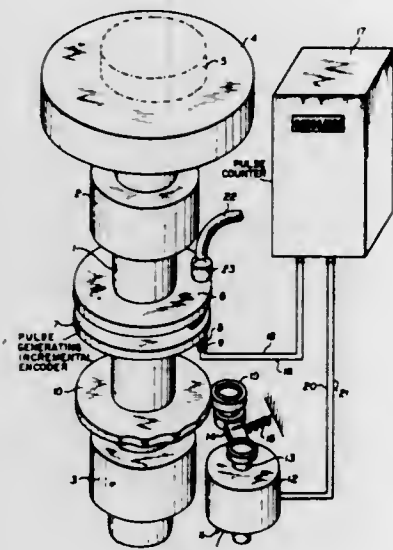
Int. Cl. G08c 19/16

U.S. Cl. 340—206

2 Claims

An apparatus for the determination of the position of two parts moveable relative to each other, wherein the value to

be measured as to size and direction is determined by impulsive counting, which comprises a correction system in addition to a measuring system for parts moveable relative to each other. The measuring system includes an indication unit



and/or a control unit, and the correction system is adapted to feed correction impulses, upon relative movements of the parts, corresponding with the prevailing deviation of the assigned position of the parts to a counter.

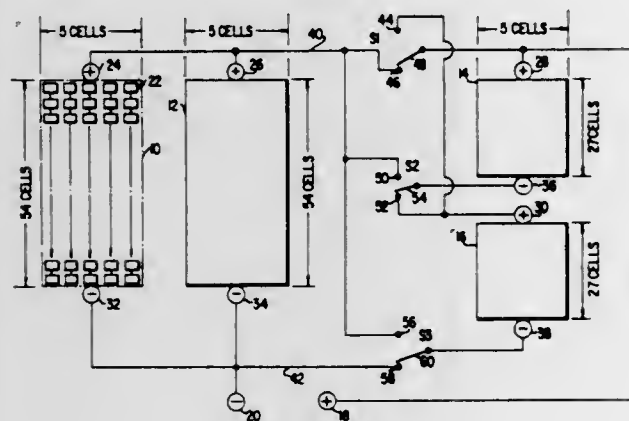
3,636,539

OPTIMUM PERFORMANCE SPACECRAFT SOLAR CELL SYSTEM

Edward M. Gaddy, Greenbelt, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Nov. 18, 1970, Ser. No. 90,595
Int. Cl. G08c 19/16

U.S. Cl. 340-210

8 Claims



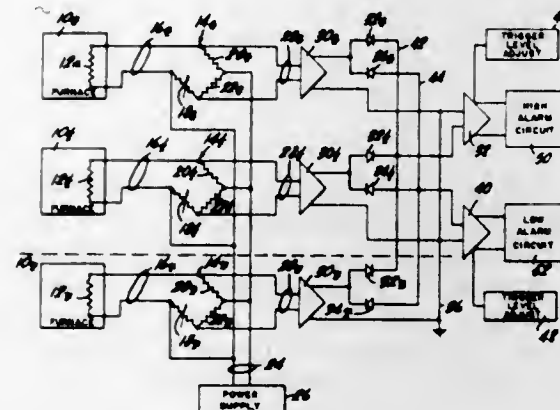
A spacecraft solar cell system including a switching circuit which comprises relay operated switches for changing a plurality of solar cells from a first series-parallel interconnection to a second series-parallel interconnection is disclosed. The relays are actuated by a command device which may be a telemetry receiver. A protection circuit comprising a photodiode is connected between the command device and the relays to ensure appropriate solar cell orientation when switching occurs. This prevents arcing across the relay switches.

3,636,540 TEMPERATURE CONTROL ALARM SYSTEM

Holton E. Harris, Westport, Conn., assignor to Harrel Incorporated, East Norwalk, Conn.
Filed Nov. 29, 1968, Ser. No. 779,768
Int. Cl. G01k 7/24, 7/16

U.S. Cl. 340-228

7 Claims



As described herein, a temperature alarm control system is provided which includes a plurality of temperature measuring devices which generate positive or negative signals in accordance with an increase or decrease in temperature in a corresponding number of furnaces to which the devices are operatively connected. The signals are amplified and thereafter, of the signals developed by the measuring devices, only the positive and negative signals having the greatest magnitudes are supplied to an alarm circuit to excite a pair of alarms.

3,636,541

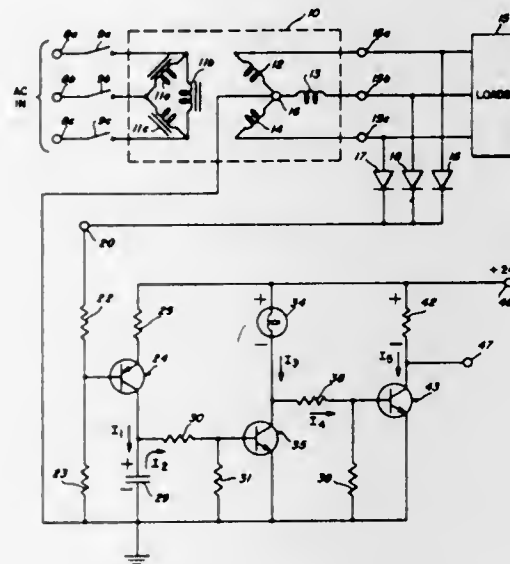
LOSS OF PHASE DETECTOR FOR A POLYPHASE POWER SYSTEM

Luther L. Genuit, Scottsdale, and Roger D. Lackey, Phoenix, both of Ariz., assignors to Honeywell Information Systems Inc.

Filed Apr. 9, 1970, Ser. No. 26,864
Int. Cl. G08b 21/00

U.S. Cl. 340-248 B

3 Claims



The loss of phase detector employs a plurality of rectifiers each of which is connected between a transistor and a corresponding phase of a polyphase AC power system. Each rectifier couples a signal to the transistor when the corresponding phase provides output power. These signals render the transistor nonconductive. When power is lost in any of the phases of the polyphase system or when voltage in the system decreases below a predetermined value, the transistor is rendered conductive so that a capacitor in series

with the transistor is charged by a reference voltage which is connected to the transistor. The charge on this capacitor provides a signal that activates an indicating device which warns that power has been lost in one of the phases of the polyphase power system.

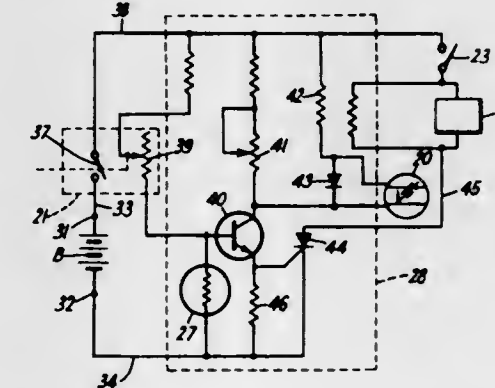
3,636,542

PORTABLE PHOTORESPONSIVE INTRUSION ALARM

Joseph H. Apple, Alexandria, Va., assignor to AMF Incorporated
Filed Oct. 15, 1969, Ser. No. 866,649
Int. Cl. G08b 13/18

U.S. Cl. 340-258 B

12 Claims



An intrusion alarm with a self-contained power source having a trigger circuit with means for adjusting its standby level and means receiving available ambient light which when blocked causes the circuit level to rise and provide a triggering signal. An alarm signal circuit with a gated semiconductor is energized by the trigger signal provided to the gate of the semiconductor. The intrusion alarm may be modified for connection to an outside source and may be provided with a remotely positioned signal generator.

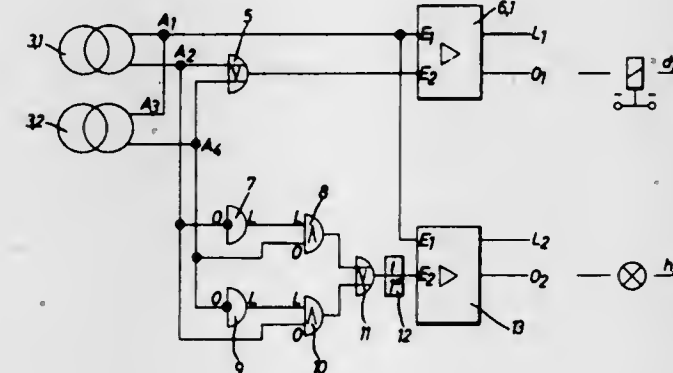
3,636,543

SAFETY LIMIT FEELER FOR CONTACTLESS CONTROL

Kurt Maecker, Kreuzstrasse 34, 4 Dusseldorf, Germany
Filed Oct. 1, 1969, Ser. No. 862,897
Claims priority, application Germany, Nov. 15, 1968, P 18 09 100.4

U.S. Cl. 340-259

7 Claims



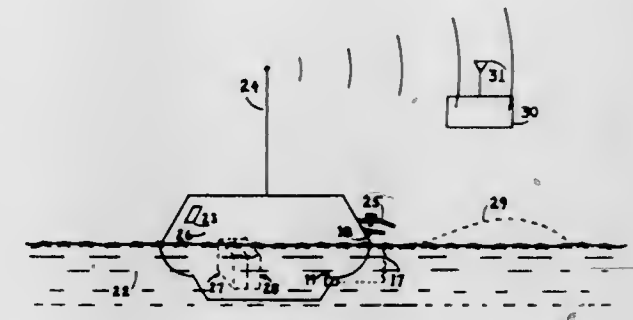
A control arrangement in which a pair of magnetically sensitive control elements are adapted for simultaneous actuation by a magnetic actuating member moving in proximity to but not physically engaging said elements. Actuation of either control element will cause a control function to be carried out while failure to actuate either one only of the control elements will cause an alarm circuit to be actuated.

3,636,544
ALARM

Jorge G. Codina, 223 Secor Road, Hartsdale, N.Y.
Filed Jan. 19, 1970, Ser. No. 3,940
Int. Cl. G08b 5/22

U.S. Cl. 340-261

2 Claims



A system for sounding an alarm when an unauthorized person or unidentified object enters a swimming pool. The system employs a float containing a battery powered transmitter tuned to a selected fixed frequency. The transmitter is energized when the person or object enters the water whereby a signal at said frequency is transmitted. A receiver tuned to the same signal acts as a monitor by receiving the signal and reproducing same in form suitable for sounding the alarm.

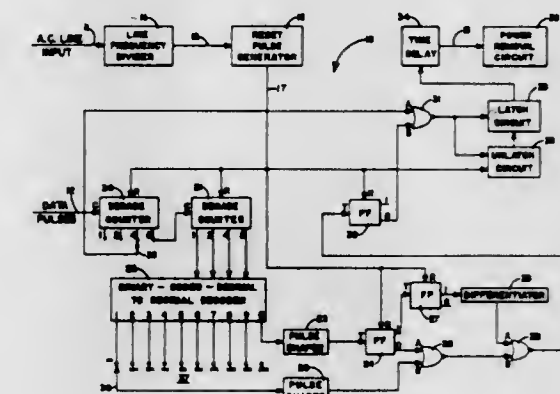
3,636,545

OVERSPEED DETECTION SYSTEM

William R. Boyd, Oakland, and Robert C. Franklin, San Jose, both of Calif., assignors to Beckman Instruments, Inc.
Filed Apr. 1, 1969, Ser. No. 811,803
Int. Cl. G08b 21/00

U.S. Cl. 340-263

22 Claims



A system for sensing an overspeed condition which may exist in a rotating device such as a centrifuge. The system receives, as its inputs, a train of pulses, each pulse indicative of a predetermined number of revolutions of the rotating device. The system functions as an events per-unit-time counter, counting the input pulse rate for a given interval of time with the total pulse count representing the desired speed if the rotating device is onspeed. If the device exceeds the desired speed by a predetermined percentage, the system is activated to indicate an overspeed condition and automatically remove power from the rotating device drive circuits. To prevent premature shutdown of the rotating device by spurious triggering signals, a time delay circuit requires that the overspeed condition exist for a predetermined time interval before system shutdown is accomplished.

3,636,546

ALARM SYSTEM TRANSMITTER

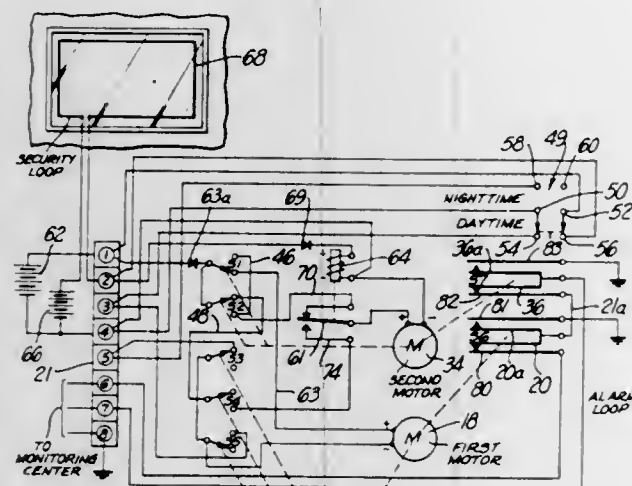
John S. Lomonaco, 429 South Victory Blvd., Burbank, Calif.

Filed July 2, 1968, Ser. No. 741,953

Int. Cl. G08b 25/00

U.S. Cl. 340—276

8 Claims



An alarm system having a security circuit loop which passes through an area to be protected and an alarm circuit loop for transmitting alarm signals to a monitoring center, including means for generating a plurality of discrete coded signals indicating the operation of an on-off switch located outside the protected area, a discontinuity in the security circuit and any authorized or unauthorized entry into the protected area and distinctively identifying the protected area.

3,636,547

ALARM SYSTEM AND METHOD OF INCORPORATING MAGNETIC SWITCH MEANS MAGNETICALLY CONTROLLED ELECTRICAL SWITCHES

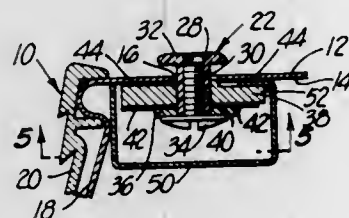
Robert J. Brace, 21721 Roscoe Blvd., Canoga Park, Calif., and Meyer Fienberg, 7259 Hillside Ave., Los Angeles, Calif.

Filed June 9, 1969, Ser. No. 831,613

Int. Cl. G08b 21/00

U.S. Cl. 340—280

7 Claims



A magnetically controlled switch-actuating member projects upwardly from the supporting surface of a shelf, rack or the like positioned for downward depression by a merchandise article supported on the shelf. The switch-actuating member extends downwardly through a permanent magnet block at the shelf underside, the actuating member always being urged magnetically upwardly to projecting position when depressed by the article on the shelf. Electrical contact strips extend over the magnet block and are free of contact by the actuating member when in its article-depressed position, but contacted by the actuating member when in its projecting position completing an electrical circuit therethrough to any form of electrically actuated device, such as an alarm. Thus, any given series of switches may be provided and will sound the alarm when any one of a series of articles is removed from the shelf.

3,636,548

SELF-STORING EXTENSION TABLE

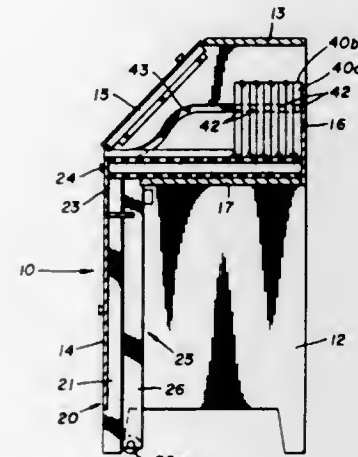
Joseph Maruzzelli, 37 Walnut Street, Jamestown, N.Y.

Filed Feb. 4, 1970, Ser. No. 8,559

Int. Cl. A47b 77/10

U.S. Cl. 312—282

3 Claims



A self-storing extension table characterized by a plurality of leaves arranged to be moved between extended and collapsed positions so as to form an extension table with certain of the leaves being provided with rollers that are received in a cam groove so as to guide the leaves during movement between open and closed positions automatically.

3,636,549

MULTICHANNEL INTERVAL TIMER

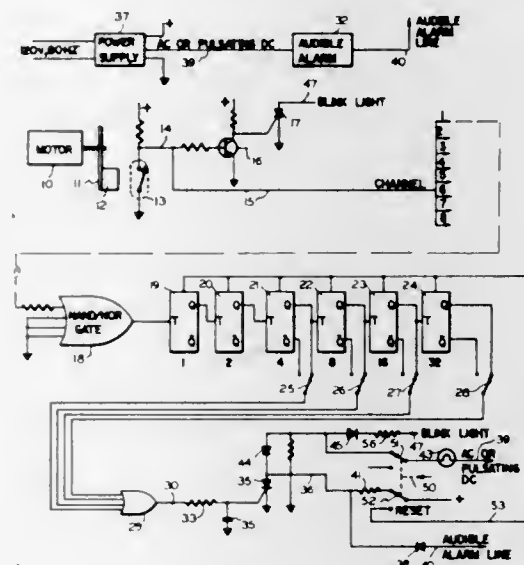
Richard M. Berman, Dresher, Pa.; Bernard Schwartz, Springfield, and Lyman W. Bethke, Trenton, both of N.J., assignors to Alphamedics Mfg. Corp., Levittown, Pa.

Filed Jan. 5, 1970, Ser. No. 649

Int. Cl. G04c 21/16

U.S. Cl. 340—309.1

7 Claims



A multichannel time interval measuring and control instrument using solid-state logic providing individually preset, programmed or presettable timing channels supplying a wide range of time intervals, in which each timing channel is individually selectable by a pushbutton, or automatically programmed in sequence or in parallel to initiate the operation being controlled, and wherein the timer audibly and usually signals the human operator at the end of the selected interval, or automatically terminates or starts the operation being monitored or controlled.

3,636,550

MAGNETIC WHEEL WITH ROTOR POSITION SENSOR

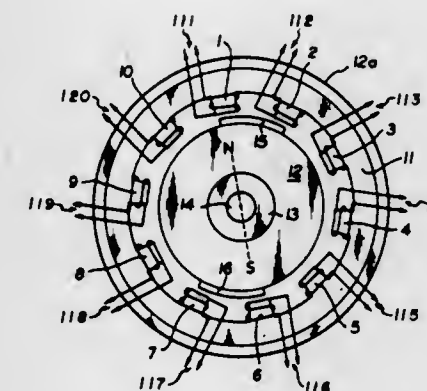
Charles E. Clift, and David G. Evans, both of Phoenix, Ariz., assignors to Sperry Rand Corporation

Filed Dec. 19, 1969, Ser. No. 886,616

Int. Cl. G08c 19/20

U.S. Cl. 340—319

11 Claims



A unique magnetic circuit in a magnetic rotor position sensor couples the change of the periodically generated DC magnetic flux in a command coil to an interrogating coil.

3,636,551

COMPUTER-CONTROLLED THREE-DIMENSIONAL DISPLAY

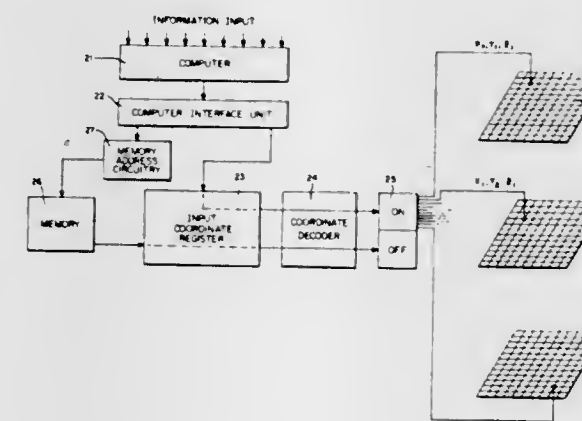
Edward T. Maguire, Newtown Square, Pa., assignor to Ke General Corporation, Paoli, Pa.

Filed May 15, 1969, Ser. No. 824,872

Int. Cl. G06f 3/14

U.S. Cl. 340—324 R

3 Claims



An apparatus is disclosed comprising a three-dimensional display unit having located therein, at regular coordinate intervals, display elements which indicate the coordinate positions of objects in a three-dimensional space, and control logic circuitry by which said display elements are controlled and driven. The apparatus interfaces with a general purpose digital computer from which it derives data inputs which are processed so as to present a real-time display of moving objects, as well as directions of movement.

3,636,552

OPTICAL PATH SELECTION SYSTEM

Isamu Orima, Sagami-hara-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan.

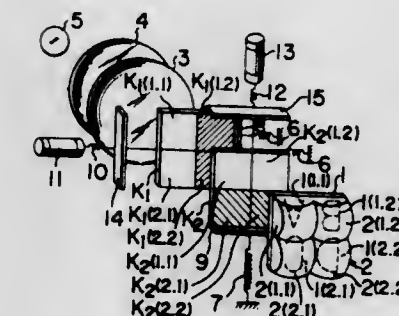
Filed Aug. 22, 1969, Ser. No. 852,342

Claims priority, application Japan, Aug. 31, 1968, 43/62536

Int. Cl. G08b 5/32

U.S. Cl. 340—324 R

7 Claims



An optical path selection system for use in information display or retrieval system wherein backwardly of a character plate having a suitable number of characters arrayed in rows and columns are disposed a plurality of character selection plates each having a plurality of transparent and opaque frames which are arrayed in accordance with the binary codes representing such characters. The number of such character selection plates is the same as that of the bits constituting said codes; and said character selection plates are selectively displaced in either of the row or column direction by a distance corresponding to the width of each frame in response to an instruction given in the form of the codes, thereby opening the optical path only for a selected character in response to the instruction.

3,636,553

ALPHA-NUMERIC DISPLAY SYSTEM

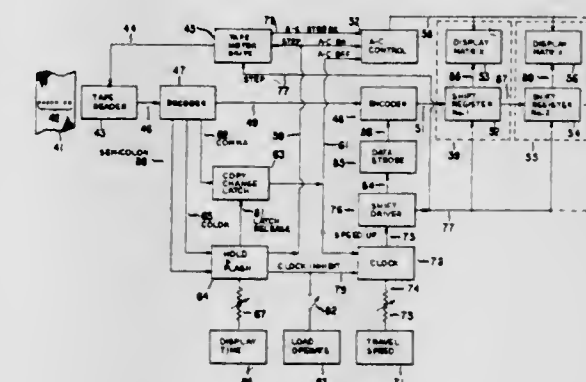
Bruce Jay Hancock, 107 N. Sycamore, Mesa, Ariz.

Filed Jan. 21, 1969, Ser. No. 792,436

Int. Cl. G08b 5/36

U.S. Cl. 340—336

11 Claims



A changeable neon sign employs a series of symbol display modules, each of which is made up of a matrix of glow tubes; the individual elements which can be activated to produce any selected letter or numeral are caused to glow in the desired arrangement. A series of such modules is controlled to come on in desired sequence by a solid-state switching system which in turn is programmed by a tape control or reader system. The switching system, including a shift register, can present the input data as traveling copy. A digital input code can present other data.

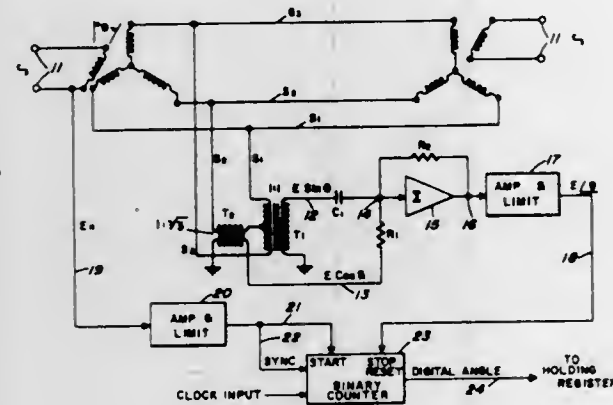
3,636,554

SYNCHRO-TO-DIGITAL CONVERTER

William N. Farneth, Cato, N.Y., assignor to The United States of America as represented by the Secretary of the Navy
Filed May 13, 1970, Ser. No. 36,829
Int. Cl. H03k 13/02

U.S. Cl. 340—347 SY

6 Claims



A synchro rotor position-to-digital number converting means having a transformer to transform the three phases of the synchro into a sine phase and a cosine phase 90° apart, summing these phases into an analog voltage representative of the resultant angle, and a binary counter coupled to be started in count from the synchro reference voltage or a clock synchronizing frequency and coupled to be stopped in counting by the summed analog voltage in accordance with the three-phase synchro input rotor angular position.

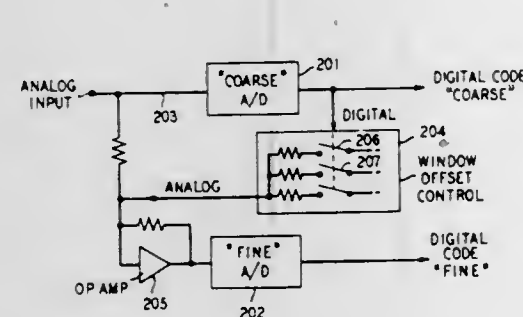
3,636,555

ANALOG TO DIGITAL CONVERTER UTILIZING PLURAL QUANTIZING CIRCUITS

Sigurd Gunther Waaben, Princeton, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 4, 1970, Ser. No. 16,417
Int. Cl. H03k 13/175

U.S. Cl. 340—347 AD

1 Claim



A plurality of circuits which provide both sampling and comparison functions periodically sample an analog signal and compare the sample with an associated reference voltage. Since the sampling and comparison operations are performed by a single circuit, both operations are performed

within the duration of a single energizing timing pulse. In response to these comparisons, the outputs of a plurality of gating means indicate the quantizing range within which the analog sample occurs and energize a read-only memory which stores digital output words corresponding to the quantizing ranges. In a preferred embodiment, two such encoders are used in conjunction with a switchable operational amplifier to obtain coarse and fine encoding.

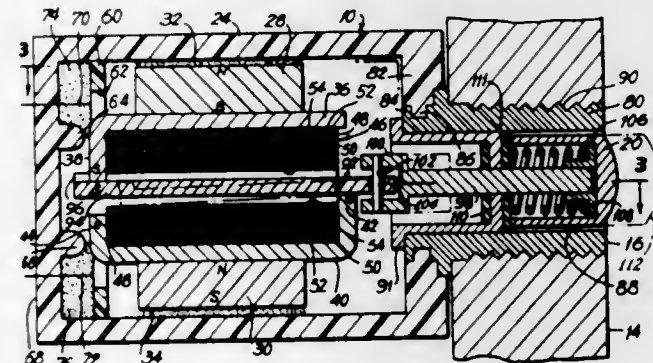
3,636,556

ELECTROMAGNETIC INDICATOR OPERATED BY COIL AND PERMANENT MAGNET MEANS

George E. Pihl, Abington, Mass., assignor to General Time Corporation, Stamford, Conn.
Filed May 20, 1969, Ser. No. 826,248
Int. Cl. G08b 5/22, 5/26

U.S. Cl. 340—373

5 Claims



Electromagnetic indicator is provided which comprises electromechanical means for positively retaining the same in the reset condition, and electromagnetic means and biasing means for respectively releasing the said electromechanical retaining means and placing the indicator in the set condition. Included are indicating means which provide readily discernible indicia that the indicator is in the set condition.

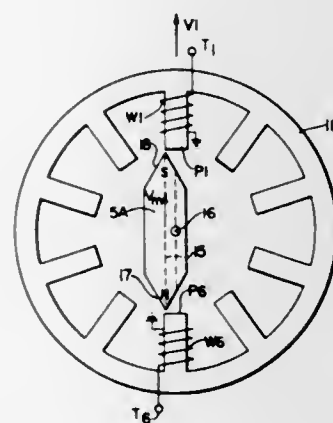
3,636,557

ELECTROMAGNETIC INDICATOR HAVING OFFSET ROTOR MAGNET

John A. Watkins, Cheshire, Conn., assignor to United-Carr Incorporated, Boston, Mass.
Filed Aug. 22, 1969, Ser. No. 852,211
Int. Cl. G08b 5/14; H02k 37/00, 1/24

U.S. Cl. 340—378

4 Claims



An indicator is disclosed having a rotor which is able to turn promptly to 180° opposed positions to permit the successive display of diametrically opposed symbols carried on a drum. The position of the rotor's drum is governed by a sta-

tor that can establish any one of a number of differently oriented magnetic fields. The rotor has a permanent magnet which turns to align itself with the stator's magnetic field. By mounting the rotor to turn about a rotational axis so disposed that upon 180° reversal of the stator's magnetic field, the repelling field forces acting on the magnet do not pass through the rotational axis, the application of a turning force on the magnet is assured. The magnet is fashioned to cause its magnetic flux to be concentrated at two salient magnetic poles and is arranged to rotate about an axis offset from an straight line joining the salient poles.

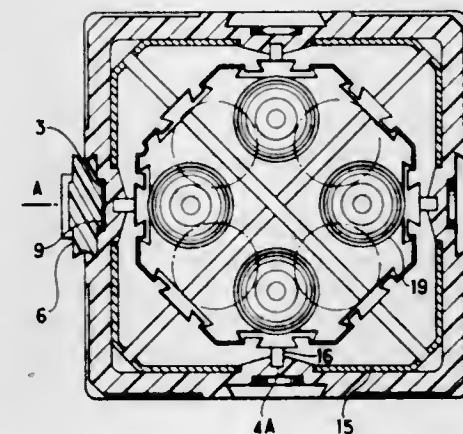
3,636,558

SYNOPTIC CONTROL AND SIGNALLING BOARD

Jean Debaigt, Maisons-Laffitte, France, assignor to Compagnie Generale D'Entreprises Electriques, Levallois-Perret, France
Filed Dec. 24, 1969, Ser. No. 887,835
Claims priority, application France, Dec. 27, 1968, 181341
Int. Cl. G09f 7/02, 9/30

U.S. Cl. 340—381

8 Claims



A synoptic control and signal panel comprising mosaic elements having no supporting grid and consisting of detachable panels bearing symbols or data in the form of a diagram. The panels are assembled together by keys having a double dovetail shape which engages hollow parts on the side faces of the panels.

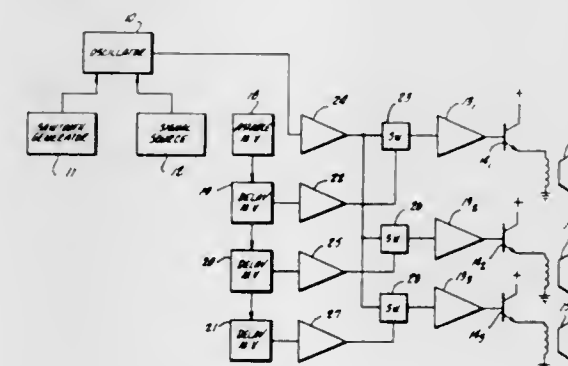
3,636,559

ULTRASONIC RAT ELIMINATION SYSTEM HAVING RANDOM MODULATION

Dominic Del Grande, North Hollywood, and Donald C. Erdman, Pasadena both of Calif., assignors to The Rat Elimination System Limited, Nassau, Bahamas
Filed Nov. 18, 1968, Ser. No. 776,646
Int. Cl. G08b 3/10

U.S. Cl. 340—384

11 Claims



Apparatus and method for repelling rats and mice from an area by means of generation of a modulated ultrasonic sound level. The sound level is frequency modulated within a range of ultrasonic frequencies to which rats and mice respond. In

894 O.G.—45

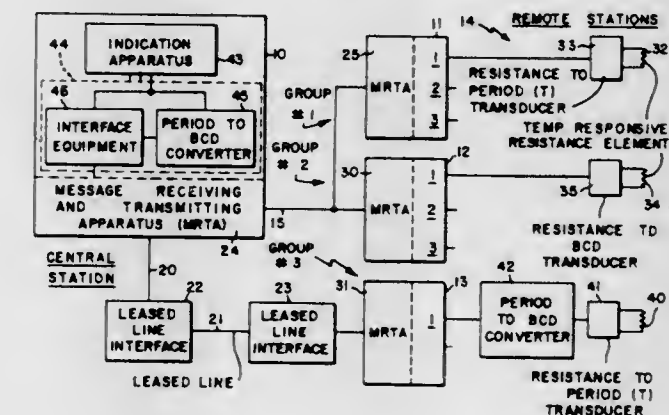
3,636,560

TRANSMISSION SYSTEM MESSAGE FORMAT FOR REPORTING CONDITIONS FROM REMOTE STATIONS TO A CENTRAL STATION

Frank H. W. Schoenwitz, Arlington Heights, Ill., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Oct. 13, 1969, Ser. No. 865,820
Int. Cl. G08b 5/22

U.S. Cl. 340—409

6 Claims



A condition supervision system for supervising conditions of a building air conditioning system wherein processing and indication apparatus at a central station is connected over a transmission circuit to a plurality of remote stations whereby messages indicative of conditions at the remote stations are indicated at the central station. The message format used by remote stations to report the condition at a particular remote station comprises two portions. The first portion of the message identifies the data and the form of the output from a condition responsive transducer of that station. The second portion is made up of the output from the transducer; so that, when a remote station reports to the central station, the first portion of the message is used to inform a central station processing apparatus of the form of the output to be received in the second portion of the message so that a type of processing can be selected for the particular form of output in the second portion of the message.

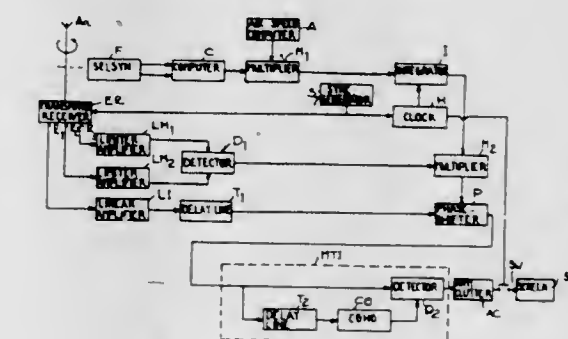
3,636,561

ELECTROMAGNETIC DETECTION RECEIVER

Guy Francis Le Parquier, Henri Charles Poinard, and Marie-Jacques Jullien, all of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Sept. 29, 1969, Ser. No. 861,889
Claims priority, application France, Oct. 15, 1968, 169986
Int. Cl. G01s 9/42

U.S. Cl. 343—7.7

7 Claims



In a monopulse radar system the phase difference between successive echoes from the same target is modified to make

this difference equal to what it would be if the target were on the axis of the beam.

will peak upon receiving reflected signals from targets for which the filter is matched.

3,636,562

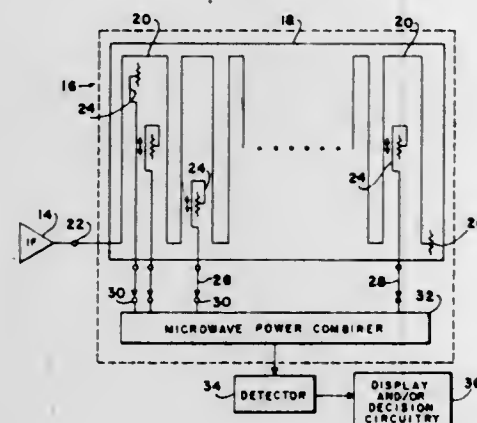
HIGH-RANGE RESOLUTION RADAR TARGET MATCHED FILTER

Donald R. Wehner, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Feb. 24, 1970, Ser. No. 13,414
Int. Cl. G01s 9/02

U.S. Cl. 343—5 SA

2 Claims



A radar target matched filter for improving target recognition and identification capabilities of high-range resolution radar systems. The filter comprises a microwave delay line having a plurality of adjustable energy coupling taps distributed along the delay line and set at selectively predetermined positions along the delay line corresponding to known scatter centers of a particular target. The tap outputs are combined such that the single dominant output which results

There is provided an aerial arrangement especially applicable to monopulse radar apparatus, comprising two interleaved arrays of aeriels, the response of one array conforming to a sum pattern and the response of the other array conforming to a difference pattern, with output signals derived from the first array being in phase quadrature to output signals derived from the other array so that there is substantially no mutual coupling between the arrays. Preferably the interleaving of the arrays is sufficiently close that unwanted sidelobes do not appear, and the arrays comprise arrays of slotted waveguide aeriels.

3,636,563

AERIAL ARRANGEMENTS

Robert Clement Laverick, Yateley, and Peter Rothwell Smith, Windsor, both of England, assignors to Electric & Musical Industries Limited, Hayes, Middlesex, England

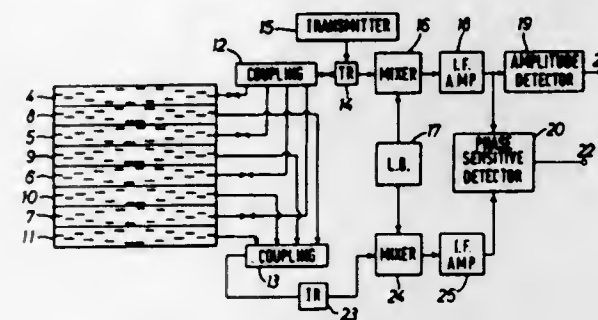
Filed May 13, 1969, Ser. No. 824,141

Claims priority, application Great Britain, May 31, 1968, 26,084/68

Int. Cl. G01s 3/02, 9/22

U.S. Cl. 343—113 R

4 Claims



DESIGNS

JANUARY 18, 1972

222,849

AUTOMOBILE RADIATOR CAP TOOL

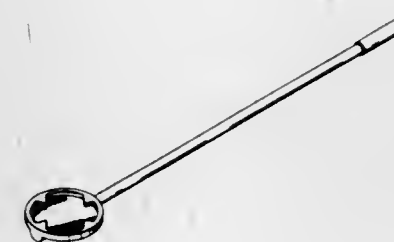
Philip A. Heaver, Newtown Square, Pa. (% Car Buddy Corp., 250 Rock Hill Road, Bala-Cynwyd, Pa. 19004)

Filed Nov. 6, 1970, Ser. No. 25,860

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—21



222,851

BOTTLE OR SIMILAR ARTICLE

Domas Adomaitis, Chicago, and Howard M. Turner, Oak Forest, Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Continuation of design applications Ser. No. 16,721, Ser. No. 16,722, and Ser. No. 16,724, all Apr. 14, 1969.

This application May 18, 1970, Ser. No. 23,034

Term of patent 14 years

Int. Cl. D9—07

U.S. Cl. D9—111



222,850

CONTAINER FOR FLOWABLE MATERIALS OR THE LIKE

Kenneth H. Zeop, Beaverton, James C. White, Gladwin, and Elwyn Jones, Beaverton, Mich., assignors to Koehring Company

Filed Oct. 6, 1970, Ser. No. 25,354

Term of patent 14 years

Int. Cl. D9—07

U.S. Cl. D9—1



222,852

DISPOSABLE FOOD SERVING TRAY

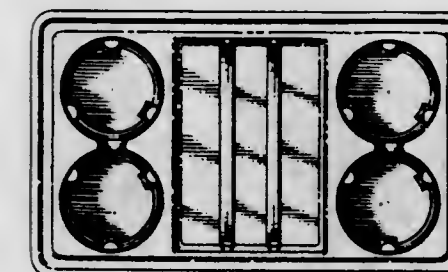
Harford E. Goins, 5428 Center Drive, Camp Springs, Md. 20031

Filed July 22, 1970, Ser. No. 24,069

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—185



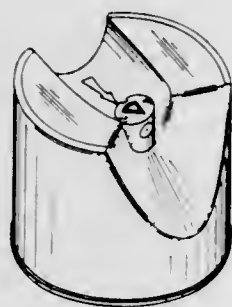
222,853

OVERCAP FOR A PRESSURIZED CAN

Herbert R. Carpenter, Chicago, Ill., assignor to Seaquist Valve Company, Division of Pittway Corporation, Cary, Ill.
Continuation-in-part of design application Ser. No. 16,001, Mar. 3, 1969. This application Nov. 18, 1969, Ser. No. 20,159

Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—258



222,854

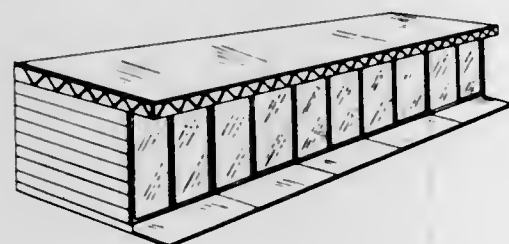
PATIO ROOM

Donald J. Weiss, 745 S. Glencoe St., Denver, Colo. 80222

Filed Mar. 30, 1970, Ser. No. 22,124

Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D13—1



222,855

WALL PANELING

Richard H. Kamrath and Francis L. Harrison, Redding, Calif., and Robert C. Bauer, Arlington, Tex., assignors to U.S. Plywood-Champion Papers Inc., New York, N.Y.

Filed Apr. 13, 1970, Ser. No. 22,421

Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—1



222,856

WALL PANELING

Frederich Richard Ashby, Carmel, N.Y., and Donald F. Luebs, Vienna, Va., assignors to U.S. Plywood-Champion Papers Inc., New York, N.Y.

Filed Apr. 30, 1970, Ser. No. 22,726

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D13—1



222,857

INDUSTRIAL VEHICLE

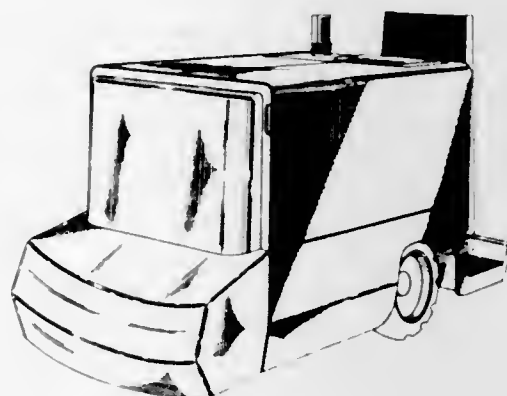
Rigsby C. Satterfield, Chalfont, Pa., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Apr. 3, 1970, Ser. No. 22,232

Term of patent 14 years

Int. Cl. D12—05

U.S. Cl. D14—3



222,858

SNOWMOBILE SEAT

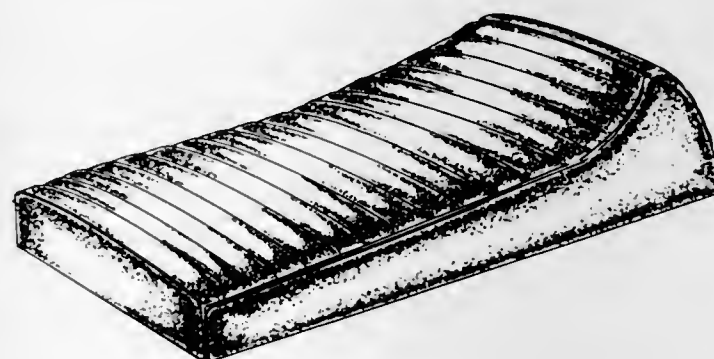
Anthony MacKeen and Yves Anselme La Pointe, Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada

Filed Oct. 6, 1969, Ser. No. 19,432

Term of patent 14 years

U.S. Cl. D14—24

Int. Cl. D12—16



222,859

VEHICLE BODY

Pierre A. Delisle, Loretteville, and Yves Anselme La Pointe, Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada

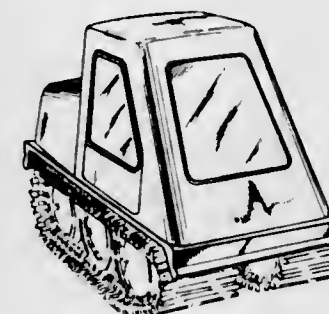
Filed June 29, 1970, Ser. No. 23,729

Claims priority, application Canada June 15, 1970

Term of patent 14 years

Int. Cl. D12—13

U.S. Cl. D14—24



222,860

WATER FAUCET ATTACHMENT FOR IMPROVING THE TASTE OF DRINKING WATER

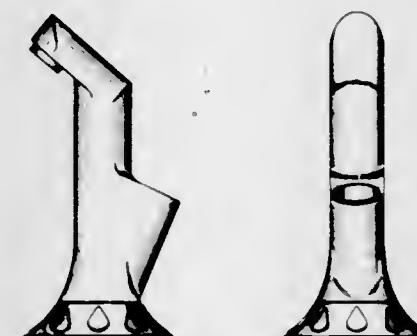
Donald F. Hassinger, Ann Arbor, Mich., assignor to Pure Stat Corporation, Ann Arbor, Mich.

Filed Apr. 20, 1970, Ser. No. 22,510

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—35



222,861

COMBINED WASH-BASIN AND CABINET

Gustav Koenig, Christian Franz, and Peter Huebner, Bonlanden, near Stuttgart, Germany, assignors to Gustav Koenig, Unternehmensberatung, Bonlanden, near Stuttgart, Germany

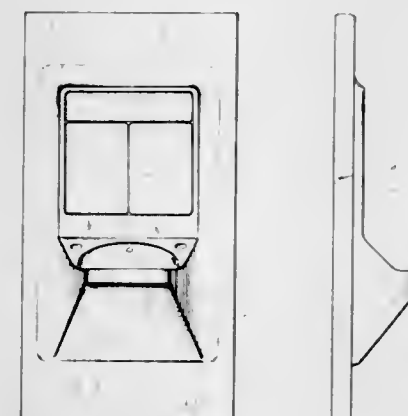
Filed July 21, 1970, Ser. No. 24,049

Claims priority, application Germany Jan. 22, 1970

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D23—59



222,862

DENTAL IRRIGATOR

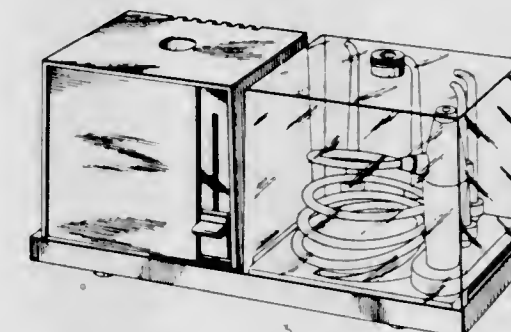
William J. Cook, Trumbull, Conn., assignor to General Electric Company

Filed Apr. 15, 1970, Ser. No. 22,435

Term of patent 14 years

Int. Cl. D24—03

U.S. Cl. D24—1



222,863

DENTAL COTTON ROLL HOLDER

Karl G. Von Grossmann, Minneapolis, Minn., assignor to Dental Products, Inc., Minneapolis, Minn.

Filed Aug. 24, 1970, Ser. No. 24,656

Term of patent 14 years

Int. Cl. D24—03

U.S. Cl. D24—1



222,864

DRESSER

Joseph E. Adkinson, 3807 Leland St., Chevy Chase, Md. 20015

Filed Apr. 17, 1970, Ser. No. 22,481

Term of patent 7 years

Int. Cl. D6—04

U.S. Cl. D33—6



222,865

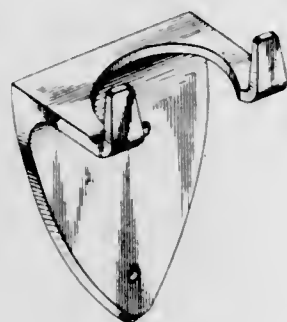
TOOL HOLDERRomaine Branford Coy, 18747 Martha Ave.,
Saratoga, Calif. 95070

Filed Jan. 14, 1970, Ser. No. 20,924

Term of patent 7 years

Int. Cl. D6—04

U.S. Cl. D33—17



222,866

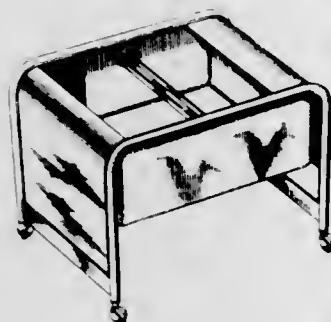
FILE CART WITH TAMBOUR COVERSDouglas C. Ball, Senneville, Quebec, Canada, assignor to
Massey-Ferguson Industries Limited, Toronto, Ontario,
Canada

Filed Oct. 7, 1970, Ser. No. 25,374

Term of patent 14 years

Int. Cl. D6—01; D12—02

U.S. Cl. D33—19



222,867

FIGURE TOYErin Libby, Hermosa Beach, and Joyce H. Christopher,
Long Beach, Calif., assignors to Mattel, Inc., Haw-
thorne, Calif.

Filed Feb. 19, 1970, Ser. No. 21,510

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—4



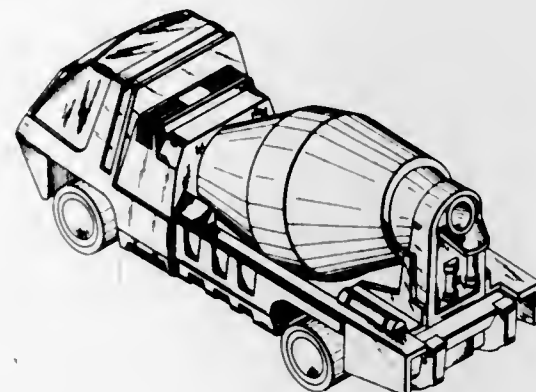
222,868

TOY TRUCKIra B. Gilford, Thousand Oaks, and Alan W. B. Nash,
Torrance, Calif., assignors to Mattel, Inc., Hawthorne,
Calif.

Filed Mar. 2, 1970, Ser. No. 21,671

Int. Cl. D21—01

U.S. Cl. D34—15



222,869

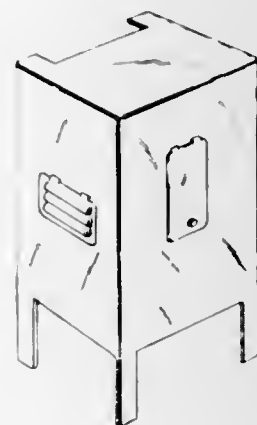
GAS METER COVERMelvin Louis Vasel, 9915 Kennerly Road,
St. Louis County, Mo. 63128

Filed July 2, 1970, Ser. No. 23,809

Term of patent 14 years

Int. Cl. D10—04

U.S. Cl. D52—6



222,870

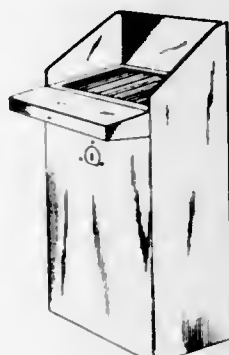
OUTDOOR STOVE FOR RECREATION AREASWells S. Bearinger, St. Ann, Mo., assignor to
Empire Stove Company, Belleville, Ill.

Filed Feb. 20, 1970, Ser. No. 21,544

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D81—10

**LIST OF PATENTEEES**

TO WHOM

PATENTS WERE ISSUED ON THE 18TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- 230494 Merchandising Limited: See—
Lennie, Kenneth B., 3,635,423.
- Abbott Laboratories: See—
Johnson, Robert Phillip, 3,636,201.
Yellin, Tobias O., 3,635,971.
- ABC Packaging Machine Corporation: See—
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- Abnett, Albert C.; and Alexander, Jack S., to Reliance Electric Com-
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- A.C.E. Machinery Limited: See—
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- Ackermann, Karl, to Bosch, Robert, Photokino G.m.b.H. Electronic
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- Acrodyne, Inc.: See—
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- Adachi, Kazuo; Tai, Akira; and Higashi, Fukuji, to Tekkosha Co., Ltd.
Polymer derived from dialkyl succinylsuccinates and diamines,
3,635,888, Cl. 260-47.
- Adamek, John A.; Draugelis, Vaidevutis C.; and Oriol, George J., to
Xerox Corporation, Cascade developing apparatus utilizing a rotary
wheel with scoops, 3,635,553, Cl. 355-3.
- Addamiano, Arrigo; and Perusek, Ronald J., to General Electric Com-
pany, Single crystal silicon carbide display device, 3,636,397, Cl.
313-108.
- Adler, Stanford L.: See—
Peoples, John C. A.; and Adler, Stanford L., 3,635,680.
- Aerojet-General Corporation: See—
Steele, Roger B.; Katakian, Arthur, Jr.; Scigliano, Joseph J.; and
Barry, Jude W., 3,635,869.
- Acrostatic Limited: See—
Dee, Colin W., 3,635,577.
- Agfa-Gevaert AG: See—
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- Agfa-Gevaert Aktiengesellschaft: See—
Grabhofer, Herbert; Himmelmann, Wolfgang; and Glabisch,
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- Herzhoff, Peter; Platz, Stephan; Maus, Fritz; Schweicher, Wolf-
gang; Wasser, Willi; Browatzki, Kurt; and Gref, Hans,
3,635,192.
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- Air Products and Chemicals, Inc.: See—
Tedeschi, Robert J.; and McMahon, Herbert C., 3,636,167.
- Air Reduction Company, Incorporated: See—
Bryant, Gerald T.; and Mayfield, James L., 3,635,599.
- Nichols, Kenneth E., 3,635,581.
- Akahori, Hiroshi; Ohnuma, Yoshiro; and Kubozoe, Morioki, to
Hitachi, Ltd. Electron beam generator for electron microscope or
the like apparatus, 3,636,346, Cl. 250-49.5
- Akai Electric Company Limited: See—
Sato, Noboru; and Nakano, Tatsumi, 3,636,275.
- Akamatsu, Takashi: See—
Hotta, Seiji; Nakano, Tomio; Kenmochi, Hirohito; and Akamatsu,
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Takashi, 3,636,008.
- Akerberg, Dag E. Son: See—
Mossberg, Kare Hjovard; and Akerberg, Dag E. Son, 3,636,466.
- Aktiebolaget Astra: See—
Sandberg, Rune Verner, 3,636,221.
- Aktieselskabet Grindstedvaerket: See—
Moller, Torben Torsbjerg; Nedenskov, Poul; and Rasmussen,
Henning B., 3,635,949.
- Albert, Gilbert. Finger ring with readily removable piece displayed
thereby, 3,635,047, Cl. 63-29.
- Alberts, Herbert. Zipper tooth, 3,634,915, Cl. 24-205.13
- Alcan Research and Development Limited: See—
Williams, Merlyn Morris, 3,635,408.
- Alderton, Brian, to Scolar Press Limited, The. Means for photographi-
cally copying book pages, 3,635,557, Cl. 355-65.
- Alexander, Jack S.: See—
Abnett, Albert C.; and Alexander, Jack S., 3,636,338.
- Alignment Systems, Inc.: See—
Roodvoets, Roger J.; and Stapert, James, Jr., 3,634,941.
- Allard, Gordon H., to Applied Power Industries, Inc. Dual pump and
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- Allied Automation, Inc.: See—
James, Frazier N., Sr., 3,635,321.
- Allied Chemical Corporation: See—
Beckham, Leland J., 3,635,661.
- Howard, Carlton J.; and Port, Eugene B., 3,634,999.
- Jenks, Theodore E.; and Bittner, Edward R., 3,636,199.
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- Newall, Peter E.; and Cheema, Zafarullah K., 3,636,204.
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- Schaffhauser, Robert J.; and Mason, Charles D., 3,635,934.
- Snider, Orville E.; Loughlin, James E.; and Ortheil, Hans,
3,635,653.
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- Allis, Louis, Company, The: See—
Rettig, Charles E., 3,636,373.
- Alpert, Robert J., to Blessings, Inc. Disposable headrest cover,
3,635,523, Cl. 297-220.
- Alphamedics Mfg. Corporation: See—
Berman, Richard M.; Schwartz, Bernard; and Bethke, Lyman W.,
3,636,549.
- Alter, Henry L.: See—
Ingulli, Alfred F.; and Alter, Henry L., 3,636,140.
- Altherr, Russell George, to Amsted Industries Incorporated. Modified
pin hole for railway couplers, 3,635,357, Cl. 213-64.
- Altherr, Russell George, to Amsted Industries Incorporated. Coupler
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- Alton Box Board Company: See—
Hayes, William H., 3,635,361.
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Martyn Omar, to Fisons Pharmaceuticals Limited. Inhalation device,
3,635,219, Cl. 128-266.
- Aluminum Specialty Company: See—
Martin, Wesley G., 3,635,854.
- Ambraschka, Kasimir; and Bickl, Horst, to Agfa-Gevaert AG. Light
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- Amchem Products, Inc.: See—
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- American Brands, Inc.: See—
Black, J. Harold; Reed, Edward W.; and Stant, Vernon C.,
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- American Home Products Corporation: See—
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- American Hospital Supply Corporation: See—
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- American Optical Corporation: See—
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- Young, C. Gilbert, 3,636,473.
- American Plasticraft Company: See—
Simovits, Stephen S.; and Dumas, Christ J., 3,636,412.
- American Seating Company: See—
Van Loo, William R., 3,634,925.
- American Standard Inc.: See—
Harter, Donald G., 3,636,369.
- American Sterilizer Company: See—
Bellucci, Edward A.; and Winschel, Carl J., 3,635,461.
- AMF Incorporated: See—
Apple, Joseph H., 3,636,542.
- Holman, Rudolph G., 3,635,482.
- Ruben, Napoleon H.; and Tilburg, Holstof, 3,635,173.
- Amicon Corporation: See—
Splitz, Stephen A., 3,635,846.

Amidon, Charles H., Jr., to Gulf & Western Systems Company. Apparatus for washing fabric web. 3,635,054, Cl. 68-43.

AMP Incorporated: See—
Carter, Clyde Thomas, 3,636,497.
Poltonavage, Edward Michael, 3,636,505.

Amper Corporation: See—
Kowal, Leonard, 3,636,252.

Amrehn, Hermann, to Chemische Werke Huls Aktiengesellschaft. Method and system for the automatic control of chemical plants with parallel-connected computer back-up system. 3,636,331, Cl. 235-151.12

Amsted Industries Incorporated: See—
Altherr, Russell George, 3,635,357.
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AMVIT: See—
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Anderson, Carl C.: See—
Dowbenko, Rostyslaw; and Anderson, Carl C., 3,635,894.

Anderson, Carl M.: See—
Endress, James W.; and Anderson, Carl M., 3,635,041.

Anderson, Edward P.: See—
Stephens, Frank H., Jr.; Byrne, Paul B.; and Anderson, Edward P., 3,636,409.

Anderson, Malcolm J. Article holding apparatus. 3,635,433, Cl. 248-309.

Anderson, Vernon A., to United States of America, Navy. Power amplifier. 3,636,380, Cl. 307-261.

Ando, Noriyoshi: See—
Okamoto, Atutoshi; Ando, Noriyoshi; Toyama, Koichi; Sumiyoshi, Masaharu; Nakao, Hisaji; and Hisashi, Toyohashi, 3,635,531.

Ando, Seigo: See—
Shimotsuna, Teruo; Mori, Toshihiro; Sano, Kazuo; and Ando, Seigo, 3,635,085.

Andresen, Jens N.: See—
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Andress, Harry J., Jr.: See—
Gee, Paul Y. C.; and Andress, Harry J., Jr., 3,635,686.

Andrews, Malcolm C. Ash tray. 3,635,225, Cl. 131-236.

Angele, Henry, to Etablissements Valois. Spring-biased tilting valve. 3,635,379, Cl. 222-402.22

Angelo, Raymond W., and Houghtalen, Howard G., to International Business Machines Corporation. Apparatus and process for the removal of insulation from wire. 3,635,454, Cl. 263-3.

Angliker, Hans-Joerg: See—
Hegar, Gert; Angliker, Hans-Joerg; and Peter, Richard, 3,635,940.

Anketell, John E. Fluid dispensing club. 3,635,374, Cl. 222-78.

Anner, Georg; and Meystre, Charles, to Ciba-Geigy Corporation. Esters of steroid-17-carboxylic acids. 3,636,010, Cl. 260-397.1

Anner, Georg; and Wieland, Peter, to Ciba Corporation. 4-Oxo-19-nor-A-homo-steroid dienes and a process for their manufacture. 3,636,055, Cl. 260-340.9

Ansuini, Frank J.: See—
Badia, Frank A.; and Ansuini, Frank J., 3,635,702.

Anthes, John A.; and Vlnaty, Joseph, to Dravo Corporation. Apparatus for direct reduction of iron oxide compacts. 3,635,456, Cl. 266-19.

Anthony, Tad B., to Maytag Company, The. Control device for rotating apparatus. 3,635,318, Cl. 192-8.

Antonen, Robert C., to Dow Corning Corporation. Room temperature vulcanizable acetoxysiloxane block copolymer. 3,636,134, Cl. 260-825.

Aono, Yukinaga: See—
Yamagishi, Akio; Ishida, Takaharu; Aono, Yukinaga; and Kondo, Shigekatsu, 3,636,086.

Apotheker, David, to Du Pont de Nemours, E. I., and Company. Metal phosphinodithioates and bis (phosphinothioyl) disulfides as vulcanization accelerators. 3,635,920, Cl. 260-79.5

Apple, Joseph H., to AMF Incorporated. Portable photo-responsive intrusion alarm. 3,636,542, Cl. 340-258.

Applegate, Robert B. Non-corrosive battery cable connector. 3,636,504, Cl. 339-228.

Appleton, Arthur I. Emergency light circuit for mercury vapor lamps. 3,636,404, Cl. 315-87.

Applied Power Industries, Inc.: See—
Allard, Gordon H., 3,635,595.

Aqua-Mist, Incorporated: See—
Morrow, William B., 3,635,210.

Ara, Inc.: See—
Mzelsky, Bernard, 3,635,314.

Araki, Masae. Golf glove having a swing counter. 3,635,190, Cl. 116-120.

Archer, Sydney: See—
Fieser, Louis F.; Archer, Sydney; and Lorenz, Roman R., 3,636,009.

Archer, Sydney, to Sterling Drug Inc. 8-[2-(2-Substituted-3-indolyl)ethyl]-2-lower-alkyl-2,8-diazaspiro[4,5]-1,3-decane-diones. 3,635,991, Cl. 260-294.

Arches, Sydney: See—
Fieser, Louis F.; Arches, Sydney; and Lorenz, Roman R., 3,636,119.

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Everett, Samuel R.; Shear, Wayne G.; and Ardila, Jorge E., 3,636,336.

Armco Steel Corporation: See—
Follstaedt, Donald W.; and Burns, Robert S., 3,635,391.

Armentrout, Dean R.: See—
Krueger, Harvey R.; and Armentrout, Dean R., 3,635,080.

Armour Pharmaceutical Company: See—
Enkoji, Takashi; and Bossinger, Charles D., 3,636,220.

Armstrong, Stanley E. Magnetic loom braking device. 3,636,375, Cl. 307-114.

Armstrong, Thaddeus J.; and Ohlhaber, Jon, to Continental Can Company, Inc. Electrically heated compound molding machine. 3,635,619, Cl. 425-112.

Arnold, Donald R.; and Sousa, Anthony A., to Union Carbide Corporation. Mildewcidal composition and method of use. 3,636,217, Cl. 424-263.

Arnold, Karl: See—
Hetmann, Richard; Stotz, Erich; Asel, Ludwig; and Arnold, Karl, 3,635,303.

Arnold, Nancy Hazlett: See—
Mc Cormick, Jerry Robert Daniel; and Arnold, Nancy Hazlett, 3,636,081.
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Arrow-Hart, Inc.: See—
Hafer, Paul M., 3,636,237.

Arthur, John R., Jr.; and Wagner, Richard S., to Bell Telephone Laboratories, Incorporated. Growth of needle-like VLS crystals. 3,635,753, Cl. 117-106.

Artin, Robert L.: See—
Petroske, Robert P.; Artin, Robert L.; and Meyer, Donald R., 3,635,270.

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Brake, Loren D., to Du Pont de Nemours, E. I., and Company. Catalytic hydrogenation of aromatic nitrogen containing compounds over alkali moderated ruthenium. 3,636,108, Cl. 260-563.

Bramhall, Inc.: See—
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Braun, Harry J.; and Dunn, Stanley A. De-inking and removal of certain contaminants from reclaimed paper stock-heavily. 3,635,788, Cl. 162-4.

Breece, Burton W.; and Summerer, Raymond Edwin, to General Motors Corporation. Vehicle low coolant level indicating device. 3,636,509, Cl. 340-59.

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- Colby, Richard H., to General Electric Company. Bolt accelerator. 3,635,123, Cl. 89-169.
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- Gubler, Kurt; and Kristiansen, Odd, to Ciba-Geigy Corporation. O-(Thiocarbamoyl-pyridyl) phosphates and phosphorothioates. 3,636,987, Cl. 260-294.8
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- Weedon, Gene C.; and Mumford, Robin B., to Allied Chemical Corporation. Polyamides having enhanced resistance to light degradation. 3,635,911, Cl. 260-78.
- Wehner, Donald R., to United States of America, Navy. High-range resolution radar target matched filter. 3,636,562, Cl. 343-5.
- Wehrman, Jesse, to Petro-Tex Chemical Corporation. Color stabilizer for maleic anhydride. 3,636,057, Cl. 260-346.8
- Weil, Edward D.; Stamm, Walter; and Mirviss, Stanley B., to Stauffer Chemical Company. Polymerizable derivative of nitrilotriacetic acid. 3,636,083, Cl. 260-482.
- Weinberger, Lester, to Xerox Corporation. Photoelectrophoretic imaging pigment composition and process. 3,635,981, Cl. 260-279.
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- Weir, Samuel R.: See—
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Brasher, Donald W. to Hamilton Watch Co. Watch calendar mechanism. Re. 27,278, 1-18-72, Cl. 58—58.
Dajani, Mahmoud T. to Nalco Chemical Co. Water clarification process. Re. 27,275, 1-18-72, Cl. 210—54.
Erickson, Karl H. to Amerock Corp. Appliance latch. Re. 27,276, 1-18-72, Cl. 292—113.
Hamilton Watch Co.: See—
Brasher, Donald W. Re. 27,278.
Mollins Ltd.: See—
Williamson, David T. N. Re. 27,277.
Nalco Chemical Co.: See—
Dajani, Mahmoud T. Re. 27,275.
Williamson, David T. N. to Mollins Ltd. Manufacture of hollow articles. Re. 27,277, 1-18-72, Cl. 73—038.

LIST OF DESIGN PATENTEES

Adkinson, Joseph E. Dresser. 222,864, 1-18-72, Cl. D33—6.
Adomaitis, Domas, and H. M. Turner, to Continental Can Co., Inc. Bottle or similar article. 222,851, 1-18-72, Cl. D9—111.
Ashby, Frederick R. and D. F. Duebs, to U.S. Plywood-Champion Papers Inc. Wall paneling. 222,856, 1-18-72, Cl. D13—1.
Ball, Douglas C., to Massey-Ferguson Industries Ltd. File cart with tambour covers. 222,866, 1-18-72, Cl. D33—19.
Bauer, Robert C.: See—
Kamrath, Richard H., Harrison, and Bauer. 222,855.
Bearinger, Wells S., to Empire Stove Co. Outdoor stove for recreation areas. 222,870, 1-18-72, Cl. D81—10.
Bombardier Ltd.: See—
MacKeen, Anthony; and La Pointe. 222,858.
Delisle, Pierre A., and La Pointe. 222,859.
Carpenter, Herbert R., to Seaquist Valve Co. Over cap for a pressurized can. 222,853, 1-18-72, Cl. D9—258.
Christopher, Joyce H.: See—
Libby, Erin, and Christopher. 222,867.
Continental Can Co., Inc.: See—
Adomaitis, Domas; and Turner. 222,851.
Cook, William J., to General Electric Co. Dental irrigator. 222,862, 1-18-72, Cl. D24—1.
Coy, Romaine B. Tool holder. 222,865, 1-18-72, Cl. D33—17.
Delisle, Pierre A., and Y. A. La Pointe, to Bombardier Ltd. Vehicle body. 222,859, 1-18-71, Cl. D14—24.
Dental Products, Inc.: See—
Von Grossmann, Karl G. 222,863.
Eaton, Yale & Towne, Inc.: See—
Satterfield, Rigby C. 222,857.
Empire Stove Co.: See—
Bearinger, Wells S. 222,870.
Franc, Christian: See—
Koenig, Gustav, Franz, and Huebner. 222,861.
General Electric Co.: See—
Cook, William J. 222,862.
Gilford, Ira B., and A. W. B. Nash, to Mattel, Inc. Toy truck. 222,868, 1-18-72, Cl. D34—15.
Goings, Hartford, E. Disposable food serving tray. 222,852, 1-18-72, Cl. D9—185.
Gustav-Koenig Unternehmensberatung: See—
Koenig, Gustav, Franz, and Huebner. 222,861.
Harrison, Francis L.: See—
Kamrath, Richard H., Harrison, and Bauer. 222,855.
Hassinger, Donald F., to Pure Stat Corp. Water faucet attachment for improving the taste of drinking water. 222,860, 1-18-72, Cl. D23—35.
Heaver, Philip A. Automobile radiator cap tool. 222,849, 1-18-72, Cl. D8—21.
Huebner, Peter: See—
Koenig, Gustav, Franz, and Huebner. 222,861.
Jones, Elwyn: See—
Zeop, Kenneth H., White, and Jones. 222,850.
Kamrath, Richard H., F. L. Harrison, and R. C. Bauer, to U.S. Plywood-Champion Papers Inc. Wall paneling. 222,855, 1-18-72, Cl. D13—1.
Koenig, Gustav, C. Franz, and P. Huebner, to Gustav-Koenig Unternehmensberatung. Combined wash-basin and cabinet. 222,861, 1-18-72, Cl. D23—59.
La Pointe, Yves A.: See—
MacKeen, Anthony; and La Pointe. 222,858.
Delisle, Pierre A., and La Pointe. 222,859.
Libby, Erin, and J. H. Christopher, to Mattel, Inc. Figure toy. 222,867, 1-18-72, Cl. D34—4.
Luebs, Donald F.: See—
Ashby, Frederick R. and Luebs. 222,856.
MacKeen, Anthony, and Y. A. La Pointe, to Bombardier Ltd. Snowmobile seat. 222,858, 1-18-72, Cl. D14—24.
Massey-Ferguson Industries Ltd.: See—
Ball, Douglas C. 222,866.
Mattel, Inc.: See—
Gilford, Ira B., and Nash. 222,868.
Libby, Erin, and Christopher. 222,867.
Nash, Alan W. B.: See—
Gilford, Ira B., and Nash. 222,868.
Pure Stat Corp.: See—
Hassinger, Donald F. 222,860.
Satterfield, Rigby C., to Eaton, Yale & Towne, Inc. Industrial vehicle. 222,857, 1-18-72, Cl. D14—3.
Seaquist Valve Co.: See—
Carpenter, Herbert R. 222,853.
Turner, Howard M.: See—
Adomaitis, Domas, and Turner. 222,851.
U.S. Plywood-Champion Papers Inc.: See—
Kamrath, Richard H., Harrison, and Bauer. 222,855.
Ashby, Frederick R., and Luebs. 222,856.
Vasel, Melvin L. Gas meter cover. 222,869, 1-18-72, Cl. D52—6.
Von Grossmann, Karl G., to Dental Products, Inc. Dental cotton roll holder. 222,863, 1-18-71, Cl. D24—1.
Weiss, Donald J. Patio room. 222,854, 1-18-72, Cl. D13—1.
White, James C.: See—
Zeop, Kenneth H., White, and Jones. 222,850.

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CLASSIFICATION OF PATENTS

ISSUED JANUARY 18, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	577	3,634,929	31	3,634,994	59	3,635,691	418	3,635,120	232	3,635,159								
2.5	3,634,889	589	3,634,931	38	3,634,995	97	3,635,692	464	3,635,121	247	3,635,160							
CLASS 4	596	3,634,932	61	3,634,996	CLASS 72	477R	3,635,122	364	3,635,161	CLASS 102	7.6	3,635,162						
10	3,634,891	603	3,634,933	127	3,634,997	8	3,635,059	CLASS 89	169	3,635,123	64	3,635,163						
172.21	3,634,892	630C	3,634,934	CLASS 30	32	3,634,998	63	3,635,061	CLASS 90	3,635,124	CLASS 104	1	3,635,164					
37R	3,634,893	41.5	3,634,935	72	3,634,999	102	3,635,062	11C	3,635,125	CLASS 91	1	3,635,165						
100	3,634,894	43.92	3,634,936	89	3,635,000	130	3,635,063	55	3,635,126	CLASS 92	57	3,635,166						
345	3,634,895	CLASS 32	274	3,635,001	214	3,635,064	329	3,635,066	161	3,635,127	CLASS 105	4R	3,635,168					
354	3,634,896	1	3,634,937	315	3,635,002	239	3,635,066	342	3,635,068	CLASS 93	133	3,635,169						
4	3,635,632	27	3,634,938	344	3,635,003	329	3,635,067	345	3,635,069	1R	3,635,128	282	3,635,170					
21	3,635,633	CLASS 33	235	3,635,004	327R	3,635,005	376	3,635,070	51R	3,635,129	CLASS 106	39DY	3,635,171					
94.26	3,635,635	ISC	3,634,939	58.32	3,635,007	58.32	3,635,007	457	3,635,072	13	3,635,130	59	3,635,172					
142	3,635,636	49B	3,634,940	77.4	3,635,008	77.4	3,635,008	457	3,635,072	46	3,635,131	213	3,635,173					
1R	3,634,897	74D	3,634,941	50	3,635,006	50	3,635,006	453	3,635,071	48	3,635,132	287	3,635,174					
6	3,634,898	150	3,634,942	58.32	3,635,007	58.32	3,635,007	457	3,635,072	49	3,635,133	288B	3,635,175					
CLASS 13	12	3,634,944	142	3,634,972	CLASS 58	3,635,011	38	Re. 27,277	50	3,635,134	288Q	3,635,176						
12	3,636,227	60	3,634,947	41A	3,635,011	58	Re. 27,278	88.5R	3,635,077	10A	3,635,135	129	3,635,177					
25	3,636,228	156	3,634,948	58	Re. 27,278	58	Re. 27,278	88.5	3,635,076	11R	3,635,136	136	3,635,178					
CLASS 15	174	3,634,949	58	3,635,013	59	3,635,012	89	3,635,078	12	3,635,137	150	3,635,179						
4	3,634,899	CLASS 35	5	3,634,950	107	3,635,013	145	3,635,080	13	3,635,138	CLASS 110	8A	3,635,176					
84	3,634,900	34	3,636,230	19	3,635,014	23	3,635,015	194M	3,635,082	15	3,635,140	8R	3,635,175					
118	3,634,901	41	3,634,951	23	3,635,015	24	3,635,016	231M	3,635,083	53E	3,635,142	79R	3,635,177					
250.42	3,634,902	48A	3,634,952	24	3,635,017	39.09R	3,635,018	343R	3,635,086	53	3,635,141	132	3,635,178					
340	3,634,903	48B	3,634,952	39.09R	3,635,018	39.16	3,635,019	343.5	3,635,087	89R	3,635,144	158B	3,635,179					
350	3,634,905	7.3	3,634,954	39.16	3,635,019	51	3,635,020	355R	3,635,088	97	3,635,143	252	3,635,180					
434	3,634,906	CLASS 37	126	3,634,955	51	3,635,020	52US	3,635,021	395	3,635,089	CLASS 96	3,635,145						
123	3,634,907	CLASS 38	66	3,634,957	53R	3,635,022	53R	3,635,022	398R	3,635,090	1.5	3,635,150						
11	3,634,908	1R	3,634,956	54	3,635,026	54.6A	3,635,028	421.5R	3,635,092	1.7	3,635,151	158B	3,635,179					
73	3,634,909	66	3,634,957	54.6A	3,635,028	54.6E	3,635,028	423A	3,635,094	3	3,635,152	252	3,635,180					
CLASS 23	68	3,634,958	54.6E	3,635,028	54.6E	3,635,028	224	3,635,029	423A	3,635,094	33	3,635,153	CLASS 114	.SF	3,635,181			
2R	3,635,637	106.53	3,634,959	54.6E	3,635,028	224	3,635,029	423A	3,635,094	35.1	3,635,154	.5	3,635,182					
19R	3,635,638	125J	3,634,961	224	3,635,029	251	3,635,030	505	3,635,095	48	3,635,155	16R	3,635,183					
88	3,635,639	125K	3,634,960	251	3,635,030	321	3,635,031	505	3,635,095	67	3,635,156	51	3,635,184					
107	3,635,641	CLASS 42	IN	3,634,963	321	3,635,031	10.33	3,635,096	2	3,635,096	85	3,635,157	57	3,635,186				
108	3,635,640	CLASS 44	10R	3,635,684	IF	3,635,032	110	3,635,098	110	3,635,098	87A	3,635,158	210	3,635,187				
110R	3,635,642	62	3,635,685	62	3,635,685	4	3,635,033	110	3,635,098	110	3,635,098	87A	3,635,158	CLASS 115	6.1	3,635,188		
112	3,635,643	68	3,635,686	68	3,635,686	35	3,635,034	110	3,635,098	110	3,635,098	87A	3,635,158	CLASS 116	114	3,635,189		
126	3,635,644	CLASS 46	IE	3,634,964	72.1	3,635,036	35	3,635,099	110	3,635,098	110	3,635,098	87A	3,635,158	120	3,635,190		
129	3,635,645	62	3,635,685	62	3,635,685	35	3,635,034	110	3,635,098	110	3,635,098	87A	3,635,158	CLASS 117	3.1	3,635,191		
134	3,635,646	68	3,635,686	68	3,635,686	35	3,635,034	110	3,635,098	110	3,635,098	87A	3,635,158	3.1	3,635,191			
147	3,635,647	CLASS 48	37	3,634,970	137	3,635,043	137	3,635,043	130.5	3,635,099	110	3,635,098	87A	3,635,158	3.1	3,635,191		
165	3,635,649	37	3,634,970	137	3,635,043	137	3,635,043	130.5	3,635,099	110	3,635,098	87A	3,635,158	3.1	3,635,191			
183	3,635,650	383	3,634,962	266	3,635,045	266	3,635,045	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191			
202R	3,635,651	460	3,634,971	305	3,635,046	305	3,635,046	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191			
204M	3,635,652	CLASS 51	2R	3,634,973	29	3,635,047	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191		
205	3,635,653	35	3,634,974	35	3,634,974	35	3,634,974	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
208	3,635,654	165.71	3,634,976	165.71	3,634,976	165.71	3,634,976	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
209.1	3,635,655	165.8	3,634,977	165.8	3,634,977	165.8	3,634,977	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
209.4	3,635,656	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
230B	3,635,657	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
230R	3,635,658	241B	3,634,981	241B	3,634,981	241B	3,634,981	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
253R	3,635,659	394	3,634,982	394	3,634,982	394	3,634,982	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191	
288R	3,635,660	CLASS 52	36	3,634,983	101	3,634,984	101	3,634,984	101	3,634,984	101	3,634,984	101	3,634,984	101	3,634,984	101	3,634,984
294	3,635,661	126	3,634,985	126	3,634,985	126	3,634,985	126	3,634,985	126	3,634,985	126	3,634,985	126	3,634,985	126	3,634,985	
69SK	3,634,910	316	3,634,986	316	3,634,986	316	3,634,986	316	3,634,986	316	3,634,986	316	3,634,986	316	3,634,986	316	3,634,986	
90.5	3,634,911	476	3,634,987	476	3,634,987	476	3,634,987	476	3,634,987	476	3,634,987	476	3,634,987	476	3,634,987	476	3,634,987	
132WL	3,634,912	489	3,634,988	489	3,634,988	489	3,634,988	489	3,634,988	489	3,634,988	489	3,634,988	489	3,634,988	489	3,634,988	
201	3,634,913	165.87	3,634,977	165.87	3,634,977	165.87	3,634,977	165.87	3,634,977	165.87	3,634,977	165.87	3,634,977	165.87	3,634,977	165.87	3,634,977	
205.13	3,634,914	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	165.92	3,634,978	
CLASS 29	3,634,915	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	215CP	3,634,980	
10	3,634,917	241B	3,634,981	241B	3,634,981	241B	3,634,981	241B	3,634,981	241B	3,634,981	241B	3,634,981	241B	3,634,981	241B	3,634,981	
103	3,634,918	394	3,634,982	394	3,634,982	394	3,634,982	394	3,634,982	394	3,634,982	394	3,634,982	394	3,634,982	394	3,634,982	
199	3,634,890	CLASS 53	33	3,634,993	1	3,635,690	3	3,635,104	135	3,635,100	110	3,635,098	87A	3,635,158	3.1	3,635,191		
203L	3,634,919	36	3,634,983	128	3,635,051	128	3,635,051	149	3,635,110	183	3,635,111	402	3,635,112	406	3,635,114	578	3,635,113	
208F	3,634,920	101	3,634,984	146	3,635,052	146	3,635,052	402	3,635,112	406	3,635,114	578	3,635,113	696	3,635,115	1.23	3,636,231	
237	3,634,921	126	3,634,985	4	3,635,053	4	3,635,053	406	3,635,114	578	3,635,113	696	3,635,115	1.24	3,636,232	291	3,635,116	
410	3,634,922	316	3,634,986	43	3,635,054	43	3,635,054	578	3,635,113	696	3,635,115	1.23	3,636,231	291	3,635,116	380	3,635,117	
426	3,634,923	476	3,634,987	131	3,635,055	131	3,635,055	578	3,635,113	696	3,635,115	1.23	3,636,231	291	3,635,116	397	3,635,118	
447	3,634,924	489	3,634,988	189	3,635,056	189	3,635,056	578	3,635,113	696	3,635,115	1.23	3,636,231	291	3,635,116	411	3,635,119	
458	3,634,925	584	3,634,989	424	3,635,057	424	3,635,057	578	3,635,113	696	3,635,115	1.23	3,636,231	291	3,635,116	397	3,635,118	
477	3,634,926	593	3,634,990	459														

CLASSIFICATION OF PATENTS

13	CLASS 125	410	3,635,274	100.2C	3,636,274	121	3,635,339	61.11D	3,636,313	CLASS 251	31	3,635,436									
21	3,635,206	429	3,635,275	100.2T	3,636,275	130	3,635,340	61.11E	3,636,316	31	3,635,437	77.5AA	3,635,904								
	3,635,207							61.12M	3,636,318	48	3,635,438	77.5AM	3,635,908								
		CLASS 156	17	3,635,774	100.2Z	3,636,276	2	3,635,816	61.12N	137	3,635,439	77.5R	3,635,909								
23A	3,635,208	315	3,635,776	115.SPV	3,636,278	26	3,635,817	61.6R	3,636,314	315	3,635,439	78A	3,635,913								
39H	3,635,209	429	3,635,775	115.SPV	3,636,278	31C	3,635,818	61.7B	3,636,315	8.1	3,635,821	78B	3,635,914								
113	3,635,210	499	3,635,777	136	3,636,280	40	3,635,819	70R	3,635,396	8.5A	3,635,822	78C	3,635,915								
121	3,635,211	500	3,635,778	175.3	3,636,280	54	Re.27.275	78	3,635,397	32.5	3,635,823		3,635,916								
		542	3,635,779	181W	3,636,281	61	3,635,820	88	3,635,398	75	3,635,825		3,635,917								
	CLASS 128	583	3,635,780			75	3,635,341	92EA	3,636,319	79.4	3,635,826		3,635,918								
2R	3,635,213			CLASS 159	14A	3,635,300	84	3,635,342	95	3,636,320	89	3,635,827		3,635,919							
2	3,635,212	29	3,635,276			104	3,635,343	105	3,635,399	99	3,635,828		3,635,920		3,635,921						
2.08	3,635,214			CLASS 160	44R	3,635,301	104	3,635,344	150.1	3,636,322	156	3,635,830		3,635,922		3,635,923					
130	3,635,215	191	3,635,277			75	3,635,303	198C	3,635,345	150.2	3,636,321	301.1R	3,635,831		3,635,924		3,635,925				
142.5	3,635,216	206	3,635,278	CLASS 161	79	3,635,304	208	3,635,346	150.25	3,636,323	301.3R	3,635,832		3,635,926		3,635,927					
143.5	3,635,217					90	3,635,305	232	3,635,347	150.27	3,636,324	301.4R	3,635,833		3,635,928		3,635,929				
231	3,635,218	6	3,635,781			110	3,635,306	527	3,635,349	151	3,636,325	314	3,635,834		3,635,930		3,635,931				
266	3,635,219	7	3,635,782	CLASS 181	31B	3,635,307			151.1	3,636,328	315	3,635,835		3,635,932		3,635,933					
276	3,635,220	43	3,635,784			313C	3,635,308	CLASS 211	3,635,353	151.12	3,636,326	316	3,635,836		3,635,934		3,635,935				
290	3,635,221	50	3,635,785	CLASS 184	36	3,635,309	42	3,635,350		3,635,351	317	3,635,837		3,635,936		3,635,937					
304	3,635,222	121	3,635,787			55	3,635,309	47	3,635,352	151.33	3,636,327	415	3,635,838		3,635,938		3,635,939				
348	3,635,223			CLASS 162	3R	3,635,310	177	3,635,354		3,635,355	155	3,636,329	429B	3,635,839		3,635,940		3,635,941			
419P	3,635,224	4	3,635,788			11A	3,635,311	183	3,635,355	156	3,636,334	430	3,635,840		3,635,942		3,635,943				
		30	3,635,790	CLASS 164	11R	3,635,312			CLASS 213	193	3,636,332	512	3,635,841		3,635,944		3,635,945				
		49	3,635,279			29	3,635,313	64	3,635,356	197	3,636,336	526	3,635,842		3,635,946		3,635,947				
		246	3,635,280	CLASS 187	8.62	3,635,794	69	3,635,358		3,636,337	93R	3,635,440		3,635,948		3,635,949		3,635,950			
		258	3,635,281			1C	3,635,314	CLASS 214	3,635,359	15	3,635,400	138	3,635,441		3,635,951		3,635,952		3,635,953		
		404	3,635,281	CLASS 188	10.5R	3,635,315	8.5F	3,635,360		3,635,401	168	3,635,442		3,635,954		3,635,955		3,635,956			
				CLASS 165	38A	3,635,362	10.5R	3,635,361	CLASS 239	18	3,635,402		3,635,957		3,635,958		3,635,959		3,635,960		
		11	3,635,282			52C	3,635,363	90	3,635,403	265.15	3,635,404	22	3,635,443		3,635,961		3,635,962		3,635,963		
		37	3,635,283	CLASS 192	3	3,635,316	138	3,635,364		3,635,405	478.5	3,635,406	54	3,635,444		3,635,964		3,635,965		3,635,966	
		51	3,635,285			4A	3,635,317	515	3,635,366	514	3,635,407	107	3,635,445		3,635,967		3,635,968		3,635,969		
		108	3,635,286	CLASS 194	8R	3,635,318	778	3,635,365		3,635,408	108	3,635,446		3,635,970		3,635,971		3,635,972		3,635,973	
		134	3,635,287			28	3,635,319	CLASS 215	3,635,367		3,635,409	179	3,635,447		3,635,974		3,635,975		3,635,976		
		156	3,635,288	CLASS 196	107M	3,635,320	100A	3,635,367		3,635,410		3,635,448		3,635,977		3,635,978		3,635,979		3,635,980	
		295	3,635,289			4C	3,635,321	CLASS 219	3,635,368		3,635,411		3,635,981		3,635,982		3,635,983		3,635,984		
				CLASS 169	2	3,635,290	60A	3,635,369	CLASS 220	10.49	3,635,369	2BP	3,635,842		3,635,985		3,635,986		3,635,987		
		1	3,635,291			28R	3,635,370	69C	3,635,370	7.1LJ	3,635,370	2N	3,635,843		3,635,988		3,635,989		3,635,990		
		573	3,635,291	CLASS 172	56	3,635,291	69S	3,635,371		3,635,372	9R	3,635,844		3,635,991		3,635,992		3,635,993		3,635,994	
				CLASS 173	103.5	3,635,292	108	3,635,372	CLASS 241	1	3,635,408	2.3AB	3,635,845		3,635,994		3,635,995		3,635,996		
		132	3,635,292			31AA	3,635,322	121P	3,635,373	43	3,635,409	2.3AM	3,635,846		3,635,997		3,635,998		3,635,999		
				CLASS 174	33AA	3,635,323	201	3,635,374		3,635,410	56	3,635,410	2.3FP	3,635,847		3,635,999		3,636,000		3,636,001	
		16B	3,635,293			33	3,635,323	271	3,635,375	CLASS 242	1	3,635,411		3,636,002		3,636,003		3,636,004		3,636,005	
		36	3,635,294	CLASS 195	32	3,635,326	201	3,635,376		3,635,412	20	3,635,412	2.5R	3,635,848		3,636,006		3,636,007		3,636,008	
		50.36	3,635,295			126	3,635,327	361	3,635,377	20	3,635,413	8	3,635,849		3,636,009		3,636,010		3,636,011		
		66	3,635,296	CLASS 198	32	3,635,328	361	3,635,378		3,635,414	54	3,635,414	17R	3,635,850		3,636,011		3,636,012		3,636,013	
		68B	3,635,297			161	3,635,329	361	3,635,379	55.19A	3,635,415	17.4SG	3,635,851		3,636,013		3,636,014		3,636,015		
		87	3,635,298	CLASS 200	16R	3,635,298	439	3,635,380	CLASS 243	1	3,635,416	22M	3,635,852		3,636,015		3,636,016		3,636,017		
		92	3,635,299			51R	3,635,299	452	3,635,381		3,635,417	22R	3,635,853		3,636,017		3,636,018		3,636,019		
		128	3,635,300	CLASS 175	61.48	3,635,299	501	3,635,382		3,635,418	78.8	3,635,418	23.7R	3,635,854		3,636,019		3,636,020		3,636,021	
						67DA	3,635,299	522	3,635,383	118.6	3,635,419	27BB	3,635,855		3,636,021		3,636,022		3,636,023		
		4.5	3,635,299	CLASS 176	69	3,635,299	523	3,635,384	CLASS 244	1	3,635,420	27	3,635,856		3,636,023		3,636,024		3,636,025		
		257	3,635,299			83SA	3,635,299	523	3,635,385		3,635,421	28.5AS	3,635,857		3,636,025		3,636,026		3,636,027		
		404	3,635,299	CLASS 177	83D	3,635,299	42B	3,635,386		3,635,422	118.8	3,635,422	28.5AS	3,635,858		3,636,027		3,636,028		3,636,029	
				CLASS 178	83P	3,635,299	46R	3,635,387	CLASS 245	1	3,635,423	198	3,635,423		3,636,029		3,636,030		3,636,031		
		32	3,635,299			144B	3,635,299	69	3,635,388		3,635,424		3,635,859		3,636,031		3,636,032		3,636,033		
		87	3,635,299	CLASS 179	166BG	3,635,299	69	3,635,389	CLASS 246	1	3,635,425		3,635,860		3,636,033		3,636,034		3,636,035		
						166D	3,635,299	3	3,635,390		3,635,426		3,635,861		3,636,035		3,636,036		3,636,037		
		3	3,635,299	CLASS 202	57	3,635,299	57	3,635,391		3,635,427		3,635,862		3,636,037		3,636,037		3,636,038		3,636,039	
		5	3,635,299			83	3,635,299	78	3,635,392		3,635,428		3,635,863		3,636,039		3,636,040		3,636,041		
		210	3,635,299	CLASS 203	94	3,635,299	94	3,635,393	CLASS 247	1	3,635,429		3,635,864		3,636,041		3,636,042		3,636,043		
						10	3,635,300	107	3,635,394		3,635,430		3,635,865		3,636,043		3,636,044		3,636,045		
		3	3,635,299	CLASS 204	145	3,635,300	145	3,635,395		3,635,431		3,635,866		3,636,045		3,636,046		3,636,047		3,636,048	
		5.2R	3,635,299			333	3,635,301	402.22	3,635,396		3,635,432		3,635,867		3,636,047		3,636,048		3,636,049		
		5.4CR	3,635,299	CLASS 205	484	3,635,301	484	3,635,397		3,635,433		3,635,868		3,636,049		3,636,049		3,636,050		3,636,051	
		5.4MA	3,635,299			56R	3,635,302	56R	3,635,398		3,635,434		3,635,869		3,636,051		3,636,051		3,636,052		3,636,053
		5.4ST	3,635,299	CLASS 206	128	3,635,302	128	3,635,399		3,635,435		3,635,870		3,636,052		3,636,052		3,636,053		3,636,054	
		6	3,635,299			143R	3,635,303	1	3,635,381		3,635,436		3,635,871		3,636,053		3,636,054		3,636,055		3,636,056
		6.5	3,635,299	CLASS 20																	

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CLASS 352	CLASS 402	187	3,635,588	94	3,636,201	133	3,635,624
79 3,635,548	17 3,635,568	193	3,635,589	100	3,636,193	135	3,635,625
91 3,635,549	CLASS 408	223	3,635,590	115	3,636,194	136	3,635,626
CLASS 353	35 3,635,569	CLASS 417			3,636,195	141	3,635,627
21 3,635,550	43 3,635,570	53 3,635,599	121	3,636,197	273	3,636,225	151 3,635,628
101 3,635,551	97 3,635,571	62 3,635,600	122	3,636,198	274	3,636,221	173 3,635,629
CLASS 355	181 3,635,572	191 3,635,601	154	3,636,200		3,636,226	175 3,635,630
3 3,635,553	186 3,635,573	201 3,635,602	183	3,636,202	CLASS 425		200 3,635,631
8 3,635,554	197 3,635,574	282 3,635,603	195	3,636,203	3	3,635,609	223 3,635,632
3,635,555	CLASS 415	304 3,635,604	211	3,636,204	11	3,635,610	297 3,635,633
16 3,635,556	1 3,635,575	315 3,635,605		3,636,205	47	3,635,611	302 3,635,634
65 3,635,557	65 3,635,576	360 3,635,606	219	3,636,206	60	3,635,612	325 3,635,635
72 3,635,558	79 3,635,577	394 3,635,607	229	3,636,207	62	3,635,613	326 3,635,636
85 3,635,559	90 3,635,578	410 3,635,591		3,636,208	71	3,635,614	363 3,635,637
86 3,635,560	119 3,635,579	413 3,635,592	238	3,636,209		3,635,615	373 3,635,638
CLASS 356	150 3,635,580	417 3,635,593	240	3,636,210	77	3,635,616	384 3,635,639
85 3,635,561	169 3,635,581	420 3,635,594	244	3,636,211	78	3,635,617	445 3,635,640
106 3,635,562	170 3,635,582	426 3,635,595	245	3,636,212	109	3,635,618	461 3,635,641
112 3,635,563	CLASS 416	459 3,635,596		3,636,213	112	3,635,619	470 3,635,642
114 3,635,564	48 3,635,583	568 3,635,597	258	3,636,214	113	3,635,620	CLASS 431
128 3,635,565	3,635,584	571 3,635,598	263	3,636,215		3,635,621	9 3,635,644
153 3,635,566	96 3,635,585	CLASS 424		3,636,216			67 3,635,645
170 3,635,567	97 3,635,586	89 3,636,191	265	3,636,217			89 3,635,646
132 3,635,567	3,635,587	92 3,636,192	267	3,636,218	116	3,635,622	95 3,635,647
				3,636,219	123	3,635,623	170 3,635,648
				3,636,222			269 3,635,649
							278 3,635,650
							328 3,635,651

CLASSIFICATION OF DESIGNS

D 8— 21 222,849	258 222,853	D14— 3 222,857	59 222,861	17 222,865	15 222,868
D 9— 1 222,850	D13— 1 222,854	24 222,858	1 222,862	19 222,866	6 222,869
111 222,851	222,855	222,859	222,863	D34— 4 222,867	D81— 10 222,870
185 222,852	222,856	D23— 35 222,860	D33— 13 222,864		

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PATENTS

1 : 3,636,154	3,635,338	3,636,087	3,634,908	3,635,631	3,634,961
2 : 3,635,424	3,635,345	3,636,091	3,634,922	3,635,851	3,634,963
4 : 3,635,035	3,635,350	3,636,101	3,634,926	3,635,906	3,635,050
3,635,114	3,635,351	3,636,162	3,634,942	3,635,912	3,635,068
3,635,428	3,635,359	3,636,206	3,634,943	3,635,919	3,635,080
3,635,492	3,635,375	3,636,212	3,635,012	3,635,920	3,635,126
3,635,896	3,635,380	3,636,250	3,635,065	3,635,926	3,635,128
3,636,377	3,635,414	3,636,268	3,635,093	3,635,935	3,635,150
3,636,510	3,635,469	3,636,278	3,635,097	3,635,005	3,635,157
3,636,541	3,635,470	3,636,280	3,635,322	3,636,054	3,635,168
3,636,550	3,635,472	3,636,289	3,635,370	3,636,082	3,635,170
3,636,553	3,635,480	3,636,299	3,635,372	3,636,108	3,635,232
6 : 3,634,891	3,635,482	3,636,314	3,635,398	3,636,122	3,635,236
3,634,903	3,635,490	3,636,323	3,635,543	3,636,136	3,635,269
3,634,904	3,635,499	3,636,333	3,635,544	Re.27,275	3,635,277
3,634,911	3,635,500	3,636,334	3,635,567	3,634,958	3,635,297
3,634,914	3,635,511	3,636,353	3,635,602	3,634,987	3,635,330
3,634,924	3,635,526	3,636,359	3,635,628	3,634,989	3,635,331
3,634,939	3,635,529	3,636,361	3,635,630	3,634,996	3,635,356
3,634,953	3,635,534	3,636,376	3,635,632	3,635,072	3,635,357
3,634,969	3,635,537	3,636,400	3,635,682	3,635,129	3,635,360
3,634,985	3,635,556	3,636,414	3,635,790	3,635,237	3,635,363
3,634,990	3,635,563	3,636,450	3,635,811	3,635,462	3,635,394
3,635,015	3,635,565	3,636,451	3,635,825	3,635,649	3,635,397
3,635,016	3,635,571	3,636,456	3,635,837	3,635,661	3,635,437
3,635,027	3,635,576	3,636,469	3,635,881	3,635,816	3,635,447
3,635,075	3,635,599	3,636,479	3,635,947	3,636,070	3,635,455
3,635,105	3,635,610	3,636,493	3,635,961	3,636,096	3,635,476
3,635,106	3,635,622	3,636,496	3,635,972	3,636,100	3,635,478
3,635,112	3,635,640	3,636,502	3,635,979	3,636,201	3,635,494
3,635,118	3,635,659	3,636,528	3,636,027	3,636,215	3,635,495
3,635,130	3,635,666	3,636,530	3,636,028	3,636,266	3,635,501
3,635,137	3,635,669	3,636,535	3,636,029	3,636,281	3,635,506
3,635,145	3,635,671	3,636,536	3,636,049	3,636,336	3,635,515
3,635,188	3,635,678	3,636,545	3,636,061	3,636,362	3,635,528
3,635,189	3,635,690	3,636,546	3,636,104	3,636,383	3,635,548
3,635,195	3,635,728	3,636,547	3,636,117	3,636,391	3,635,551
3,635,207	3,635,737	3,636,559	3,636,145	3,636,395	3,635,619
3,635,212	3,635,781	3,636,562	3,636,146	3,636,480	3,635,650
3,635,216	3,635,794	3,635,092	3,636,147	3,635,177	3,635,696
3,635,228	3,635,799	3,635,140	3,636,261	3,635,258	3,635,724
3,635,245	3,635,808	3,635,166	3,636,279	3,635,673	3,635,726
3,635,265	3,635,813	3,635,512	3,636,473	3,635,779	3,635,734
3,635,283	3,635,869	3,635,516	3,636,474	3,636,457	3,635,780
3,635,290	3,635,891	3,635,550	3,636,494	3,636,460	3,635,815
3,635,299	3,635,937	3,635,581	3,636,540	3,635,471	3,635,820
3,635,308	3,635,994	3,636,124	3,636,557	3,635,729	3,635,823
3,635,314	3,636,036	3,636,312	3,635,086	Re.27,276	3,635,838
3,635,320	3,636,060	3,636,380	3,635,158	3,634,900	3,635,877
3,635,327	3,636,062	3,634,897	3,635,393	3,634,955	3,635,971
3,635,335	3,636,071	3,634,906	3,635,620	3,634,956	3,636,014

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3,636,090	3,636,256	3,635,306	3,635,401	3,636,052	3,636,251
3,636,094	3,636,355	3,635,362	3,635,406	3,636,284	3,636,257
3,636,121	3,636,365	3,635,369	3,635,436	3,636,292	3,636,291
3,636,127	3,636,427	3,635,383	3,635,463	3,636,901	3,636,306
3,636,180	3,636,437	3,635,390	3,635,504	3,636,913	3,636,307
3,636,195	3,636,439	3,635,399	3,635,510	3,636,930	3,636,330
3,636,203	3,636,476	3,635,419	3,635,522	3,636,938	3,636,345
3,636,220	3,636,513	3,635,420	3,635,523	3,636,957	3,636,349
3,636,245	3,636,524	3,635,438	3,635,570	3,636,970	3,636,364
3,636,248	3,636,539	3,635,465	3,635,623	3,636,995	3,636,366
3,636,252	3,636,539	3,635,466	3,635,667	3,636,999	3,636,368
3,636,255	3,636,962	3,635,491	3,635,668	3,635,017	3,636,369
3,636,258	3,636,978	3,635,508	3,635,677	3,635,022	3,636,375
3,636,259	3,636,979	3,635,514	3,635,686	3,635,041	3,636,384
3,636,262	3,636,980	3,635,519	3,635,702	3,635,074	3,636,399
3,636,264	3,635,078	3,635,525	3,635,710	3,635,087	3,636,428
3,636,293	3,635,109	3,635,572	3,635,727	3,635,139	3,636,429
3,636,389	3,635,123	3,635,611	3,635,731	3,635,178	3,636,443
3,636,404	3,635,171	3,635,613	3,635,741	3,635,183	3,636,444
3,636,412	3,635,175	3,635,674	3,635,753	3,635,196	3,636,484
3,636,413	3,635,204	3,635,791	3,635,754	3,635,214	3,636,544
3,636,425	3,635,224	3,635,802	3,635,755	3,635,220	3,636,548
3,636,434	3,635,246	3,635,804	3,635,756	3,635,223	3,636,554
3,636,500	3,635,251	3,635,849	3,635,759	3,635,227	3,636,596
3,636,518	3,635,325	3,635,872	3,635,761	3,635,235	3,636,972
3,636,560	3,635,333	3,635,874	3,635,785	3,635,259	3,636,940
3,636,894	3,635,378	3,635,875	3,635,795	3,635,268	3,636,950
3,636,932	3,635,391	3,635,884	3,635,798	3,635,273	3,636,952
3,635,021	3,635,392	3,635,887	3,635,807	3,635,298	3,636,959
3,635,162	3,635,538	3,635,893	3,635,821	3,635,304	3,636,981
3,635,358	3,635,539	3,635,908	3,635,824	3,635,323	3,636,999
3,635,422	3,635,578	3,635,958	3,635,830	3,635,332	3,636,131
3,635,440	3,635,597	3,635,996	3,635,834	3,635,340	3,636,283
3,635,503	3,635,607	3,636,024	3,635,835	3,635,346	3,636,319
3,635,587	3,635,712	3,636,043	3,635,841	3,635,373	3,636,382
3,635,645	3,635,760	3,636,078	3,635,843	3,635,385	3,636,438
3,635,646	3,635,782	3,636,099	3,635,857	3,635,395	3,636,520
3,635,672	3,635,800	3,636,109	3,635,860	3,635,405	3,636,889
3,635,679	3,635,819	3,636,120	3,635,861	3,635,415	3,636,905
3,635,681	3,635,846	3,636,134	3,635,863	3,635,421	3,636,937
3,635,810	3,635,852	3,636,140	3,635,866	3,635,433	3,636,965
3,635,986	3,635,879	3,636,166	3,635,868	3,635,435	3,636,971
3,636,077	3,635,933	3,636,171	3,635,878	3,635,442	3,636,984
3,636,116	3,635,980	3,636,181	3,635,882	3,635,454	3,636,984
3,636,193	3,635,993	3,636,182	3,635,898	3,635,474	3,636,969
3,636,211	3,636,009	3,636,229	3,635,934	3,635,520	3,636,979
3,636,244	3,636,015	3,636,236	3,635,938	3,635,545	3,636,119
3,636,272	3,636,020	3,636,320	3,635,948	3,635,553	3,636,125
3,636,332	3,636,119	3,636,447	3,635,954	3,635,554	3,636,143
3,636,335	3,636,138	3,636,464	3,635,956	3,635,558	3,636,156
3,636,432	3,636,205	3,636,495	3,635,967	3,635,564	3,636,161
3,636,949	3,636,225	3,636,509	3,635,970	3,635,573	3,636,193
3,635,055	3,636,231	3,636,521	3,635,977	3,635,588	3,636,194
3,635,131	3,636,234	3,636,526	3,635,984	3,635,609	3,636,229
3,635,271	3,636,254	3,636,898	3,635,988	3,635,652	3,636,252
3,635,302	3,636,303	3,635,386	3,635,995	3,635,655	3,636,255
3,635,318	3,636,304	3,635,387	3,636,012	3,635,655	3,636,262
3,635,366	3,636,305	3,635,483	3,636,022	3,635,680	3,636,276
3,635,439	3,636,313	3,635,601	3,636,023	3,635,699	3,636,287
3,635,521	3,636,317	3,635,832	3,636,025	3,635,703	3,636,310
3,635,596	3,636,328	3,635,836	3,636,039	3,635,704	3,636,324
3,636,216	3,636,381	3,635,848	3,636,047	3,635,705	3,636,354
3,635,107	3,636,403	3,636,337	3,636,048	3,635,707	3,636,355
3,635,206	3,636,405	3,636,350	3,636,050	3,635,708	3,636,371
3,635,361	3,636,426	3,636,379	3,636,058	3,635,739	3,636,384
3,635,451	3,636,453	3,636,520	3,636,080	3,635,743	3,636,400
3,635,722	3,636,471	3,636,411	3,636,093	3,635,746	3,636,411
3,635,778	3,636,472	3,636,896	3,636,106	3,635,748	3,636,432
3,635,840	3,636,516	3,635,213	3,636,113	3,635,750	3,636,444
3,636,204	3,636,556	3,635,300	3,636,115	3,635,752	3,636,498
3,635,043	3,636,893	3,635,453	3,636,118	3,635,762	3,636,507
3,635,108	3,636,907	3,635,559	3,636,139	3,635,763	3,636,627
3,635,222	3,636,918	3,635,560	3,636,141	3,635,764	3,636,635
3,635,234	3,636,923	3,635,723	3,636,158	3,635,787	3,636,642
3,635,243	3,636,925	3,635,733	3,636,165	3,635,789	3,636,644
3,635,867	3,636,927	3,635,736	3,636,167	3,635,812	3,636,647
3,636,237	3,636,941	3,635,757	3,636,176	3,635,817	3,636,648
3,636,415	3,636,954	3,635,951	3,636,194	3,635,853	3,636,656
3,635,326	3,636,959	3,635,952	3,636,200	3,635,855	3,636,675
3,635,381	3,636,976	3,636,053	3,636,209	3,635,883	3,636,687
3,635,568	3,636,983	3,636,102	3,636,210	3,635,895	3,636,732
3,635,829	3,636,986	3,635,199	3,636,235	3,635,903	3,636,747
3,635,943	3,636,991	3,636,274	3,636,239	3,635,916	3,636,765
3,636,088	3,635,023	3,635,059	3,636,249	3,635,944	3,636,801
3,636,129	3,635,024	3,635,697	3,636,273	3,635,976	3,636,806
3,636,161	3,635,025	3,635,797	3,636,297	3,635,981	3,636,828
3,636,188	3,635,028	3,636,919	3,636,322	3,635,991	3,636,833
3,636,921	3,635,031	3,635,218	3,636,324	3,636,000	3,636,847
3,635,076	3,635,044	3,635,365	3,636,354	3,636,003	3,636,864
3,635,095	3,635,062	3,635,374	3,636,356	3,636,033	3,636,922
3,635,138	3,635,100	3,636,498	3,636,398	3,636,042	3,636,932
3,635,198	3,635,124	3,636,916	3,636,401	3,636,056	3,636,973
3,635,200	3,635,148	3,636,933	3,636,408	3,636,063	3,636,977
3,635,217	3,635,152	3,636,944	3,636,409	3,636,069	3,636,103
3,635,253	3,635,169	3,636,947	3,636,418	3,636,074	3,636,125
3,635,404	3,635,197	3,636,966	3,636,445	3,636,081	3,636,126
3,635,413	3,635,201	3,636,982	3,636,454	3,636,083	3,636,190
3,635,425	3,635,205	3,636,993	3,636,461	3,636,111	3,636,276
3,635,547	3,635,215	3,635,000	3,636,485	3,636,150	3,636,288
3,635,735	3,635,250	3,635,058	3,636,506	3,636,160	3,636,309
3,635,889	3,635,254	3,635,134	3,636,527	3,636,186	3,636,327
3,636,038	3,635,274	3,635,144	3,636,531	3,636,192	3,636,338
3,636,107	3,635,278	3,635,154	3,636,533	3,636,213	3,636,342
3,636,202	3,635,280	3,635,172	3,636,555	3,636,224	3,636,344
3,636,214	3,635,284	3,635,337	3,636,555	3,636,227	3,636,385
3,636,241	3,635,285	3,635,344	3,635,431	3,636,227	3,636,397

40	3,636,424	3,635,011	3,635,730	3,636,489	3,635,771	3,636,199
	3,636,430	3,635,018	3,635,738	3,636,491	3,635,822	3,636,363
	3,636,490	3,635,054	3,635,740	3,636,497	3,635,842	3,636,446
	3,636,504	3,635,066	3,635,751	3,636,499	3,635,885	3,636,465
	3,636,515	3,635,067	3,635,769	3,636,505	3,635,886	3,636,492
	3,634,960	3,635,082	3,635,783	3,636,549	3,635,905	3,635,083
	3,634,964	3,635,089	3,635,814	3,636,551	3,636,030	3,635,151
	3,634,998	3,635,090	3,635,826	44 : 3,634,917	3,636,057	3,635,211
	3,635,034	3,635,091	3,635,873	3,635,102	3,636,067	3,635,307
	3,635,289	3,635,098	3,635,880	3,635,839	3,636,068	3,635,347
	3,635,295	3,635,116	3,635,894	3,635,902	3,636,133	3,635,382
	3,635,542	3,635,127	3,635,900	45 : 3,635,004	3,636,142	3,635,658
	3,635,625	3,635,153	3,635,914	3,635,010	3,636,148	3,635,793
	3,635,685	3,635,176	3,635,945	3,635,749	3,636,339	3,636,270
	3,635,923	3,635,203	3,635,953	3,635,915	3,636,392	3,636,321
	3,635,930	3,635,225	3,635,957	47 : 3,634,975	3,636,420	54 : 3,635,164
	3,635,931	3,635,233	3,635,965	3,634,981	3,636,501	3,635,918
	3,636,016	3,635,238	3,635,975	3,635,073	49 : 3,635,096	55 : 3,635,057
	3,636,031	3,635,247	3,635,982	3,635,676	3,635,409	3,635,121
	3,636,128	3,635,311	3,636,051	3,635,725	3,635,496	3,635,132
	3,636,159	3,635,312	3,636,073	3,635,831	3,635,691	3,635,133
	3,636,172	3,635,328	3,636,075	3,635,941	3,636,512	3,635,221
	3,636,173	3,635,348	3,636,123	3,636,462	50 : 3,635,084	3,635,240
	3,636,175	3,635,376	3,636,157	48 : 3,634,912	3,635,341	3,635,256
	3,636,300	3,635,377	3,636,168	3,635,008	3,635,662	3,635,270
	3,636,326	3,635,426	3,636,191	3,635,036	3,636,542	3,635,502
	3,636,348	3,635,443	3,636,219	3,635,081	51 : 3,635,053	3,635,513
	3,636,390	3,635,452	3,636,228	3,635,104	3,635,163	3,635,574
41	3,635,113	3,635,456	3,636,283	3,635,187	3,635,275	3,635,595
	3,635,147	3,635,461	3,636,290	3,635,230	3,635,321	3,635,684
	3,635,316	3,635,585	3,636,315	3,635,288	3,635,475	3,635,766
	3,635,449	3,635,616	3,636,344	3,635,291	3,635,579	3,635,788
42	Re-27,278	3,635,654	3,636,422	3,635,294	3,635,580	3,635,854
	3,634,893	3,635,658	3,636,482	3,635,296	3,635,641	3,635,966
	3,634,899	3,635,694		3,635,343	3,635,653	3,636,218
	3,634,973	3,635,695		3,635,427	3,635,911	3,636,286
	3,635,001	3,635,698		3,636,097	3,635,966	3,636,298
	3,635,005	3,635,711		3,636,683	3,636,097	3,636,373
					3,636,114	3,636,449

DESIGN PATENTS

6 :	222,855	8 :	222,868	17 :	222,851	22 :	222,864	27 :	222,863	36 :	222,856
	222,865		222,854		222,853	26 :	222,850		222,869		222,849
	222,867	9 :	222,862	24 :	222,852		222,860		222,870	42 :	222,857

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PATENT OFFICE NOTICES

Disclaimers

3,359,122.—*Ralph S. Zebarth and Richard A. Bracking*, Kansas City, Mo. METHOD OF PRESERVATION, PACKAGING AND MOLDING OF FRESH FOODS FOR HUMAN USE. Patent dated Dec. 19, 1967. Disclaimer filed Sept. 15, 1971, by the assignee, *Gordon Johnson Company*.

Hereby enters this disclaimer to claims 1-5, inclusive, of said patent.

3,393,455.—*Charles W. MacMillan*, Rock Island, Ill. WHEEL ALIGNMENT APPARATUS. Patent dated July 23, 1968. Disclaimer filed Sept. 23, 1971, by the assignee, *Applied Power Industries, Inc.*

Hereby enters this disclaimer to claim 12 of said patent.

3,400,227.—*William P. Lear*, Wichita, Kans., and *Samuel H. Auld*, Bloomfield Hills, Mich. COMBINED RADIO AND MAGNETIC TAPE PLAYER. Patent dated Sept. 3, 1968. Disclaimer filed Nov. 24, 1971, by the assignee, *Gates Learjet Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Oct. 31, 1984.

3,403,868.—*William P. Lear*, Wichita, Kans. MAGNETIC TAPE CARTRIDGE SYSTEM. Patent dated Oct. 1, 1968. Disclaimer filed Nov. 24, 1971, by the assignee, *Gates Learjet Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Oct. 31, 1984.

3,418,147.—*David Palmer Fields*, Wilmington, Del. SURFACE TREATING PIGMENTS WITH HYDROUS METAL OXIDES. Patent dated Dec. 24, 1968. Disclaimer filed Sept. 3, 1971, by the assignee, *E. I. du Pont de Nemours and Company*.

Hereby enters this disclaimer to claim 8 of said patent.

3,582,369.—*Henry Nouveau*, Saint Germain-les-Corbell, Seine-et-Oise, France. LININGS FOR STEEL INGOT MOLDS AND FOUNDRY MOLDS. Patent dated June 1, 1971. Disclaimer filed July 15, 1970, by the assignee, *Societe Anonyme Produits Metallurgie Doittan S.A.*

Hereby disclaims the portion of the term of the patent subsequent to Oct. 3, 1984.

Certificates of Correction for the Week of Jan. 25, 1972

3,335,395	3,580,751	3,591,619	3,596,899
3,403,254	3,580,752	3,591,677	3,597,057
3,434,087	3,580,960	3,591,708	3,597,096
3,452,244	3,582,494	3,591,908	3,597,318
3,458,364	3,582,623	3,591,910	3,597,348
3,460,031	3,582,907	3,592,053	3,597,579
3,467,772	3,583,665	3,592,262	3,597,681
3,481,265	3,584,020	3,592,333	3,597,827
3,523,114	3,584,154	3,592,335	3,598,017
3,533,282	3,585,030	3,592,624	3,598,056
3,535,286	3,585,068	3,592,661	3,598,468
3,546,296	3,585,929	3,592,717	3,598,568
3,550,908	3,586,435	3,593,063	3,598,644
3,551,376	3,586,673	3,593,127	3,598,708
3,555,017	3,587,429	3,593,272	3,598,742
3,556,847	3,587,786	3,593,342	3,598,980
3,558,111	3,587,923	3,593,839	3,599,215
3,558,352	3,588,588	3,593,960	3,599,484
3,560,482	3,588,596	3,594,085	3,600,152
3,562,303	3,588,672	3,594,378	3,600,561
3,564,799	3,588,855	3,594,550	3,601,010
3,568,791	3,588,979	3,595,069	3,601,237
3,569,607	3,589,031	3,595,236	3,601,679
3,569,773	3,589,230	3,595,308	3,601,840
3,570,820	3,589,479	3,595,564	3,602,181
3,571,696	3,589,840	3,595,734	3,602,366
3,573,021	3,589,974	3,595,900	3,602,389
3,574,002	3,590,057	3,595,985	3,602,624
3,574,298	3,590,086	3,596,236	3,602,822
3,575,294	3,590,133	3,596,435	3,603,573
3,577,464	3,591,015	3,596,494	3,603,690
3,578,659	3,591,336	3,596,522	3,604,831
3,579,525	3,591,531	3,596,731	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JANUARY 11, 1972

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	1-04-71
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	7-20-70
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	10-21-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	1-18-71
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.....	7-30-70
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	5-10-71
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	7-27-70
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	2-01-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	3-01-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 280—R. L. EVANS, Director.....	11-03-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	12-03-70
Industrial Arts; Household, Personal and Fine Arts.	

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	1-04-71
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	12-01-70
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGO, Director.....	12-01-70
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director.....	2-01-71
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	1-04-71
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during January 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 960, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 859, 83rd Congress, approved August 23, 1954 (66 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 263. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,698,434 to 2,700,763, inclusive
Plant Patents..... Numbers 1,339 to 1,344, inclusive

REISSUES

JANUARY 25, 1972

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,279

DIMER ACID CONTAINING ALKYD RESINOUS COATING COMPOSITIONS AND PROCESS OF PREPARING THE SAME

Ralph E. Layman, Stamford, Conn., assignor to American Cyanamid Company, New York, N.Y.
No Drawing. Original No. 3,158,584, dated Nov. 24, 1964, Ser. No. 74,792, Dec. 9, 1960. Application for reissue July 10, 1970, Ser. No. 53,975

Int. Cl. C08g 17/16; C09d 3/64

U.S. Cl. 260—22 D

11 Claims

An alkyd resin composition comprising the esterification reaction product of a phthalic acid, a polyhydric alcohol and a dimer of an ethylenically unsaturated aliphatic monocarboxylic acid having between 14 and 22 carbon atoms, wherein said polyhydric alcohol is present at least in part as a glycol in an amount sufficient to constitute at least 65% by weight based on the total weight of polyhydric alcohols present in said reaction product and wherein said dimer acid is present in an amount varying between 10% and 32% by weight based on the total weight of the aforesaid reactants in the composition, said alkyd resin being soluble in an inert organic solvent at room temperature.

1254

PATENTS

GRANTED JANUARY 25, 1972

GENERAL AND MECHANICAL

3,636,564

SPACE SUIT HAVING IMPROVED WAIST AND TORSO MOVEMENT

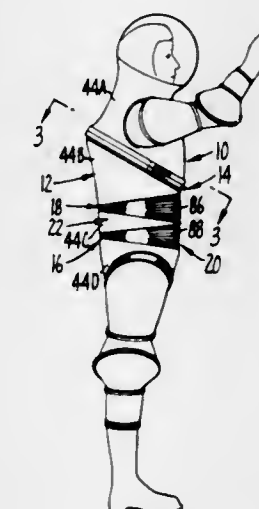
Hubert C. Vykukal, Cupertino, Calif., assignor to The United States of America as represented by the National Aeronautics and Space Administration

Filed Mar. 23, 1970, Ser. No. 21,644

Int. Cl. A62b 17/00

U.S. Cl. 2—2.1 A

5 Claims



A space suit is provided having improved torso and waist movement. The space suit includes a canted rotary joint near the middle of the torso, said rotary joint being set at an angle of about 30° to horizontal and tilting upwardly from the front. The space suit also preferably includes a double bellows for improved waist action.

3,636,565

UNIVERSAL DUAL VISOR ASSEMBLY FOR HELMETS

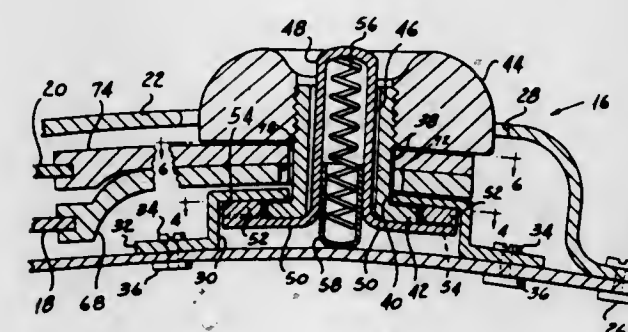
August G. Lulsada, Waymart, and Joseph A. Cianflone, Carbondale, both of Pa., assignors to Gentex Corporation, New York, N.Y.

Filed Jan. 29, 1970, Ser. No. 6,854

Int. Cl. A42b 3/00

U.S. Cl. 2—6

11 Claims



A universal dual visor assembly for helmets in which inner and outer lenses are supported by a pair of hollow shafts rotatably carried by the helmet and provided with bores of noncircular cross section which slidably receive pushbuttons of corresponding noncircular cross section for axial movement between a shaft locking position at which locking elements thereon selectively engage in spaced recesses in the shaft housing to hold the corresponding shaft in a selected

3,636,566

SWADDLER

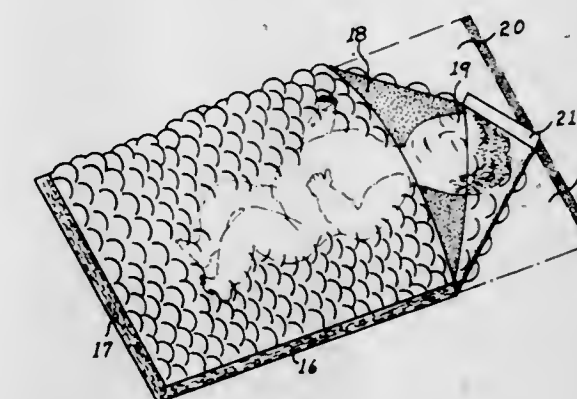
James M. Sutherland, The Childrens Hospital Research Foundation, Eland and Bethesda, Cincinnati, Ohio

Filed Feb. 2, 1970, Ser. No. 7,456

Int. Cl. A41d 3/00

U.S. Cl. 2—69.5

6 Claims



A swaddler for babies which is formed of a cellular laminate of transparent plastic sheet material, the sheet material being folded upon itself to form a bag and the material having an integral extension projecting from the opening of the bag, the extension being adapted to be wrapped about the head of a baby lying within the bag to form a hood for the baby.

3,636,567

SHIRT FABRICATION

Joseph Benevento, Tuscon, Ariz., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 27, 1970, Ser. No. 14,983

Int. Cl. A41b 1/00

U.S. Cl. 2—115

8 Claims



A shirt with a "built in" collar is provided. The shirt may be prepared from either one or two sections of fabric. In

1255

either case the neck collar portion of the fabric is specifically cut so that upon assembly of the shirt a full collar portion thereof may be formed by simply folding back the fabric around edges of the neck opening.

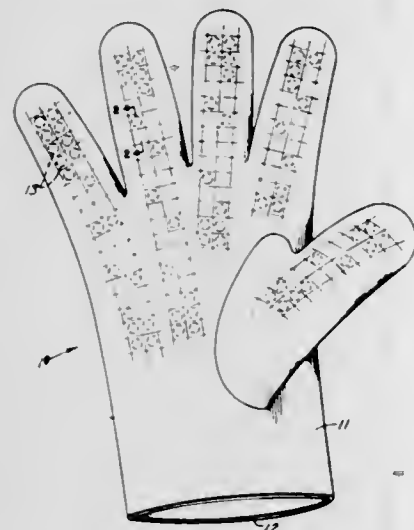
3,636,568

MECHANICS MAGNETIC GLOVE

John P. Stuner, P.O. Box 27, Dover, Idaho
Filed Apr. 1, 1970, Ser. No. 24,526
Int. Cl. A41d 19/00, 13/10

U.S. Cl. 2-161

1 Claim



A flexible glove for mechanics having a multiple number of disc-type magnets of the permanent magnetic type. This glove is of a flexible material having the permanent magnets secured on the interior of the material within the palm, and fingers which will allow the mechanic to start bolt, nuts, screws and other fasteners in areas where the fasteners may be easily dropped, the mechanic being prevented from dropping them because of the internal magnets of the glove attracting and holding the fasteners to the glove.

3,636,569

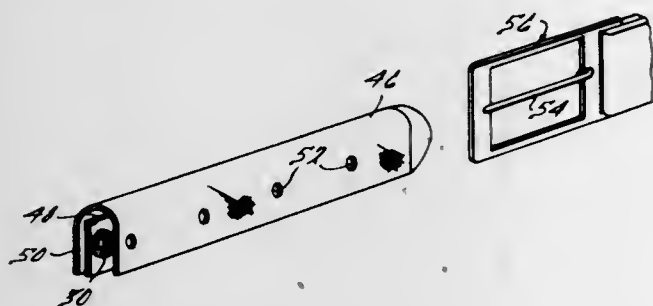
EYELET CONSTRUCTION

Ruth A. Nielson, Seestrasse 5, 8803 Rueschlikon, Schweiz, Switzerland

Filed Mar. 10, 1969, Ser. No. 805,677
Int. Cl. A41f 9/00, 9/02

U.S. Cl. 2-325

2 Claims



An eyelet or buttonhole construction comprising an exterior fabric member having at least one buttonhole slit formed therein; a relatively flexible fabric base reinforcing member disposed interiorly of and in confronting relation to the exterior member and having at least one buttonhole slit formed therein and aligned with the slit in the exterior member, and an adhesive material interposed between the confronting surfaces of the exterior and reinforcing members, whereby the reinforcing member is adapted for contiguous adherence to the exterior member, particularly in the area directly adjacent the slit, to prevent the fibers or threads of the exterior

member from fraying upon insertion into and removal of an associated button or the like from the slit.

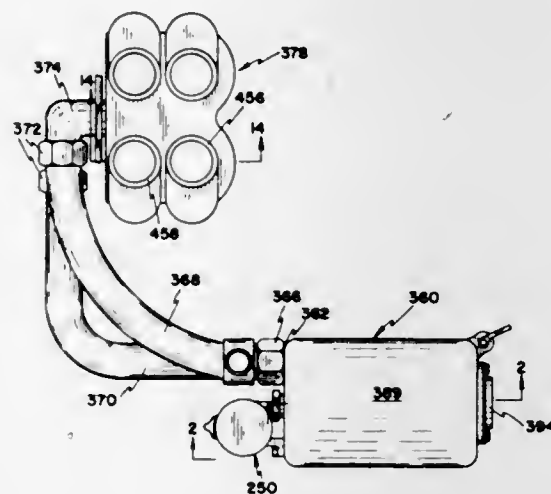
3,636,570

MECHANICAL HEART SYSTEM

Jay P. Nielson, 3490 South 3685 E, Salt Lake City, Utah
Filed Sept. 24, 1969, Ser. No. 860,546
Int. Cl. A61f 1/24

U.S. Cl. 3-1

4 Claims



A mechanical heart system including an artificial heart having a rigid exterior casing which is partitioned into two halves, each half being divided into chambers by a flexible diaphragm which collapses to pump blood out of the artificial heart when subjected to fluid pressure and which expands to withdraw blood into the artificial heart when the fluid pressure is removed therefrom. A mechanical driving pump forces driving fluid into and withdraws driving fluid from the artificial heart to control the operation of the diaphragm, the pump (a) forcing driving fluid into the artificial heart at a rate which is greater than the withdrawal of driving fluid from the artificial heart and (b) providing a more uniform rate of fluid flow between the pump and the artificial heart and modulating the transition between injection and withdrawal of driving fluid from the artificial heart. A pump regulator is connected to the power input of the mechanical pump, the regulator responding to the breathing rate of the user of the system to control the power input to the mechanical pump whereby the breathing rate of the user will determine the rate at which blood pumps from the artificial heart. In an alternative preferred embodiment, a fluid pump is substituted for the mechanical heart pump, the fluid pump accommodating injection of driving fluid into the artificial heart at a relatively constant rate and withdrawal of driving fluid from the artificial heart at another relatively constant rate. An alternate heart embodiment includes fluid-receiving cylinders and displaceable pistons alternately reciprocated in the cylinders due to fluid pressure developed by the fluid pump. An accumulator associated with the cylinders allows the pistons to travel in one direction at one rate and in the other direction at another rate.

3,636,571

CRIB STABILIZER

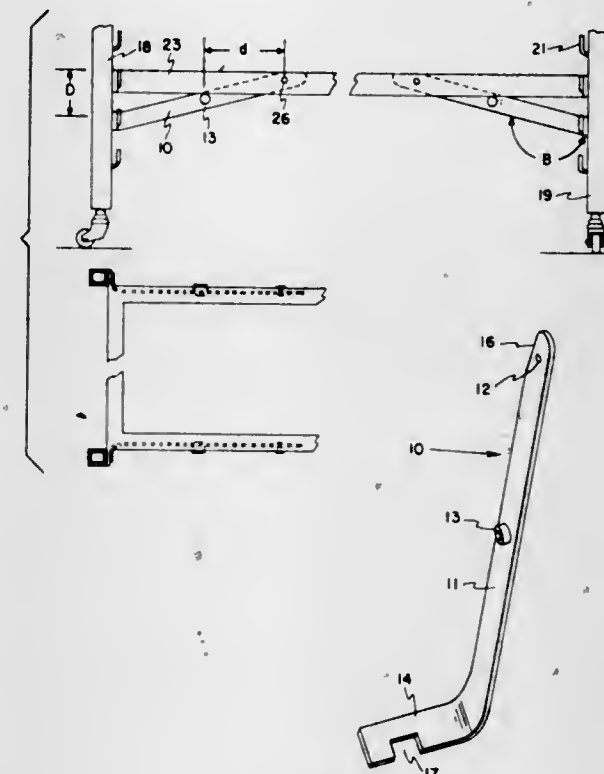
Richard S. Winer, 32 Emerson Way, Sudbury, Mass.
Filed May 15, 1970, Ser. No. 37,548
Int. Cl. A47d 7/03, 9/00

U.S. Cl. 5-11

4 Claims

The invention relates to a stabilizing means for cribs which attaches to the spring and moves with the spring as the height of the spring is adjusted. The brace is L-shaped and is

secured to the spring at one end. The brace also contains a lateral member at the other end which fits into standard



height-adjusting hooks widely used in the manufacturing of cribs.

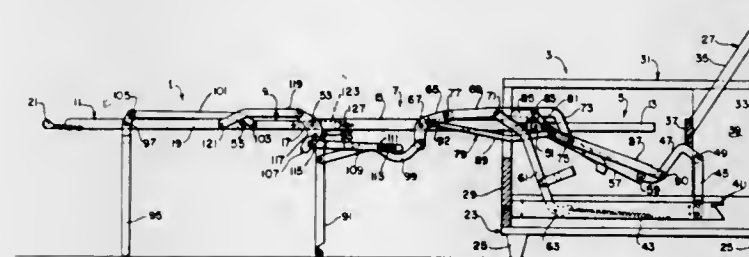
3,636,572

SOFA BED FOLDING FIXTURE

Paul W. Eakins, St. Louis, Mo., assignor to Foster Brothers Manufacturing Company, St. Louis, Mo.
Filed June 4, 1970, Ser. No. 43,340
Int. Cl. A47c 17/14

U.S. Cl. 5-13

6 Claims



A four-section rise-over sofa bed fixture, the four sections being designated the head section, the body section, the intermediate section, and the foot section, having at each side thereof a first arm pivoted for swinging movement in the sofa frame toward the rear thereof, a head section support link interconnecting the first arm and the rearward end of the body section, a second arm pivoted for swinging movement in the sofa frame toward the front thereof, a bellcrank pivoted on the side of the body section, a lever pivoted intermediate its ends at the upper end of the second arm and having its rear and front ends connected, respectively, to the head section support link and one end of the bellcrank, a folding leg at the outer end of the body section, a link connecting the other end of the bellcrank and the folding leg, and a linkage interconnecting the first arm and the bellcrank comprising a crank arm pivoted on the side of the body section, a link interconnecting the first arm and the crank arm, and a link interconnecting the crank arm and the bellcrank.

3,636,573

FOLDABLE MATTRESS SUPPORT

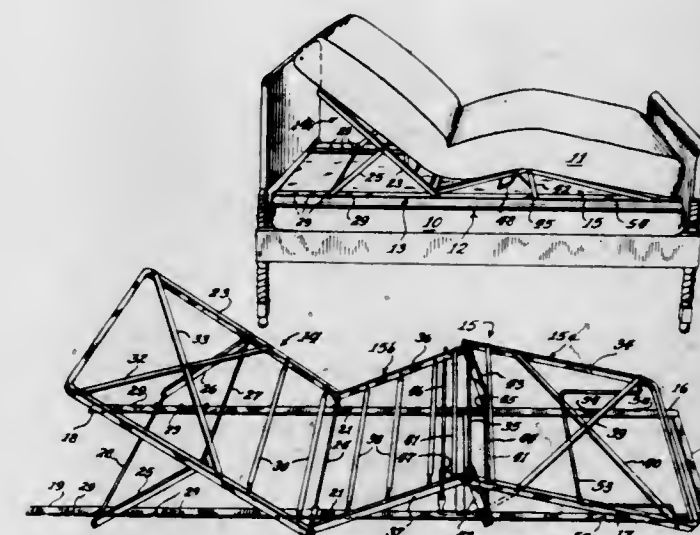
Fred H. Bartz, Milwaukee, Wis., assignor to Con-Tex Corporation, Milwaukee, Wis.

Filed Jan. 29, 1970, Ser. No. 6,909

Int. Cl. A61g 7/00, A47c 22/00

U.S. Cl. 5-69

11 Claims



A lightweight, foldable mattress support frame with head and foot sections insertable between a mattress and a box spring support. Head and foot sections are pivotally connected and manipulated between a flat position and positions at selected angular dispositions. Flexible straps interconnect marginal portions of the frame. Pivots between the head and foot sections provide a minimal amount of disturbance of a mattress supported on the frame between the marginal portions of the frame.

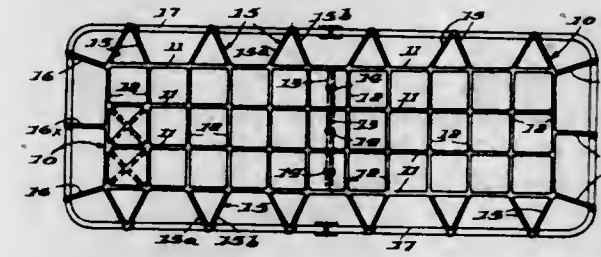
3,636,574

SUPPORTING MEANS FOR A MATTRESS, CUSHION AND THE LIKE

Hyman Kramer, 50 Carter Ave., Stamford, Conn.
Filed Dec. 22, 1969, Ser. No. 887,196
Int. Cl. A47c 7/02, 27/14

U.S. Cl. 5-186

4 Claims



A mattress or cushion support comprising an injection-molded plastic mat or netlike fabric provided along its side and end edges with integral tie means for speedily yet effectively connecting same to the frame of a bed, folding cot, chair, chaise longue and the like. The plastic mat may be formed as a one-piece grid having length and width such that it provides the complete support, or it may be formed in plural, i.e., two half-length, sections which are secured together along a transverse meeting line (or lines) as by metal clips.

3,636,575

COVER FOR UPHOLSTERED FURNITURE

Imre Jack Smith, 283 Hillhurst Blvd., Toronto, Ontario, Canada

Filed Aug. 24, 1970, Ser. No. 66,448

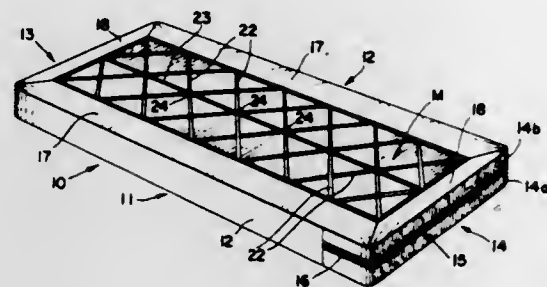
Int. Cl. A47g 9/00

U.S. Cl. 5-334

7 Claims

A snug-fitting mattress cover, tailored to fit the dimensions of the mattress, and having an opening at one end through

which the mattress can be inserted, and being opened along substantially the entire extent of its underside, the mattress cover being tensioned across and along its open underside by means of a system of intersecting diagonal bands or tapes or strips adapted to provide an increased dimension across the



underside of the mattress cover when they lie directly across the mattress, and being arranged so that when the mattress cover is drawn tightly over the mattress, the bands are drawn out into a diagonal formation, and thereby tensioned so as to draw the sides and ends of the mattress together and ensure that the cover makes a snugtight fit over the mattress.

3,636,576

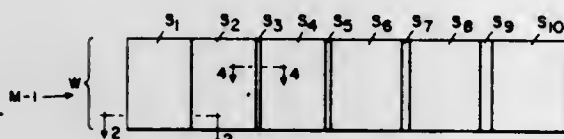
ROLL-FOLD FLOOR MAT FOR GYMNASTIC AND ATHLETIC PURPOSES

George P. Nissen, Cedar Rapids, Iowa, assignor to Nissen Corporation, Cedar Rapids, Iowa
Continuation of application Ser. No. 754,255, Aug. 21, 1968, now abandoned. This application Sept. 24, 1970, Ser. No. 75,241

Int. Cl. A47g 9/00

U.S. Cl. 5-344

10 Claims



A floor mat for gymnastic and athletic purposes composed of a succession of abutting rectangular mat sections, each section consisting of a lightweight shock absorbing filler enclosed by flexible sheet covers. The especial feature of the mats, which are disclosed in several alternate forms, is that they permit a long expanse of virtually unbroken mat top surface, yet may be "roll-folded" up into a single, compact stack for ready transport and storage without the need first to separate individual sections or groups of sections. The foregoing is accomplished by making the lengths of successive mat sections a function of their thickness and by joining the abutting section by their top covers only.

3,636,577

COMPRESSIBLE COVERINGS FOR ATHLETIC AND GYMNASTIC USE

George P. Nissen, Cedar Rapids, Iowa, assignor to Nissen Corporation, Cedar Rapids, Iowa

Filed July 29, 1968, Ser. No. 763,454

Int. Cl. A47g 9/00

U.S. Cl. 5-344

22 Claims

A gymnastic or athletic floor covering or mat employs compressible or shock absorbing material secured to sheet material to form a laminate by fastening means which present little or no protrusion upon compression of the shock absorbing material. The invention has a particular application in the construction of gymnastic mats employing adjacent blocks of compressible material and flexible sheet covers. The fastening means in its preferred form consists of an integral, elastomeric member having a shank provided with headed

ends. The length of the shank is such that upon insertion of the member through the mat, the underside of one of the heads engages the outer face of the bottom cover and that of the other head the upper face of either the compressible material or the top cover so that in either event the shank is maintained in an axially elongated condition. Thus, the compressible material and at least one of the covers are held in a



tight laminate relationship and vertical displacement of the blocks of compressible material relative to each other is prevented. When the region of the mat immediately adjacent the device is compressed, as by the weight of a performer thereon, the device contracts therewith rather than protrudes therefrom. Additionally, the lower head frictionally engages the floor to prevent slipping of the covering or mat.

3,636,578

SPRING COUNTERBALANCED COMPACT DOCKBOARD

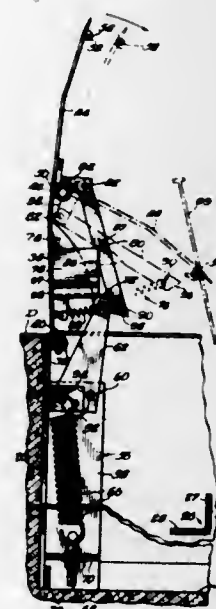
Donald P. Dieter, Springfield, Tenn., assignor to Overhead Door Corporation, Dallas, Tex.

Filed June 20, 1969, Ser. No. 834,987

Int. Cl. B65g 11/00

U.S. Cl. 14-71

11 Claims



A folding dockboard includes a deck plate hinged to a loading dock and a lip plate which is hinged to the deck plate and adapted to be positioned on the bed of a lading carrying vehicle. The lip plate is rotatable from a position in which the lip plate is positioned at a substantial angle to the deck plate to a position in which the deck and lip plates lie in substantially the same plane and counterbalancing springs exert a force on the deck plate in a direction so as to urge the deck plate toward a substantially upright position. A latching assembly rigidly latches the deck and lip plates to each other when the lip plate is positioned in the same plane as the deck plate. The counterbalancing

springs maintain the latched deck and lip plates in the substantially upright disposition, but the force exerted by the springs is overcome by the extended lip plate when the latched plates are tilted from their upright disposition, causing movement of the latched plates to a horizontal disposition on the truck bed. The latching assembly may be either manually disengaged to enable storage of the dockboard or automatically disengaged when the truck bed is withdrawn.

3,636,579

PROCESS FOR HEAT-TREATING ELECTROMAGNETIC STEEL SHEETS HAVING A HIGH MAGNETIC INDUCTION

Akiri Sakakura; Satoru Taguchi; Toshiya Wada; Kiyoshi Ueno; Takaaki Yamamoto, and Nabuo Urushiyama, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Apr. 21, 1969, Ser. No. 817,795

Claims priority, application Japan, Apr. 24, 1968, 43/27511

Int. Cl. H01f 1/16

U.S. Cl. 148-111

1 Claim

A method for producing a single-oriented silicon steel sheet having a very high magnetic induction by subjecting a steel sheet containing C and acid-soluble Al to the following process steps; rolling the steel sheet to an intermediate gauge, subjecting the rolled steel sheet to an annealing in a temperature range of 750° to 1,200° C. for 30 seconds to 30 minutes followed by quenching, thereby to cause N as AlN to precipitate in the steel sheet in an amount of at least 0.0005 percent and then cold-rolling the quenched steel sheet.

3,636,580

ROAD SWEEPER HYDRAULIC BROOM DRIVE AND MOUNTING

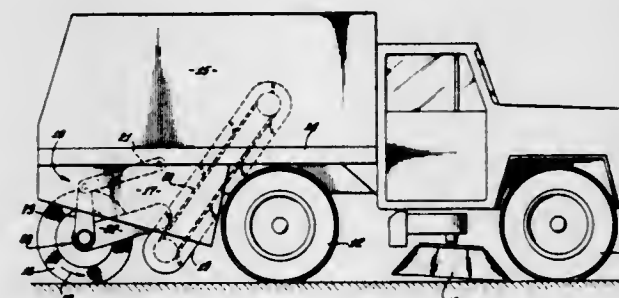
Rodney L. Woodworth, Claremont, Calif., assignor to Wayne Manufacturing Company, Pomona, Calif.

Filed Dec. 10, 1969, Ser. No. 883,768

Int. Cl. E01h 1/04

U.S. Cl. 15-84

6 Claims



A road sweeper pickup broom is suspended by a parallel linkage supporting a broom driving hydraulic motor having a broom drive rotor and a housing fixed to a support component of the linkage.

3,636,581

WINDOW SASH PAINTBRUSH

Willard V. Zeman, 10430 Albemarle Road, Lot #30, Charlotte, N.C.

Filed Apr. 13, 1970, Ser. No. 27,544

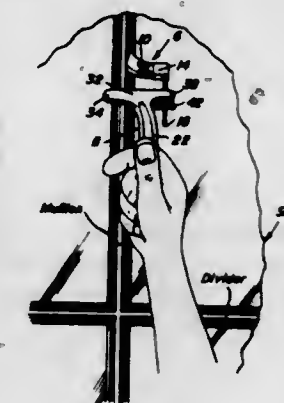
Int. Cl. A46b 17/00

U.S. Cl. 15-166

4 Claims

A brush for painting mullions and component parts of a sash frame which, does not require a steady hand and which, when properly adjusted and used, prevents smearing of unwanted paint on the panes of glass. A brush of requisite size

and shape having a screw-threaded shank at the headed end. This shank constitutes a part of an adapter and is adjustably



3,636,582

WINDSHIELD WIPER BLADE

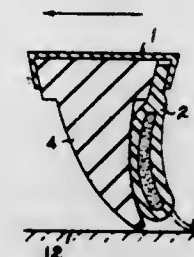
Walton Reid Wright, Raleigh, N.C., assignor to Unitek, Ltd., Raleigh, N.C.

Filed July 10, 1970, Ser. No. 53,731

Int. Cl. B60s 1/02

U.S. Cl. 15-250.03

11 Claims



A windshield wiper blade provided with a longitudinal porous sack extending parallel to and closely adjacent the wiper blade, said sack containing a soluble cleansing agent so that when the windshield is wetted the detergent is dissolved and released from the sack through the assistance of the flexing action of the wiper blade and the solution applied to the windshield to dissolve and/or remove road film, grime, mud and the like.

3,636,583

SQUEEGEE BLADE

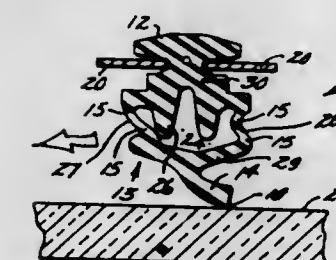
Ian K. Rosen, 440 Miltz St., North Muskegon, Mich.

Filed Jan. 26, 1970, Ser. No. 5,690

Int. Cl. B60s 1/32, 1/28

U.S. Cl. 15-250.36

7 Claims



A new rubber or rubberlike squeegee blade for windshield wipers and the like and including hinged sidewalls in the

elongate body allowing flip-flop controlled action of the wiping lip and where the movement of the sidewalls is restricted by suitable buttresses. The blade has a uniform cross section throughout its entire length and the action of the blade at any point in its wiping action, is responsive to a parallelogram motion of the sidewalls of the blade.

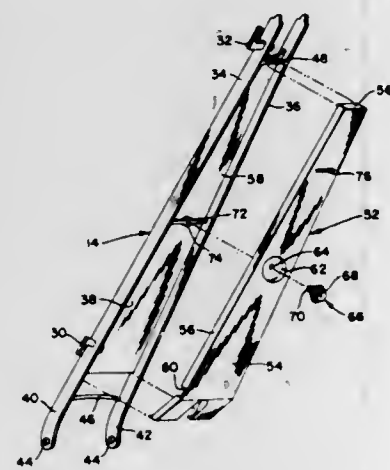
3,636,584

HANDLE FOR VACUUM CLEANER

Charles H. MacFarland, Cleveland, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio
Filed Apr. 14, 1970, Ser. No. 28,437
Int. Cl. A47i 5/28

U.S. Cl. 15—339

8 Claims



A vacuum cleaner handle including an intermediate portion having a channel-shaped cavity therein. The cavity is covered by a removable closure member having a slot therein so that coins or other articles may be deposited in the cavity. Although the handle is hollow, the intermediate portion of the handle and its closure member present an attractive solid appearance.

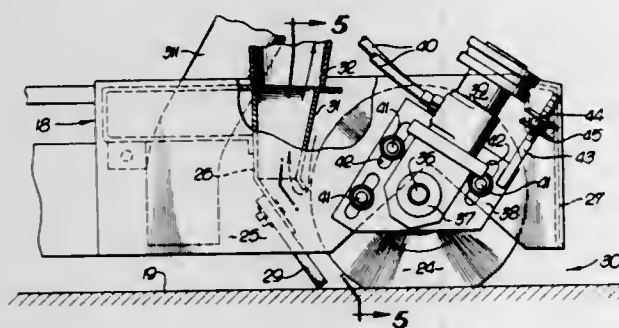
3,636,585

RUNWAY OR STREET SWEEPER

Gregory J. Larsen, Claremont, Calif., assignor to Wayne Manufacturing Company, Pomona, Calif.
Filed Nov. 20, 1969, Ser. No. 878,325
Int. Cl. E01h 1/08

U.S. Cl. 15—340

7 Claims



In distinction to a conventional powered road sweeper having its pickup broom operating in a chamber under conditions such that the broom tends to create a slipstream carry over of some of the sweepings, this tendency is minimized in the present structure employing an open bottom broom-containing suction hood beneath the sweeper vehicle and having an open top through which airflow is induced into the broom chamber, nullifying the stated slipstream effect and otherwise simplifying the construction and maintenance of the broom chamber and related parts.

3,636,586

CASTER AND SWIVEL LOCK ASSEMBLY

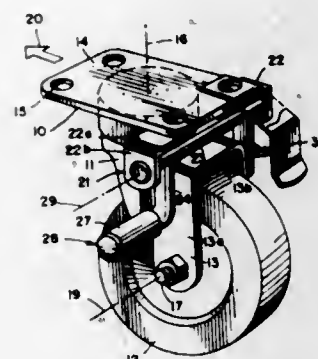
Howard N. Bollinger, and Leslie R. Inglis, both of Cincinnati, Ohio, assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Dec. 11, 1969, Ser. No. 884,182

Int. Cl. B60b 33/00

U.S. Cl. 16—35

6 Claims



A self-aligning swivel caster for use on carts and the like, the caster being equipped with a releasable locking member capable of selectively locking the caster against swivel movement. The locking member is gravity actuated and may be latched in an inoperative position as desired. The structural relationship of the caster and locking member are such that automatic camming and subsequent actuation of the locking member occur as the caster wheel is swiveled from an unlocked position into a position in which it is capable of being locked.

3,636,587

DRAPERY HOOK

Mark H. Hager, Los Angeles, and Clarence R. Adams, Glendale, both of Calif., assignors to The Slick Corporation, New York, N.Y.

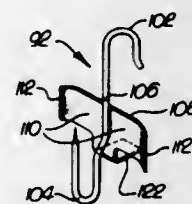
Continuation-in-part of application Ser. No. 713,606, Mar. 18, 1968, now Patent No. 3,502,132, dated Mar. 24, 1970.

This application Mar. 19, 1970, Ser. No. 20,993

Int. Cl. A47h 13/04

U.S. Cl. 16—87.2

6 Claims



A drapery hook having a rearwardly and downwardly facing, upper hook means engageable with a drapery support and a forwardly and upwardly facing, lower hook means connected to the upper hook means and engageable with a drape. A guide means connected to the hook means is slidable along a forwardly facing portion of the drapery support and includes transversely spaced guide tabs projecting transversely outwardly in opposite directions and terminating in transversely outwardly and forwardly projecting ends. The guide means may also include a rearwardly extending retainer tab engageable with a downwardly facing portion of the drapery support to prevent disengagement of the upper hook means therefrom.

3,636,588

SLIDING DOOR TRACK STRUCTURE

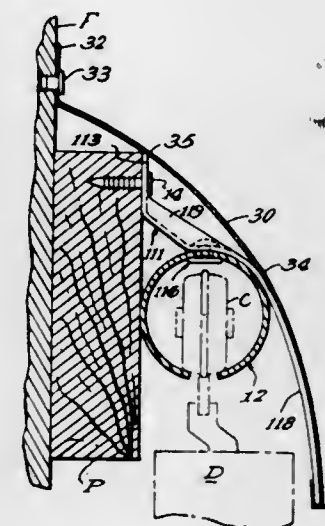
Robert G. Ferris, deceased, late of Harvard, Ill., assignor to Starline, Inc., Harvard, Ill.

Filed Nov. 14, 1969, Ser. No. 876,875

Int. Cl. A47h 15/00

U.S. Cl. 16—94

8 Claims



A split-tubular track structure to receive carriage means for suspending sliding doors from a wall of a building and brackets for mounting the track on a building wall above a door opening. Preferably the brackets have fastening flanges parts of which overlie a horizontal surface of the building wall so as to be mounted by nails driven through the horizontal surface, track flanges on the brackets have depending headed studs which slidably engage a line of keyhole slots in the upper part of the track for quick mounting of the track on the brackets, and means are provided for preventing the track from moving relative to the brackets. For outdoor use the bracket track flanges extend downwardly and outwardly from the track, and a continuous shield has its upper edge portion secured to the building wall and its lower edge portion folded around the outer ends of the track flanges. Firm contact between an intermediate portion of the shield and the tops of the track flanges bows the shield to damp vibration and to give the shield a smooth surface appearance.

3,636,589

FOUR-BALL PLASTIC HINGE

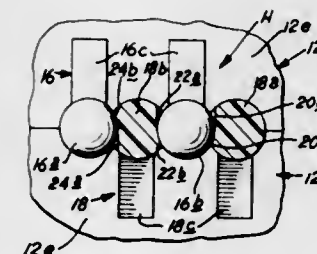
Robert K. Jacobsen, 3121 N. Nagle Ave., Chicago, Ill.

Filed Feb. 12, 1970, Ser. No. 10,931

Int. Cl. E05d 1/06

U.S. Cl. 16—171

1 Claim



An improved and more readily molded four-ball hinge for box sections is provided by arranging three elongated parallel grooves in one of the two sets of two balls, with one end of each groove being closed off by an abutment, and with one groove opening in a direction opposite to the opening direction of the other two grooves. All of the grooves are provided inwardly of the outermost portions of the snapped-together hinge, and the balls of the hinge have substantially the same nominal diameter.

3,636,590

MEANS FOR PREVENTING THE ADHESION OF MINERAL FIBERS TO THE WALLS THEREOF OF A FORMING CHAMBER

Erwin Jaeger, zum Kalverhof, Germany, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France

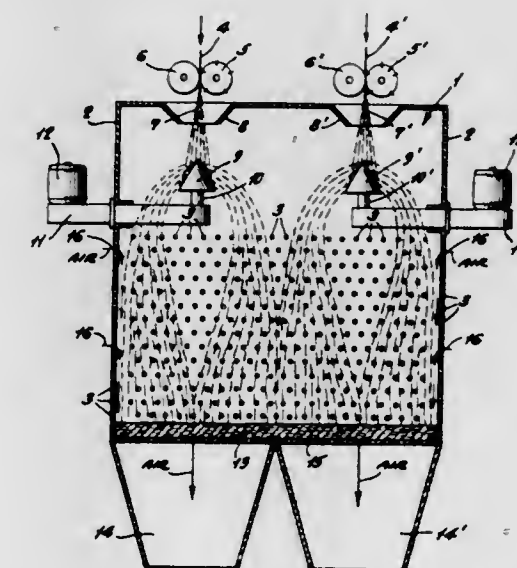
Filed Apr. 14, 1969, Ser. No. 815,686

Claims priority, application Germany, Apr. 16, 1968, P 17 60 261.8

Int. Cl. D01g 1/00

U.S. Cl. 19—56

15 Claims



A forming chamber or hood overlying an air-permeable support with a source of vacuum therebelow, which creates a downwardly directed stream of gas in the chamber into which is dropped electrostatically charged mineral fibers having a tendency to adhere to the walls of the chamber as they are distributed on the support for the formation of a felt or mat of the deposited fibers. The adhesion of the fibers to the chamber walls is prevented by the provision of a plurality of openings in the chamber walls of predetermined diameter, disposition and spacing relative to a slight underpressure maintained in the interior of the chamber, through which openings are sucked in a plurality of slight air currents from the outside to the inside of the chamber walls, whereat they are deflected in a downward direction by the gas stream to form air cushions along the walls on which the fibers slide downwardly without touching the walls of the chamber and without the generation of vortices therein.

3,636,591

DRAFTING DEVICE FOR TEXTILE MACHINES

Jean Frederic Herubel, Guebwiller, France, assignor to N. Schlumberger & Cie, Guebwiller, France

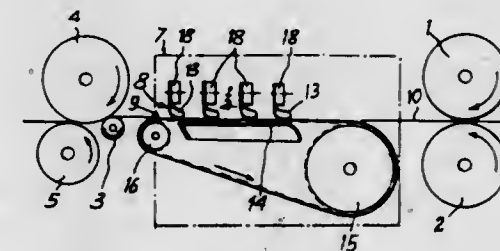
Filed Nov. 5, 1969, Ser. No. 874,136

Claims priority, application France, Nov. 28, 1968, 175735

Int. Cl. D01h 5/00

U.S. Cl. 19—236

13 Claims



The present invention relates to a drafting machine for the preparation and spinning of natural or manmade textile fibers and more particularly to the devices for controlling said fibers.

A device according to the invention comprises, between feed cylinders and drafting cylinders, two fields of control elements movable in the sense of forward movement of the fibrous material to be drafted between the two fields. A least one of said fields is constituted by bars with flexible lips each formed from a transverse strip of material presenting a degree of flexibility such as rubber, leather or an elastomer folded back on itself in the form of a loop called upon to exert a degree of pressure against the said fibrous material.

3,636,592 TOOTHED SEAL

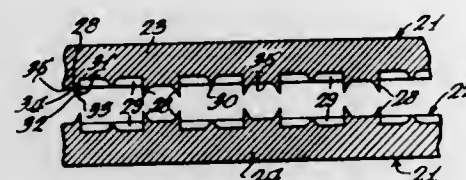
John R. Beach, Elmhurst, Ill., assignor to Signode Corporation, Chicago, Ill.

Filed Aug. 3, 1970, Ser. No. 60,267

Int. Cl. B65d 63/06

U.S. Cl. 24—23 W

8 Claims



A seal for securing together overlapping portions of a plastic strapping ligature, with the seal including a central portion having a plurality of teeth thereon which bite into one strap portion and a pair of reversely bent legs each having a plurality of teeth thereon which bite into the other strap portion. The teeth are arranged in a plurality of rows or columns in the central portion and each of the legs of the seal, and the teeth are formed by displacing material outwardly from the strap engaging surface of the seal, so that the outer surface of the seal remains generally smooth and non-perforated. The teeth all have a similar configuration including an upright strap engaging surface, with a plurality of the teeth on the central portion and on each leg having their upright surfaces facing in opposite directions.

3,636,593 ATTACHMENT CLIP DEVICE

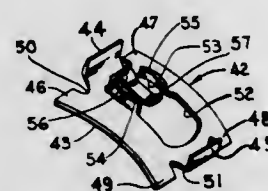
Albert T. Buttriss, Westlake, and Clarence R. Van Niel, North Olmsted, both of Ohio, assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Jan. 3, 1969, Ser. No. 788,737

Int. Cl. A44b 21/00; E04f 19/02

U.S. Cl. 24—73 MF

11 Claims



An attachment clip device for slide action securement with a headed connector element for mounting on a support member including a resilient base having an elongated opening defined by at least one enlarged width portion for receiving the head of said element and a reduced width portion having a seatlike shoulder for locking engagement with the head of said element upon sliding movement of the base with respect to said element. In another form, the device includes a generally U-shaped body defined by a pair of resilient legs extending outwardly from a bight portion with one of the legs providing a base having an opening for receiving said connector element therethrough, and the other of said legs having the elongated opening with said enlarged and reduced

width portions for slidable interlocking engagement with said connector element. In another form, the base of the device includes a plurality of outwardly extending peripherally spaced resilient finger members adjacent the opening therein for push action interlocking engagement with said connector element, or a pluglike member depending downwardly from said base for push action interlocking engagement interiorly of said connector element. In another form, the device has a generally looplike body including intumed apertured ends for scissorslike gripping engagement with the connector element.

3,636,594 DEVICE FOR RAPID ATTACHMENT

Bernard Faivre, 2, rue Bolleau, 92 Clamart (Haute-de-Seine), France

Filed Dec. 17, 1969, Ser. No. 885,724

Claims priority, application France, Dec. 17, 1968, 3595

Int. Cl. A44b 21/00; A43c 9/00

U.S. Cl. 24—73 ES

11 Claims



A quick-action fastener including a hollow body provided with a longitudinal hole, a lateral window and an elongate slot all communicating with each other, a flexible element thicker, when unstretched, than said slot but thinner than the window, and anchoring means for anchoring one end of the flexible element within the body.

3,636,595 COILING CLIP FOR COILING AND STORING LINEAR FLEXIBLE MATERIAL

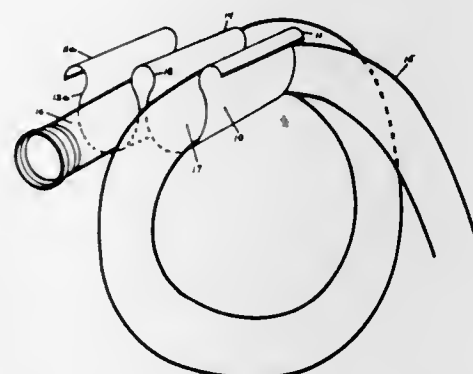
David D. Wines, 25545 Tweed Drive, Franklin, Mich.

Filed May 22, 1970, Ser. No. 39,591

Int. Cl. A44b 21/00

U.S. Cl. 24—81 CC

4 Claims



A coiling clip for coiling and storing linear flexible material, such as garden hoses, extension cords, ropes and the like. The coiling clip comprises at least a pair of U-shaped sockets which are made from suitable material having a spring or flexible quality, as for example, flat spring wire. The coil is used by pressing one end of the linear material to be coiled into one of the sockets and then forming a first loop and pressing the other end of the first loop into the socket. The user then moves the initial loop through his hands to continue coiling the entire length of the linear material.

3,636,596 BUCKLE CONSTRUCTION FOR A WRISTWATCH BRACELET

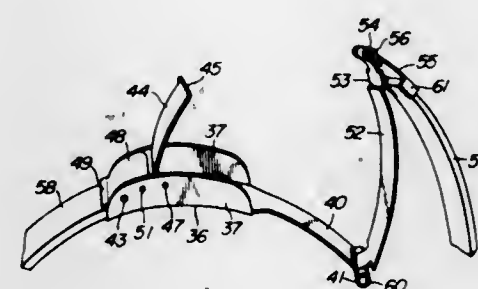
Yoshihiro Iizuka, Ageo-shi, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed July 7, 1969, Ser. No. 839,470

Int. Cl. A44b 11/12

U.S. Cl. 24—191

6 Claims



Buckle construction for use with a watch bracelet which can be designed to be compact and with an excellent appearance and is effective to prevent accidental unlocking of the buckle worn on a person's wrist.

3,636,597 WRAPPING TAPE FASTENER

Thomas Barnickel, 265 Main St., Ridgefield Park, N.J.

Original application July 27, 1967, Ser. No. 660,683, now Patent No. 3,420,159, dated Jan. 7, 1969. Divided and this application Jan. 6, 1969, Ser. No. 789,153

Int. Cl. A46b 11/00

U.S. Cl. 24—198

3 Claims



A wrapping tape fastener for securing together at least two courses of engaged tape in the form of a loop having a pair of spaced-apart side legs joined at one end of each leg by a crossmember and a central leg formed on the crossmember extending in the direction of and generally intermediate the side legs, the central leg lying in a plane displaced away from the plane of the side legs, and means to prevent the central leg from passing between the side legs.

3,636,598 METHOD FOR CORRECTING WEFT DISTORTIONS IN WOVEN WEBS

John H. Hannaway, Pawtucket, R.I., assignor to Mount Hope Machine Company, Incorporated, Taunton, Mass.

Filed Nov. 6, 1969, Ser. No. 874,503

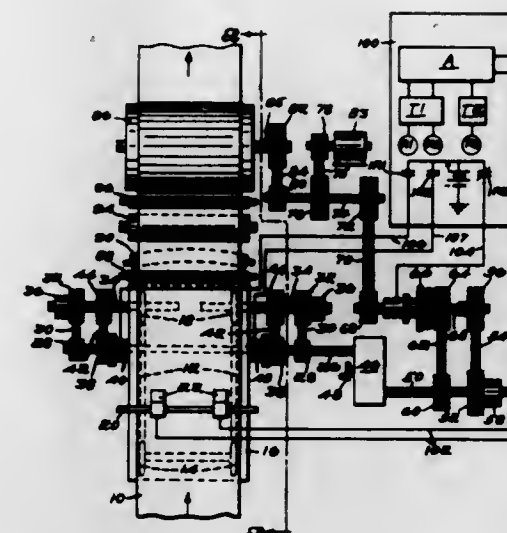
Int. Cl. D06h 3/12

U.S. Cl. 26—51.4

3 Claims

Bow distortions of the weft threads of woven webs are removed by normally operating a tenter frame at a slightly faster speed than a roll feed drawing the web forwardly from the tenter, thereby intentionally inducing a lagging bow in the web. Bow detection means are connected to momentarily slow the speed of the tenter to less than that of the roll feed when the lagging bow attains an acceptable maximum, allow-

ing the weft threads to return to a straight configuration and eventually toward a leading bow of maximum acceptable



magnitude, whereupon the tenter is caused to resume its normal slightly faster speed.

3,636,599 METHOD AND APPARATUS FOR STRAND CRIMPING

Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation

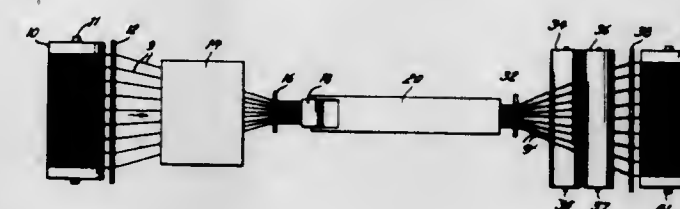
Continuation-in-part of application Ser. No. 718,737, Apr. 14, 1968, now Patent No. 3,553,802, dated Jan. 12, 1971.

This application Sept. 4, 1970, Ser. No. 69,742

Int. Cl. D02g 1/12

U.S. Cl. 28—1.6

10 Claims



Multiple-end stuffer-crimping of textile strands side-by-side in a temporarily confining chamber is improved by spacing the crimped strands laterally from one another upon their withdrawal from the chamber exit and deflecting them intermittently perpendicular to the plane of their lateral spacing and longitudinal travel.

3,636,600 APPARATUS FOR CRIMPING AND DRAWING YARN

Johan J. Mertens, Rozendaal, Netherlands, assignor to American Enka Corporation, Enka, N.C.

Filed July 30, 1968, Ser. No. 748,690

Claims priority, application Netherlands, Aug. 4, 1967, 6710832; Feb. 14, 1968, 6802063

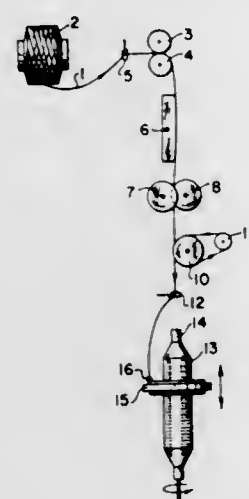
Int. Cl. D02g 1/14

U.S. Cl. 28—1.8

10 Claims

A continuous one-pass apparatus for drawing and crimping synthetic polymer yarn. Heated, undrawn yarn is forwarded

to a crimper at a predetermined, critical angle of contact with the crimping members thereof in order that the yarn be



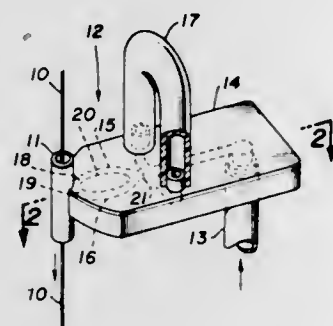
evenly drawn immediately before and during the crimping process.

3,636,601

REGULARLY TANGLED COMPACT YARN PROCESS
Paul D. Barlow, and John L. Marshall, Jr., both of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.
Continuation-in-part of application Ser. No. 720,798, Apr. 12, 1968, now Patent No. 3,478,398, which is a division of application Ser. No. 670,137, Sept. 25, 1967, now Patent No. 3,422,516. This application June 23, 1969, Ser. No. 835,595
Int. Cl. D02g 1/16

U.S. Cl. 28—72.12

3 Claims



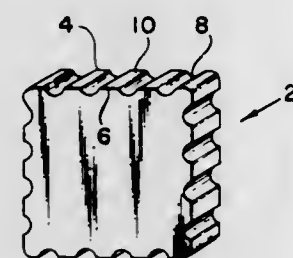
A process for interlacing synthetic continuous multifilament yarn comprising pulsing of the threadline while under tension with at least one stream of pressurized fluid emitting through a Coanda-effect fluidic oscillator.

3,636,602

CUTTING TOOLS
Frank Owen, 41 Dalton Green Lane, Dalton Huddersfield, Yorkshire, England
Filed July 11, 1969, Ser. No. 841,091
Int. Cl. B26d 1/00

U.S. Cl. 29—95

7 Claims



A tungsten carbide blade for hard stock cutting tools has three or more contiguous cutting edge faces of conventional

thickness such that each cutting edge face has two stock-engaging cutting edges, only one of which performs a cutting function at a time. When one edge becomes blunted the blade is reseated in its holder to present the other cutting edge to the work. Blade shock and load is reduced by constituting each cutting face as a series of lands spaced apart by intervening recesses. When two blades are placed side by side with one reversed relative to the other, the lands of one blade are in complementary registry with the recesses in the other blade, thus presenting to the work a continuous but staggered line of cutting edge lands.

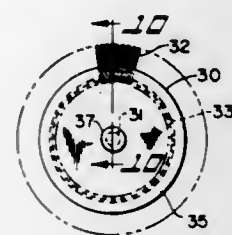
3,636,603

BUFFING DEVICE

Theron V. Moss, Shaker Hts., Ohio, and Ollie Ray Caylor, McDonald, Tenn., assignors to said Moss, by said Caylor
Original application Aug. 2, 1968, Ser. No. 749,806, now Patent No. 3,531,815, dated Oct. 6, 1970. Divided and this application Dec. 18, 1969, Ser. No. 886,180
Int. Cl. A46b 7/10, 3/16

U.S. Cl. 29—120

10 Claims



A buffing device formed from a longitudinally extending wrapping of yarn which is collapsed substantially centrally along its longitudinal axis to form looped yarns on opposite sides of the collapsed section. The wrapping is attached to a support which may have means to mount the buffing device on an arbor or the like. The buffing device is made by forming such a longitudinally extending wrapping, collapsing the same longitudinally thereof to form the looped yarns and attaching the wrapping to a supporting means.

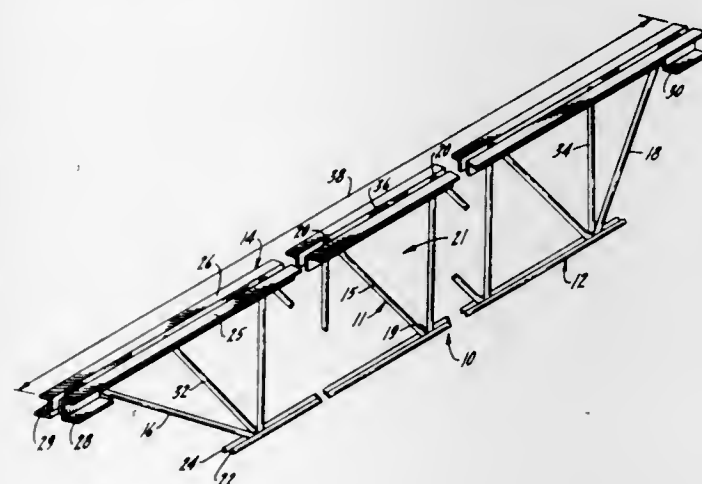
3,636,604

SYSTEM FOR FABRICATING STRUCTURAL MEMBERS
Robert M. Gooder, 2537 Country Club Drive, Olympia Fields, Ill.

Filed Feb. 11, 1970, Ser. No. 10,560
Int. Cl. B23p 17/00, 19/00

U.S. Cl. 29—155 R

13 Claims



A system for making joists including the steps of forming a zigzag-shaped web midsection and opposite ends adapted to fit together to provide a continuous joist web of predetermined depth and length, forming a bottom chord to extend

between the opposite ends of the bottom of the web, assembling said web and bottom chord, forming a top chord, mounting shoes and plugs on the top chord, aligning the top chord with the assembled web and bottom chord, tacking an end of the web and the top chord which are in registry to maintain the alignment, and completing connection of the top chord and web to form a finished joist.

3,636,605

METHOD OF MAKING FORGED VALVES FROM CAST SLUGS

Edward T. Vitche, Mentor; Leslie A. Hooker, Kirtland, and Richard P. Lauder, Mentor, all of Ohio, assignors to TRW Inc., Cleveland, Ohio

Original application Oct. 24, 1967, Ser. No. 677,554, now Patent No. 3,536,053, dated Oct. 27, 1970. Divided and this application Oct. 1, 1969, Ser. No. 871,070
Int. Cl. B21k 1/20; B23p 13/00

U.S. Cl. 29—156.7 R

3 Claims



Method for making poppet valves wherein the valve alloy is cast into the form of a slug having a chamfered end portion under conditions such that a columnar structure exists in the portion of the slug opposite the chamfered end portion, and thereafter the slug is shaped so that the chamfered end portion is extended to form the stem of the valve while the opposite end of the slug is formed into the head portion of the valve while retaining the as-cast structure in the head portion.

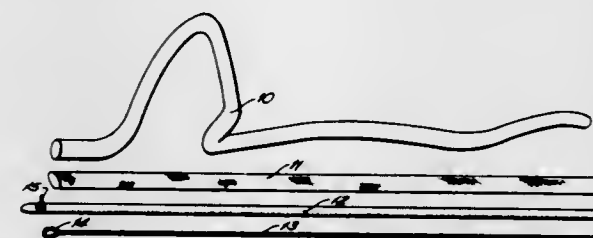
3,636,606

METHOD OF FORMING AND INSTALLING AUTOMOBILE TAILPIPE

Richard L. Doak, Drawer D, Stroud, Okla.
Filed July 14, 1969, Ser. No. 841,350
Int. Cl. B21d 53/00

U.S. Cl. 29—157.3

9 Claims



A tailpipe formed in situ and a method of forming and installing an automobile tailpipe wherein an inflatable tube is placed within a fiberglass hose, the hose is draped into a proper position within an automobile, the tube is inflated to expand the fiberglass hose, a thermosetting or chemical setting resin or a refractory composition is painted or sprayed onto the fiberglass hose, the coating material is hardened to

form a rigid fiberglass tailpipe, and the tube is then deflated and withdrawn.

3,636,607

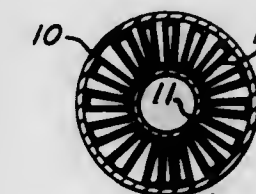
METHOD OF MAKING A HEAT EXCHANGE TUBE
Samuel J. DeMarco, Findlay, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio

Filed Dec. 30, 1969, Ser. No. 889,123

Int. Cl. B21d 53/02; B23p 15/26

U.S. Cl. 29—157.3 R

9 Claims



A method of placing a heat exchange tube into compressive contact with a concentric fin annulus involving a displacement of metal by electromagnetic or equivalent forces to achieve a conforming relation of the tube to the contact tube surface in a manner providing minimal contact resistance to heat flow.

3,636,608

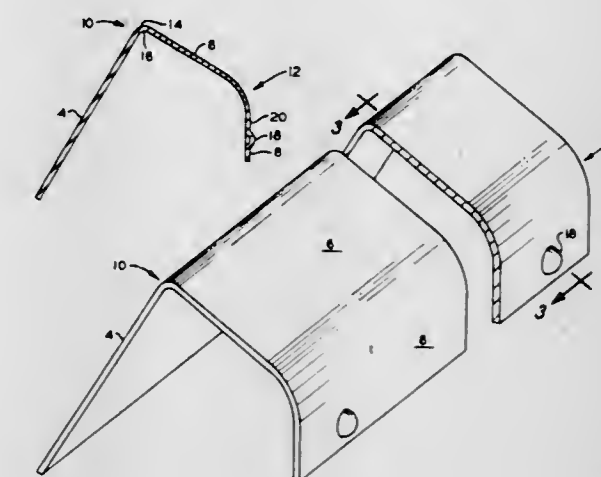
CONTAINER PROTECTIVE EDGE COMPONENT
James K. Thompson, Kansas City, Mo., assignor to Phillips Petroleum Company

Filed Dec. 5, 1969, Ser. No. 882,494

Int. Cl. B65d 25/00, 67/00

U.S. Cl. 29—183.5

5 Claims



A metal blank is contoured for attachment to a substantially cylindrical container edge and the forming of a protective covering on said container edge.

3,636,609

TURBINE BLADE POSITIONING AND GAGING FIXTURE
Frederick J. Stahl, Hawthorne, N.J., assignor to Curtiss-Wright Corporation

Filed Mar. 14, 1969, Ser. No. 807,360

Int. Cl. B23p 19/00

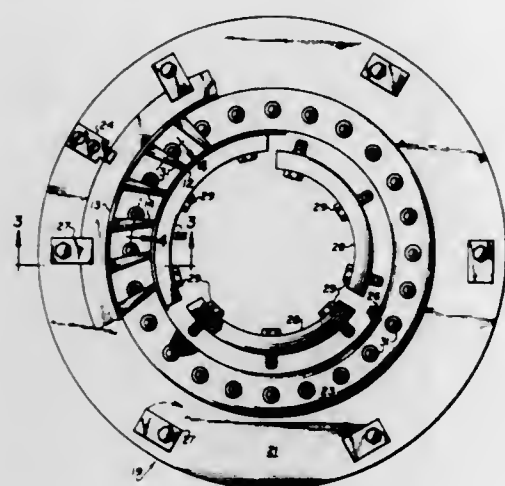
U.S. Cl. 29—200 J

6 Claims

A jig and gaging fixture providing determination of ac-

ceptable and nonacceptable turbine blades, particularly no-

in a die for conductively connecting the wires. Wires as small as 0.001 inch can be spliced effectively. The operator's inter-



zle vanes, and precision positioning of the same between a pair of concentric shrouds in a single operation.

3,636,610

WIRE PULL AND TAPE MACHINE

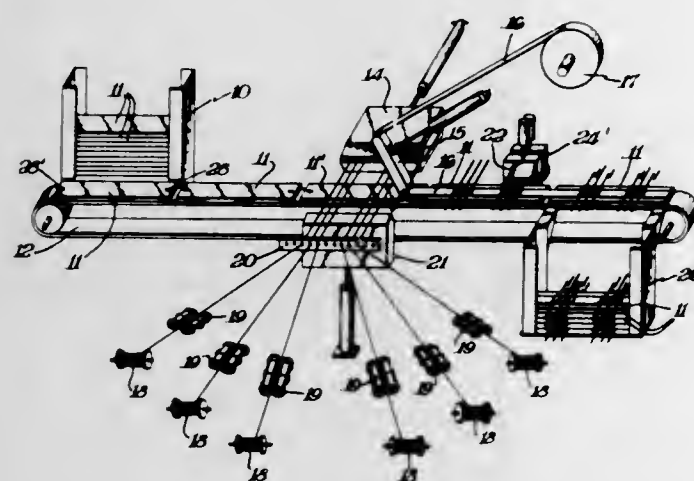
Sidney B. Williams, Cedarburg, and Martin E. Baumann, West Bend, both of Wis., assignors to Sprague Electric Company, North Adams, Mass.

Filed Jan. 29, 1970, Ser. No. 6,871

Int. Cl. H05k 13/04

U.S. Cl. 29-203

5 Claims



An automatic wire pull and tape machine which loads successive carrier strips onto an intermittently moving conveyor. A plurality of wires is pulled by gripping jaws into position over the carrier strip, the wires are taped to the carrier strip and cut to uniform length during a stationary period of the conveyor. Selected of the taped wires are offset by forming dies and all the wires are trimmed to a uniform length at another stationary period of the conveyor. The carrier strips are then moved from the conveyor to a receptacle.

3,636,611

APPARATUS FOR SPLICING WIRES

Irving W. Rosenbaum, Jackson Heights, N.Y., assignor to General Staple Co., New York, N.Y.

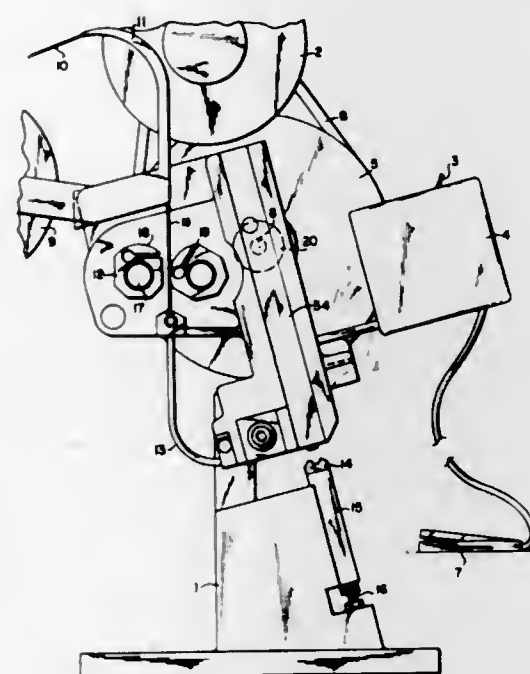
Continuation-in-part of application Ser. No. 554,129, May 31, 1966, now abandoned. This application Mar. 26, 1969, Ser. No. 810,759

Int. Cl. H01t 5/10

U.S. Cl. 29-203 D

16 Claims

A semiautomatic machine which cuts flat metal strip or wire transversely into blanks, bends the blanks into C-shaped connectors, and clinches the connectors about wires inserted



vention is limited to insertion of the wires into the die, and the closing of a switch for each splice to be made.

3,636,612

TOOL FOR STAKING A TERMINAL PIN TO A TERMINAL LUG

George Suprun, Lorain, Ohio, assignor to Lorain Products Corporation

Filed Apr. 9, 1970, Ser. No. 26,847

Int. Cl. H01r 43/04

U.S. Cl. 29-203 D

6 Claims



A tool for fastening a wire-bearing terminal pin to terminal lug. A drive member is slidably mounted in a tube having a longitudinal opening in the tube wall at one end thereof. A terminal pin having a wire crimped thereto is pushed into the end of the tube until the tip of the terminal pin touches the tip of the drive member. As this occurs, the wire passes through the longitudinal opening and is deflected away from the tip of the terminal pin thus to clear the path of movement of the drive member, this being accomplished by a deflecting surface at the tip of the drive member. The end of the loaded tube is slipped over the companion terminal lug until the contact between the flat end of the tube and the mounting surface of the terminal lug orients the longitudinal axis of the tube along the longitudinal axis of the terminal lug. This allows the end of the drive member to pushingly engage the tip of the terminal pin while the contact between the terminal pin and the tube wall prevents the application of a lateral force to either the terminal pin or the terminal lug. The longitudinal movement of the drive member forces the terminal pin substantially longitudinally into intimate electrical contact with the terminal lug. As the tool is removed, the terminal pin passes through the end of the tube and the wire passes through the longitudinal opening in the wall thereof.

3,636,613

MACHINE FOR INSERTING WINDINGS INTO STATORS OF ELECTRIC MOTORS

Hans Droll, Bergen-Enkheim, Germany, assignor to Balzer and Droll K.G., Niederdorfelden, An der Rosenhelle, Germany

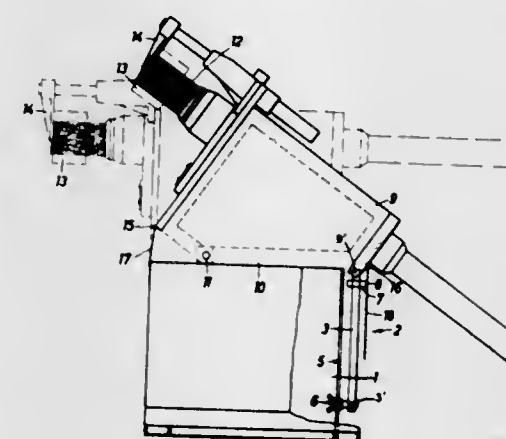
Filed June 23, 1969, Ser. No. 835,483

Claims priority, application Germany, July 9, 1968, B 76432

Int. Cl. H02k 15/02; B23q 1/12

U.S. Cl. 29-205 R

4 Claims



A machine for inserting windings into stators of electric motors and like machines which is provided with a machine frame divided into two parts with the upper part pivotally mounted on the lower part and carrying an insertion tool for the windings. Such a construction allows the adjustment of the head of the insertion tool according to the height of the operator. The pivot is disposed eccentrically on the lower frame part and preferably located near the front edge of the lower frame part and immediately above the upper edge of the lower frame part. The upper part may be adjustable by a continuously variable lifting device mounted on the lower frame part and flexible in any desired position of adjustment. Skirts, pivotally linked to the lower edges of the front and rear sides of the upper part shroud the corresponding upper edges of the lower frame part in all positions of the upper frame part.

3,636,614

WHEEL BUILDING MACHINE

Cornelis Damman, Nieuwkoop, Netherlands, and Raymond Joseph Lawton, Beeston, England, assignors to Churchill Automatic Assembly Ltd.

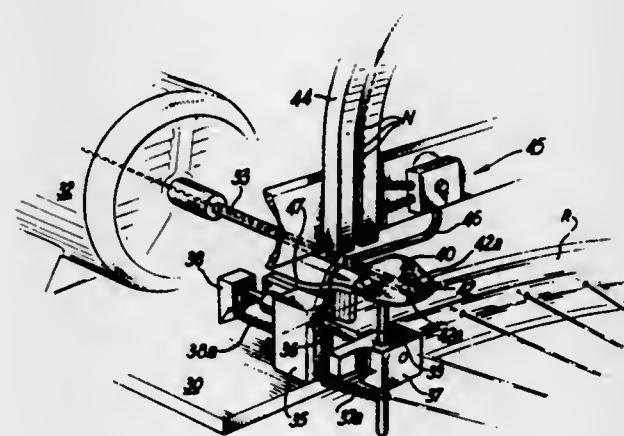
Filed Sept. 29, 1969, Ser. No. 861,580

Claims priority, application Great Britain, Oct. 2, 1968, 46,763/68

Int. Cl. B23q 7/10; B23p 19/04

U.S. Cl. 29-211 R

19 Claims



An automatic spoked wheel building machine including a wheel rim and hub support structure arranged to clamp the

rim and retain a spoked hub in position centrally of the rim whilst spokes are inserted in series in a succession of groups into receiving holes in the rim, the wheel rim and hub being indexed to bring a hole in the wheel rim into alignment with a nipple retaining head supplied with nipples successively. There being adjacent the nipple retaining head a motor-driven screwdriver bit adapted to be advanced and retracted towards and away from the rim to collect a nipple during advancement, locate it on the end of the spoke and screw it onto the spoke to a predetermined condition of tensioning of the spoke and then to retract whilst a successive spoke hole in the rim containing a spoke is brought to the nipple-receiving head to receive a nipple upon the next successive advancing movement of the screwdriver bit.

3,636,615

JIG AND METHOD FOR PERFORMING WORK IN A WEIGHTLESS MEDIUM

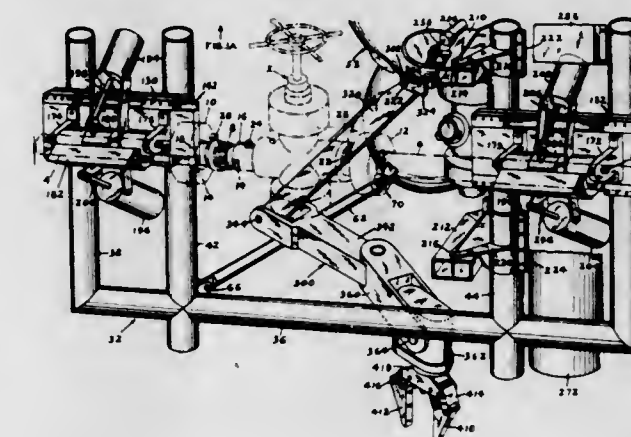
Guy N. Rothwell, Jr., Kaneohe, Hawaii, assignor to Telecheck International, Inc.

Filed Mar. 18, 1969, Ser. No. 808,158

Int. Cl. B22d 19/10; B23p 7/00

U.S. Cl. 29-401

3 Claims



A jig for positioning a work-performing member relative to an installation in a medium in which said member is essentially weightless and on which installation said work performing member is to perform work, for example, changing a component, such as a valve, in an underwater pipeline in which the jig has clamping means for engagement with the installation structure and for moving the jig and vehicle attached thereto longitudinally along the structure for aligning the jig and vehicle with the component in the installation upon which work is to be performed, an arm and clamp for holding the replacement component and for positioning such replacement component in the installation, and an arm and clamp for engaging and removing the component to be replaced and a remote-controlled unit associated with said jig for disconnecting the component to be replaced and for connecting the replacement component in the underwater installation and the method for operating such jig.

3,636,616

METHOD FOR MANUFACTURING COINS

Ake Gustav Vilhelm Remning, Flinspang, Sweden, assignor to Aktiebolaget Svenska Metallverken, Vasteras, Sweden

Filed Oct. 22, 1969, Ser. No. 868,406

Claims priority, application Sweden, Oct. 24, 1968, 14388/68

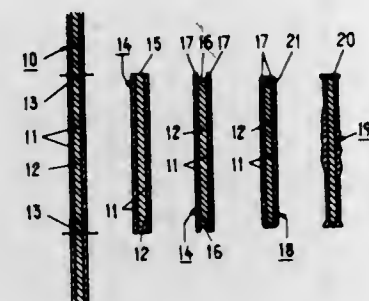
Int. Cl. B23p 13/04

U.S. Cl. 29-557

4 Claims

A method in the manufacture of coins, medals and like objects from plated material, the method including the steps of forming from the plated material discs having an extension which exceeds the extension of the blanks used in the embossing operation, recessing the peripheral edge surface of each disc so that the outer layer of the disc projects beyond

the central layer thereof, folding the outwardly projecting portions of the outer layers of each disc toward each other, the recess being made sufficiently large so that the said in-



wardly folded portions at least approximately reach each other, and embossing the resulting blanks to form coins or like objects.

3,636,617

METHOD FOR FABRICATING MONOLITHIC LIGHT-EMITTING SEMICONDUCTOR DIODES AND ARRAYS THEREOF

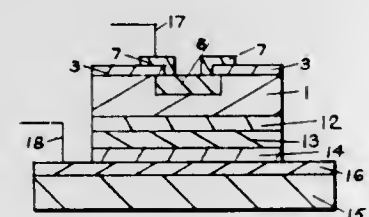
John George Schmidt, St. Louis, Mo., and Enghua Lim, Los Gatos, Calif., assignors to Monsanto Company, St. Louis, Mo.

Filed Mar. 23, 1970, Ser. No. 21,639

Int. Cl. B01j 17/00; H01l 5/00

U.S. Cl. 29—578

4 Claims



3,636,618

OHMIC CONTACT FOR SEMICONDUCTOR DEVICES

Arno Henry Herzog, St. Louis; James F. Caldwell, Hazelwood; John George Schmidt, St. Louis, all of Mo., and Enghua Lim, Los Gatos, Calif., assignors to Monsanto Company, St. Louis, Mo.

Filed Mar. 23, 1970, Ser. No. 21,637

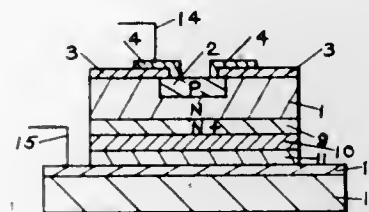
Int. Cl. B01j 17/00; H01l 7/02

U.S. Cl. 29—589

10 Claims

The disclosure herein relates to a method for forming ohmic contacts to the backside of solid-state semiconductor devices comprising a sequential deposition and alloying of a multilayered structure comprising, respectively, tin, gold,

nickel and gold alloyed to the semiconductor body, which is then mounted on a gold-plated metal base with a gold epoxy



preform. Other suitable base and preform materials are also disclosed.

3,636,619

FLIP CHIP INTEGRATED CIRCUIT AND METHOD THEREFOR

Joseph M. Welty, Los Altos Hills; Philip Shiota, San Francisco, and Roger W. Murray, Palo Alto, all of Calif., assignors to Teledyne, Inc., Mountain View, Calif.

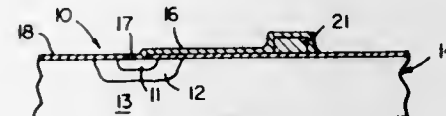
Filed June 19, 1969, Ser. No. 836,219

Continuation of Ser. No. 657,201, July 31, 1967

Int. Cl. B01j 17/00; H01l 1/14

U.S. Cl. 29—591

1 Claim



A flip chip integrated circuit having a raised contact pad for coupling to a substrate containing a printed circuit to which several chips are to be coupled. The raised contact pad is formed by etching a window in an active semiconductor region, depositing an aluminum mesa on the oxide passivating surface of a chip, and then evaporating an aluminum layer between the window and on top of the contact pad.

3,636,620

POROUS FLUID-COOLED ELECTRICAL CONDUCTORS AND METHOD FOR MAKING SAME

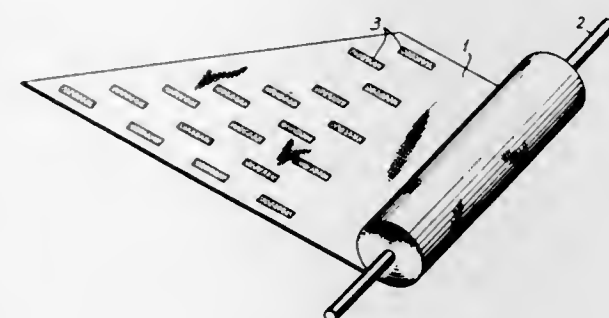
Hugh M. Long, Tonawanda, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Nov. 10, 1969, Ser. No. 875,326

Int. Cl. H01b 13/00; H05k 3/00

U.S. Cl. 29—624

6 Claims



3,636,621

LEAD FORMING METHOD

Raymon H. Dammar, Minneapolis, Minn., assignor to Possis Machine Corporation, Minneapolis, Minn.

Original application July 14, 1966, Ser. No. 565,291, now

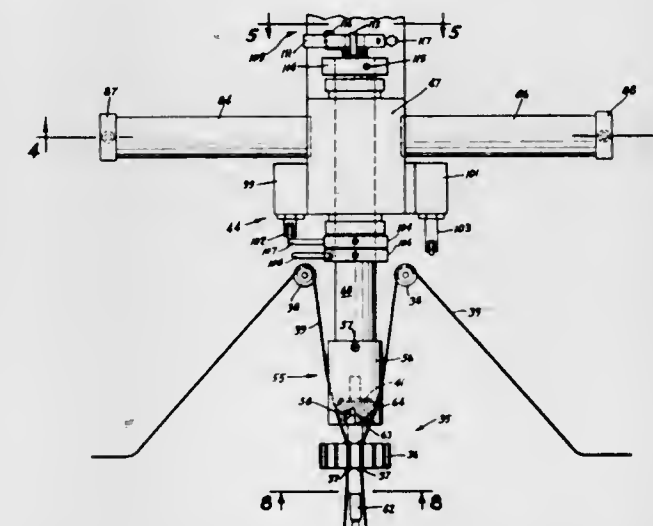
Patent No. 3,474,515. Divided and this application Aug. 26,

1968, Ser. No. 794,832

Int. Cl. H02k 15/00

U.S. Cl. 29—596

8 Claims



A method of attaching the leads of coils wound onto a slotted armature with the leads wrapped at least partially around the shaft of the armature and then connected to selected commutator hooks circumferentially spaced from the slots in which the coils are laid, which method is characterized by the fact that a pair of concentric sleeves shield the commutator to prevent engagement of the wire with the hooks during winding of the coils; and upon completion of a pair of simultaneously wound coils, rotation of the concentric sleeves both in unison and relative to one another, first in one direction and then the other, exposes the selected hooks and wraps the wire lead about them.

3,636,622

METHOD AND APPARATUS FOR MANUFACTURING THERMOSTATS

Donald J. Schmitt, Mansfield, Ohio, assignor to Therm-O-Disc, Incorporated, Mansfield, Ohio

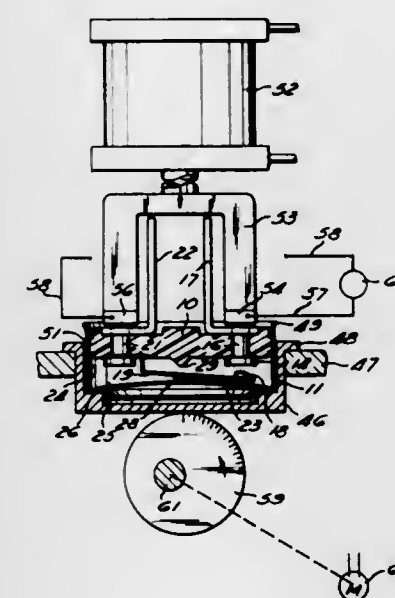
Original application Oct. 27, 1967, Ser. No. 678,586. Divided

and this application Feb. 3, 1969, Ser. No. 796,074

Int. Cl. H01h 11/00, 11/02

U.S. Cl. 29—622

5 Claims



A snap disc operated thermostat in which the switch body and disc case are free of surfaces which would limit the final

assembled position. Variations in the sizes of the component parts are compensated for by partially assembling the device until the switch first closes. This provides a reference point which compensates for component part size variations. The body and case are then moved to a final position of assembly through a predetermined distance arranged to insure proper snap operation of the switch in both opening and closing. Such predetermined distance is selected to compensate for existing ambient temperature during assembly and for the amount of creep between one position of stability and the adjacent position of instability.

3,636,623

METHOD OF REMOVING INSULATED MATERIAL FROM INSULATED WIRES

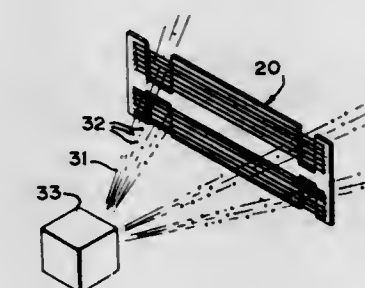
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Frank B. Ramme, Lancaster, Calif.

Filed Dec. 31, 1969, Ser. No. 889,554

Int. Cl. H01b 13/00; H05k 3/00

U.S. Cl. 29—624

7 Claims



A method of fabricating equal length insulated wires which have insulation removed from selected portions thereof. The method includes the step of supporting the wires on each of two notched wire-support structures or jigs by placing the two back-to-back and by winding wires about the two jigs. The wires' ends are cemented at the jigs' ends. After the cement hardens the jigs are separated from one another so that each carries a plurality of wires with each wire having portions thereof exposed through notches in the jig. Each jig is placed in the stream of an abrasive-material carrier. The carrier passes through the jig's notches causing the abrasive material to erode the insulation material from the portions of the wires which are exposed through the notches. After the removal of the insulation material, the bare portions of the wires are treated, prior to removing the wires from the jig by cutting them to equal lengths.

3,636,624

METHOD AND APPARATUS FOR INSERTING LEAD COMPONENTS INTO CIRCUIT BOARDS

Erwin F. Bates, Binghamton, N.Y., assignor to Universal Instruments Corporation, Binghamton, N.Y.

Filed Feb. 19, 1970, Ser. No. 12,690

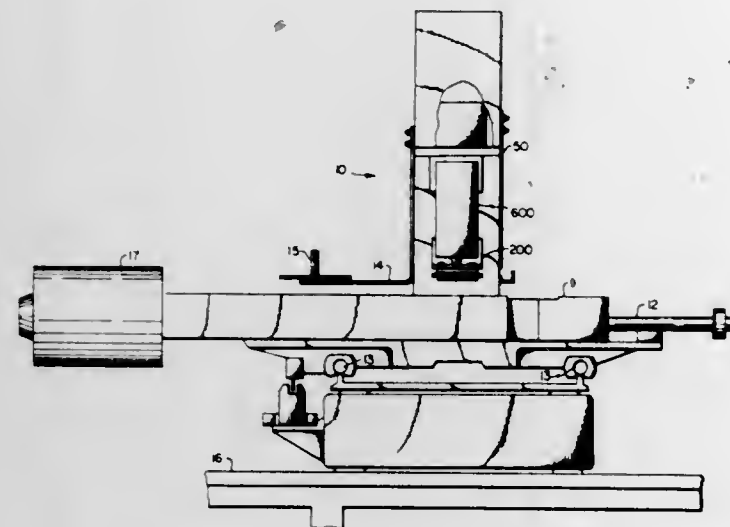
Int. Cl. H05k 3/30, 13/04

U.S. Cl. 29—626

22 Claims

An apparatus and method for inserting taped resistors of the type having at least two leads and like components into printed circuit boards. The apparatus comprises a feed mechanism utilizing a rotating feed wheel which in the method places components into engagement with the jaws of an insertion head whereupon the insertion head cuts the

component from the tape and carries the component down to a position directly over its insertion position on the circuit



board and a pusher rod forces the component or resistor down into the circuit board as the jaws separate.

3,636,625

APPARATUS FOR THE CARE OF THE BODY

Gunter Pracht, No. 17, Nettelbeckstrasse, 565 Solingen, Germany

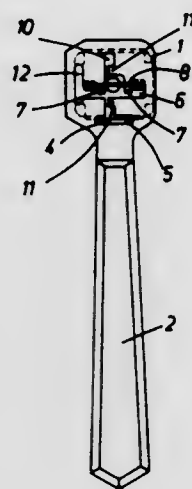
Filed Mar. 13, 1970, Ser. No. 19,293

Claims priority, application Germany, July 25, 1969, P 19 37 789.0

Int. Cl. A45d 29/00; B26b 5/00

U.S. Cl. 30-26

10 Claims



An apparatus which serves for the care of the body and which consists of a protective plate provided with an elongated handle, a cover plate and a cutting blade. The protective plate includes two planing holes and two slits, one extending transversely to the longitudinal axis and the other extending on the longitudinal axis of the apparatus. Each slit possesses at least one exposed tongue. The cover plate is provided with a bent-up tab which has at least one slit to enable it to be locked to the protective plate. The tab serves for the reception of an elongated guide slot in the removable and replaceable blade and passes through one of the slits of the protective plate whereby the exposed tongue engages the slit of the tab to clamp the blade.

3,636,626
DRY SHAVER

Frans Zuurveen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

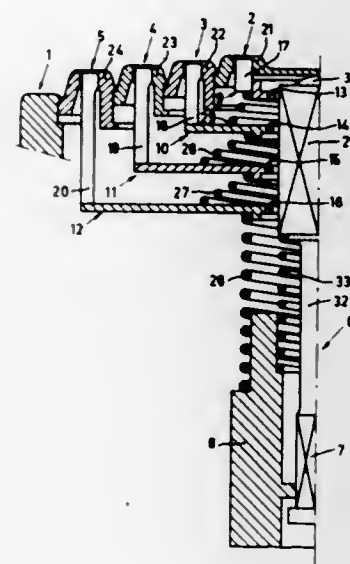
Filed Aug. 22, 1969, Ser. No. 852,306

Claims priority, application Netherlands, Aug. 31, 1968, 6812448

Int. Cl. B26b 19/14

U.S. Cl. 30-43.5

10 Claims



A dry shaver having a single shaft actuating at least two shaving heads formed by concentric shear plates adapted to be elevated and depressed relative to each other, each shear plate provided with a cooperating rotary cutter member resiliently maintained in engagement with the associated shear plate by separate springs between each two cutter members, the shear plates being coupled to one another in their extreme raised and depressed positions.

3,636,627

RAZOR WITH OSCILLATING HEAD

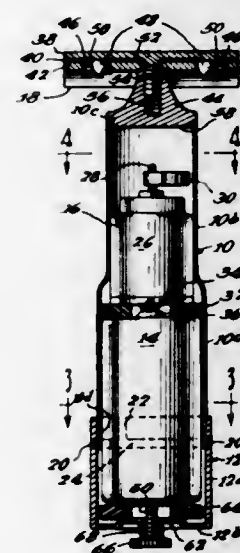
Victor Tiffin, R.R. 1, P.O. Box 20, South Elgin, Ill.

Filed Aug. 11, 1969, Ser. No. 848,924

Int. Cl. B26b 21/38

U.S. Cl. 30-45

8 Claims



A battery-driven vibratory safety razor in which a battery-driven electric motor in the handle of the razor has a very short eccentrically weighted shaft, and the structure is such that the entire assembly may be made by inserting components through the rear of the handle. A blade carrier and blade support are mounted in a plug in the front end of the handle by means of a central threaded post which is on the

blade guard and impales a central hole in the blade carrier. The speed of rotation of the eccentrically weighted motor shaft and the size of the orbit in which the razor head moves are coordinated with observed characteristics of hand motions of shavers to minimize possible cutting of the face during shaving.

3,636,628

ELECTRIC SHAVER CUTTER ASSEMBLY

Eduard Willem Tietjens, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

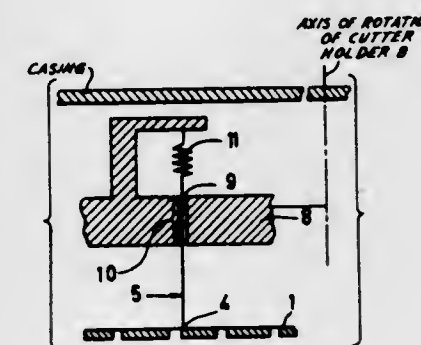
Filed July 14, 1969, Ser. No. 841,237

Claims priority, application Netherlands, July 19, 1968, 6810337

Int. Cl. B26b 19/14

U.S. Cl. 30-43.6

6 Claims



A dry shaver having a cutter with a shank part movable in a holder axially and slightly inclinable, and a blade part of the cutter urged against a shear plate by a spring, the shank, when inclined due to cutting action, having axially spaced parts thereof engaging the holder which locks the cutter's position from further axial or tiltable movement.

3,636,629

HOSE CUTTER

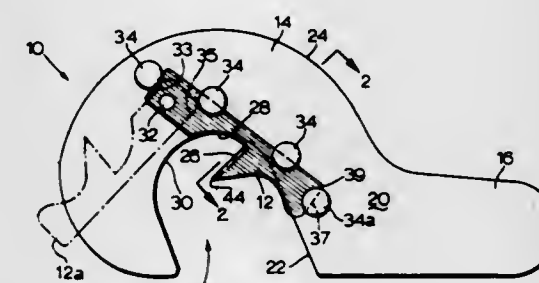
Theodore Baun, 231 Bellamy Road, Scarborough, Ontario, Canada

Filed Oct. 13, 1969, Ser. No. 865,624

Int. Cl. B23d 21/06

U.S. Cl. 30-94

5 Claims



A hose and pipe cutter for cutting rubber and plastic hoses and pipes substantially perpendicularly to the axis thereof at the point where the cut is made; comprising a holder having a substantially planar upper surface and an indent formed in the holder, and a blade secured to the upper surface of the holder so that a cutting surface projects at least part way across the indent.

3,636,630

METHODS AND APPARATUS FOR CONTINUOUS MANUFACTURE OF CHEESE

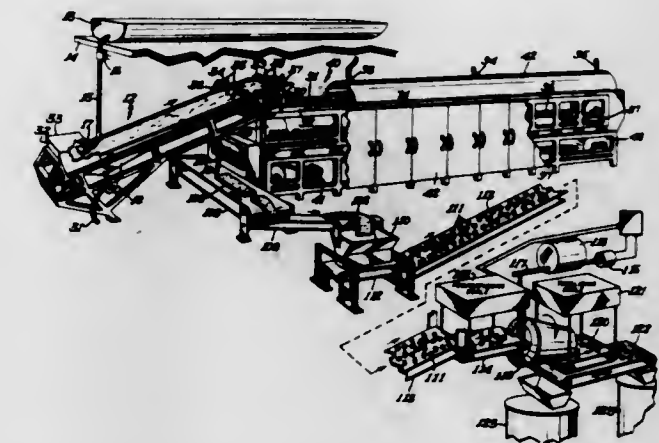
Burnell E. Budahn, Norwood, Minn.

Continuation of application Ser. No. 676,397, Oct. 19, 1967, now abandoned. This application Aug. 11, 1970, Ser. No. 62,999

Int. Cl. A01j 25/00

U.S. Cl. 31-89

39 Claims



Disclosed herein are methods and apparatus for the continuous, completely automated manufacture of cheese from curd to hooping stage which provides an inclined, continuous stainless steel perforated conveyor to separate the whey from the curd and deposits the curd upon an impermeate stainless steel belt matting conveyor. The curd is forced initially into narrower transverse dimensions and thereafter permitted to expand laterally to facilitate the escape of whey while moving on the matting conveyor. When the matting process is essentially half completed, the curd mat is transferred to a second and similar belt conveyor running in the opposite direction and in so doing, is inverted. Live steam is applied to the matting curd as it moves along the matting conveyors within their housings. An automated guillotine knife cuts the curd mat vertically into inch slabs at the end of the matting conveyor and another conveyor moves the slabs into a milling machine which cuts the curd into 1 inch cubes from whence it is conveyed into an inclined, open-ended tumbling drum along with a proportionate amount of salt. As the salted curd leaves the drum, it is deposited in hoops for subsequent pressing and aging.

3,636,631

TEETH-SEPARATING WEDGES FOR USE DURING FILLING OPERATIONS

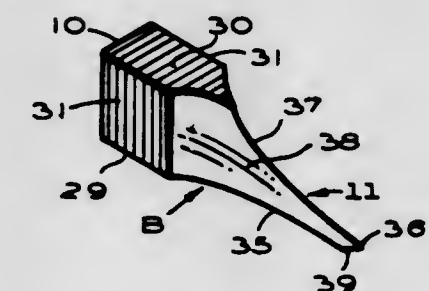
Benjamin F. Tofflemire, 41,301 Crest Drive, Hemet, Calif.

Filed Dec. 18, 1970, Ser. No. 99,609

Int. Cl. A61c 3/00

U.S. Cl. 32-64

2 Claims



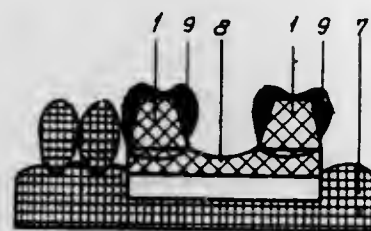
Teeth-separating wedges for use during filling operations wherein each wedge has a base rectangular in cross section with an interdental wedge portion projecting lengthwise from the base, the wedge portion being contoured to conform with the interproximal parts of the teeth against which the wedge portion is inserted.

3,636,632

METHOD OF MAKING DENTAL BRIDGES, DENTAL CROWNS, AND DENTAL CORONO-RADICULAR RETAINERS

Eugen Costa; Ioan Covacl, and Gheorghe Surca, all of Bucharest, Romania, assignors to Clinica SI Policlinica de Stomatologie Ortopedica, Bucharest, Romania
Filed Apr. 14, 1969, Ser. No. 815,925
Int. Cl. A61c 13/22

U.S. Cl. 32-5



A method of making a dental prosthesis, such as a dental bridge, dental crown or corono-radicular retainer wherein a negative cast of the mouth area is formed by surrounding at least part of the area with a copper ring and introducing a casting material into said ring. Thereafter a plaster positive model is formed by introducing plaster into said cast. The model is fixed to the wall of a container and duplicated by casting a hydrocolloid material about the model and withdrawing said model from said hydrocolloid material upon setting to form a reversible hydrocolloid negative impression. An investment material is used to form a positive representation from the investment material and there is built up with a thin layer of wax on said positive representation the configuration of the prosthesis to be fashioned. Then a lost-wax casting mold is formed about the positive representation with the wax layer thereon and a molten metal is cast in the mold to produce the prosthesis.

3,636,633

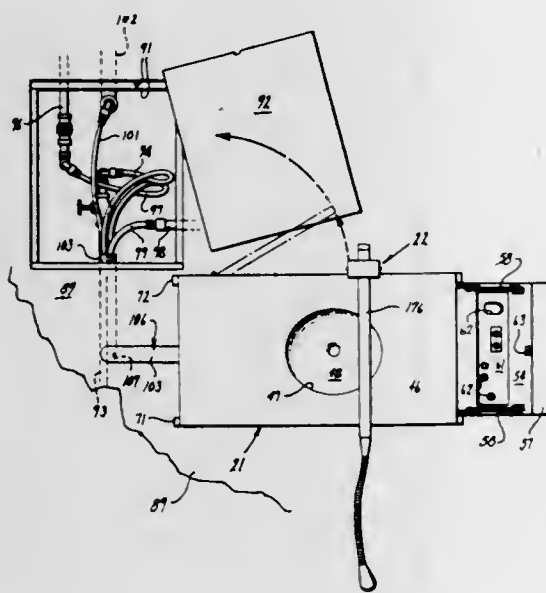
DENTAL CONSOLE

Frank I. Fuller, Portola Valley; Shirl S. Fox, Menlo Park, and Ronald F. Keller, Aptos, all of Calif., assignors to Dental Designs

Filed Dec. 31, 1969, Ser. No. 889,471
Int. Cl. A61c 19/02

U.S. Cl. 32-22

15 Claims



Dental console having a cabinet with a plurality of dental instruments mounted in the cabinet. A source of light is mounted in the cabinet. A flexible fiber optics cable is mounted in the cabinet and has one end positioned so that it

is facing the source of light. Means is provided for mounting the fiber optics cable so that the other end of the fiber optics cable will remain in any one of a plurality of predetermined positions so that it can be utilized to supply general illumination to the mouth of the patient.

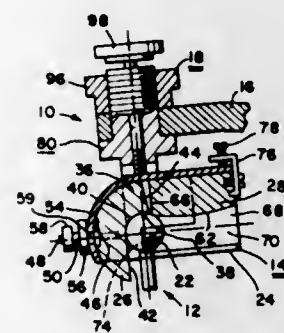
3,636,634

HINGE JOINT FOR DENTAL ARTICULATOR

Anthony J. De Pietro, 208 School Lane, Springfield, Pa.
Filed Oct. 28, 1970, Ser. No. 84,585
Int. Cl. A61c 11/00

U.S. Cl. 32-32

12 Claims



A hinge joint for a dental articulator is provided with a hinge part in the form of a spherical element carried by the lower bow member and a hinge part carried by the upper bow member including anterior and posterior guide parts conjointly providing a condylar guide surface seated upon the spherical element and an abutment engaging the side of the spherical element. The posterior guide part may be selectively rocked about its own principal axis relative to the anterior guide part and/or selectively moved back and forth in an arcuate path orbitally about the spherical element relative to the anterior guide part.

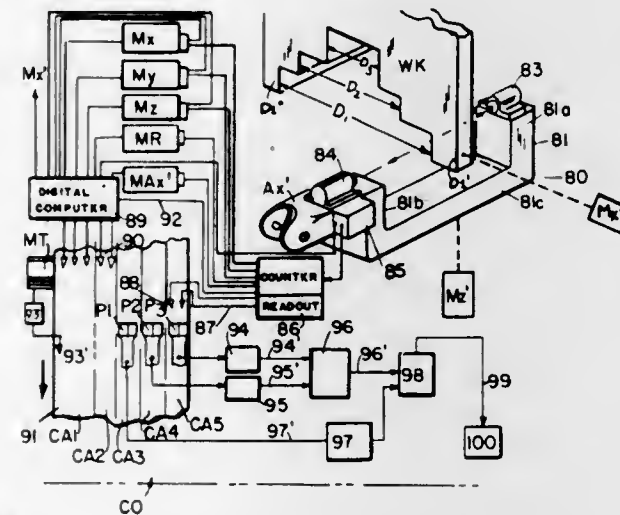
3,636,635

AUTOMATIC MEASUREMENT APPARATUS

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J.
Continuation-in-part of application Ser. No. 518,616, Jan. 3, 1966, now Patent No. 3,476,481. This application Oct. 7, 1969, Ser. No. 864,510
Int. Cl. G01b 5/00, 11/00

U.S. Cl. 33-174 L

12 Claims



An automatic measurement apparatus is provided which employs a device for scanning work to be measured by the relative movement of a sensor and the work whereby the sensor senses one or more surfaces of the work. Means are provided for generating code signals indicative of the relative movement and further means are provided for visually presenting information as a readout which indicates the loca-

3,636,638

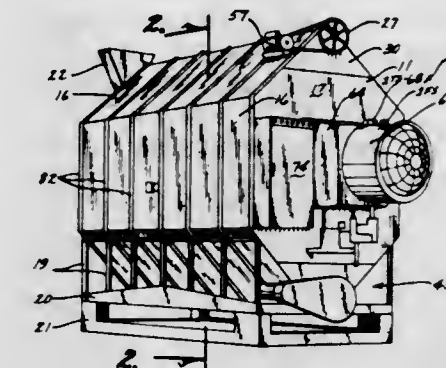
AUTOMATIC GRAIN DRYER

Ronald T. Noyes, Frankfort, Ind., assignor to Beard Industries, Inc., Frankfort, Ind.

Filed Aug. 19, 1970, Ser. No. 65,042
Int. Cl. F26b 13/10

U.S. Cl. 34-45

9 Claims



This invention comprises a grain dryer wherein the entire operation of drying the grain from a wet condition to one of a predetermined lower moisture content is completely automated, with an improved control circuitry including a bilevel photoelectric unit mounted within the dryer for refilling the drying column based purely upon moisture removal rate or shrinkage rate of the grain, the circuitry including further a temperature-controlled unit for sensing the temperature of the air as it passes through the grain column based on a predetermined temperature setting, and wherein the circuitry includes a second temperature-controlled unit for alternately turning the burner on and off during the heating cycle such that the grain is dried by a heat-pulsing action.

3,636,639

DRYER

Fredrik Adolf Schuurink, 27, Fr. Rooseveltlaan, Breda, Netherlands

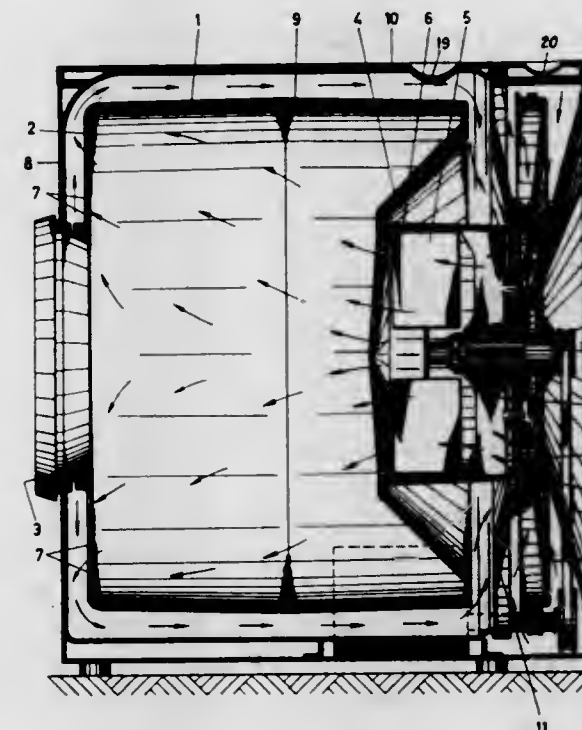
Filed Nov. 14, 1969, Ser. No. 876,984

Claims priority, application Netherlands, Nov. 21, 1968, 68/16657

Int. Cl. F26b 11/02

U.S. Cl. 34-133

5 Claims



A laundry dryer having a rotatable drum and a fan to force heated air into the center of the drum. The heating means is

3,636,636

RADIUS-SETTING GAUGE

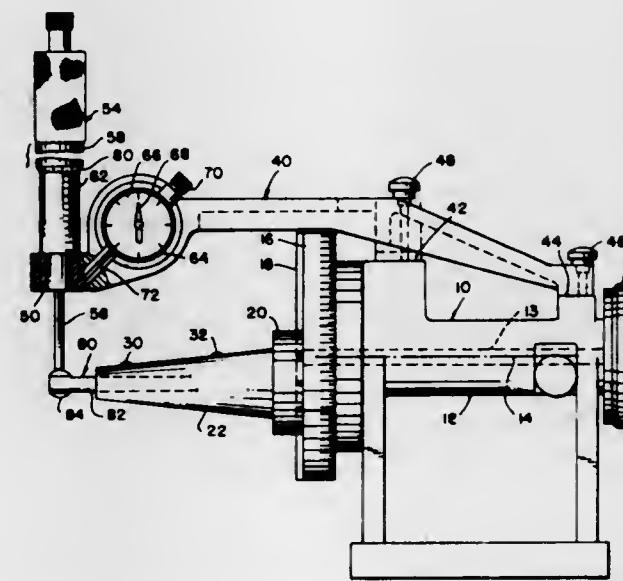
Joseph W. Baldyga, Utica, Mich., assignor to Diamond Die & Mold Co., Mount Clemens, Mich.

Filed Oct. 24, 1969, Ser. No. 869,149

Int. Cl. B27g 23/00

U.S. Cl. 33-185

6 Claims



A radius-setting gauge for direct attachment to the frame of a radius dresser, including a movable micrometer to be set to the required radius, and an indicator for indicating the position of the micrometer.

3,636,637

METHOD AND APPARATUS FOR DRYING LIQUID DEPOSITED ON LIQUID RECEPTIVE MATERIAL

Charles N. Keith, Bedford, Tex., assignor to Graphic Pollution Control, Inc., Irving, Tex.

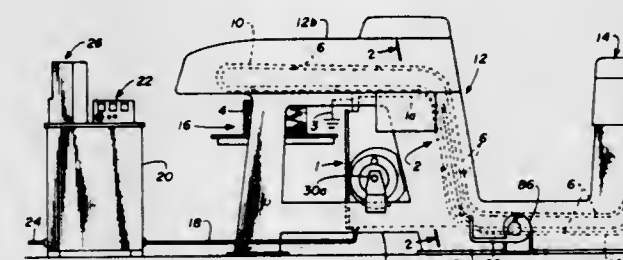
Continuation-in-part of application Ser. No. 1,030, Jan. 6, 1970, now abandoned. This application May 6, 1970, Ser. No.

35,146

Int. Cl. B01k 5/00

U.S. Cl. 34-1

28 Claims



An electronic dryer for setting ink comprising spaced electrodes of an antenna radiating a high potential radiofrequency electromagnetic field through which is passed a liquid receptive material, such as paper, having wet ink thereon. A shield of dielectric material is positioned to extend between the electrodes to prevent arcing between the electrodes. In addition, ionized air around the electrodes is removed to further minimize the possibility of interelectrode arcing. A static electricity eliminator is employed to generate an electromagnetic field for removing static charges from the paper to prevent arcing between the paper and the electrodes.

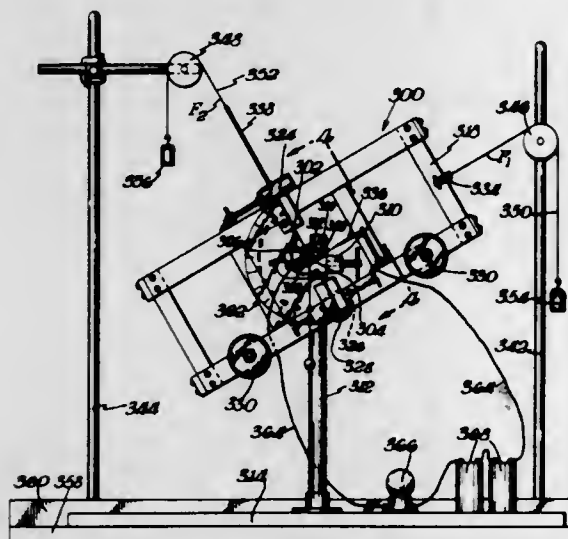
located between two sheets, the first being supported by the casing and the second being rotatable with the drum. The second sheet has an air passage on each side of it thus ensuring that incoming air picks all the heat available from it to improve the heating efficiency.

3,636,640 INCLINED PLANE

Robert F. Chambers, 504 Beverly Road, Newark, Del.
Continuation-in-part of application Ser. No. 735,259, June 7, 1968, now Patent No. 3,520,981. This application May 5, 1970, Ser. No. 34,750
Int. Cl. G09b 23/06

U.S. Cl. 35-19 R

5 Claims



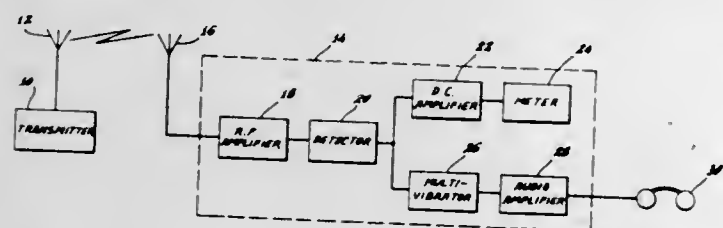
Apparatus for determining weight components of mass on inclined plane acting perpendicular and parallel to incline comprises adjustable inclined plane with mass supported upon plane. Force-applying structure is provided for forcing mass in upward direction perpendicular to inclined plane until mass just moves away from plane. Force-applying structure also forces mass in upward direction parallel to inclined plane until mass just moves in that direction.

3,636,641 RADIOLOGICAL TRAINING DEVICE

Samuel W. Daskam, R.D. 2 Box 360, Flemington, N.J.
Filed Apr. 7, 1969, Ser. No. 814,045
Int. Cl. G09b 9/00; H04b 1/00

U.S. Cl. 35-1

6 Claims

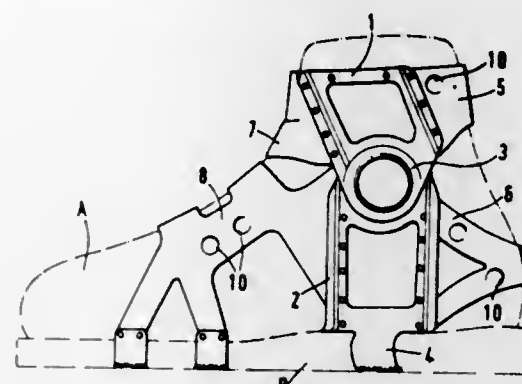


There is disclosed a training device for simulating the action of a nuclear radiation detector. A transmitter emits a single-frequency RF signal in the VHF frequency range. The simulated detector is a radio receiver having a voltage-controlled multivibrator with an output to a meter and a head set. Thus, audible clicks are produced whose repetition rate varies inversely with the distance from the transmitter. The use of a VHF frequency results in the simulated field being distorted by reflection from surrounding terrain.

3,636,642
SKI BOOT
Helmut Walther, Via Ponte Rocca 21, Saluggia, Vercelli, Italy
Filed Oct. 20, 1969, Ser. No. 867,493
Int. Cl. A43b 00/00

U.S. Cl. 36-2.5 AL

5 Claims

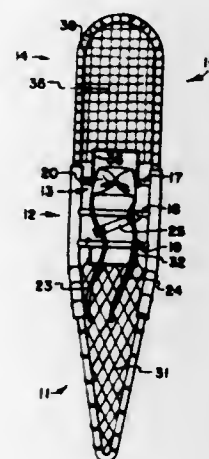


A ski boot provided with an external reinforcing structure which permits forward bending of the leg relative to the foot of the wearer, i.e., the normal movement carried out during skiing, said reinforcing structure being removable to permit the boot to be made of softer material than that normally used for ski boots so that the ski boot when used for walking without the reinforcing structure affords the same convenience to the wearer as a normal shoe for walking.

3,636,643
SNOWSHOE
Robert H. Lundquist, 80 South Fourth East, Kaysville, Utah
Filed Feb. 13, 1970, Ser. No. 11,069
Int. Cl. A63c 13/00

U.S. Cl. 36-4.5

7 Claims

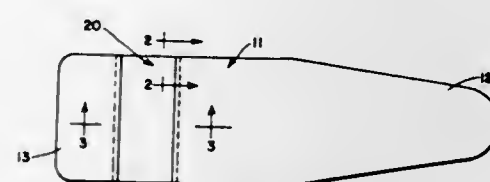


A lightweight, collapsible snowshoe formed from a plurality of sections which can be readily assembled to form a broad, support surface for use and that can be disassembled and compacted for storage and transporting.

3,636,644
IRONING BOARD COVER
Marjorie H. Janetzke, 2049 42nd St., Rock Island, Ill.
Filed Mar. 17, 1970, Ser. No. 20,192
Int. Cl. D06f 81/14, 83/00

U.S. Cl. 38-140

8 Claims



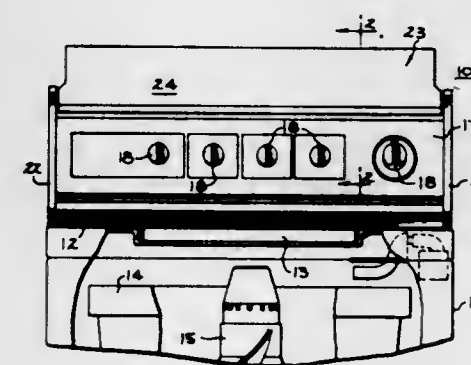
An ironing board cover having a pad structure for resting a hot iron thereon that extends transversely across the cover

and is composed of upper and lower layers of fiber glass or other no-scorch material and a layer of insulating pad between the upper and lower layers. The pad is fixed to the upper surface of the cover along a transverse edge facing the head end of the ironing board with means providing a relatively smooth and continuous surface from the cover onto the pad.

3,636,645
APPLIANCE CONTROL CONSOLE
Clifford E. Erickson, and Harrison K. Linger, both of Louisville, Ky., assignors to General Electric Company
Filed Dec. 10, 1969, Ser. No. 883,888
Int. Cl. G09f 1/00

U.S. Cl. 40-124.1

3 Claims



An appliance control console is provided having an up-standing cabinet structure with an operation instruction form support member pivotally secured thereto for movement between a retracted position and an extended position. The pivotal connection between the support member and the cabinet structure is spaced from the support member and positioned relative to the support member so as to cause the center of gravity of the support member to lie rearwardly of the pivotal connection when the support member nears the retracted position, and to cause the center of gravity to lie forward of the pivotal connection when the support member nears the extended position. By this arrangement when the support member is moved to a position nearing the retracted position, the center of gravity being spaced rearwardly of the pivotal connection will tend to rotate the support member rearwardly to the retracted position, and when the support member is moved to a position nearing the extended position, the center of gravity being spaced forwardly of the pivotal connection will tend to rotate the support member forwardly to the extended position. First and second stop means are provided to maintain the support member in the retracted and extended positions. A counterweight may be provided to facilitate the rotation of the support member without the use of excessive force.

3,636,646
BARREL LOCKING MEANS FOR A DOUBLE-BARRELED SPORTING GUN

Georges Drevet, Saint-Etienne, Loire, France, assignor to Manufacture Française d'Armes & Cycles de Saint-Etienne, Cours Fauriel, Saint-Etienne, Loire, France
Filed May 2, 1969, Ser. No. 821,297

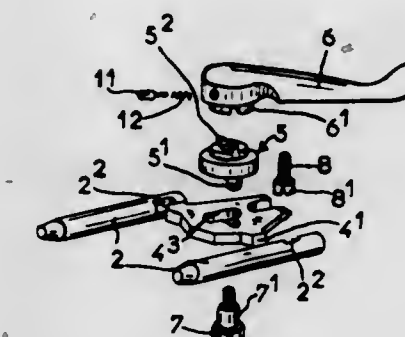
Claims priority, application France, Oct. 22, 1968, 210
Int. Cl. F41c 11/08, 11/10

U.S. Cl. 42-44

3 Claims

A double-barreled drop-down sporting gun including means for locking the barrel in its closed condition by means of pins carried by the barrel and engaging the remaining barreled section of the gun upon operation of a toggle lever which is locked in its barrel unlocking position as long as the barrel is open. The gun is furthermore provided with means through which the trigger controlling the firing through one

barrel is mechanically connected with the triggering means for the other barrel in such a manner that after firing one

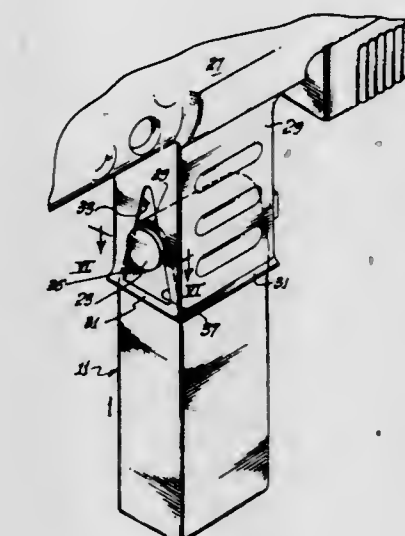


shot through one barrel the marksman may actuate the same trigger again so as to fire through the other barrel.

3,636,647
SEALED CARTRIDGE MAGAZINE
Morris Goldin, Orange, Calif., assignor to Hughes Tool Co., Culver City, Calif.
Filed Dec. 15, 1969, Ser. No. 885,036
Int. Cl. F41c 25/02

U.S. Cl. 42-50

7 Claims



An hermetically sealed magazine for feeding cartridges to an automatic rifle. The upper end of the magazine is provided with removable caps which seal coaxial apertures which form the opposite ends of a cartridge feed-passage. The caps are removed when the magazine is inserted into a rifle by severing devices which are integral with a magazine well on the rifle.

3,636,648
BEARING MEANS FOR A BOLT ACTION OF A GUN
William J. Spencer, 5501 Brookdale Drive, Brooklyn Park, Minn.
Filed Mar. 10, 1970, Ser. No. 18,081

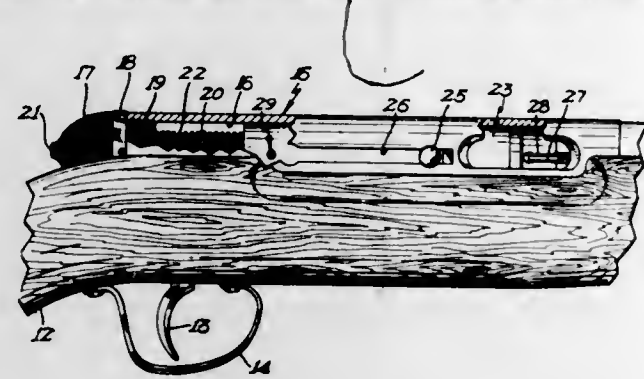
Int. Cl. F41c 11/00, 11/06

U.S. Cl. 42-16

6 Claims

A gun comprises a barrel, stock, receiver and a bolt slidable in the receiver. The bolt is provided with a plurality of bearing units which include ball elements mounted in a housing which are secured in recesses in the bolt. The ball elements engage the interior surface of the receiver to facilitate

movement of the bolt. The firing pin of the bolt is also mounted for longitudinal movement by ball elements which



has an upright control lever pivoted to the stationary support of the device. The upper end of the lever carries a wheel above and to one side of the upwardly directed exposed face of the plate. The wheel is turned and the lever is pivoted for tilting the plate in two intersecting planes.

3,636,651

TOY VEHICLE PROPULSION UNIT

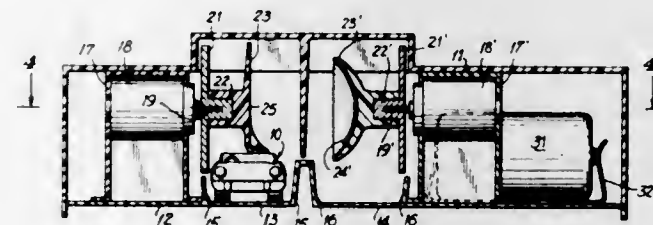
Raymond J. Lohr, Erie; Merle R. Lewis, McKean; Walter Hubiak; Charles M. Kienholz, both of Lawrence Park, and Richard N. Carver, Erie, all of Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.

Filed Aug. 20, 1969, Ser. No. 851,707

Int. Cl. A63h 11/10

U.S. Cl. 46-1 K

5 Claims



3,636,649

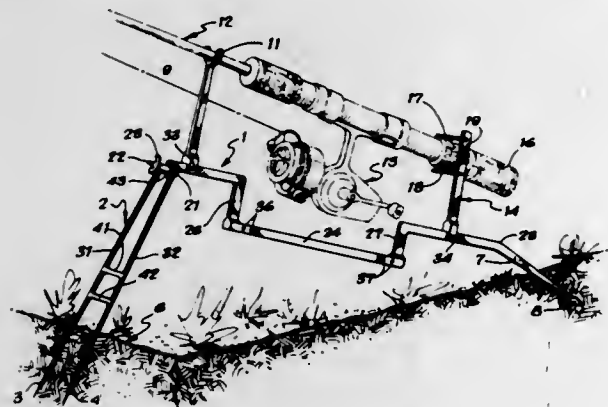
FISHING ROD HOLDER

Stanley H. Paiva, 2905 Julio Ave., San Jose, Calif.
Filed July 27, 1970, Ser. No. 58,231

Int. Cl. A01k 97/10

U.S. Cl. 43-21.2

3 Claims



A fishing rod holder for holding rods equipped with spinning reels consisting of a frame constructed with an offset portion, a forked member attached to the forward end of the frame and having pointed ends for insertion into the ground, a tail member attached to the rear of the frame having a spade-shaped end for insertion into the ground, providing a three-point support, the rod being held by an open yoke attached to the forward portion of the frame and by laterally extending, vertically spaced pins on an upstanding member attached to the rear of the frame.

3,636,650

AMUSEMENT DEVICE

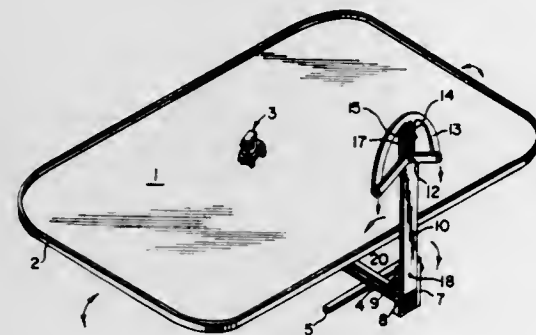
David Honig, 207-27 27th Ave., Bayside, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,724

Int. Cl. A63h 33/00

U.S. Cl. 46-1 R

7 Claims



An amusement device having a plate centrally mounted on a universal joint and controls for tilting the plate on the joint

A toy gun that shoots a projectile, such as a stream of fluid, pellet or missile, has a bubble-making apertured frame element mounted far enough in front of the gun barrel to be dipped in a bubble-making solution without wetting the barrel. The apertured frame element is shaped and positioned to provide a sight for aiming the gun at a bubble.

3,636,653

WINKING AND BLINKING DOLL EYES AND ACTUATION THEREFOR

Robert Gardel, New York; Egon Gorsky, Brooklyn, and Richard S. Turshen, Elmont, all of N.Y., assignors to Dollac Division, Jacoby Bender, Inc., Woodside, N.Y.

Original application Aug. 11, 1964, Ser. No. 388,752, now Patent No. 3,429,068. Divided and this application Mar. 29, 1968, Ser. No. 734,510

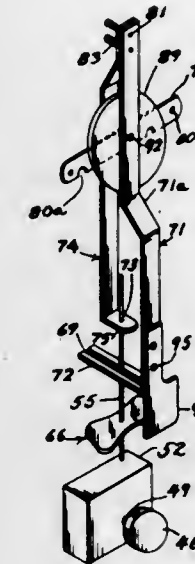
Int. Cl. A63h 5/00

U.S. Cl. 46-118

6 Claims

A doll with eyes which may be actuated by gravity and also

rods moved by a lever. The lever is moved by means



operated by a cam extending from a shaft driven by a motorized music box mounted within the doll.

3,636,654

STUFFED TALKING TOY REPRESENTING A RADIO

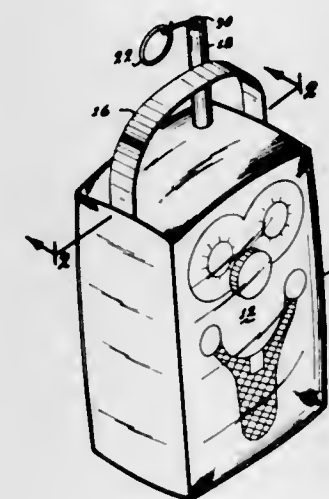
Larry D. Workman, Fountain Valley, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Nov. 12, 1970, Ser. No. 88,900

Int. Cl. A63h 5/00

U.S. Cl. 46-175 AR

7 Claims



A stuffed talking toy representing a radio or other communication device that has an antenna, which is constructed for safe use by small children. The toy includes a flexible casing filled with a compressible stuffing, a phonograph within the casing of the type which has a spring motor that is wound by a pull cord, and a tube representing an antenna disposed on the casing. In order to prevent injury when a child brushes by the antenna, the antenna tube is not attached to the casing and therefore can be easily knocked over, but the pull cord extends through it and tension on the cord tends to maintain the antenna tube in an upright orientation. The phonograph within the casing is held away from the casing by a rigid tube through which the pull cord extends.

3,636,655

DOLL HAVING TIME INDICATING MEANS AND RECORD PLAYER COORDINATED THEREWITH

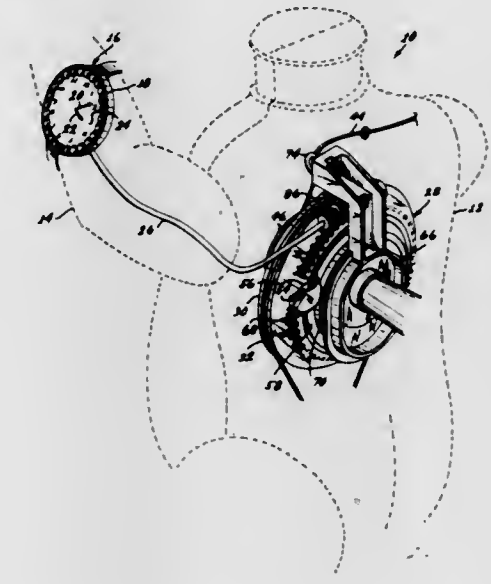
Irwin C. Porter, Quinter, Kans.; Jack L. Barcus, Cerritos; David L. Bear, Palos Verdes Estates, and James E. Marshall, Westminster, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Aug. 3, 1970, Ser. No. 60,442

Int. Cl. A63h 5/00; G09b 19/12

U.S. Cl. 46-117

8 Claims



A doll with a simulated wristwatch whose hands can be set to different times and with a phonograph which plays one of twelve sayings that state the time shown by the hands of the watch. The phonograph includes a record with twelve grooves, the grooves having lead-in portions spaced about the periphery of the record. When a cord is pulled to wind a spring motor, the record turns in reverse until it hits a stop, the stop therefore determining which groove will be engaged by the needle when the record is played. The stop can be shifted to choose a different record groove, by turning the hands on the watch, so that the saying which is played always corresponds to the time shown by the watch.

3,636,656

DOOR ASSEMBLY

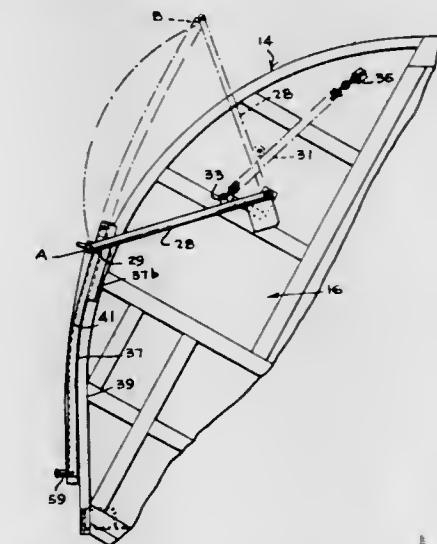
James Dennis, Culpeper, Va., assignor to City Tank Corporation, Culpeper, Va.

Filed Feb. 11, 1970, Ser. No. 10,425

Int. Cl. E06b 3/34

U.S. Cl. 49-40

14 Claims



A door assembly for a vehicle having an enclosure with an opening therein generally including means mounted along

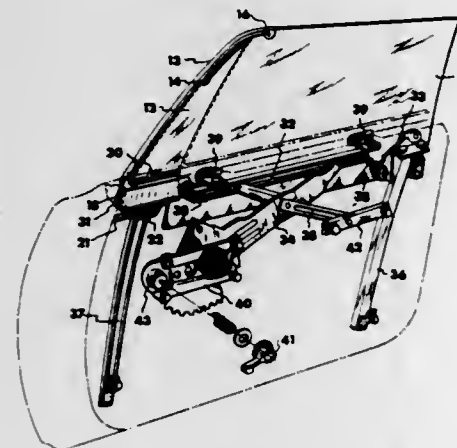
opposed sides of the opening providing opposed guide channels, the guide channels having opposed walls including openings therein, cover means for the enclosure opening operatively connected at one end thereof to the enclosure for movement between open and closed positions relative to the enclosure opening, and the cover means having a latch assembly spaced from the operative connection of the cover means to the enclosure, the latch assembly including a pair of latch pins movable along a line of travel intersecting the opposed guide channels, and actuating means for moving the latch pins along the line of travel thereof to selectively position the outer end portions thereof in the guide channels to permit relative movement between the cover means and the enclosure to open and close the cover means, and to position the ends of the latch pins in the openings in the walls of the guide channels to restrict the movement of the cover means along its line of travel relative to the enclosure.

3,636,657

REGULATING APPARATUS FOR CAR'S WINDOW
Sukeo Tsurumi, 574-62 Nina, Minoo-shi, Osaka, Japan
Filed Feb. 27, 1970, Ser. No. 15,052
Claims priority, application Japan, Apr. 11, 1969, 44/27700
Int. Cl. B60j 1/14

U.S. Cl. 49-144

2 Claims



The present invention relates generally to a car side window lifting mechanism, and more particularly to a mechanism for moving up or down, as so desired, a triangular window glass positioned in front of a side window of a car, in synchronized relation with said side window glass. The triangular window can be turned or revolved laterally in the opening direction only from the inside of the car when said triangular window is in its upper limit position. The turning or revolving of the window in the closing direction can be practiced either from the inside or from the outside of the car, and both the opening and the closing of said triangular window can be performed by "one-touch" (or single-step) operation. The operating lever and other means used in the mechanism are arranged so as not to project from the wall face of the apparatus, and also the operation of these means is easy and simplified.

3,636,658

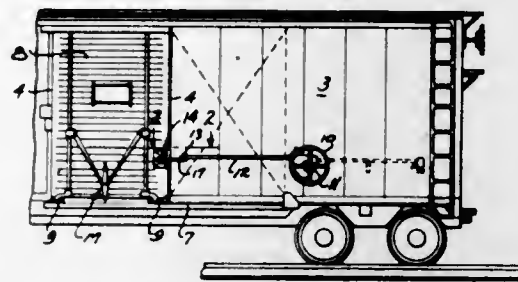
HOUSE CAR PLUG DOOR CONTROL MECHANISM
Luther L. Bollinger, Sr., Reading, Pa., assignor to Hennessy Products Incorporated, Chambersburg, Pa.
Filed Apr. 27, 1970, Ser. No. 32,049
Int. Cl. E05f 1/134

U.S. Cl. 49-362

7 Claims

A door operating mechanism particularly adapted for rail-

way freight car sliding doors of heavy "plug" type which are



shifted into and out of the door opening before and after movement alongside the car wall.

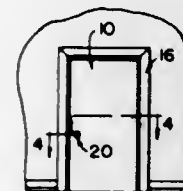
3,636,659

DOOR CONSTRUCTION

Richard A. Bylicki, 14366 Coyle Ave., Detroit, Mich.
Filed Sept. 21, 1970, Ser. No. 74,197
Int. Cl. E05d 1/110

U.S. Cl. 49-383

5 Claims



A swinging door is equipped with a key operated, double deadlock-type cylinder lock, operable only by key from either door side. The door panel is provided on the hinged edge thereof with one or more fixed dowel members projecting substantially from that edge, which are coaxially received telescopically, when the door is closed, in detent socket means in a frame jamb abutted by the door edge. This prevents removal of the door from the frame by removal, at the interior of the door-closed space, of the door hinge pin-tles, or by removal or forcing of the hinge itself, since the panel is double dogged at its other edge.

3,636,660

INTERNAL VENT FOR WINDOW SASH

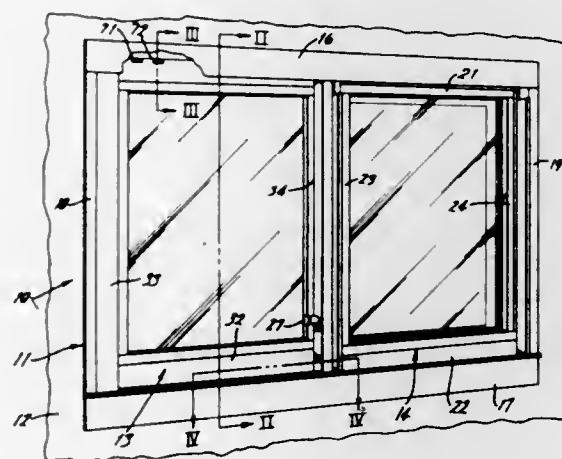
Gerald D. Peterson, 704 East Long Lake Road, Bloomfield Hills, Mich.

Filed Mar. 9, 1970, Ser. No. 2,449

Int. Cl. E06b 7/14

U.S. Cl. 49-408

14 Claims



A window construction having an improved external drainage system. The window construction includes a lower sill having a closed weep chamber formed therein. Suitable

passageways and openings extend from the upper surface of the inside sill plate to the weep chamber for permitting flow of water from the sill plate to the weep chamber. The sill also has a small drain opening extending through the forward wall of the weep chamber for permitting collected water to be externally drained. Water passing the window seals and collecting on the sill thus flows into the chamber and creates a pressure head at the drain opening sufficient to oppose high-outside air pressure, as due to wind effects, and thereby to prevent such wind from driving such sill water back into the building.

The window construction, in the disclosed embodiment, also includes a stationary sash provided with an air passageway extending from the weep chamber to the interior of the building. The separate air path receives sudden ones of such increases in outside pressure, as due to wind gusts, entering into the weep chamber through the drainage opening and thereby minimizes the spouting of water from the sill openings, which would otherwise be caused by inflow of outside air, until a sufficient water pressure head is created within the weep chamber for opposing such pressure increases.

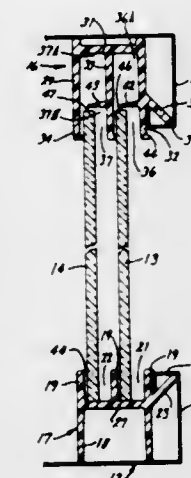
3,636,661

PLASTIC MIRROR TRACK

Frederick W. Strawins, Corunna, Mich., assignor to Strawins Manufacturing Company, Corunna, Mich.
Filed July 22, 1970, Ser. No. 57,284
Int. Cl. E06b 3/46

U.S. Cl. 49-413

10 Claims



An improved guide track for slidably guiding and retaining the upper edge of a slidable panel, such as the mirror of a medicine cabinet. The guide track comprises a downwardly directed channel-shaped member having substantially parallel legs defining a groove therebetween into which slidably extends the upper edge of the panel. One of the legs is provided with a resilient fin extending outwardly into the groove and positioned substantially directly over the upper edge of the panel. The fin acts as a restraining device for preventing vertical bouncing of the panel when same is used in a vehicle, such as a mobile home. The fin resiliently deflects to permit the upper edge of the panel to be moved therpast when the panel is lifted upwardly relative to the bottom track whereby the panel can be installed or removed from the upper and lower tracks.

3,636,662

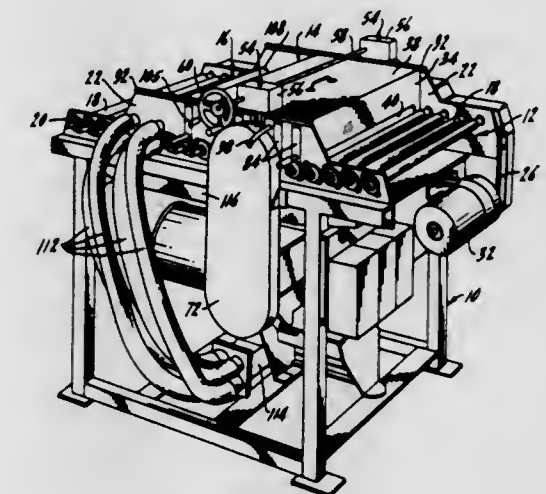
CIRCUIT BOARD CLEANING MACHINE

Paul Donald Maca, 4225 Rose St., Western Springs, Ill.
Continuation-in-part of application Ser. No. 700,453, Jan. 25, 1968, now abandoned. This application Dec. 10, 1969, Ser. No. 883,942

Int. Cl. B24b 7/06

U.S. Cl. 51-5

4 Claims



A circuit board cleaning machine having a roller conveyor adapted to convey the printed circuit boards to be cleaned, first into contact with a nonwoven, mineral-impregnated nylon brush which is run wet, then through a rinsing chamber, and then through a drying area. The brush is maintained sufficiently wet to form a hydroxide coating on the printed circuit board and to prevent the brush from liquefying during cleaning operation.

3,636,663

APPARATUS FOR MATTING GLASS SLIDES

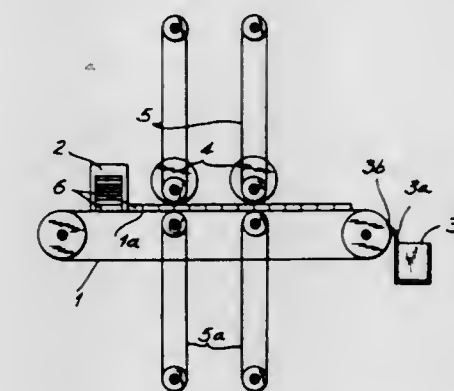
Gerhard Menzel, Braunschweig, Germany, assignor to Proper Manufacturing Company, Inc.

Filed Nov. 28, 1969, Ser. No. 880,585

Int. Cl. B24b 21/04

U.S. Cl. 51-138

7 Claims



An apparatus for matting glass slides of the type used to carry specimens to be observed under a microscope, for example. The apparatus includes a conveyor belt having an upper run for moving the slides from a receiving end of the upper run to a discharge end thereof. At the receiving end of the upper run of the conveyor belt is a chute for supplying the slides to the belt with the slides each projecting by a predetermined distance laterally beyond a side edge of the upper run. Between the ends of the upper run of the conveyor belt is a pressure roller made of a soft elastic material for pressing against each slide as the latter moves beneath

each pressure roller between the latter and the upper run of the conveyor belt. In alignment with this pressure roller, beyond the side edge of the upper run of the belt, is a high-speed grinding element situated to engage a surface of each slide as it moves beneath the pressure roller. At the discharge end of the belt is a receiving receptacle to which the ground slides are automatically delivered.

3,636,664

GRINDING WHEEL ADVANCING APPARATUS

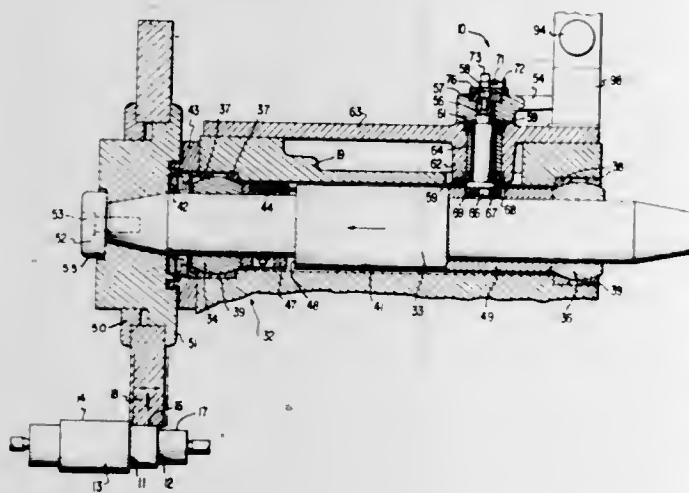
Ralph E. Price, Waynesboro, Pa., assignor to Landis Tool Company

Filed Dec. 24, 1969, Ser. No. 887,895

Int. Cl. B24b 49/08

U.S. Cl. 51—165.9

12 Claims



The apparatus of this disclosure is for advancing the grinding wheel axially for grinding the radial surface of a workpiece. The actual advance of the wheel is caused by a piston and cylinder combination, wherein the piston is connected to the wheel mounting and the cylinder is free to move in the direction opposite to that of the piston except for a restraining force imposed by a spring. The movement of the piston is stopped by the engagement of the grinding wheel with the work with fluid under pressure causing the cylinder to move against the action of the spring. The movement of the cylinder provides a signal which cuts off the supply of fluid under pressure to the cylinder and the cylinder is locked against further movement. At the same time, the metering device is actuated which directs a predetermined volume of fluid to the cylinder. The piston advances the grinding wheel in accordance with this predetermined volume of fluid under pressure to advance the wheel against the work by a predetermined amount for a predetermined depth of cut on the workpiece.

3,636,665

SEGMENTED GRINDING WHEEL

Milton C. Shaw, Pittsburgh, Pa., assignor to Grinding Wheel Institute, Inc.

Filed Apr. 15, 1970, Ser. No. 28,721

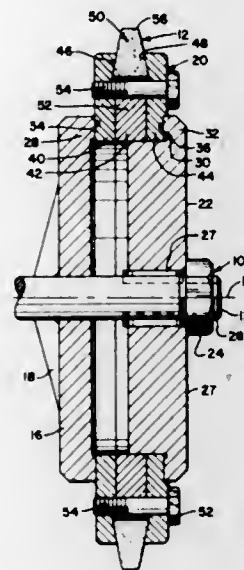
Int. Cl. B24d 5/06, 5/10; B24b 55/02

U.S. Cl. 51—206.5

17 Claims

A segmented grinding wheel assembly particularly suited for high-speed operation. The disclosed embodiments comprise wheel members having an outer peripheral recess in which grinding segments are positioned to define the grinding or working portion of the assembly. The recess and segments are related so that the segments are held in the recess by compressive reaction forces produced during wheel rotation. Additionally, the specification discloses an arrangement particularly adapted for supplying cooling or lubricating fluid to the wheel periphery. The arrangement comprises an inwardly open, circumferentially extending fluid-receiving trough car-

ried by the wheel. The trough is connected to the recess by generally radially extending passages such that during wheel



rotation fluid moves outwardly to the recess and between the segments under the influence of centrifugal force.

3,636,666

SHARPENER FOR SHARPENING ROTARY LAWN MOWER BLADES

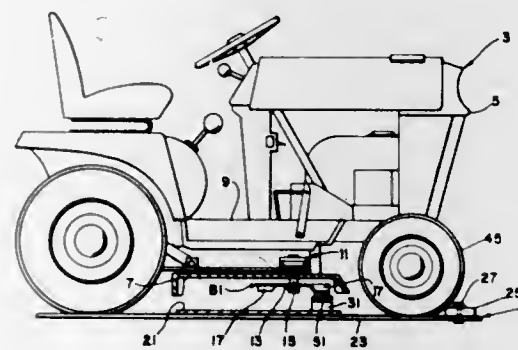
Jay H. Brayman, P.O. Box 2, Dorsey, Ill.

Filed July 1, 1970, Ser. No. 51,524

Int. Cl. B24b 19/00

U.S. Cl. 51—250

10 Claims



A sharpener for sharpening the blades of a multiple-blade rotary power lawn mower without removing the blades from the mower, utilizing the mower engine for rotating the blades for sharpening them, having a base over which the mower is moved and a plurality of sharpening stones secured on the base in position for sharpening the cutting edges of all the blades of the mower at one time when the mower is moved into a blade-sharpening position over the base and the blades are lowered for wiping contact with the stones.

3,636,667

PREFABRICATED BUILDING STRUCTURE FOR OFFSHORE CREW QUARTERS AND THE LIKE

Frank C. Walz, Golden, and Jerry B. Davis, Lakewood, both of Colo., assignors to Livingston-Armadillo, Inc., Denver, Colo.

Filed Jan. 21, 1969, Ser. No. 792,475

Int. Cl. E04h 1/00

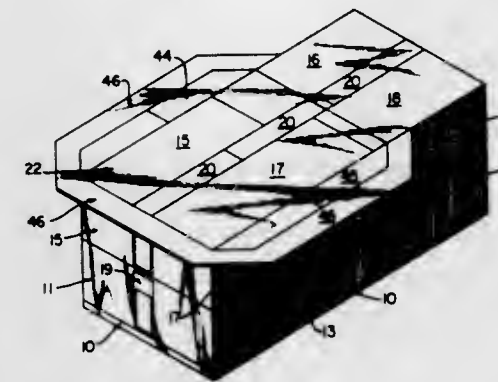
U.S. Cl. 52—79

8 Claims

A building structure has prefabricated elements preassembled into modular units which are transportable to a building site for their assembly together on the same level or stacked one on another to provide a building of the desired number of rooms or stories. An outer nonporous weather-resistant coating preferably of fiber glass covers the entire exposed ex-

terior surface areas to form a sealed enclosure. Each modular unit is a self-sustaining individual structure and includes a floor panel, upright wall panels and a unitary skid under the floor panel. The preferred prefabricated elements and the modular units have relatively broad joint surface areas which

members interengage with the hanger means to mount the panels in preselected orientation; and in a modification of the system, a separate upright sustainer supports one or more panels through the coactive relation of a series of interengaged stringers having frictional block means to retain a



are secured together preferably by an adhesive to provide an essentially unitary structure. Multilayered prefabricated ceiling panels and prefabricated side wing panels extending outwardly from the ceiling panels form a strong aircraft-landing deck on top of the building.

3,636,668

JOINING MEMBER FOR BUILDING CONSTRUCTIONS

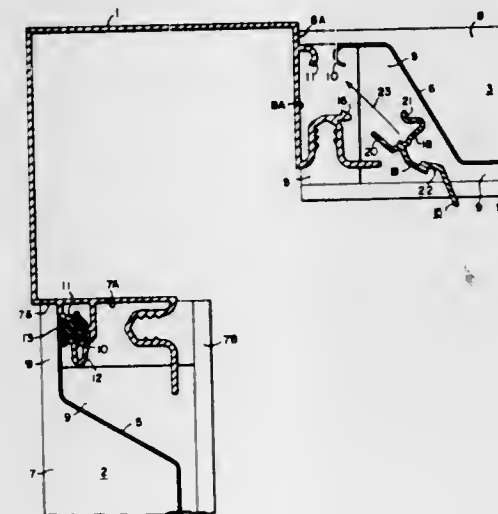
James D. Klingensmith, Allegheny Township, Westmoreland County, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed July 9, 1970, Ser. No. 53,501

Int. Cl. E04b 1/40

U.S. Cl. 52—282

3 Claims



An elongated joining or splicing member for joining together two elongated rigid structures along adjacently disposed but spaced-apart ends thereof. The joining member has a web or tail portion and a channel portion at one end of the web portion for engaging and joining the ends of the rigid structures together when the web portion of the joining member is moved into locking engagement with one of the rigid structures.

3,636,669

PANEL SYSTEMS

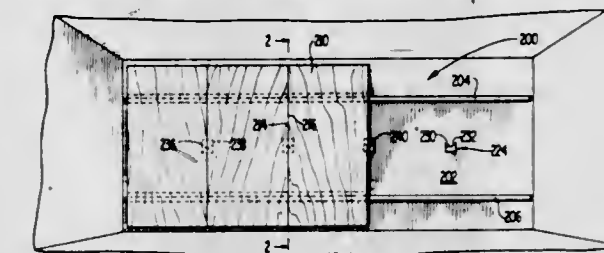
James R. Attkisson, 5205 York Road, Alexandria, Va.

Filed Jan. 12, 1970, Ser. No. 2,306

U.S. Cl. 52—38

5 Claims

A paneling system employs a plurality of panels having a series of shaped connecting members mounted thereon, and a series of complementary hanger means on an upright sustainer, such as a wall or stud system. The connecting



selected position while the block is in place. Removal of the block means permits disassembly of the sustainer and panels. Illustrated environments of use of this embodiment of the invention contemplate the incorporation of the system in temporary barricades, and in the erection of roadway markers of nonpermanent nature.

3,636,670

GROUND ANCHOR

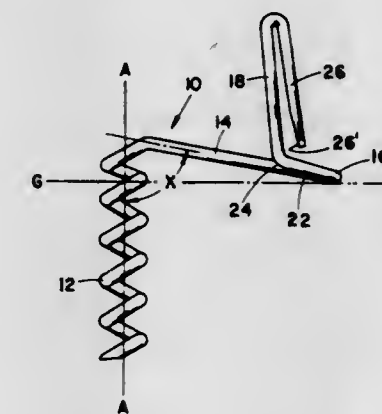
Norman V. Frye, R.R. #4, Davenport, Iowa

Filed Feb. 25, 1970, Ser. No. 14,105

Int. Cl. E02d 5/80

U.S. Cl. 52—157

1 Claim



A ground anchor having a basic part in the form of a one-piece rodlike element of steel or the like including a ground-penetrating helix and a leg extending from the top of the helix and terminating in an area-increasing, ground-engaging base from which post-supporting means rises.

3,636,671

ACCESS DOOR ASSEMBLY

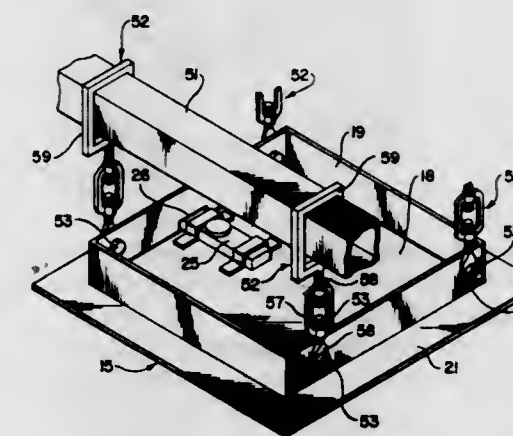
Harry W. Hollister, 89 Thayer St., New York, N.Y.

Filed July 6, 1970, Ser. No. 52,508

Int. Cl. E06b 1/60

U.S. Cl. 52—211

8 Claims



An access door assembly comprising a frame with an inwardly extending flange, a removable access door and clamp-

ing devices that are adjustable and so adapted that they can be adjusted to attach the access door assembly to bar members already randomly provided within the ceiling or wall structure at variable distances from the opening whereby a flush and tight clamping engagement will be made of the access door assembly against the exterior surfaces of the ceiling or wall within the opening of which the access door is being secured. The clamp devices are fixed at the corners of the door assembly and removed somewhat from the access door opening area and so that there is little interference therefrom.

3,636,672

SNAP-IN JAMB ANCHOR

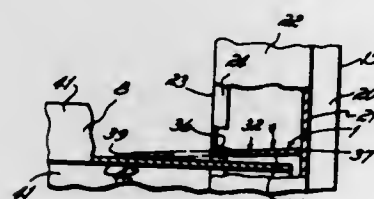
Kenneth W. Fink, Cincinnati, Ohio, assignor to The Steelcraft Manufacturing Company

Filed Dec. 12, 1969, Ser. No. 884,578

Int. Cl. E06b 1/04, 1/16

U.S. Cl. 52-214

7 Claims



A snap-in jamb anchor comprising a right angular bracket having a horizontal wedging plate arranged to establish a wedge-type friction fit with the interior surface of channel-shaped sheet metal doorjamb at opposite sides to provide a connection between the horizontal girder of a building and the jambs, thereby to support the doorframe within an opening of a sheet metal wall. Jamb extensions may be secured to a vertical flange of each jamb anchor and extend upwardly above the header of the doorframe to a roof girder which is located above the header so as to act in combination with the jamb anchors in stabilizing the upper portion of the metal doorframe within its opening.

3,636,673

BUILDING CONSTRUCTION

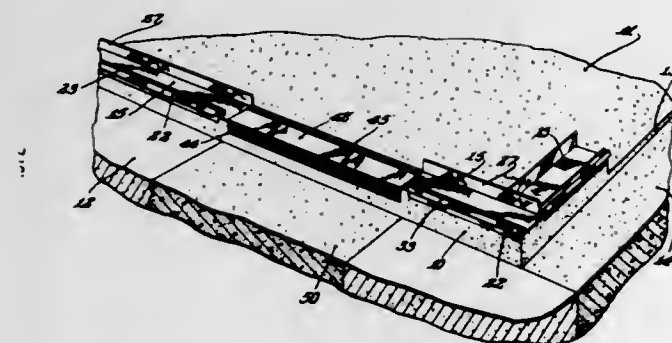
Donald G. Monroe, Prospect Heights, Ill., assignor to Active Garage Builders Inc., Chicago, Ill.

Filed Jan. 9, 1970, Ser. No. 1,721

Int. Cl. E04b 1/40

U.S. Cl. 52-293

16 Claims



A combination stud and wallboard baseplate has a bottom panel adapted to rest on a foundation and upstanding longitudinally extending flanges on the panel provide therebetween a stud-receiving channel and parallel thereto and along one margin of the panel a wallboard edge-receiving channel. Means are provided for anchoring the bottom panel to a foundation, and more particularly a poured concrete foundation and comprising depending spaced parallel anchoring flanges. One of the upstanding flanges is equipped to facilitate securing a stud in place. On one edge

of the baseplate is an outwardly and downwardly sloping combination mounting gauge for the plate and serving also as a siding spacer and starter. An improved door frame arrangement as well as threshold structure are provided.

3,636,674

INSULATION MODULE WITH SUPERPOSED DEFORMED CORE SHEETS

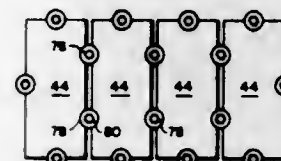
George D. Cremer, Lemon Grove, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 10, 1964, Ser. No. 388,548

Int. Cl. E04b 2/44, 1/78

U.S. Cl. 52-509

11 Claims



Insulation modules having a core of relatively movable, flat and corrugated metal sheets assembled between opposed faceplates and having deformable, seal-forming portions projecting beyond the faceplates. Methods of fabricating such modules and of forming them into modular insulation assemblies.

3,636,675

ARTICLE OF MANUFACTURE

Walter Hellerich, Heilbronn, Germany, assignor to Arbed S.A., Arbed-Felten & Guillaume Vereinigte Drahtwerke, Mulheim, Germany

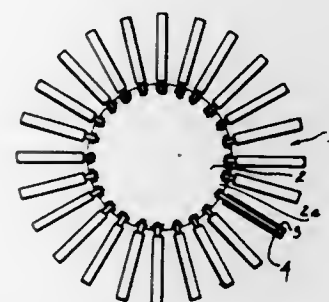
Filed Feb. 18, 1970, Ser. No. 12,266

Claims priority, application Germany, Mar. 6, 1969, P 19 11 389.4

Int. Cl. E04c 5/00

U.S. Cl. 52-659

14 Claims



A metallic reinforcing structure is embedded in a synthetic plastic plate and comprises a central disc-shaped portion and a plurality of elongated metallic wires projecting radially outwardly from the disc-shaped portion. Male and female threaded members are provided on the disc-shaped portion such that stresses entering from the former into the disc-shaped portion are uniformly transmitted into the synthetic plastic plate via the metallic wire.

3,636,676

METHOD OF ERECTING PREFABRICATED SHELTER

Charles W. Moss, Ann Arbor, Mich., assignor to Tension Structures Inc., Milan, Mich.

Original application Jan. 14, 1969, Ser. No. 790,930, now Patent No. 3,562,975, dated Feb. 16, 1971. Divided and this application June 3, 1970, Ser. No. 42,976

Int. Cl. E04b 2/12; B23p 1/100; E04b 1/32

U.S. Cl. 52-747

4 Claims

A shelter which has panels bowed and secured together in a stressed condition to define a domelike building. The

panels are retained in the stressed condition by supporting structure, and the stressed condition of the panels cooperates in locking the assembled parts together. A flexible joint is



provided between the panels to aid in erecting and in retaining the structure together and to provide a weather seal. A method whereby the shelter can be erected by stressing the panels in sequence is provided.

3,636,677

METHOD OF STRIPPING DEPOSITED SHEETS OF METAL FROM CATHODES AND WASHING, STACKING AND WEIGHING THE SHEETS

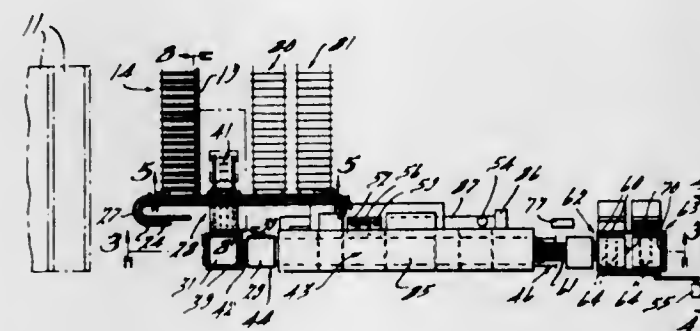
Bernard J. McNamara, Syl Daniluk, and Cornelis J. Nijhuis, all of Windsor, Ontario, Canada, assignors to McInnis Equipment Limited

Filed May 11, 1970, Ser. No. 35,997

Int. Cl. B65b 13/00

U.S. Cl. 53-3

10 Claims



A plurality of cathodes having sheets of electroplated material on opposite faces thereof are removed from a plating tank and placed on an advancing rack which delivers the cathodes seriatim to a stripping station where the sheets of deposited metal are removed and placed upon conveyors moved to spaced vertical position and advanced through a plurality of washing stations. The sheets are deposited on a horizontal conveyor and stacked vertically on a car on a weighing scale. When approximately 5 tons of sheets have been stacked on the car, they are secured in a bundle and a label with the weight printed thereon is attached thereto.

3,636,678

PACKAGING METHOD AND PACKAGE MADE THEREBY

Frank George Maros, Media; Jeffrey Scott May, Claymont, and Harold Eugene Ramsey, Wilmington, all of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 9, 1970, Ser. No. 17,694

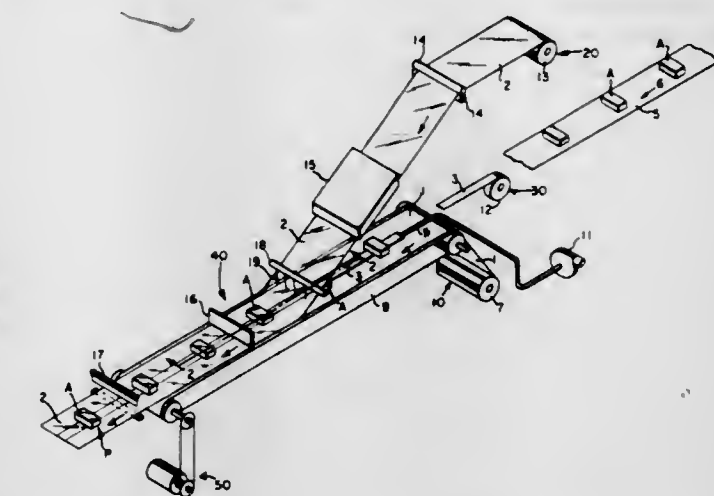
Int. Cl. B65b 61/18, 31/04

U.S. Cl. 53-14

7 Claims

A method of packaging an article between at least two moving package members, such as plastic film in web form, including drawing one member into skinlike engagement with the article and into sealing contact with the other member by means of a suction means positioned between the members.

The method is continuous in operation and one of the package members may be electrostatically treated prior to drawing. A third package member is positioned between the suction means and the package member drawn into engage-



ment with the article and the other package member thereby to shield the suction means from the drawn member during

3,636,679

SELECTIVE ADSORPTION GAS SEPARATION PROCESS

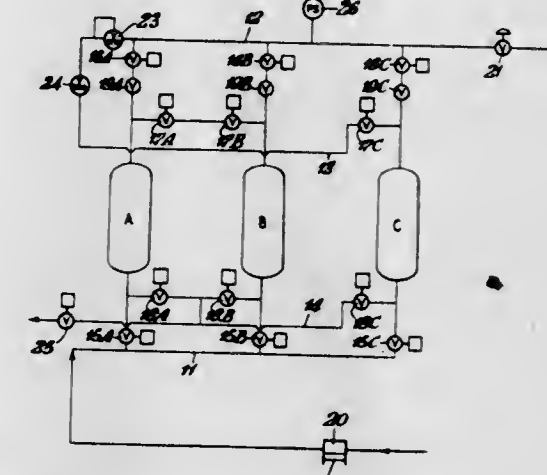
Louis Bela Batta, Grand Island, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 787,847, Dec. 30, 1968, now Patent No. 3,564,816. This application Jan. 4, 1971, Ser. No. 103,768

Int. Cl. B01d 53/84

U.S. Cl. 55-26

10 Claims



Gas mixtures such as air are separated in selective adsorbent beds to produce low-pressure product such as oxygen by simultaneous compressed air-oxygen introduction at opposite ends for partial repressurization, further repressurization with only air, and then product oxygen discharge.

3,636,680

FILTERING APPARATUS

Gunther Seidel, Karl-Lacue Str. 12, Bielefeld, Germany

Filed Sept. 26, 1968, Ser. No. 762,690

Claims priority, application Germany, Sept. 29, 1967, S 112190; Apr. 26, 1968, P 17 57 333.0; July 13, 1968, P 17 82 057.4

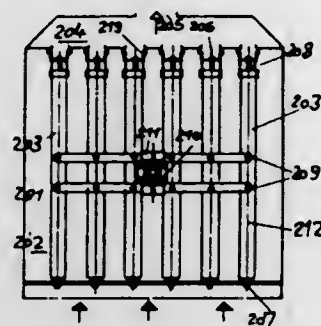
Int. Cl. B01d 46/04

U.S. Cl. 55-291

39 Claims

A filtering apparatus having a single chamber or a plurality of chambers for the cleaning of dust-laden gases by means of flat filter bags. These filter bags are arranged upright and individually twistable at the inside of a casing. The bags are connected by connection rods which are fastened at the nar-

row side of the bags and for the purpose of cleaning oscillatable in groups around their pivot axes. A filtering apparatus having a plurality of gas flow chambers, and valves operated by a control shaft to close some chambers for cleaning the filter element therein while leaving other chambers open for continuous operation. The cleaning mechanism is electrically



operated in synchronism with the control shaft via cam means on the control shaft which actuate switches to operate the cleaning means. A valve structure comprising a plate operated via cam and follower means by the control shaft and including guide rods and slots to allow the valve plate to undergo linear and pivotal movement.

3,636,681

VACUUM CLEANER FILTER ASSEMBLY

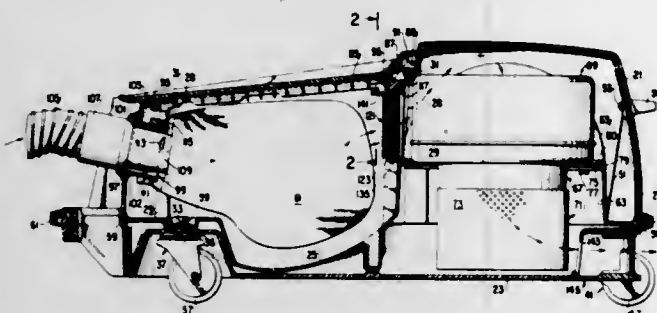
William A. Batson, Pickens, and Charles T. Fromknecht, Anderson, both of S.C., assignors to The Singer Company, New York, N.Y.

Filed Mar. 20, 1970, Ser. No. 21,331

Int. Cl. B01d 46/00

U.S. Cl. 55—372

1 Claim



A vacuum cleaner of the canister variety for domestic use having upper and lower housings sandwiching an intermediate housing therebetween. An air inlet is formed at the front of the upper housing and an exhaust housing is secured to the rear of the lower housing. A dust bag is positioned between the upper and intermediate housing and is separated from a motor blower assembly by an apertured partition wall. A washable permanent secondary filter, fitted about a wire form frame, is positioned on the dust bag side of the aperture in the partition wall by means of a pair of slotted ribs which receive a portion of the wire frame and a cam-shaped rib which also holds a portion of the wire frame. The exhaust housing includes a sliding door having spaced air slots and a rear wall having similar spaced air slots alternately offset from those of the door. A hose assembly blower connection aperture is formed in the exhaust housing adjacent to the slotted rear wall. During vacuum operation the sliding door is positioned in front of the hose assembly blower aperture and air is exhausted from the motor blower assembly through both sets of slots, but during blower operation the door is positioned in front of the rear wall with the solid portion of the door closing off the slots in the wall of the exhaust housing to concentrate all the exhaust air through the hose assembly blower connection aperture.

3,636,682
CYCLONE SEPARATOR

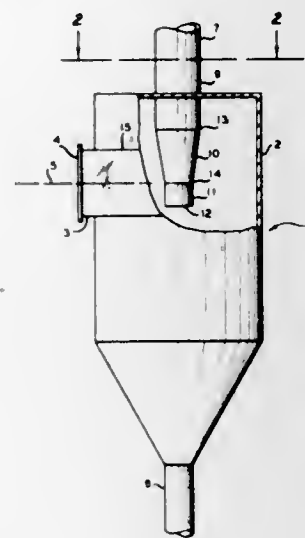
John B. Rush, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Mar. 8, 1968, Ser. No. 711,808

Int. Cl. B04c 5/04

U.S. Cl. 55—459

1 Claim



A cyclone separator suitable for separating particulate matter from a gas stream in which various sections of the multisectional gas outlet tube are dimensionally and positionally related to the inlet horn and its area in such relationships as to result in the high-efficiency separator.

3,636,683

FILTER WITH LATCH ASSEMBLY

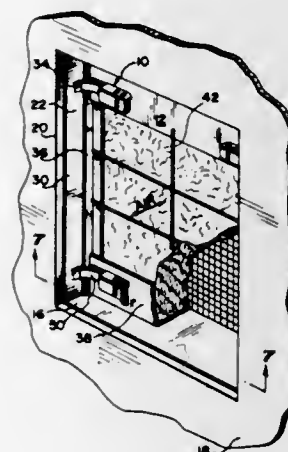
Roy B. Francis, Dallas, and Billy D. Holmes, Montalba, both of Tex., assignors to Delta P. Incorporated, Dallas, Tex.

Filed Dec. 30, 1969, Ser. No. 889,225

Int. Cl. B01d 27/00

U.S. Cl. 55—493

4 Claims



A filter assembly includes a latch which engages a detent located at a substantial height above the surface to which the latch is secured. The overall reach of the latch mechanism is variable as a consequence of a double pivot. A panel, frame, or other movable body, which is secured by means of this latch assembly, is continuously compressed against its seat due to the positive compression of the latch mechanism against the detent. The particular arrangement of the pivots of the latch mechanism provides an over-the-center action which not only locks the latch, but moreover causes the compressing action to be increased should forces be exerted to withdraw the movable, secured body prior to unlocking of the latch. The continuously exerted compression is utilized to continuously seal filtering elements against lateral leakage.

3,636,684

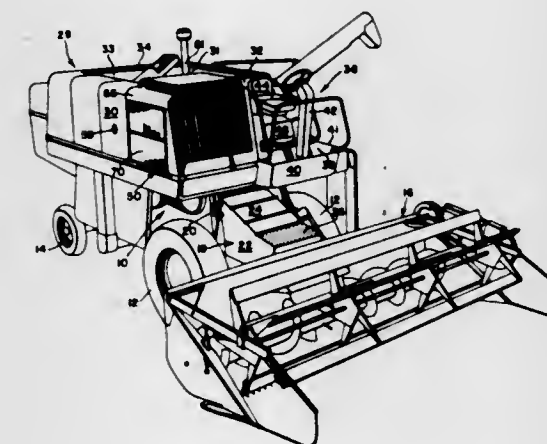
ENGINE ENCLOSURE FOR A HARVESTING MACHINE
Bernard Francis Vogelaar; James Peter Doering, both of Moline, and Felix Stanley Pasturczak, East Moline, all of Ill., assignors to Deere & Company, Moline, Ill.

Filed Aug. 25, 1969, Ser. No. 852,689

Int. Cl. A01d 41/12

U.S. Cl. 56—14.7

14 Claims



A self-propelled combine has a mobile main separator body with an elevated grain tank mounted on a central portion of the body and a forward operator's station and engine enclosure mounted side by side at the forward end of the body immediately in front of the grain tank. The engine enclosure has an air outlet in its outer lateral side and air inlets in both the top and front side of the enclosure. A transversely oriented internal combustion engine is mounted in the enclosure and has a radiator opposite the outlet opening. A fan in the outlet opening draws air through the inlet openings and through the radiator, discharging it through the outlet opening at the side of the combine. The air drawn through the radiator is filtered by means of screens in the air inlets, and the top and front of the enclosure are provided with louvers to deflect part of the air along the surface of the screens to carry away foreign material collected thereon, the contaminated air bypassing the radiator and being discharged out the side of the combine with the cooling air.

3,636,685

ROTARY LAWNMOWER BLADE

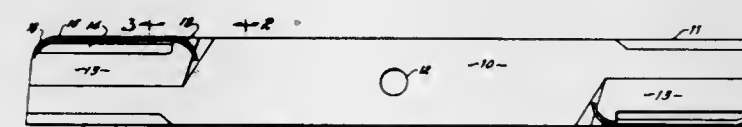
Clifford H. Speckman, Aurora, Ind., assignor to Tony Locono, Modesto, Calif., a part interest

Filed Mar. 15, 1971, Ser. No. 124,031

Int. Cl. A01d 55/18

U.S. Cl. 56—295

10 Claims



A rotary lawnmower blade having cutting edges along the leading edges thereof adjacent the respective ends in which the trailing edges opposite the cutting edges each have an opening therethrough and a vane paralleling the opening that is canted to create an updraft through the opening and thereby pull grass up into the cutting circle of the blade.

3,636,686

SAFETY FLAP ARRANGEMENT FOR DISCHARGE APERTURES IN ROTARY LAWNMOWER BASEPLATES
Dolph Allan Meyer; Ross Leslie Phelps; David Paul Seidel; Edward Henry Sykes; Ian Sweet Clipsham; Donald Gray, and Theodore Demetrius Ractivand, all of Milperra, New South Wales, Australia, assignors to Victa Limited, Milperra, New South Wales, Australia

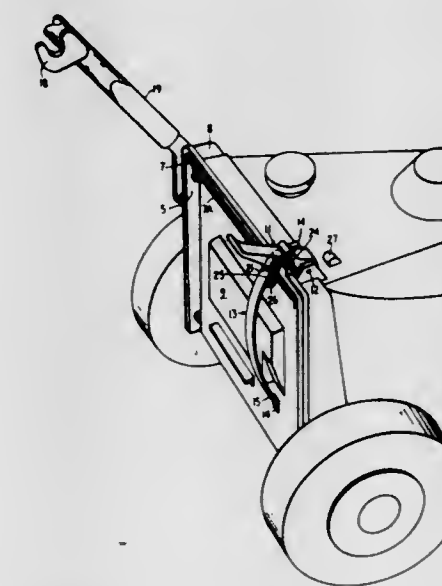
Filed Sept. 9, 1970, Ser. No. 70,779

Claims priority, application Australia, Apr. 8, 1970, PA0845/70

Int. Cl. A01d 55/18

U.S. Cl. 56—320.2

10 Claims



A pivoted flap arrangement for covering the grass discharge opening in a rotary lawnmower, and comprising a cover plate, a pivoted handle on the baseplate for opening the plate, a flexed spring leaf interconnecting the plate and the handle, and an overcenter (or toggle) action between the spring and the handle whereby resilient opening force is applied to the plate when the handle is operated and when the plate has pivoted to a fully open position the handle and plate are automatically returned.

3,636,687

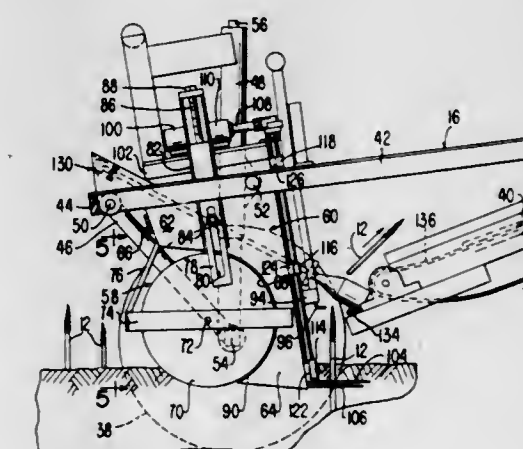
ASPARAGUS-HARVESTING MACHINE AND METHOD
Robert T. McKissick, Tracy; Vincent W. Sebastian, Pollock Pines; Ray D. Davis, and Arthur R. Sasser, both of Tracy, all of Calif., assignors to AG-Bilt, Tracy, Calif.

Filed Oct. 9, 1969, Ser. No. 864,991

Int. Cl. A01d 45/00

U.S. Cl. 56—327 A

10 Claims



A machine for harvesting asparagus and other similar crops wherein the machine has a plurality of knives which

move through the ground and are caused to shift laterally to sever the spears of asparagus when the height of the spears are sensed and are found to be above a predetermined minimum value. The sensing means includes an electrical switch provided with a swingable actuating arm transverse to the path of travel of the machine. A roller assembly is provided to grasp the spears after they have been severed from the ground and to move the spears onto a conveyor system for movement to a collection station on the machine.

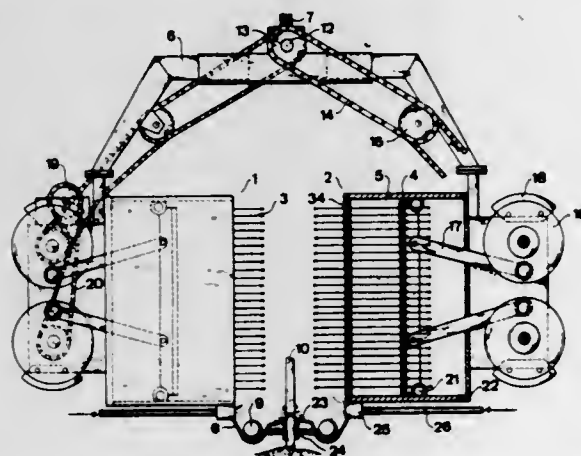
3,636,688

APPARATUS FOR PICKING GRAPES

Andre Fontan, 11, rue Nationale, Nogaro, and Rene Benac, Avenue Saint Roch, Mirande, both of France
Filed Nov. 10, 1969, Ser. No. 875,470
claims priority, application France, Nov. 12, 1968, 1283;
Oct. 21, 1969, 6936001
Int. Cl. A01g 19/00

U.S. Cl. 56—330

7 Claims



A mobile grape harvester for straddling vines. Batteries of needles are reciprocated horizontally to impact the grapes and thereby disengage them. Spacing of the needles sufficiently close to each other assures that each grape is impacted. The striking force of each needle is limited and the needles are organized to recoil so that grapes are dislodged but vines and supports are not damaged. A grape-receiving arrangement is positioned below the battery of needles and it seals automatically about the stocks of the grape vines. The grape-receiving arrangement includes a conveying system to transport the grapes.

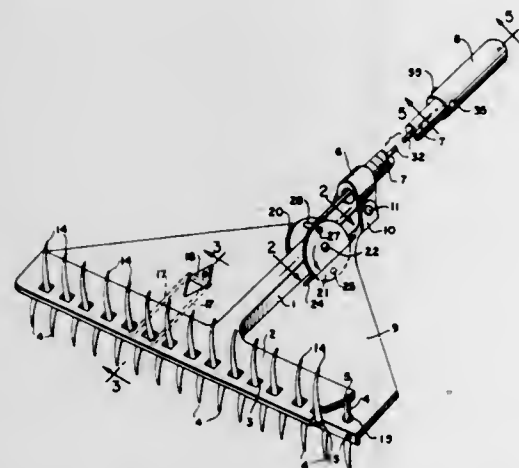
3,636,689

DUAL SELF-CLEANING RAKE

John W. Gallimore, P.O. Box 13, Fredericksburg, Va.
Filed July 3, 1969, Ser. No. 839,014
Int. Cl. A01d 7/00

U.S. Cl. 56—400.1

9 Claims



A hand-manipulable rake for lawn and garden use wherein two sets of rake teeth are interpivotally connected and re-

lated in a way such that pivoting of the two from a first normal and operating position to a second or cleaning position, acts at one and the same time to clean both rakes of accumulated debris. Pivoting is effected in a simple direct manner by the movement axially of the rake handle, of an end cap carried thereby. In operating position the two sets of teeth are fixedly related and freely alternatively usable so that the time interval between tooth-cleaning operations is more than doubled.

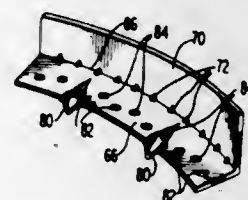
3,636,690

PROCESS OF BENDING STRUCTURAL MEMBERS AND TOOL THEREFOR

James C. White, P.O. Box 5495, Station B, Greenville, S.C.
Filed Dec. 23, 1968, Ser. No. 786,103
Int. Cl. E04c 3/30

U.S. Cl. 52—633

3 Claims



Structural members such as angle iron or channel members are bent to a desired radius by crimping the flange or flanges thereof to provide V-shaped pockets or crimps therein. The crimping tool includes a crimping jaw which, before crimping, locates the tool against the leg of the angle or channel member but which swings slightly away from it during crimping movement effected on the intersected flange so as to avoid tearing or shearing the flange while still locating the crimp very close to the leg. An improved form of angle or channel member is provided with openings along the intersection of the leg and flange to allow accurate positioning of the crimp and to further militate against tearing or shearing of the flange.

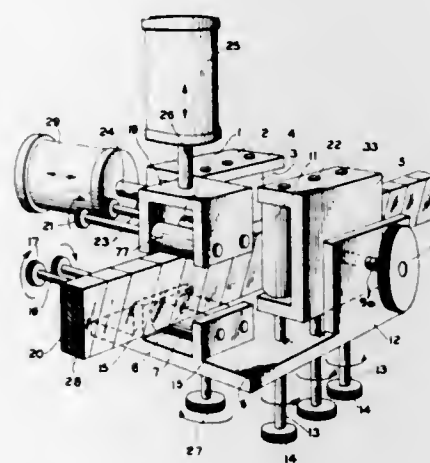
3,636,691

APPARATUS FOR WRAPPING A CONDUCTOR BUNDLE

Roger Bonvallet, St. Louis, Haut Rhin, France, assignor to Etablissements Emile Haefely SA, St. Louis, Haut-Rhin, France
Filed Dec. 9, 1969, Ser. No. 883,555
Claims priority, application France, Dec. 10, 1968, 18479/68
Int. Cl. B65h 81/08, 81/06, 81/00

U.S. Cl. 57—15

3 Claims



Apparatus for wrapping a conductor bundle with at least one tape comprising at least one pair of synchronously operable parallel rollers which are displaceable relatively to each other in a direction perpendicular to their axes in order to

clamp a conductor bundle between them, and at least one wind-off roll for a tape which is so arranged that it is rotatable both about the conductor bundle and about its own axis. The conductor bundle may also be clamped between a pair of spaced-apart pressing means which are mutually displaceable in the direction of the roller axes, the confronting surfaces of these pressing means being outwardly curved.

3,636,692

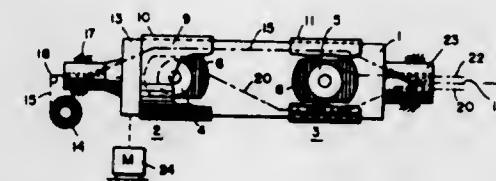
HIGH-SPEED WIRE-STRANDING MACHINE

Dietrich Berges, Marienheide, Germany, assignor to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany
Filed Apr. 27, 1970, Ser. No. 32,040

Claims priority, application Germany, May 3, 1969, P 19 22 745.3
Int. Cl. D07b 3/04

U.S. Cl. 57—58.3

6 Claims



A high-speed wire-stranding machine with a low-noise factor in which the rotor comprising a cylindrical framework is equipped with one or more axially slidable sleeves or closure members adapted to enclose the openings required in the periphery of the rotor for exchanging one or more feed spools mounted within the cylindrical framework, preferably with locking means to hold said sleeves or closure members in their closed position during operation of the machine.

3,636,693

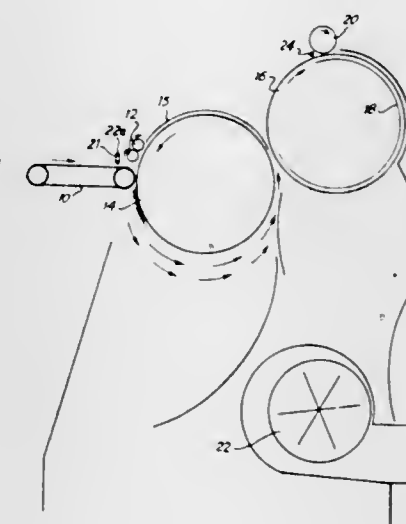
METHOD AND APPARATUS FOR FORMING YARN

William Benson, Fallowfield, and Gordon Short, Didsbury, both of England, assignors to The Cotton Silk and Man-Made Fibres Research Association
Filed Jan. 16, 1969, Ser. No. 791,723

Claims priority, application Great Britain, Jan. 16, 1968, 2,239/68
Int. Cl. D01h 1/12

U.S. Cl. 57—58.95

18 Claims



This invention comprises methods of and apparatus for making a yarn or like fiber assembly by twisting fibrous material together while reducing the extent to which individual fibers are twisted about their own axes. This is achieved by causing the fibers to roll about each other rather

than be twisted as a bundle as in conventional spinning process for making textile yarn.

3,636,694

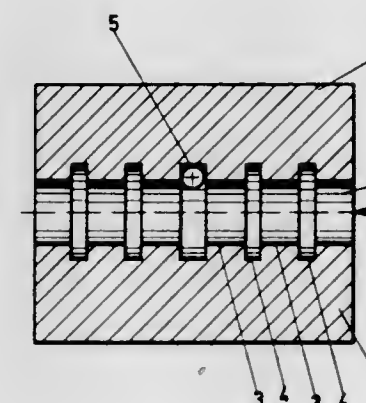
APPARATUS AND PROCESS FOR TANGLING FIBERS AND FILAMENTS

Wilhelm Pfunder, Denzlingen, and Gunter Schmidt, Emmendingen, both of Germany, assignors to Rhodiaceta AG, Freiburg im Breisgau, Germany
Filed May 15, 1969, Ser. No. 824,805

Claims priority, application Germany, May 18, 1968, P 17 60 454.5
Int. Cl. D02g 1/16

U.S. Cl. 57—77.3

17 Claims



A loose bundle of fibers is passed through a new nozzle, characterized by a conduit provided with at least two slots and means for directing a fluid, for instance air, tangentially to the conduit for the fibers. Part of the fibers becomes transversely arranged over the remainder of the fibers giving a strong wound-up unit, which cannot be spread apart. Fixed points at regular intervals are obtained.

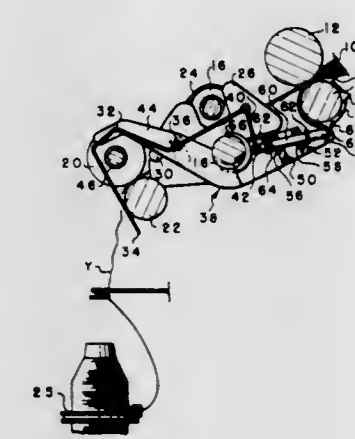
3,636,695

ROVING STOP

Robert M. Ingham, Jr., Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Oct. 13, 1969, Ser. No. 865,786

U.S. Cl. 57—84

13 Claims



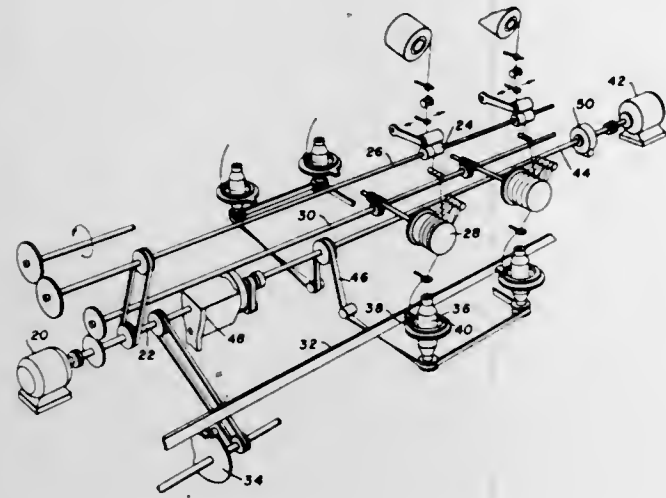
Apparatus to detect the breakage of a yarn end, commonly called an ends down, in a fiber handling system and in response to the detection actuate a release means to rotate the roving stop into the path of travel of the roving being supplied into the fiber handling system.

3,636,696
PROGRAMMED DRIVE SYSTEMS FOR
DRAWTWISTERS

Frederick J. Howe, and Mario E. Jimenez, both of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.
Filed Jan. 22, 1970, Ser. No. 4,874
Int. Cl. D01h 13/02

U.S. Cl. 57-95

7 Claims



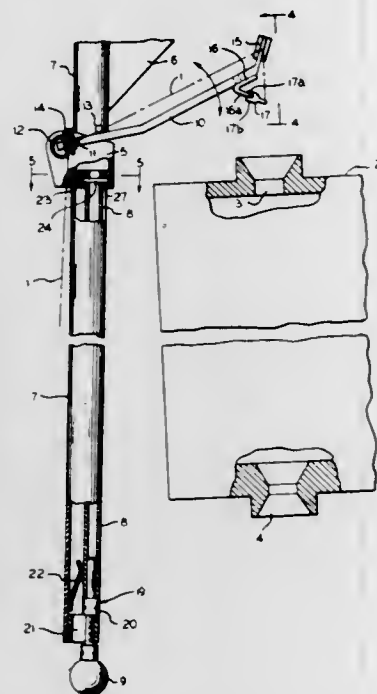
A separate spindle-drive AC motor on a drawtwister or spinning frame. A programmed DC voltage controls an inverter for varying the speed of the separate spindle AC motor independently of the yarn speed.

3,636,697
COMBINED THREAD-GUIDE AND THREADING DEVICE
Heinz Treptow, Ennepetal-Milspe, and Karl Bauer, Remscheid-Lennep, both of Germany, assignors to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed Dec. 22, 1969, Ser. No. 886,883
Claims priority, application Germany, Dec. 27, 1968, P 18 17 084.8

Int. Cl. D01h 13/04; D02j 13/00
U.S. Cl. 57-106

8 Claims



Combined thread-guide and threading device for heating chambers in textile machines, in particular in false-twist crimping machines, embodying a staff with a rod for moving a slidable head, which carries a pivotable arm held by a

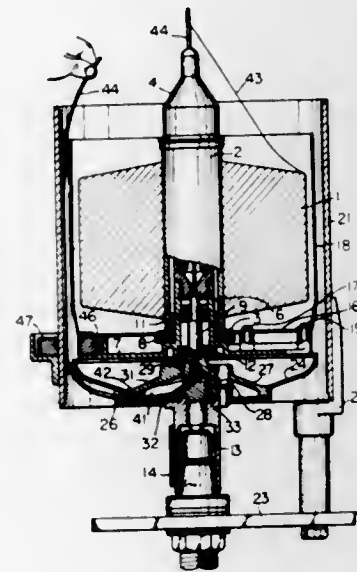
spring in steeply inclined position. The arm strikes a stop on reaching its highest position, in which process it tips out of its initial steep position into a less steep position. On the free end of the arm a holding device for a weight, which is fastened to a thread, holds the weight securely in the steeply inclined position of the arm and casts it off into a heating chamber in the less steep or castoff position of the arm.

3,636,698
METHOD OF THREADING A TWO-FOR-ONE YARN
TWISTER

Teiji Nakahara, and Hideo Yanobu, both of Kyoto-shi, Japan, assignors to Murata Machinery, Ltd., Kyoto, Japan
Filed June 6, 1969, Ser. No. 831,054

Claims priority, application Japan, June 8, 1968, 43/39559
Int. Cl. D01h 11/10; B65h 51/00
U.S. Cl. 57-156

2 Claims



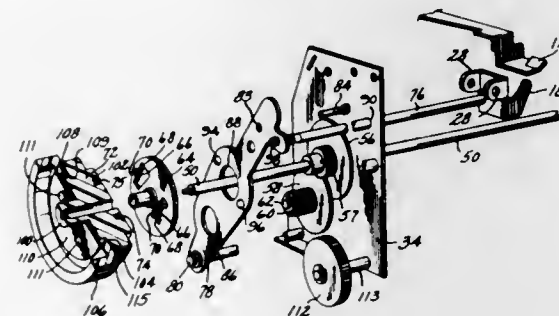
In a two-for-one yarn twister, a specially shaped yarn guide path is formed radially extending from a central longitudinal aperture of a spindle to a peripheral yarn guide of a storage disc. Further, a successive yarn guide path from the peripheral yarn guide towards an upper yarn guide member is given as a clearance between an inside and outside balloon limiting mantle. Initial yarn guiding is performed by firstly tying a leading end of a yarn drawn out of a package to a trailing end of a flexible yarn conductor, next, inserting a leading end of the conductor successively into a central aperture of an upper tension device of the twister.

3,636,699
DIGITAL ALARM CLOCK
Chester B. Marble, Ashland, Mass., assignor to General Electric Company

Filed July 17, 1970, Ser. No. 55,817
Int. Cl. G04b 23/02

U.S. Cl. 58-22

10 Claims



A digital alarm clock wherein an alarm mechanism is provided at the sides of the digital clock numerals. An elongated

longitudinally moveable rod 76 extends from an electric motor 5 on one side of the digital alarm clock to an alarm cam mechanism 64-72 on the other side of the digital alarm clock for translating motion from one side to the other side of the clock.

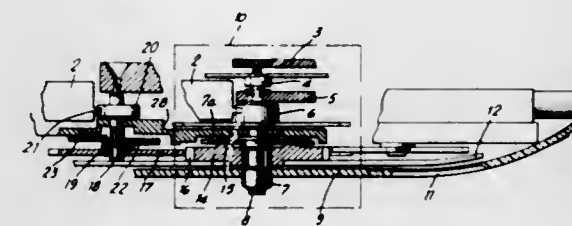
3,636,700
WATCH WITH STOPWATCH HAND
Ewald Stemmler, Ispringen, Germany, assignor to Durowe G.m.b.H., Pforzheim, Germany

Continuation-in-part of application Ser. No. 758,265, Sept. 9, 1968, now abandoned. This application June 10, 1970, Ser. No. 44,949

Claims priority, application Germany, Jan. 13, 1968, P 16 73 825.3

Int. Cl. G04f 7/04
U.S. Cl. 58-74

1 Claim



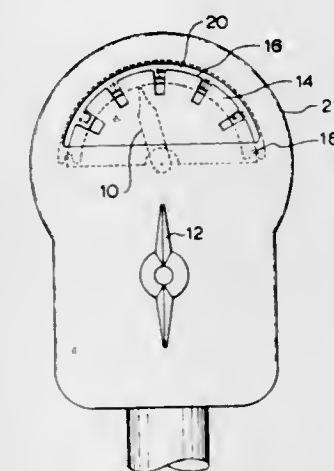
This invention covers a watch which has a normally synchronized stopwatch hand and which is improved in that the transmission ratio between the minute hand and the stopwatch hand can be easily changed. The stopwatch hand may consist of a disk, a second hand may be provided which is coaxial with the minute hand, a self-winding mechanism may be incorporated in the watch, these improvements being made possible without requiring an increase in the thickness of the watch movement. The stopwatch hand is thus normally arranged to rotate in synchronism with the minute arbor and stopwatch hand setting means are mounted in the mounting structure and operable to rotate the stopwatch hand to a zero position and to hold it there until the hand is to be released.

3,636,701
PARKING METER MASK
Boris Lazarow, 188 Betty Ann Drive, Willowdale, 444 Ontario, Canada

Filed May 21, 1970, Ser. No. 39,436
Int. Cl. G07c 1/30

U.S. Cl. 58-141

3 Claims

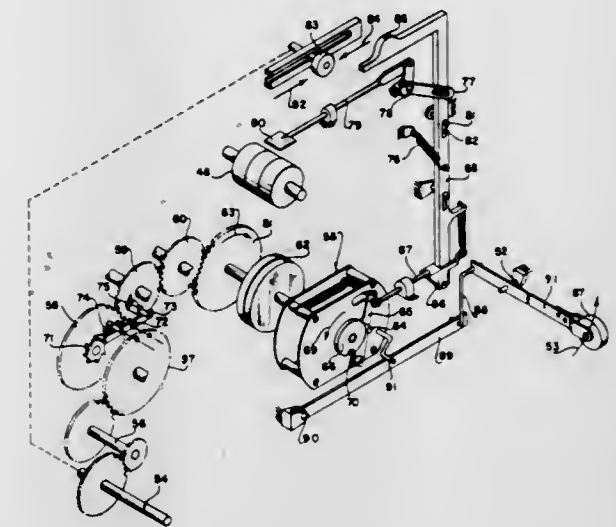


Masking plates applied to a conventional meter obscure the indicator position except at predetermined time intervals.

3,636,702
SLACK BELT ROTATION SENSOR
Fredrick T. Gutmann, Caldwell, N.J., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Feb. 4, 1970, Ser. No. 8,516
Int. Cl. G04b 5/20; G01d 9/00; G06c 23/02
U.S. Cl. 58-145 R

4 Claims

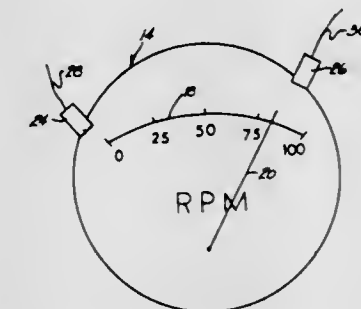


A shaft rotation sensing device wherein an idler shaft is coupled to an input shaft through a flexible belt. Friction bearing means provide a low level of resistance rotation of the idler shaft for maintaining one segment of the belt taut under constant speed conditions while a flywheel coupled to the idler shaft through a lost motion connection responds to shaft acceleration for tensioning the belt segment and shaft deceleration for slackening the belt segment. Lateral displacement of belt is detected for sensing shaft rotation. Combined with a clockwork mechanism, the rotation sensor forms part of an antitheft device for computing registers.

3,636,703
ENGINE PERFORMANCE INSTRUMENT
Douglas K. Dileski, 418 College Ave., Holland, Mich.

Filed Oct. 7, 1965, Ser. No. 493,654
Int. Cl. G07c 3/02; G01m 15/00
U.S. Cl. 58-146

9 Claims



An instrument for accurately measuring the elapsed time between a low and a high r.p.m. value which is required for an internal combustion engine undergoing maximum acceleration, comprised of a tachometer for monitoring the engine speed, electrical pickoffs connected to the tachometer to provide a triggering output signal at a selected low and a selected high engine speed, and an electrically triggered timer coupled to the pickoffs to be turned on and off by the first and second pickoff signals, to thereby measure the elapsed time between receipt of the same.

3,636,704

INTERNAL COMBUSTION ENGINE

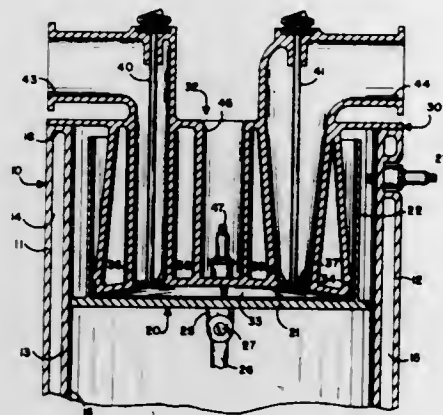
Arthur H. Featherstone, 2895 Scenic View Road, Alpine, Calif.

Filed Nov. 5, 1970, Ser. No. 87,229

Int. Cl. F02f 9/00; F01p 3/02; F02b 41/06

U.S. Cl. 60—15

4 Claims



The disclosure consists of an improvement in an internal combustion engine wherein the piston comprises a disc or circular plate having an annular skirt integral therewith extending upwardly and being spaced from the peripheral edges of the disc and reciprocating in an enclosed cylinder wherein the upper head of the cylinder comprises a downwardly extending circular projection, and means in said cylinder, exteriorly of said annular skirt adapted to cause combustion of blowby gases.

3,636,705

AUTOMATIC CONTROL SYSTEM FOR HYDROSTATIC DRIVE

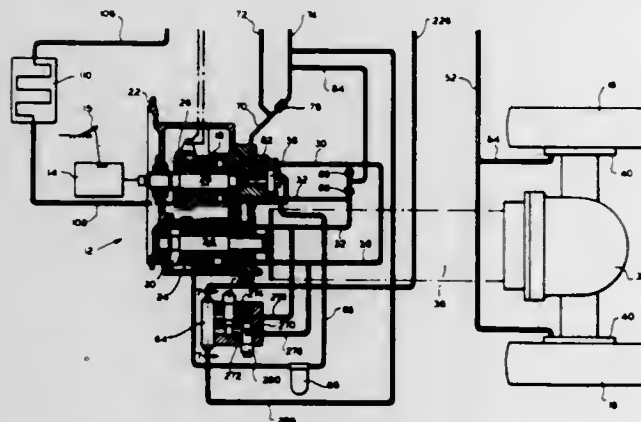
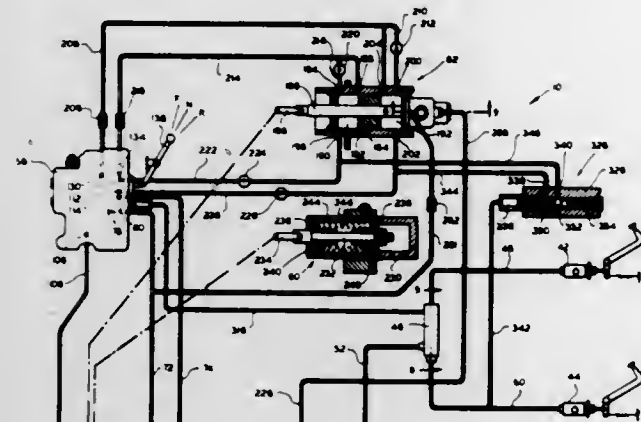
Wayne R. Howard, and Ronald L. Sisson, both of Jackson, Mich., assignors to Clark Equipment Company

Filed Sept. 14, 1970, Ser. No. 71,704

Int. Cl. F02b 41/00; F15b 15/18

U.S. Cl. 60—19

22 Claims



An automatic control system for use with a hydrostatic drive having a variable displacement fluid pump drivingly

connected to an engine. The control system includes a spring mechanism connected to the pump for returning the pump to its zero displacement position and mechanism connected to the pump and responsive to engine speed for actuating the pump away from its zero displacement position.

3,636,706

HEAT-TO-POWER CONVERSION METHOD AND APPARATUS

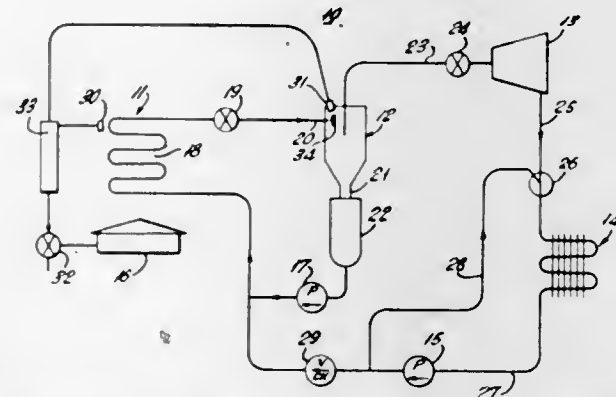
Wallace L. Minto, Sarasota, Fla., assignor to Kinetics Corporation, Sarasota, Fla.

Filed Sept. 10, 1969, Ser. No. 856,729

Int. Cl. F01k 25/04

U.S. Cl. 60—36

9 Claims



A fluorocarbon compound possessing a low-specific heat and a low-latent heat of vaporization is forced in the liquid state through a heat exchanger and heated to within 50° F. of, but not exceeding its critical temperature, while being maintained at a pressure exceeding its vapor pressure, to produce a liquid containing vaporous nuclei which is then injected through a nozzle or other pressure-reducing device tangentially into an expansion chamber, which chamber is at a pressure below the liquids' vapor pressure, whereby a portion of the liquid evaporates and separates from the remaining liquid. The vapor fraction is withdrawn from the chamber to drive a vapor engine, the engine's exhaust vapor is condensed to a liquid which is then raised in pressure and mixed with the liquid fraction from the separation chamber and recirculated through the heat exchanger.

3,636,707

POWER DEVICE

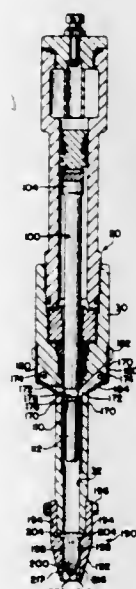
Oliver E. Saari, Niles, and Henry Pomernacki, Northbrook, Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed July 22, 1970, Ser. No. 57,247

Int. Cl. F15b 1/02

U.S. Cl. 60—51

12 Claims



A pressure fluid power device for operating handtools having a power reservoir in which a compressible fluid, such as a

gas, is maintained under pressure and is employed to impart movement to or actuate, a suitable driving means, such as a drive piston or hammer of a power handtool, through a linkage of a noncompressible driving fluid. The invention further relates to cooperable means for slowing or braking the movement of the drive piston as it approaches its fully extended position to minimize shocks to the body of the device; sealing means within the device; and automatic means for limiting the amount of retraction of the drive piston.

3,636,708

FLUID MAKEUP SYSTEM

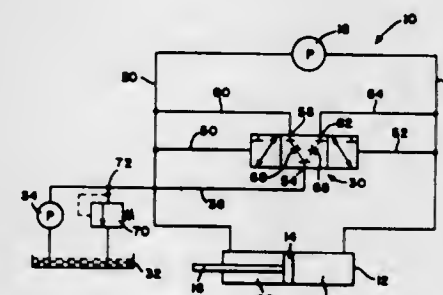
Lawrence P. Karmann, Waynesville, and Morris R. Klein, Worthington, both of Ohio, assignors to Scott Equipment Company, Dayton, Ohio

Filed Apr. 13, 1970, Ser. No. 27,828

Int. Cl. F15b 15/18, 11/08, 13/042

U.S. Cl. 60—52 R

6 Claims



A closed-loop fluid makeup circuit is provided for a hydraulic piston system. A shuttle valve has an inlet and a pair of selectable outlets and is connected in parallel with the cylinder. A source of makeup fluid under pressure connected to the shuttle valve inlet. The shuttle valve has a spool positioned intermediate the inlet and outlets which is movable in response to the reversing pressure differentials between opposite sides of the cylinder to a first position during piston rod extension connecting the inlet with an outlet for adding makeup fluid to the circuit, and then to a second position during piston rod retraction connecting the inlet with an outlet for draining fluid from the circuit. A relief valve is connected between the shuttle valve and the makeup fluid source and permits the drained fluid to be expelled back to the source of recirculation.

3,636,709

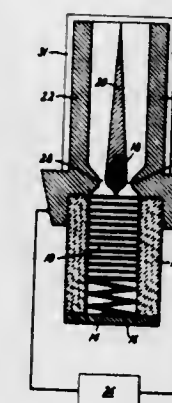
PROPELLANT DEVICE

Aldo V. La Rocca, 214 Hardwicke Lane, Villanova, Pa. Original application Dec. 13, 1967, Ser. No. 690,168. Divided and this application Oct. 10, 1969, Ser. No. 870,894

Int. Cl. F03h 5/00

U.S. Cl. 60—203

2 Claims



Discrete quantities of solid vaporizable propellant are provided as lamina of solid slug, fed by spring against insulating stop into interelectrode region where electrical discharge ini-

tially strikes down to lamina, gasifying it and then continues through gas, adding energy which causes ejection of gas with high momentum. Paschen's law causes discharges to take long path down to lamina until its complete gasification raises pressure sufficiently to permit the discharges to follow shorter path through gas. Lamina are separated by nonconductive layer; may be exothermically reactive to add thermal energy to gas.

3,636,710

ROCKET ENGINE WITH THRUST DIRECTION MODIFYING DEVICES

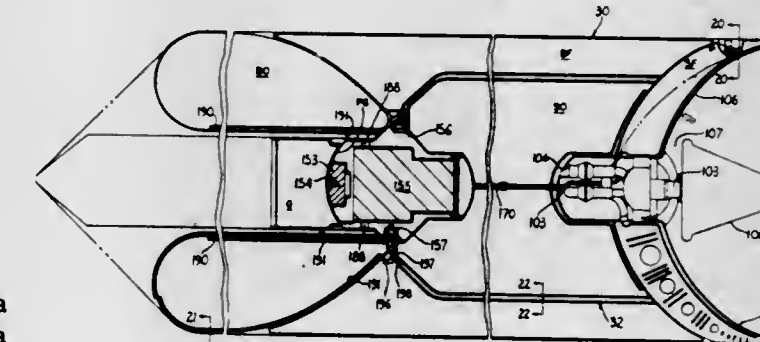
Joseph J. Lovingham, Madison, and Hartmann J. Kircher, III, Sparta, both of N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

Original application Dec. 18, 1962, Ser. No. 247,443, now Patent No. 3,482,404, dated Dec. 9, 1969. Divided and this application Oct. 22, 1965, Ser. No. 501,063

Int. Cl. F02k 1/14

U.S. Cl. 60—231

17 Claims



1. A rocket engine comprising, in combination, a manifold for introducing propellants into a combustion chamber, a wall having a hemispherical deflecting surface fixed to an intermediate portion of said manifold and extending aft therearound, a conical combustion chamber fixed to and communicating with the aft end of said manifold and having its larger open end positioned adjacent but spaced from said surface to define an expansion exhaust nozzle and throat therewith, apertures formed in the apex of said chamber for bleeding combustion gases therethrough, and means for deflecting a portion of said gases to vary the thrust vector of said engine in operation.

3,636,711

SOLID PROPELLANT ROCKET MOTOR

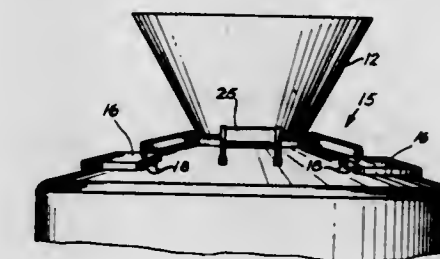
T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Floyd A. Anderson, Pasadena, Calif.

Filed July 16, 1968, Ser. No. 745,337

Int. Cl. F02k 9/04

U.S. Cl. 60—254

2 Claims



A solid propellant rocket motor is provided with a venting system, which is used to control the motor's effective nozzle throat area. By controlling the nozzle throat area the ratio of the motor's ratio of free chamber volume to nozzle throat area is controlled, thereby controlling the motor's com-

bustion extinction pressure, the value of which determines whether the motor is in a stable or unstable combustion zone.

3,636,712

LIQUID ROCKET ENGINE AND METHOD OF OPERATING SAME

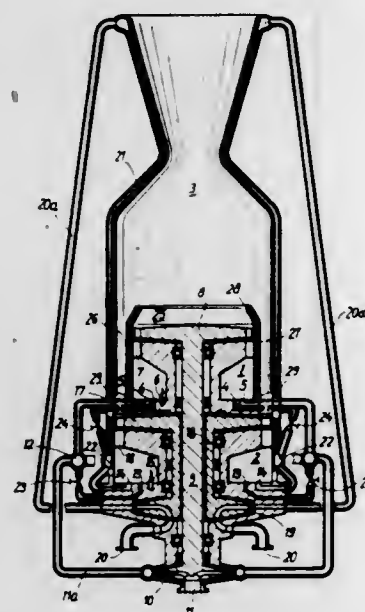
Michael Kaufmann, Neubiberg, Germany, assignor to Bolkaw Gesellschaft mit beschränkter Haftung, Hamburg, Germany
Filed Dec. 21, 1964, Ser. No. 422,067

Claims priority, application Germany, Dec. 21, 1963, B 74767

Int. Cl. F02k 9/02

U.S. Cl. 60—260

23 Claims



1. In a liquid propellant rocket engine including ante-combustion chamber means, main combustion chamber means, means for supplying fuel and oxidizer to the ante-combustion chamber means for combustion therein, means for delivering the combustion gases from the ante-combustion chamber means to the main combustion chamber means, turbine means interposed in the path of the combustion gases being driven thereby, and feed pump means driven by the turbine means: the improvement comprising, in combination, at least one first ante-combustion chamber positioned in advance of said main combustion chamber means; at least one second ante-combustion chamber positioned in advance of said main combustion chamber means; means for supplying fuel and an excess of oxidizer to each first ante-combustion chamber for combustion therein under excess oxidizer condition; means for supplying oxidizer and an excess of fuel to each second ante-combustion chamber for combustion therein under excess fuel conditions; and means for delivering the combustion gases from said first ante-combustion chambers to said main combustion chamber means separately from delivery of the combustion gases from said second ante-combustion chambers to said main combustion chamber means.

3,636,713

MARINE BLOCK

Raymond J. O'Neill, Yonkers, N.Y., assignor to Gratten Marine Research Corporation, Yonkers, N.Y.

Filed Feb. 9, 1970, Ser. No. 9,558

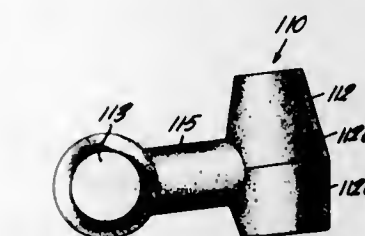
Int. Cl. E02b 3/08, 3/14

U.S. Cl. 61—4

12 Claims

A marine block useable with other similar marine blocks in constructing marine structures such as groins, breakwaters, seawalls and seawall armor. The blocks are used in constructing structures in an arranged condition in which they are keyed together and may be disposed in a random arrangement. Each block is constructed as two massive, end cylinders of circular cross section joined together integrally by a

center cylinder of lesser mass and diameter than the end cylinders. The end cylinders are arranged at 90° to each



other so that one constitutes a horizontal cylinder and the other a vertical or upstanding cylinder.

3,636,714

WATERPROOF SHAFT AND METHOD OF FORMING SAME

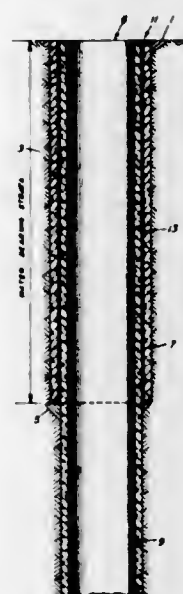
Maurice G. Korol, and Thomas H. Holley, both of Omaha, Nebr., assignors to Peter Kiewit Sons' Co., Omaha, Nebr.

Filed Sept. 2, 1970, Ser. No. 69,034

Int. Cl. E21d 5/012

U.S. Cl. 61—41 R

7 Claims



An excavated mine shaft being provided with inner and outer concrete liners extending the depth of any water-bearing strata through which the shaft extends, and a barrier positioned between said inner and outer concrete liners and being impervious to moisture and expansible upon being subjected to moisture, and the method of forming the same waterproof mine shaft.

3,636,715

METHOD OF AND MACHINE FOR ERECTING LONG STRAGGLING SUBTERRANEAN BUILDINGS

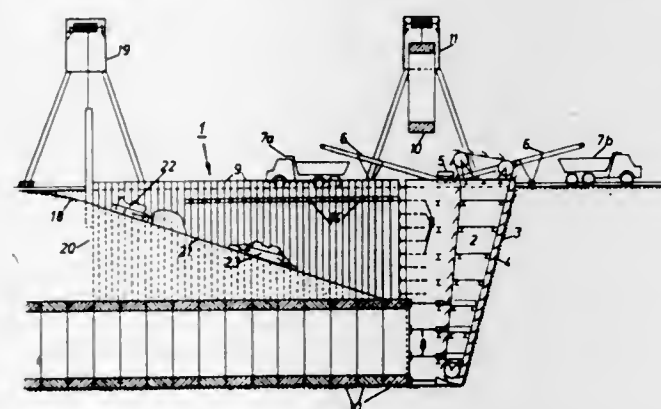
Johann Morner, Kurf 7, 8207 Endorf, Germany

Filed Aug. 1, 1968, Ser. No. 749,384

Int. Cl. E02f 5/06

U.S. Cl. 61—41

6 Claims



Proposed is a method of erecting long straggling subterranean buildings within an open ditch, comprising the steps

of excavating the earth at the end face of the ditch by means of a digging machine which is advanced substantially continuously, supporting the lateral walls of the ditch in the region adjacent the end face by prop pieces which are moved forward together with the digging machine, sectionwise building-in the building from prefabricated parts directly behind the digging machine in the free space between the prop pieces at the bottom of the ditch, supporting the lateral walls of the ditch in a region located behind the prop pieces, and subsequently filling the ditch again over the building.

3,636,716

SWIVEL JOINT CONNECTION

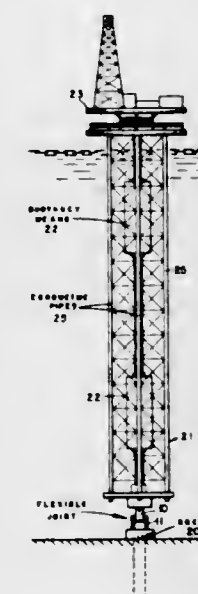
Leopold J. Castellanos, Houston, Tex., assignor to Esso Production Research Company

Filed Mar. 30, 1970, Ser. No. 23,663

Int. Cl. E02b 17/00; B63b 35/44; F16d 3/16

U.S. Cl. 61—46.5

5 Claims



A swivel joint for use in a buoyant articulated offshore platform. Two U-shaped interlocking links, each having a contact surface formed on the intermediate section connecting the two parallel extending sides, are oriented at 90° to each other. A plate is positioned between the two contact surfaces and the surfaces of the U-shaped links bear against a contact surface on each side of the plate when tensile forces are applied in opposite directions to the links. At least one of each of the contact surfaces bearing against each other is curved. The disposition of the curved bearing surfaces permits one of the links to rock against the intermediate plate in one plane whereas the other link can rock in a plane at 90° to the one plane. This arrangement permits the outer end of one link to swing in any direction with respect to the outer end of the mating link.

3,636,717

PILE ANCHORING METHOD AND APPARATUS

Ivo C. Pogonowski; Paul D. Carmichael, and Richard H. Griswold, all of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Nov. 3, 1969, Ser. No. 873,429

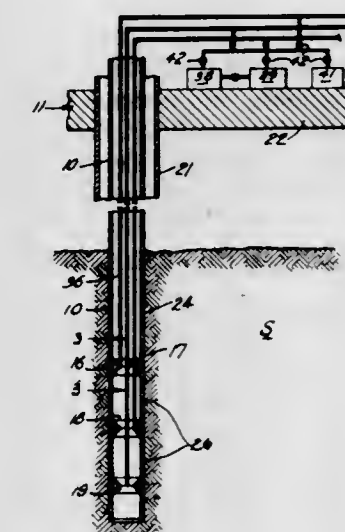
Int. Cl. E02d 5/54

U.S. Cl. 61—53.68

3 Claims

The invention relates to a method and the apparatus therefor for the pile anchoring of a structure in a relatively shallow or underconsolidated substratum. The method includes the initial introduction of an anchoring pile to a desired depth into the normally incompetent substratum. A series of longitudinally spaced peripheral projections are then formed in the substratum adjacent the pile external wall, at discrete intervals to define an irregular holding surface on

the otherwise uniform sided pile. The annular projections comprise a precipitated mass of a polymerized methacrylate that has been introduced as a liquid through the pile,



dispersed into solution with a solvent. Cavities in which the projections are built, are formed by the pressurized injection of an aqueous fluid whereby to displace and wash away substratum material in a desired pattern.

3,636,718

WATER JETTED PILING

John B. Keats, Jeffersonville, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 16, 1970, Ser. No. 19,566

Int. Cl. E02b 5/32, 7/24

U.S. Cl. 61—53.74

4 Claims



A pile and method of sinking piling into clay, sand or other material (which may be underwater) is disclosed employing a downward pointing hollow plastic nose cone base which is filled with concrete and through which water is jetted to erode away the earth. The exterior of the cone is broken by threads formed thereon to allow the pile to be advanced through strata of harder material such as shell layers. The upper surface of the nose cone includes a series of stair-stepped cylindrical flanges to receive different diameter plastic pipe. The piling may be formed of any height desired by adding additional pipe sections to the top of the initial pipe sections. The pipe sections are also preferably filled with concrete which may be reinforced by a spiral steel reinforcement rod. In assembling, the lightweight plastic members are solvent welded together at the site, concrete is poured into the nose cone about a central jetting pipe and the unit lowered to the earth. Then by either jet action or screw action or both, the piling is advanced into the earth to the

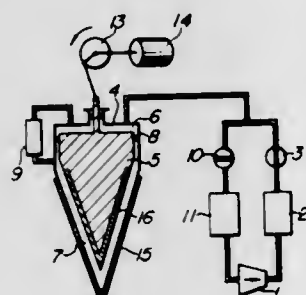
desired depth. Additional pipe segments are added as needed as the piling drops further into the ground. Steel reinforcing rods and concrete are then added if desired.

3,636,719

REFRIGERATION APPARATUS FOR DEVELOPING EXTREMELY LOW TEMPERATURES
Shintaro Sato, Hachioji, and Shigeo Kato, Mitaka, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed July 24, 1970, Ser. No. 57,954
Claims priority, application Japan, July 29, 1969, 44/59328; Nov. 14, 1969, 44/90818
Int. Cl. F25b 9/00

U.S. Cl. 62-6

3 Claims



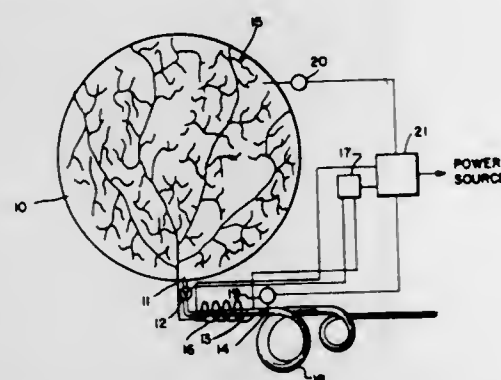
A refrigeration apparatus of the type with which gas is subjected to adiabatic expansion for the production of cold in an expansion chamber defined by a cylinder and a displacer or a piston, wherein the portions of the cylinder and displacer or piston defining the expansion chamber have complementary conical shapes and at least one of the cylinder and the displacer or the piston is arranged to function as a regenerator having a good heat transfer rate and a large specific heat.

3,636,720

PHASE SEPARATOR
Walter F. Krieve, Palos Verdes Peninsula, Calif., assignor to TRW, Inc., Redondo Beach, Calif.
Filed Apr. 30, 1969, Ser. No. 820,589
Int. Cl. F17c 9/02

U.S. Cl. 62-49

1 Claim



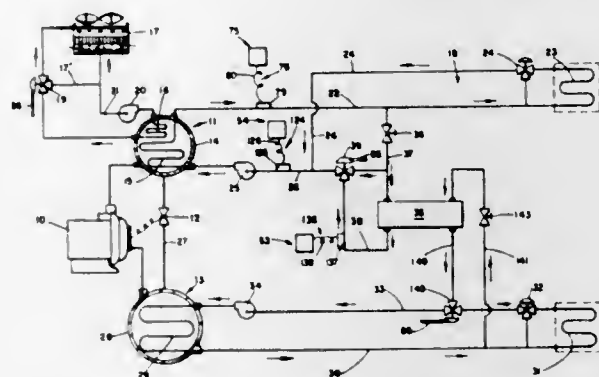
A fluid phase separator is provided which controls the mass flow rate of a fluid being expelled from a tank and insures that the fluid is in a vapor phase. A control valve is attached to the tank. Connected to the control valve is a flow tube which is sized such that the mass flow rate of the fluid passing through the tube is substantially independent of the phase of the fluid entering. The tube is designed to have flow characteristics and sufficient heat transfer area such that the fluid exiting is in a vapor phase. A ballast chamber is connected to the flow tube. The chamber delivers vapor from the flow tube and damps the effects of pressure response in the fluid. A pressure sensor is placed at the downstream end of the ballast tube for control of the valve. The fluid phase separator is applicable for use as a feed system in a low or zero-gravity field which uses a fluid having an appreciable vapor pressure when stored as a liquid such as ammonia, oxygen, or hydrogen.

3,636,721 CONTROL SYSTEM FOR AIR-CONDITIONING EQUIPMENT

Harland E. Rex, Dewitt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.
Filed Nov. 3, 1969, Ser. No. 873,424
Int. Cl. F25d 17/02

U.S. Cl. 62-98

8 Claims



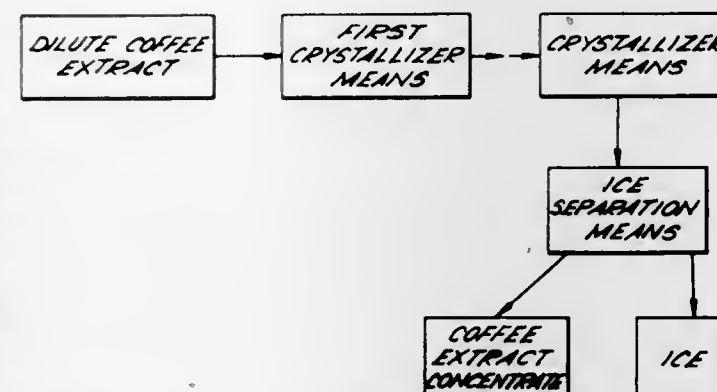
A control system for air-conditioning equipment including a refrigeration machine of the kind wherein heat rejected in the condenser is employed to satisfy a demand for heat within a plurality of areas in an enclosure wherein said refrigeration machine has a normal operating characteristic such that the temperature of a relatively warm heat exchange medium passing from the condenser to the areas requiring heating varies inversely in a predetermined relationship to the temperature of the air outside the enclosure. The temperature of said heat exchange medium is selectively increased and decreased respectively upwardly and downwardly a predetermined amount from said normal operating characteristic when said areas are respectively substantially occupied and unoccupied. Excess heat produced when the areas are substantially occupied is stored until required to satisfy the heating requirement in areas in the enclosure when said areas are substantially unoccupied. After sufficient heat is stored, the temperature of said heat exchange medium is decreased until it reaches its predetermined normal operating point related to outdoor temperature.

3,636,722

CONCENTRATION OF COFFEE
Neophytos Ganlaris, Riverdale, N.Y., assignor to Struthers Patent Corporation, Huntsville, Tex.
Original application July 6, 1967, Ser. No. 651,451, now abandoned. Divided and this application Nov. 25, 1969, Ser. No. 879,843
Int. Cl. A23f 1/06

U.S. Cl. 62-123

2 Claims



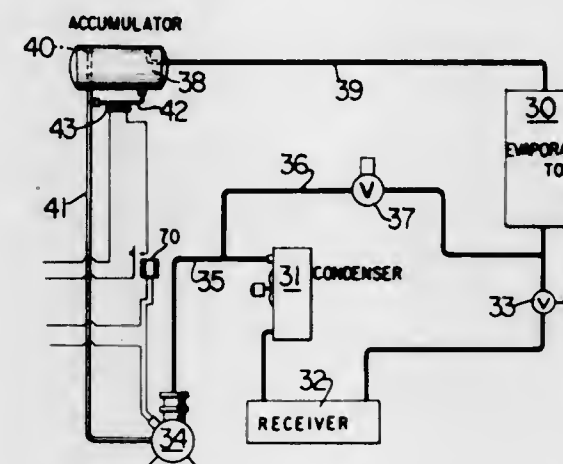
In a system for the freeze concentration of coffee, the ratio of the area of the heat transfer surfaces of the crystallizer to the volume of the crystallizer should be between 7:1 to 10:1. To accomplish this ratio, a crystallizer having both a jacket and a central passage for refrigerant may be used.

3,636,723 REFRIGERATION SYSTEM WITH SUCTION LINE ACCUMULATOR

Daniel E. Kramer, Yardley, Pa., assignor to Kramer Trenton Company, Trenton, N.J.
Filed Sept. 17, 1969, Ser. No. 858,749
Int. Cl. F25b 43/02

U.S. Cl. 62-197

5 Claims



A refrigerant accumulator in the suction line of a closed refrigeration system, provided with a controllably heated metering tube between the bottom of the accumulator and a downstream point in the suction line, to ensure at least adequate reevaporation of the refrigerant, to eliminate slugging and to return oil to the compressor, particularly during the hot gas defrosting portion of the refrigeration cycle, the heating being effected electrically or by means of hot gas from the compressor.

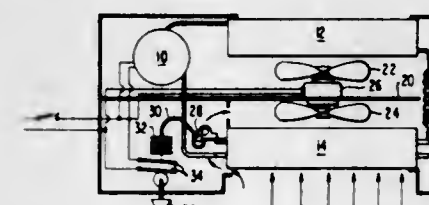
3,636,724

COMBINED AIR AND EVAPORATOR TEMPERATURE CONTROL MEANS FOR AIR CONDITIONER APPARATUS

Harry F. Moy, San Antonio, Tex., assignor to Friedrich Refrigerators Incorporated, San Antonio, Tex.
Filed May 18, 1970, Ser. No. 38,190
Int. Cl. F25b 1/00

U.S. Cl. 62-215

3 Claims



In an air-conditioning apparatus, a single temperature sensor is used to control both room temperature and to prevent evaporator icing by mounting the sensor in heat conducting relation to the evaporator and in a path of airflow which parallels but bypasses the main stream of air through the evaporator.

3,636,725

APPARATUS FOR PREPARING AND MAINTAINING ICE SKATING RINKS

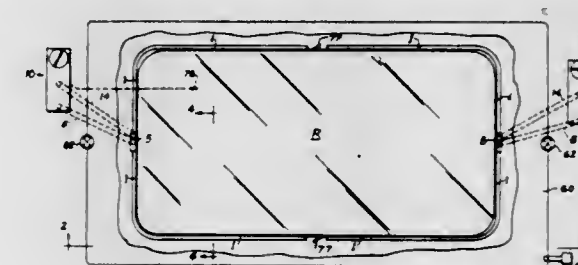
Calvin D. MacCracken, Englewood, N.J., assignor to Calmac Manufacturing Corporation, Englewood, N.J.
Original application Dec. 24, 1968, Ser. No. 786,603, Pat. No. 3,495,415, which is a continuation-in-part of application Ser. No. 561,308, June 9, 1966, now abandoned. Divided and this application Dec. 2, 1969, Ser. No. 881,474
Int. Cl. A63c 19/10

U.S. Cl. 62-235

10 Claims

An apparatus for preparing and maintaining ice skating rinks in which air is refrigerated to a temperature in the

range below 10° F. and preferably below 5° F. and above a lower limit of approximately 0° F. and is supplied at a low velocity from multiple outlets spaced around the major portion of the periphery of the skating area at a level closely adjacent to the surface of the ice to create an abruptly stratified blanket of cold air in contact with the ice. The velocity of the refrigerated air discharged from these outlets onto the ice is held to a low level which in one successful embodiment is about 5.0 feet per second to avoid the entrainment of ambient air from above, and the return air is drawn from a level below 8 inches and preferably below 6 inches above the surface of the built-up ice, so as to be withdrawn from the blanket



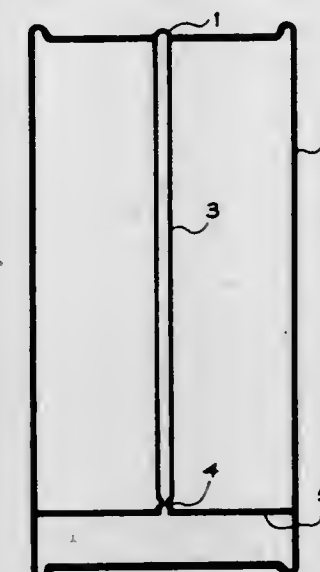
mass thus maintaining an abruptly stratified blanket of cold air of low-moisture content in contact with the ice. It is not necessary to shave the ice to keep it less than 1 to 1½ inches thick, as is required in conventional rinks using sub-floor piping grid refrigerating systems, and in fact the ice is allowed to build up to a thickness of at least 3 inches and preferably in the range from 3 to 8 inches thick. Conveniently portable modular dasher boards are interconnected to form the rink and layout the supply ducts and grilles for the refrigerated air. A special air-refrigerating coil and moisture-removing arrangement is disclosed, and an air-supported enclosure may be used to house the rink.

3,636,726

METHOD OF COOLING CONTAINERS
Nathan Rosenfeld, Unit 11, 459 Old South Head Road, Rose Bay, New South Wales, and Stuart Frederick Fox, 47 Lamrock Ave., Bondi Beach, New South Wales, 2026, both of Australia
Filed Aug. 26, 1969, Ser. No. 853,007
Claims priority, application Australia, Aug. 30, 1968, 42817/68
Int. Cl. F25d 3/10

U.S. Cl. 62-294

7 Claims



A container of beverage is conveniently cooled by the provision of a small reservoir of a compressed nontoxic gas or nontoxic liquid in the interior of the beverage. The beverage is rapidly cooled when the gas is allowed to escape

from the reservoir through a throttle, the device being ing retaining shoulders limiting inward radial movement of generally in the form of a flat plate in the interior of the the cushion, axially directed spring projections and convex beverage.

3,636,727 DOOR STOP

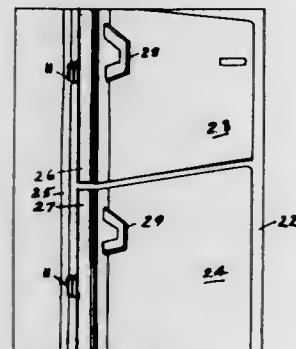
James Gordon Naughton, Erie, Pa., assignor to Frank C. Endean, Jr., Erie, Pa.

Filed Sept. 24, 1969, Ser. No. 860,543

Int. Cl. F25d 17/04

U.S. Cl. 62-409

1 Claim



A stop for a door especially a refrigerator door which is made up of a block of rigid and/or resilient material with a magnet supported in one side of it, the material being of such weight that it can be supported by magnetic force. The magnet holds the block to a doorjamb in the path of the swinging door. Thus, the door is retained open a crack for ventilation and for other purposes.

3,636,728 SHAFT COUPLING

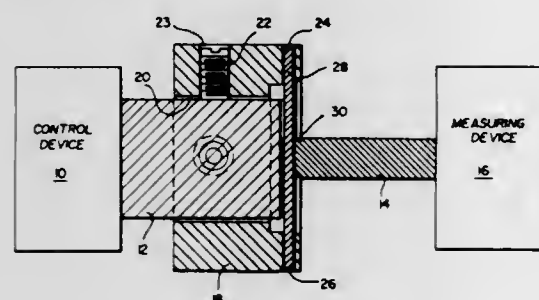
Ralph E. Walker, Los Angeles, Calif., assignor to Litton Precision Products, Inc., Beverly Hills, Calif.

Filed Mar. 20, 1970, Ser. No. 21,372

Int. Cl. F16d 3/16

U.S. Cl. 64-11 R

6 Claims



A shaft coupling for precisely transmitting angular motion and position from one rotating input shaft to an eccentric measuring shaft. A flexible crossmember is radially mounted on one end of the measuring shaft and is held in sliding engagement in a pair of holes in a hub mounted on one end of the input shaft. As the input shaft is rotated, the flexible crossmember torques the measuring shaft at a constant rotational velocity with respect to the input shaft.

3,636,729 LOAD CUSHION

Raman A. Patel, Oak Park, Ill., assignor to Lovejoy, Inc., River Forest, Ill.

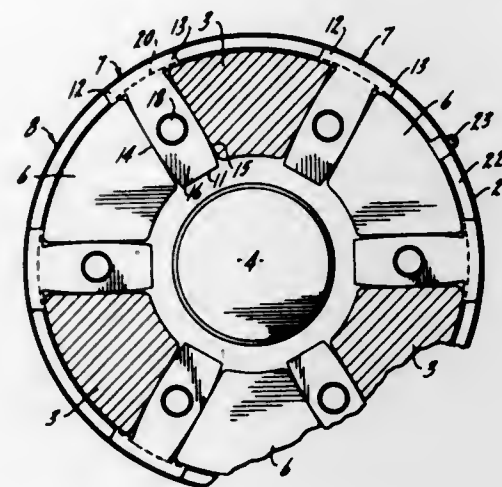
Filed Jan. 30, 1970, Ser. No. 7,163

Int. Cl. F16d 3/64

U.S. Cl. 64-14

2 Claims

A meshing jaws-type flexible coupling and an individual cushion between each adjacent pair of jaws, the cushion hav-



jaw-contacting surfaces and a ribbed band securing the cushions in place.

3,636,730 TEXTILE MESH AND METHOD AND APPARATUS FOR ITS MANUFACTURE

Josef Fecker, Freudenstadt, Wurttemberg, Germany, assignor to Tex-patent GmbH, Fribourg, Switzerland

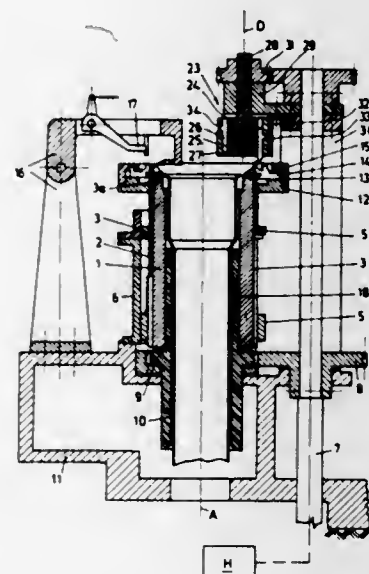
Filed Oct. 13, 1969, Ser. No. 865,620

Claims priority, application Germany, Nov. 26, 1968, P 18 11 053.7

Int. Cl. D04b 15/02

U.S. Cl. 66-95

7 Claims



This invention relates to a method and a circular knitting machine for manufacturing textile mesh products, particularly in the form of stockings and stocking tights, wherein a loop is transferred from one wale into an adjacent wale to prevent the formation of ladders. The transferred loop is moved laterally past an adjacent needle, whereupon the head of the needle is then lowered to engage one of the flanks of the transferred loop to move same downwardly. The transferred loop is then further moved laterally relative to the adjacent needle to cause the other flank of the transferred loop to pass over the head of the needle, thereby causing the plane of the loop to be rotated approximately 180°. The transfer element is then disengaged from the transferred loop, whereby the twisted transferred loop remains engaged with the adjacent needles.

3,636,731 TENSION-RELAXING DEVICE FOR FEEDING FILLING THREADS TO A WARP KNITTING MACHINE

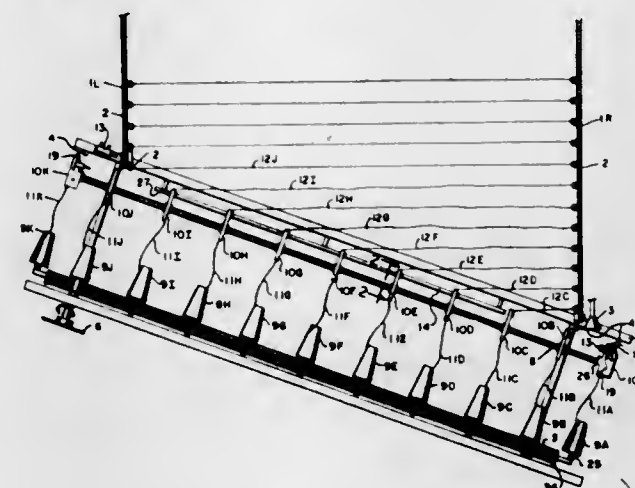
Robert F. Jones, 9C Colonial Drive, Little Falls, N.J.

Filed Aug. 4, 1970, Ser. No. 60,875

Int. Cl. D04b 23/12

U.S. Cl. 66-84

4 Claims



In a multiple-package filling-thread-feeding device for warp knitting machines of the so-called "carousel" type in which thread from a plurality of packages which are moved around by an endless chain is fed to transfer chains provided with pins which carry the filling or weft threads to the knitting line, the motion of the packages stretches successive filling thread lengths from the pins on one chain to the pin on the other. These threads each pass through a tension device between two spring-pressed discs, the tension device for each package moving with it. On the warp knitting machine frame is a cam somewhat shorter than the distance between chains, which cam contacts a rod or follower in each tension device and spreads the discs apart by a wedge at one end while the filling thread is fed out from each package, tension being renewed for a short distance at either end of the length of filling thread from chain to chain.

3,636,732 YARN-FEEDING MEANS FOR KNITTING MACHINES

Keith Gerald Townsend, and David Arthur Harlow, both of Leicester, England, assignors to The Bentley Engineering Company Limited, Leicester, England

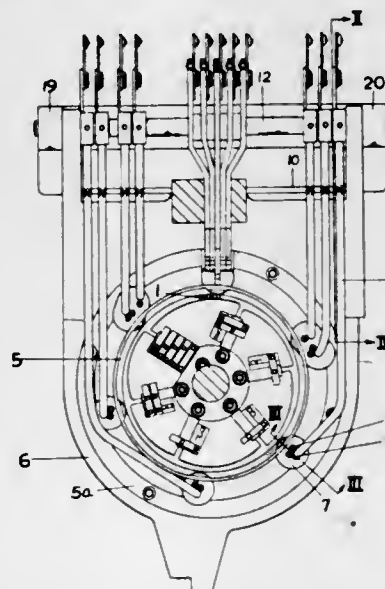
Filed Apr. 20, 1970, Ser. No. 30,175

Claims priority, application Great Britain, Apr. 23, 1969, 20,685/69

Int. Cl. D04b 15/48

U.S. Cl. 66-133

13 Claims



A circular knitting machine is provided with a yarn feeder to be positioned in the neighborhood of the needle circle,

and an arm carrying the yarn feeder pivoted at a distance from the needle circle for movement to bring the yarn feeder into and out of an active yarn-feeding position, and locating means to restrain the yarn feeder against undesired movement when in active position. In a machine having a multiplicity of knitting stations, all the feeder arms are pivoted about a common axis and the yarn feeders having long arms are provided with each locating means in the vicinity of the needle circle.

3,636,733 KNITTING METHOD

Max William Betts, Coventry, and Frank Robinson, Borrowash, both of England, assignors to Courtaulds Limited, London, England

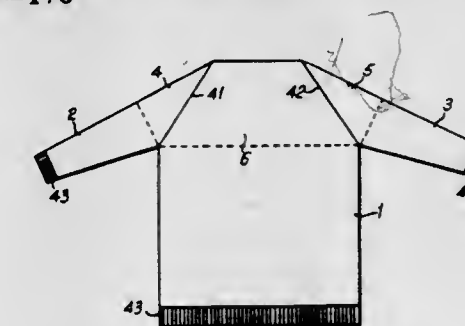
Filed July 17, 1969, Ser. No. 842,505

Claims priority, application Great Britain, July 22, 1968, 34,853/68

Int. Cl. A41b 9/06; D04b 7/00

U.S. Cl. 66-176

12 Claims



A method of knitting a sleeved garment on a knitting machine, the method including the steps of knitting a shoulder portion of each sleeve, in the direction towards the upper end of the sleeve, in reciprocatory manner on both beds of a pair of opposed beds of the machine so that pieces of the shoulder region on the two beds are joined together at an edge of the sleeve which is outermost in the finished garment, knitting the body of the garment commencing at the lower end and knitting front and rear upper body portions of the garment as flat fabric on different beds of a pair of opposed beds of the machine and joining the front and rear upper body portions to the shoulder portions of the sleeves, or vice versa, during knitting on the machine. A knitting machine for carrying out the method is also claimed.

3,636,734 WASHING MACHINE UNBALANCE SWITCH CIRCUIT

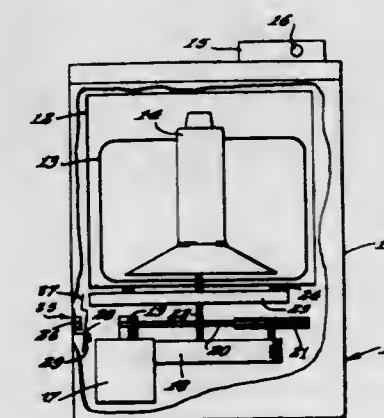
Edward H. Getz, Watervliet, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 20, 1970, Ser. No. 65,597

Int. Cl. D06f 23/04, 33/02, 37/24

U.S. Cl. 68-12 R

4 Claims



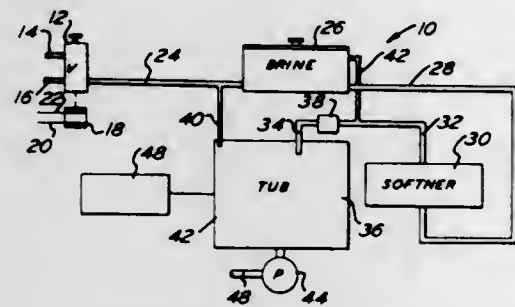
A washing machine unbalance switch circuit employs a solenoid coil connected in series with the drive motor and normally shunted by its own contacts which are actuated by a

lever arm in response to excessive basket movement as may result from an unbalance load. The lever arm is magnetically latched upon opening of the shunt circuit and energization of the coil to maintain the coil as a series impedance in the motor circuit to stop and prevent operation of the motor. In one embodiment the solenoid coil is connected in series with the entire electrical control circuit of the machine to prevent further operation of the machine without first being attended by an operator. A second embodiment employs the solenoid coil in series with the drive motor but ineffective with respect to the remainder of the control circuit so that a presettable program timer remains operable to complete a preset cycle without first requiring the attention of an operator.

3,636,735

WATER-SOFTENING SYSTEM FOR WASHING MACHINES

Stuart Borochaner, Levittown, Pa., assignor to National Water Pure Corporation, Burlington, N.J.
Filed Aug. 22, 1969, Ser. No. 852,293
Int. Cl. B01d 15/06; D06f 29/00
U.S. Cl. 38—12 R



A water-softening system for washing machines and the like which comprises a regeneration chamber in direct circuit between the water supply and an ion-exchange chamber which is, in turn, in direct circuit with the washing machine tub. Normally, there is no regeneration material in the regeneration chamber so that water flows directly through to the ion-exchange chamber, where it is softened, and then into the tub. When it is necessary to regenerate the ion-exchange resin, regeneration material, either granular or fluid, is inserted into the regeneration chamber and the water from the source is permitted to flow for a brief interval sufficient to carry the regeneration material into the ion-exchange chamber. It is permitted to stay in the ion-exchange chamber for sufficient time to regenerate the ion-exchange resin and is then flushed out through the tub into the drain. No special control valves or other control means are necessary for the regeneration cycle.

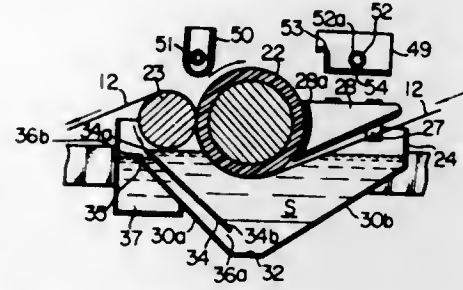
3,636,736

IMPROVED APPARATUS FOR SCOURING GREASY WOOL

Nobuo Terasawa; Syuho Yagi; Yoichiro Yanaga, and Toyotaro Kiritani, all of Yokai-shi, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan
Filed Oct. 10, 1969, Ser. No. 865,356
Claims priority, application Japan, Dec. 28, 1968, 43/96102
Int. Cl. D06f 39/10; B05c 3/138
U.S. Cl. 68—18 F

Improved scouring equipment for greasy wool includes an assembly of cleansing apparatus arranged in series. Each apparatus is provided with means for scouring greasy wool fibers in their opened condition while carrying in a scouring liquid and a pair of press rollers for squeezing the scouring liquid contained in the wool fibers. The used liquid is separated from the residue sand or other impurities deposited on the bottom of a scouring bath and discharged from an outlet of a separate passage formed along a sidewall of the scouring bath by being flowed upward from the bottom of

the bath. The discharged scouring liquid is used in a similar way as that of the conventional scouring equipment, while

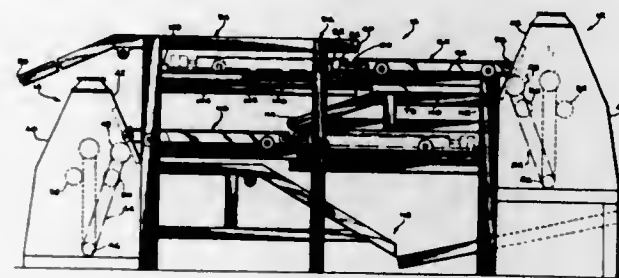


the deposited sand or other impurities are discharged from the scouring bath.

3,636,737

LEATHER PROCESSING

Lando J. Schwaller, and Albert J. Razal, Sheboygan, Wis., assignors to Armour Leather Company, a subsidiary of Akzona, Incorporated, Sheboygan, Wis.
Filed Jan. 30, 1970, Ser. No. 7,109
Int. Cl. C14b 1/06
U.S. Cl. 69—42

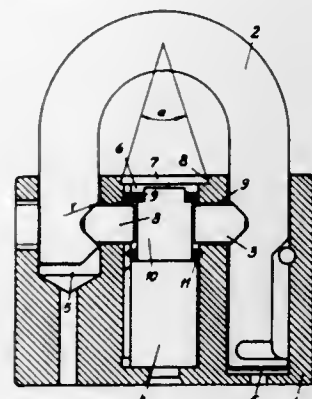


A method and apparatus for processing leather hides utilizing a generally conventional first processing apparatus adapted to continuously process one-half only of the area of a leather hide, wherein a second processing apparatus identical in function to the first apparatus is provided in tandem, and wherein a hide is processed by first processing one-half only of the area of the hide utilizing the first apparatus and conveying the hide to the second apparatus for processing the other half of the hide without necessitating manual end-to-end reversal of the hide.

3,636,738

PADLOCK

Valdemar Burakoff; Paul Krakstrom; Into Sinervo, and Kaarlo Solttanner, all of Helsinki, Finland, assignors to Oy Wartsila Ab, Helsinki, Finland
Filed Aug. 28, 1968, Ser. No. 755,969
Claims priority, application Finland, Aug. 29, 1967, 2315/67
Int. Cl. E05b 67/22, 67/02
U.S. Cl. 70—38 A



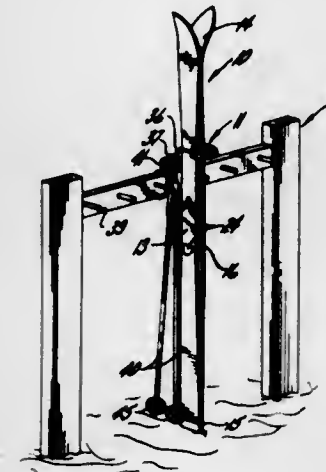
A padlock of hardened steel having a lock mechanism inserted through an opening in the lock casing, which opening

is covered by a cover plate with a very shallow surface hardening. The cover plate is initially curved and is pressed flat to fill a conical attachment recess in the lock casing.

3,636,739

LOCK FOR SKIS

Richard W. Smedley, 1008 Alann Drive, Joliet, Ill.
Filed May 13, 1969, Ser. No. 824,127
Int. Cl. E05b 73/00; A47f 7/00; A63c 11/02
U.S. Cl. 70—58

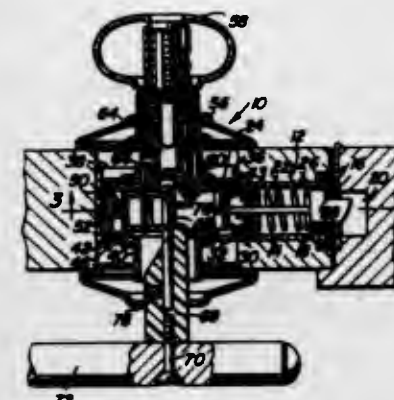


A lock is provided for a pair of skis, the lock having a shackle and mating body which define an enclosed free space of generally lateral cross section, the length of the cross section being less than the maximum width of the skis but greater than the minimum ski width, and the width of the cross section being less than twice the maximum thickness of a single ski, but greater than twice the minimum thickness of a single ski.

3,636,740

DOOR LOCK WITH PUSH ACTION CONTROL

Henry W. Rollins, 65 Burley St., Waterville, Maine
Continuation-in-part of application Ser. No. 606,796, Jan. 3, 1967, now Patent No. 3,490,803. This application Dec. 30, 1969, Ser. No. 889,267
Int. Cl. E05b 63/16, 65/10; E05c 1/14
U.S. Cl. 70—92

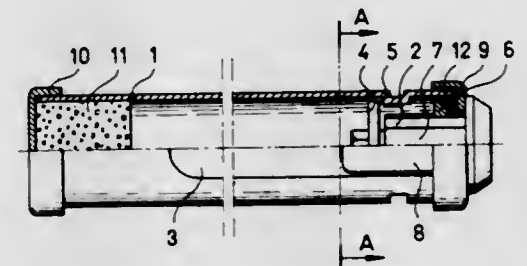


A door lock set incorporating a conventionally operating rotating knob, normally incorporating a key-actuated lock, for allowing limited passage through the door from the knob side thereof. Control of the door lock set from the other side is effected through a mounted camming plunger which can effect a retraction of the latchbolt through a simple push action, having an elongated panic bar attached thereto, or a push or rotating action of the plunger, the plunger in this instance mounting a knob thereon for the control thereof.

3,636,741

LOCKING MEANS

Paavo Enne, Matinkyla; Gustaf Gahmberg; Kurt Pousar, and Kaarlo Henrik Solttanner, all of Helsinki, all of Finland, assignors to Oy Wartsila AB, Helsinki, Finland
Filed Oct. 9, 1969, Ser. No. 865,001
Claims priority, application Finland, Oct. 9, 1968, 2846/68
Int. Cl. E05b 73/00; F16b 41/00
U.S. Cl. 70—230

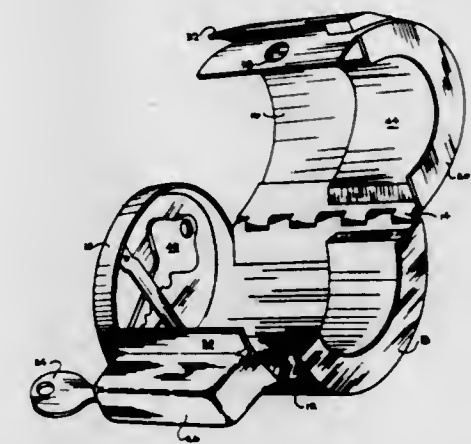


A locking means is disclosed for the locking of the end portion of a tubular member by means of a cylinder lock. The tubular member is provided with an internal radially extending stop face. A cylinder lock carrying a rotatable locking member is nonrotatably fitted in the end opening of the tubular member and the locking member is turned into a locking position axially behind the stop face. The locking means can also be used to lock the attachment screws of an outboard motor.

3,636,742

LOCK-OUT KEY HOLDER

Gerrel B. Rancy, Odessa, Tex., assignor to Filley Enterprises, Inc., Midland, Tex.
Filed May 22, 1970, Ser. No. 39,935
Int. Cl. E05b 17/14
U.S. Cl. 70—424



A solid disc is attached to a hinged, split cylinder. A lock is on one hemicylinder so the device may be secured over a door knob to shield the keyhole of a knob lock with the solid disc. A steel spring on the inside of the disc provides a holder for a key to the knob lock and a lining of sponge rubber inside the hemicylinders makes the device adaptable to several size knobs.

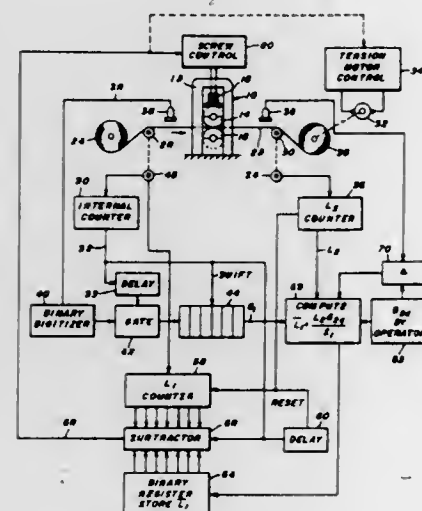
3,636,743

ROLLING MILL CONTROL SYSTEM

James B. Murtland, Jr., Natrona Heights, Pa., assignor to Allegheny Ludlum Industries, Inc., Brackenridge, Pa.
Filed June 15, 1970, Ser. No. 46,320
Int. Cl. B21b 37/12

U.S. Cl. 72—9
A rolling mill control system based upon the constant volume principle and wherein strip length or velocity at the

entrance or exit side of the mill is compared with calculated strip length or velocity, to derive an error signal for the



rolling mill screwdown and/or a tension regulating device to maintain output gage at a desired value.

3,636,744

INTERNAL GEAR ROLLING MACHINE

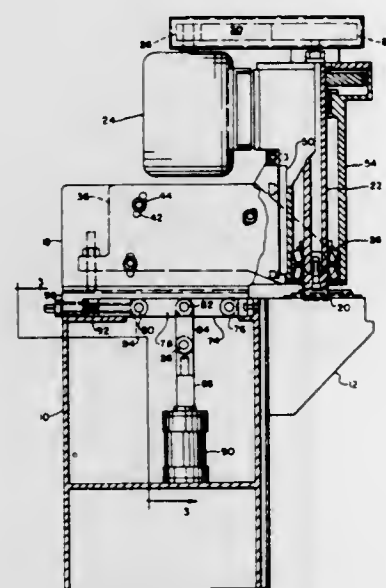
Carl H. Motz, Harper Woods; Richard W. Tersch, Grosse Pte. Woods, and Arthur B. Bassoff, Oak Park, all of Mich., assignors to Lear Siegler, Inc., Santa Monica, Mich.

Filed May 18, 1970, Ser. No. 38,455

Int. Cl. B21h 5/02

U.S. Cl. 72-91

10 Claims



A machine for rolling the teeth of an internal gear comprising power means for moving a gearlike die radially of an internal gear to apply metal deforming pressure to its teeth.

3,636,745

SAFETY LOCK FOR CAMPER DOORS

Gloyd W. Green, 2895 South State, Salt Lake City, Utah

Filed Mar. 5, 1970, Ser. No. 16,763

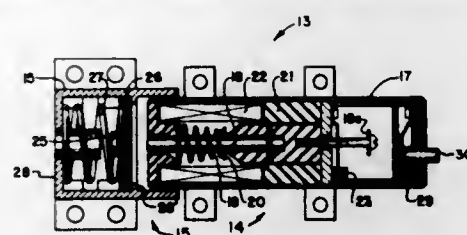
Int. Cl. E05b 47/02, 65/16

U.S. Cl. 70-281

8 Claims

A safety lock device adapted to use on the door of a camper body. The device automatically locks and unlocks the camper door upon operation of the vehicle ignition key of the vehicle on which the camper body is mounted. Emer-

gency release switches are provided to insure release of the lock, if necessary, even though the ignition switch may be



turned on, and the device is "fail safe" so that occupants of the camper body will not be inadvertently trapped therein.

3,636,746

ROLL-FORMING OF TRANSITION SURFACES ON CYLINDRICALLY SHANKED ELEMENT

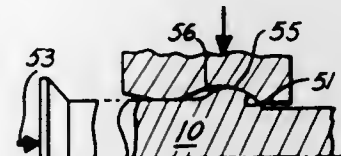
William E. Duncan, Garden Grove; Harry L. F. Kau, Redondo Beach, and Lawrence H. Livermont, Glendora, all of Calif., assignors to Hi-Shear Corporation, Torrance, Calif.

Filed Feb. 2, 1970, Ser. No. 7,459

Int. Cl. B21h 1/00, 3/02

U.S. Cl. 72-100

5 Claims



A method for forming transition surfaces to close tolerances, with cold worked properties, and with improved surface finish from the self-material of a circularly cylindrical shanked metallic workpiece. In the process, the workpiece is forced endwise against a forming surface on a roll die while the roll die is pressed radially against the workpiece. The resulting displacement of metal serves to work harden the transition surface, smooth it to the surface quality of the die itself, and hold its dimensions to the close tolerances required of the product. If desired, the transition surface can be formed as a peripheral bead, and its trailing surface formed as a consequence of springback forces in the material.

3,636,747

MECHANISM FOR CLAMPING A BLANK IN A MACHINE FOR ROLLING SPLINES

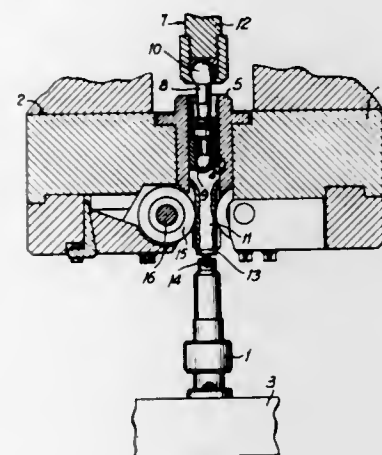
Mikhail Abramovich Esterzon; Jury Georgievich Kozyrev, both of Moscow, U.S.S.R.; Mikhail Oslipovich Yakobson, deceased, late of Moscow, U.S.S.R., and Anna Semenovna Yakobson, executor, Profsojuznaya ulitsa 40, Korpus 1, kv. 33, Moscow, U.S.S.R.

Filed Sept. 16, 1969, Ser. No. 858,915

Int. Cl. B21b 13/12

U.S. Cl. 72-214

3 Claims



A clamping device for holding a blank in a machine for making splines by a multiroller rolling head comprises a sta-

tionary supporting center and a clamping center which is moved by a drive means along guides located in the head housing and may be angularly self-adjusted during the rolling process.

3,636,748

DRAWING OF SHEET METAL

George Roberts Hall, 32, Amesbury Road, Moseley, Birmingham, 13, and Robert Alexander Lyall, 22 Morven Road, Sutton Coldfield, Warwickshire, both of England

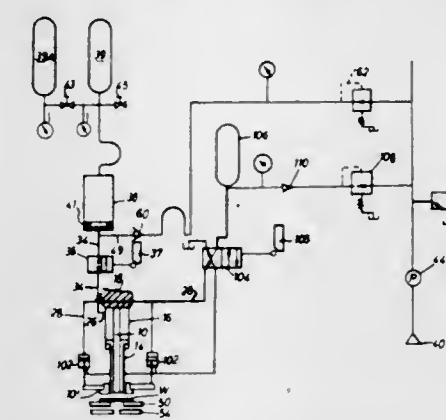
Continuation-in-part of application Ser. No. 752,010, Aug. 12, 1968, now abandoned. This application Mar. 24, 1969,

Ser. No. 809,493

Int. Cl. B21d 24/02

U.S. Cl. 72-349

24 Claims



The disclosure relates to an apparatus for the cold drawing of sheet metal consisting of a plurality of punches adapted for mounting on a crosshead of a press and telescopically received within one another for intermittent relative movement, said punches being arranged to cooperate with a plurality of stationary dies of progressively decreasing size, whereby to draw an initially flat or substantially flat workpiece of sheet metal into the shape of a container, a control circuit being provided for each telescoping punch, which circuit or circuits embody at least one energy-storage section adapted to contain a compressible fluid as an energy-storage medium.

3,636,749

HYDRAULIC PRESSURE CONTROL APPARATUS

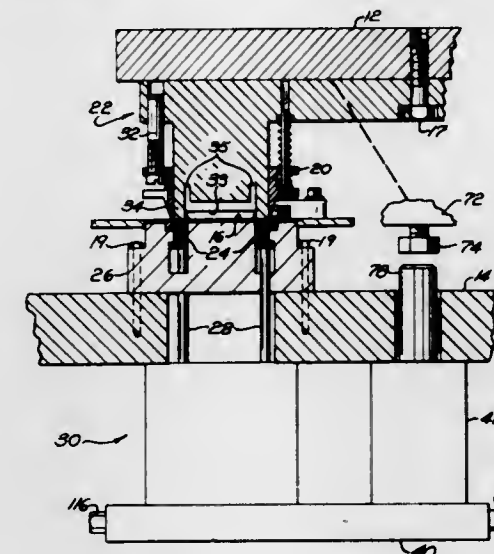
Elmer F. Heiser, 8313 Pin Oak Lane, Parma, Ohio

Filed May 20, 1969, Ser. No. 826,120

Int. Cl. B21d 26/14

U.S. Cl. 72-351

22 Claims



A stamping apparatus includes a pressure pad means for supporting a blank and a movable upper die portion for shaping the blank. Hydraulic cushion means yieldably opposes movement of the pressure pad means during shaping of the blank in response to movement of the upper die through a work stroke. At a predetermined point in the work stroke, an

expansion chamber, connected by passageways to the hydraulic cushion means, expands at a rate sufficient to release the hydraulic pressure in the hydraulic cushion means such that the yieldable opposition of the hydraulic cushion means is removed.

3,636,750

DEVICE FOR MEASURING TARE AND CALIBRATION ERRORS OF CONVEYOR BELT WEIGHING SCALES

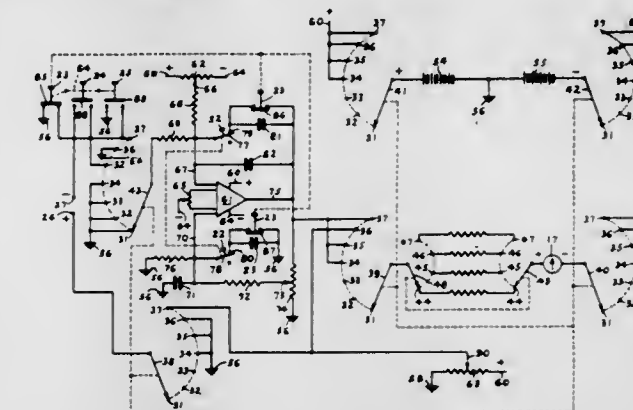
Matthew H. Wojcik, Garfield, N.J., assignor to Merrick Scale Mfg. Company, Passaic, N.J.

Filed Aug. 24, 1970, Ser. No. 66,540

Int. Cl. G01g 23/00

U.S. Cl. 73-1 B

19 Claims



The electrical rate output signal of an endless conveyor belt scale, consisting of the product of the load on the conveyor belt and the rate of travel of the conveyor belt, or the amplified weight of the load with the rate of travel of the conveyor belt constant, varies positively and negatively due to the tare weight variations of the conveyor belt and said tare weight variations are averaged out so that the algebraic sum of all the tare signal variations equal zero when the endless conveyor belt makes one complete revolution or multiple revolutions. The endless conveyor belt scale is also calibrated by a specified signal level having a magnitude equal to the signal level produced by either test chains or test weights on an endless conveyor belt weight sensing platform.

3,636,751

RADIAL FLOW CELL

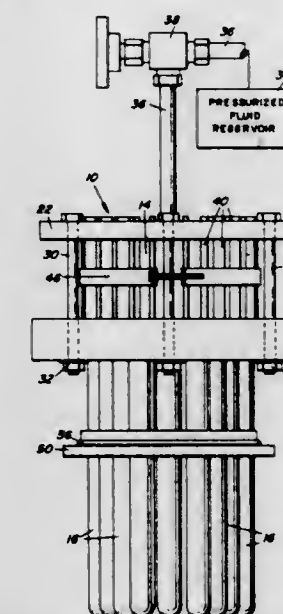
Joseph Pasini, III; William K. Overbey, Jr., both of Morgantown, and Franklin D. Slagle, Kingwood, all of W. Va., assignors to The United States of America as represented by the Secretary of the Interior

Filed Sept. 1, 1970, Ser. No. 68,689

Int. Cl. G01n 15/08

U.S. Cl. 73-38

4 Claims



A radial flow cell and associated method for measuring the directional permeability of a porous rock sample. While the

sample is constrained in the flow cell, fluid under pressure is forced radially through it. Directional permeability is determined by comparing the relative amounts of fluid flowing out of the sample into distinct collecting areas.

3,636,752

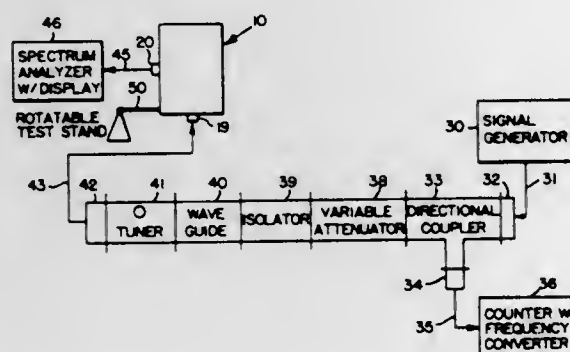
MICROWAVE FERRITE ACCELERATION SENSOR
Thomas Koryu Ishii, Brown Deer, Wis., assignor to Mega Power Corporation, Rochester, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,668

Int. Cl. G01p 15/08

U.S. Cl. 73-517 R

5 Claims



A ferrite rod is mounted beneath a movable plunger in a brass cavity resonator, which has resonant properties at microwave frequencies. The plunger applies stresses to the rod proportional to the acceleration of the plunger in a direction parallel to the ferrite central axis. The ferrite internal magnetic field changes with the stresses developed therein resulting from the pressure of the plunger. These changes effect alteration in the ferrite effective permeability and effect proportionate changes or shifts in the cavity resonant frequency. The changes in the resonant frequency may be monitored thus producing an accelerometer.

3,636,753

AGITATOR AND VISCOSIMETER FOR SUGAR SIRUP OR THE LIKE AND APPARATUS UTILIZING THE SAME
Henry Thiele, Tilo Von Doring, and Gerd Wegner, all of Wevelinghoven, Germany, assignors to Pfeifer & Langen, Cologne, Germany

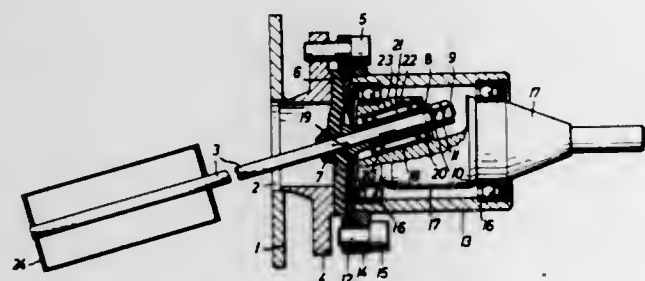
Filed July 29, 1968, Ser. No. 748,366

Claims priority, application Germany, Nov. 23, 1967, P 42701

Int. Cl. G01n 11/14, 11/16

U.S. Cl. 73-59

16 Claims



A viscosimeter which determines the viscosity of sirup in a batch vacuum crystallizer comprises an agitator including a rod which extends through a diaphragm overlying an opening in the crystallizer wall and is reciprocated, oscillated or wobbled by a drive combined with a detector which measures the force necessary to impart to the agitator a recurrent movement. The detector indicates the force on a viscosity scale and simultaneously actuates a device which records a viscosity curve. The viscosimeter forms part of an automatic control system which regulates the operation of the crystallizer.

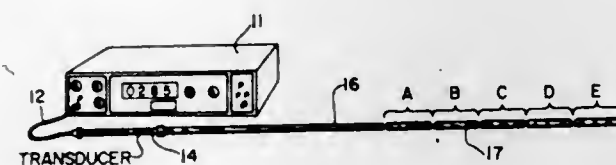
3,636,754
ULTRASONIC PROFILE MEASURING APPARATUS
Lawrence C. Lynnworth, Waltham; Dana R. Patch, and Edmund H. Carnevale, both of Beverly, all of Mass., assignors to Parametrics, Inc., Waltham, Mass.

Filed July 16, 1970, Ser. No. 55,506

Int. Cl. G01n 29/00

U.S. Cl. 73-67.8 R

19 Claims



An ultrasonic measurement system for determining the profile in a fluid medium of an ambient condition, variations in which produce variations in ultrasonic transmission characteristics of sensors in the medium. An iterated series of identical equispaced ultrasonic discontinuities characterized by individual reflection coefficients no greater than 0.10, define the sensors. In one embodiment solid rods are employed; in another discrete reflectors positioned in the medium are used.

3,636,755

TESTING BOND STRENGTH OF SEMICONDUCTOR DEVICE ASSEMBLIES

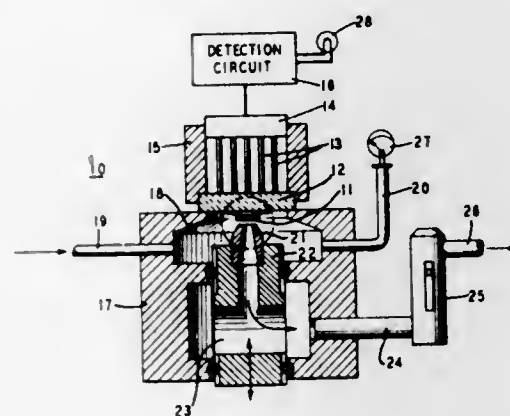
Edward Joseph Boore, Allentown, and Delos Mason Sutter, Lenhartsville, both of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 4, 1970, Ser. No. 43,351

Int. Cl. G01n 19/04

U.S. Cl. 73-37

8 Claims



A test method and apparatus for stressing beams leaded semiconductor device structures bonded to substrates is disclosed. A diffuser in close proximity to the chip surface causes a lower pressure on top of the chip than on the bottom because of gas flow out of the diffuser from the enclosing pressurized chamber. This creates a net force on the chip tending to lift it from the substrate. Varying the space between the chip and diffuser surfaces allows stepless control of the stress level applied to the chip, analogous to centrifuging. The force applied to the chip is typically increased to a predetermined value which is defined, using an established calibration technique, by the chamber pressure and the gas flow rate. However, forces great enough to remove the chip from the substrate may be generated if desired. This test method is also suitable for stressing a plurality of chips simultaneously.

3,636,756

ULTRASONIC SEARCH UNIT WITH ROLLING CONTACT

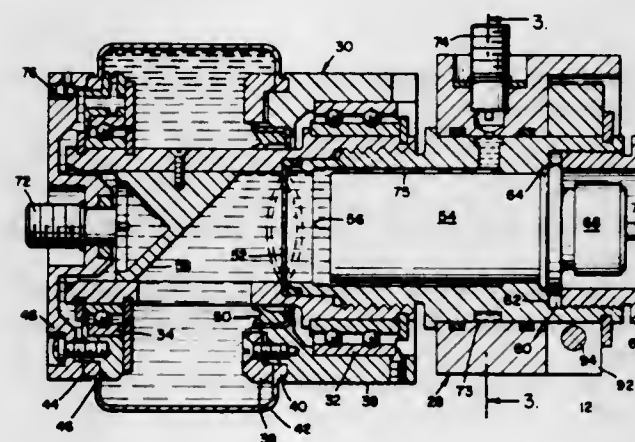
Allwyn M. White, Danbury, Conn., assignor to Automation Industries, Inc., Century City, Calif.

Filed Sept. 11, 1969, Ser. No. 857,104

Int. Cl. G01n 29/00

U.S. Cl. 73-71.5

12 Claims



An ultrasonic wheel search unit for testing elongated bodies wherein a fluid impervious, flexible, ultrasonically transparent diaphragm defines a fluid-filled wheel chamber and a separate fluid-filled transducer chamber, enabling rapid transducer change. Means are provided to vary the relative pressure between dissimilar fluids in the two chambers to vary the beam pattern of the search unit.

3,636,757

MEASURING THE TENDERNESS OF MEAT

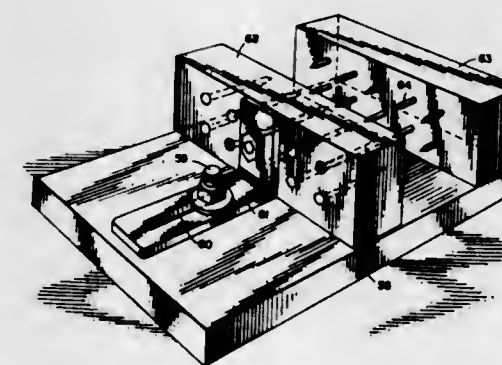
Leo J. Hansen, Clarendon Hills, Ill., assignor to Armour and Company, Chicago, Ill.

Continuation-in-part of application Ser. No. 776,234, Nov. 15, 1968, which is a continuation-in-part of application Ser. No. 705,722, Feb. 15, 1968, now abandoned. This application May 15, 1970, Ser. No. 37,729

Int. Cl. G01n 3/48

U.S. Cl. 73-81

4 Claims



In probe testing a body of raw meat which has been severed from the carcass to determine how tender the meat will be upon cooking, the meat body is supported in depth against lateral displacement as the probe is pressed into the meat body for measurement of the resistance of the meat to the movement of the probe.

3,636,758

BEND-STRETCH APPARATUS FOR TESTING FORMABLE MATERIAL

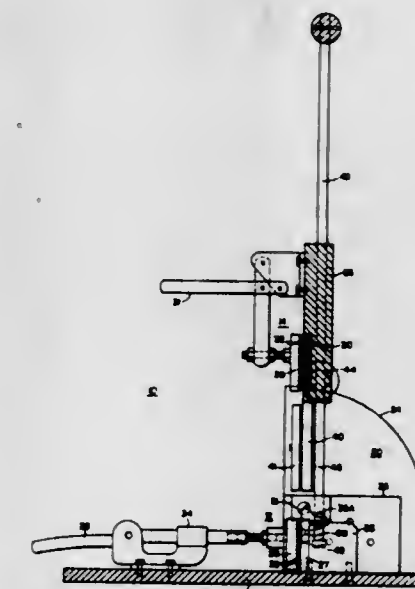
Francis G. McKee, New Kensington, and Roger C. Haddon, Monroeville, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Apr. 20, 1970, Ser. No. 29,835

Int. Cl. G01n 3/20

U.S. Cl. 73-100

6 Claims



A device for testing the effect of forming forces on the surface of or on a coating applied to a formable material, the device including two spaced-apart means for clamping the material, and a radius corner means located in a fixed position between the two clamping means in substantial alignment therewith. On each side of the corner means is disposed a structure providing cam surfaces located in a fixed radial relationship to the corner means. At least one of the clamping means is provided with cam following means disposed to engage the cam surfaces. When the movable clamping means is moved along the extent of the cam surfaces, with a test piece of the formable material tightly clamped between the clamping means, the test piece is bent and elongated in the manner encountered in a forming operation in which the material undergoes a substantial amount of stretching while being subjected to a substantial bend.

3,636,759

PROCESS OF PENETRANT INSPECTION

James R. Alburger, 5007 Hillard Ave., La Canada, Calif.
Continuation-in-part of application Ser. No. 804,200, Mar. 4, 1969. This application Sept. 9, 1969, Ser. No. 856,462

Int. Cl. G01n 21/00

U.S. Cl. 73-104

1 Claim

Compositions and processes for providing a selective increase in wash-removability of surface penetrant and entrapments of penetrant in shallow surface discontinuities, as compared with penetrant entrapments in deeper cracks. Water-washable gel-forming inspection penetrants are constructed using a balanced combination of hydrophylic surfactant and relatively volatile lipophylic synergist constituents. Thin layers of penetrant coated on test surfaces and allowed to drain and dry for a suitable period of time will tend to selectively lose part or most of the synergist constituent in surface layers, while considerably less loss will occur in penetrant contained in deep cracks. The selective loss of synergist from surface layers or shallow entrapments, will permit such penetrant layers to lose much of their gel-forming capability, and thus become more readily removable in a water wash, thereby providing an improved contrast of crack indications against an unwanted background of fine surface indications.

3,636,760

FORCE MEASURING APPARATUS

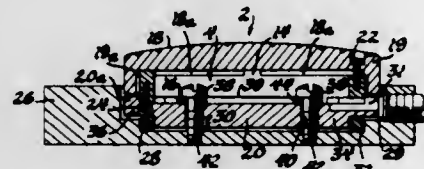
Ralph S. Shoberg, Farmington, Mich., assignor to GSE Incorporated, Detroit, Mich.

Filed Feb. 25, 1970, Ser. No. 13,942

Int. Cl. G011 1/22

U.S. Cl. 73—141 A

34 Claims



Force measuring apparatus including an endless body having a first set of force applying elements projecting from the body for applying forces to the body in one axial direction at spaced locations and a second set of force applying elements projecting from the body for applying forces to the body in the opposite axial direction at spaced locations on the body. The force applying elements of one set are in staggered relationship with the force applying elements of the other set to cause flexural stressing of the body between adjacent force applying elements of the two sets. The apparatus also includes means for resiliently supporting a load cell on a base member in both axial and transverse directions relative to the base member so that the load cell resiliently "floats" relative to the base member.

3,636,761

MOTOR CUTOFF AND DELAYED REVERSING CIRCUIT FOR A RECORDING AND PLAYBACK APPARATUS

Hermann Bretschneider, Viktor Czinka, and Karl Rupp, all of Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

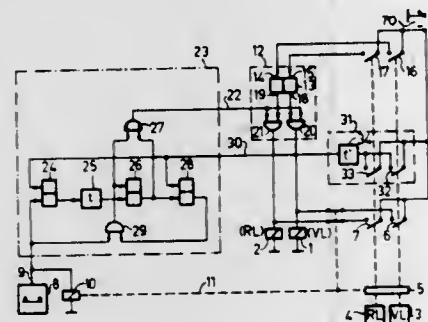
Filed Jan. 29, 1970, Ser. No. 6,857

Claims priority, application Austria, Jan. 31, 1969, A981/69

Int. Cl. G11b 15/06

U.S. Cl. 179—100.2 S

4 Claims



A reversing apparatus for recording and playback devices where a group of multivibrators, logic circuits, and delay elements operate to stop the motor of the recording and playback device, and after a delay sufficient to ensure that all inertial movement has stopped reverses the motor.

3,636,762

RESERVOIR TEST

Chiang-Hai Kuo, Houston, Tex.; Ronald P. Nordgren, The Hague, Netherlands, and John P. Vogiatzis, Houston, Tex., assignors to Shell Oil Company, New York, N.Y.

Filed May 21, 1970, Ser. No. 39,341

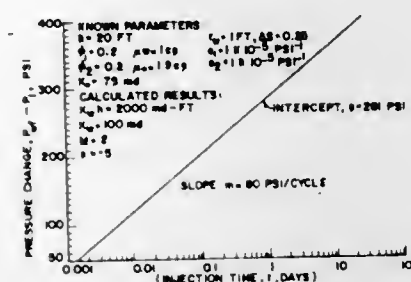
Int. Cl. E21b 47/10

U.S. Cl. 73—155

6 Claims

A method for measuring reservoir properties including skin factor and permeability thickness product of a porous earth formation with respect to injected fluid around a fluid injection well by rapidly increasing the rate of fluid injection to a

new higher rate, maintaining injection substantially constant at this higher rate, and recording the variation with time of



the fluid injection pressure as the injection rate is held substantially constant.

3,636,763

MEASUREMENT OF THE FLOW OF PARTICULATE MATERIAL

Maurice Sidney Beck, Bradford, England, assignor to National Research Development Corporation, London, England

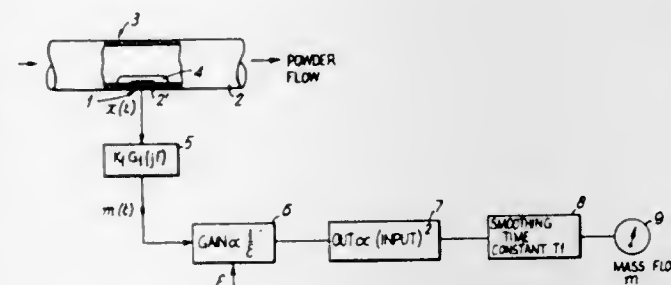
Filed May 14, 1969, Ser. No. 824,612

Claims priority, application Great Britain, May 17, 1968, 23,585/68

Int. Cl. G01f 1/00

U.S. Cl. 73—194 E

9 Claims



A method of measuring the flow rate of particulate material in pneumatic conveyors in which random perturbations in the material flowing through the conveyor are sensed and utilized to generate a noise signal the power of which is a measure of the flow rate of the particulate material.

3,636,764

ELECTROMAGNET FOR BLOOD FLOWMETERS AND THE LIKE

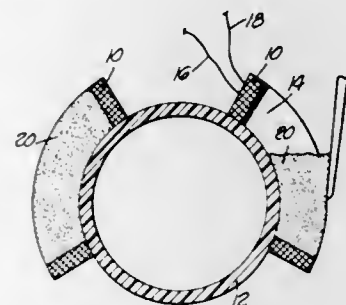
Horst Funfstuck, Los Angeles, Calif., assignor to Statham Instruments, Inc., Oxnard, Calif.

Filed Oct. 30, 1969, Ser. No. 872,688

Int. Cl. G01p 5/08

U.S. Cl. 73—194 EM

3 Claims



An improved electromagnet for blood flowmeters and the like is made by filling the open central portion of a magnetizing coil with a mixture of iron powder suspended in a quick-hardening epoxy resin. The mixture is thereafter heated and cured to form an electrically nonconductive magnetic core.

3,636,765

VENTURI DEVICE

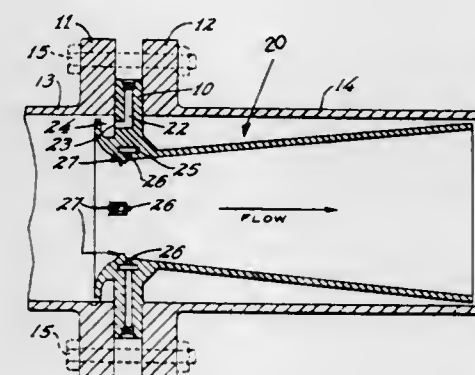
William R. Brown, 341 West Mt. Vernon St., Lansdale, Pa.

Filed May 21, 1969, Ser. No. 826,624

Int. Cl. G01f 1/00

U.S. Cl. 73—213

3 Claims



A compact, high-differential, low-loss, Venturi utilizing a curved upstream approach which is modified to provide a protrusion extending into the venturi in the convergent section thereof immediately upstream of the low-pressure tap. The protrusion extends into said venturi less than the Boundary layer thickness of the fluid flowing in the device thereby creating and constantly maintaining a turbulent action of the boundary layer in the localized area of the low-pressure tap, regardless of flow rate of flow conditions and a recovery section tangential or in continuous surface relation thereto.

3,636,766

VELOCITY METER

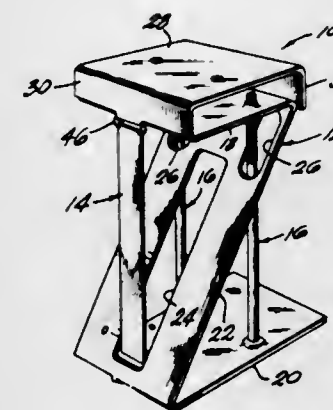
Philip R. Austin, Livonia, Mich., assignor to Contamination Control Laboratories, Livonia, Mich.

Filed May 11, 1970, Ser. No. 36,211

Int. Cl. G01f 1/00

U.S. Cl. 73—228

10 Claims



Apparatus for measuring the velocity of flow of a fluid. The apparatus is an extremely simple, lightweight, low-cost item comprising a frame formed from a single strip of sheet material, a vane hingedly connected in pendulum fashion to the frame and responsive to the rate of flow of the fluid for movement to a position corresponding to the velocity of flow of the fluid. Indicia are located on the frame to indicate the rate of flow of the fluid. Adjustment means are provided for altering the shape of the frame a limited extent so as to set the static position of the vane at a zero position on the indicia. The apparatus can be mounted in a variety of positions for the purpose of measuring the rate of flow of the fluid.

3,636,767

MEASUREMENT OF FLUID FLOW

Laurence Sidney Duffy, Redbourn, St. Albans, England, assignor to George Kent Limited, Luton, England

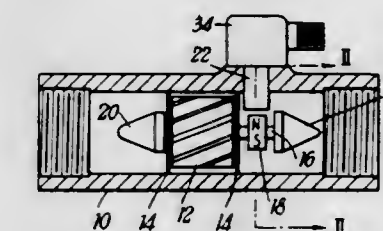
Filed June 10, 1968, Ser. No. 735,688

Claims priority, application Great Britain, June 16, 1967, 27,979/67

Int. Cl. G01f 1/06

U.S. Cl. 73—229

7 Claims



An electric signal is produced which is dependent on fluid flow, by producing a magnetic field which changes with fluid flow and by positioning in the changing magnetic field a semiconductor detector whose electrical characteristics change in accordance with the changes in the field and which produces the electric signal in response to those changes.

3,636,768

INFRARED HYGROMETERS

Claude Tinet, and Pierre Misme, both of Paris, France, assignors to Thomson-CSF

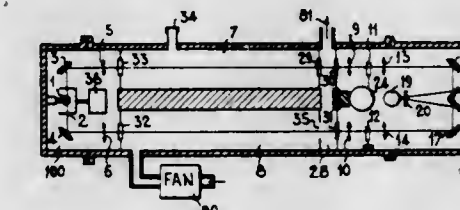
Filed June 18, 1970, Ser. No. 47,450

Claims priority, application France, June 30, 1969, 6921968

Int. Cl. G01n 21/34

U.S. Cl. 73—336.5

4 Claims



An infrared hygrometer comprising an infrared source supplying two identical infrared beams chopped alternately. One of the beams passes through an enclosure containing dry air at the atmospheric pressure and the other beam passes through a second enclosure in which the air whose humidity is to be measured circulates. Two auxiliary cavities in which this air also circulates are located in the path respectively of the two beams and have windows for the passage of these beams. The cavity which is disposed in the path of the beam passing through the second enclosure communicates with this enclosure by an opening through which this beam passes, so that the number of faces of windows in contact with the humid air is identical in the paths of the two beams. An infrared detector receives the two beams and its output signal is applied to measuring circuits with synchronous detection.

3,636,769

EXPLOSIONPROOF CANDY THERMOMETER

John L. Chaney, Lake Geneva, Wis.

Filed Mar. 30, 1970, Ser. No. 23,815

Int. Cl. G01k 1/12

U.S. Cl. 73—371

3 Claims

A candy thermometer is made explosionproof by forming the outer protective tube with an open upper end which is closed by means of a plastic cap which normally is fric-

tionally but removably held in sealing relation and which softens and distorts before the temperature and hence the pres-

card. On the face card is a frequency table correlated to the sampling numbers. A frequency selected from the frequency



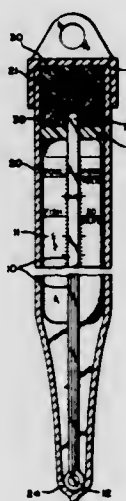
sure of the air in the tube exceed safe limits, thereby relieving the internal air pressure.

3,636,770 CANDY THERMOMETER

John L. Chaney, Lake Geneva, Wis.
Filed June 22, 1970, Ser. No. 48,378
Int. Cl. G01k 1/16, 5/04

U.S. Cl. 73-376

3 Claims



A candy thermometer in which the thermometer bulb is held in heat transfer relation with the lower end of the protective tube by resilient means, eliminating the use of the usual tin anchor and making the thermometer and its card replaceable.

3,636,771 MULTIFREQUENCY SAMPLING SYSTEM AND METHOD

Byron F. Grove, 200 Mount Ave., Missoula, Mont.
Filed Dec. 11, 1969, Ser. No. 884,163
Int. Cl. G01n 1/00

U.S. Cl. 73-421 R

13 Claims

Multifrequency sampling system utilizing an underlay card with an arrangement of sampling numbers on its face which are identified by a code designation. An overlay or face card covering the sampling numbers is provided with tabs which can be removed or lifted to reveal a number on the underlay

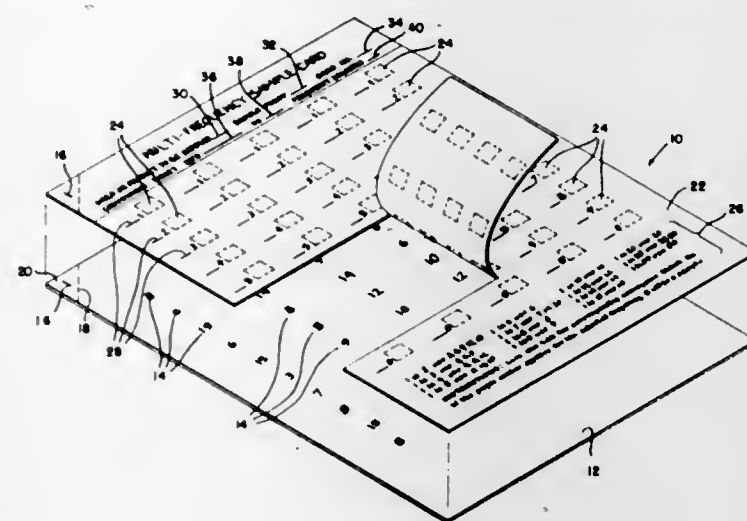


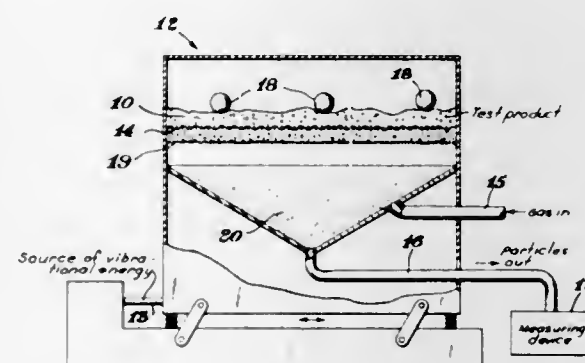
table indicates which numbers on the underlay card will designate a sample to be taken.

3,636,772 DEVICE FOR MEASURING THE FRIABILITY OF PARTICULATE SOLID MATERIALS

Harold L. Bennett, Sanford, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Feb. 24, 1970, Ser. No. 13,715
Int. Cl. G01n 19/00

U.S. Cl. 73-432 R

4 Claims



A method and a device for measuring the friability of particulate solid materials. The device comprises a chamber, having an inlet for gas and an outlet for fractured particles of the solid material in operative connection with means for its vibration. The chamber has a screen horizontally mounted and means for measuring the amount of material which is fractured and passes through the screen when the container is vibrated. In operation, gas is injected through the inlet to force the fractured material through the outlet.

3,636,773 APPARATUS FOR USE IN BALANCING MOTOR VEHICLE AND OTHER WHEELS

Gerhart Wilhelm Harant, Blackburn, Victoria, Australia, assignor to Repco Research Proprietary Limited, Dandenong, Victoria, Australia

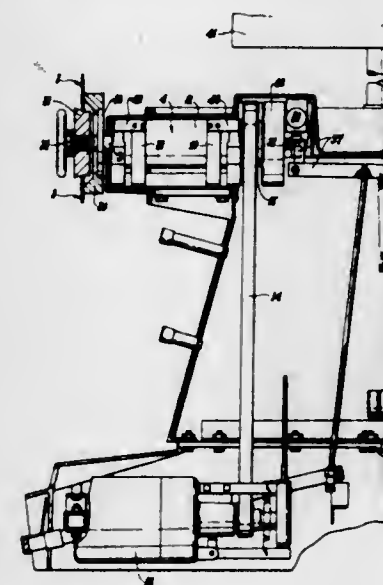
Filed Sept. 15, 1969, Ser. No. 857,982
Claims priority, application Australia, Sept. 17, 1968, 43460
Int. Cl. G01m 1/22

U.S. Cl. 73-466

6 Claims

Apparatus for balancing motor vehicle and other wheels and which consists of a combination of mechanical devices

and an electrical system for rotating the wheel and a supporting shaft and utilizing the reaction in a plurality of shaft supports for producing an electrical analogue in said system for determining the weight and operative positions of balance weights that require to be fitted in balancing planes in the inner and outer rim portions of the wheel, adjustable mounting means being provided on a free end portion of the shaft so that the inner balancing plane of the wheel is located in



substantially the same plane extending transversely of the shaft as that in which the adjacent shaft support and its reaction zone is located, rotation of the wheel and its shaft being predetermined so that the system is high tuned and the resultant signals produced by the dynamic components of the reaction in the shaft support in each said zone are evaluated by said electrical system and utilized to determine during a single wheel testing operation the respective weights of at least two of said balance weights.

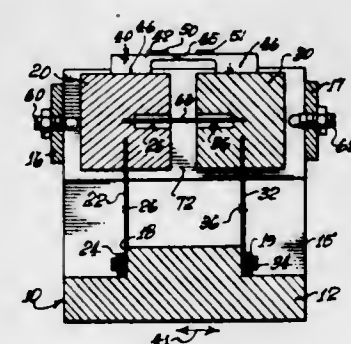
3,636,774 DUAL MASS ACCELEROMETER WITH SEMICONDUCTIVE TRANSDUCER

James H. Allison, Arcadia, Calif., assignor to Conrac Corporation, New York, N.Y.

Filed Aug. 25, 1969, Ser. No. 852,633
Int. Cl. G01p 15/08

U.S. Cl. 73-496

9 Claims



The inertial bodies are mounted for limited swinging movement about respective parallel, mutually spaced axes, with the centers of mass offset equally in a common direction from the axes. Acceleration parallel to the plane of the axes is sensed by flexure of beam structure interconnecting the bodies and carrying one or more semiconductive strain gage elements. The suspension and beam structure are protected against shock damage by positive stop means, and by selective damping produced by powdered metal in a closed chamber within one or both of the bodies. The powder gives little damping in the frequency range of interest, but is highly effective at higher frequencies including the natural frequen-

cy of vibration of the suspended system. A low-pass filter disables the output signal in the range of variable damping.

3,636,775 SPEED-MEASURING INSTRUMENT

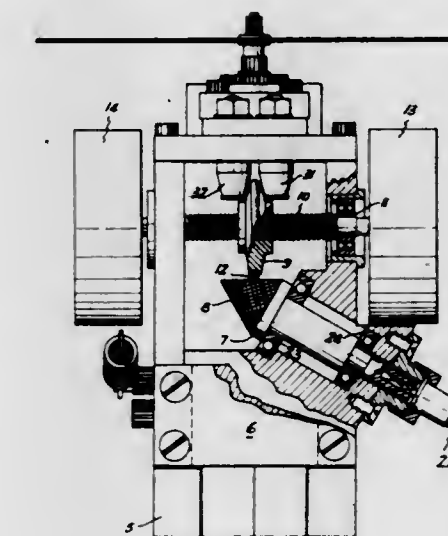
Alexander B. Savidge, 33 Russell St., Oatley, New South Wales, Australia

Filed June 26, 1969, Ser. No. 836,858

Claims priority, application Australia, July 8, 1968, 40364
Int. Cl. G01p 3/06

U.S. Cl. 73-507

8 Claims



A speed measuring device having a threaded shaft holding a threaded measuring disc thereon, this shaft being driven at an unknown speed. The periphery of the measuring disc engages a cone which is driven at a known speed causing the disc to move axially until it aligns with a diameter on the cone where the speeds correspond.

3,636,776 PUSHBUTTON CONTROL DEVICE FOR A RADIO RECEIVER

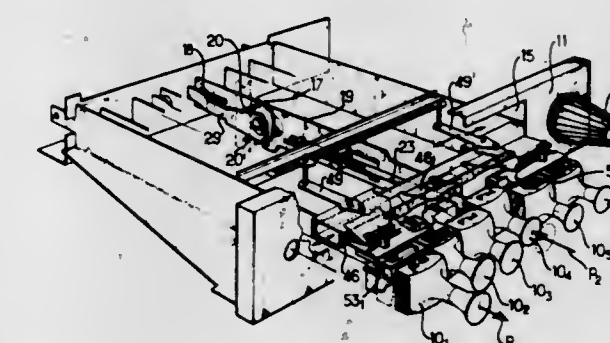
Robert Grandin, 6, rue d'Estienne d'Orves 94, Le Perreux, France

Filed Oct. 6, 1969, Ser. No. 864,125

Claims priority, application France, Oct. 4, 1968, 168697
Int. Cl. F16h 35/18

U.S. Cl. 74-10.33

7 Claims



A pushbutton device for tuning telecommunication receivers, such as radio receiving sets, which provides for instantaneous adaptation to local broadcasting and reception conditions by manipulation of the pushbutton which is assigned a multiplicity of wave bands and/or the types of modulations within the range of the receiver.

3,636,777

LABORATORY BEAKER TRANSPORTER AND ELEVATOR

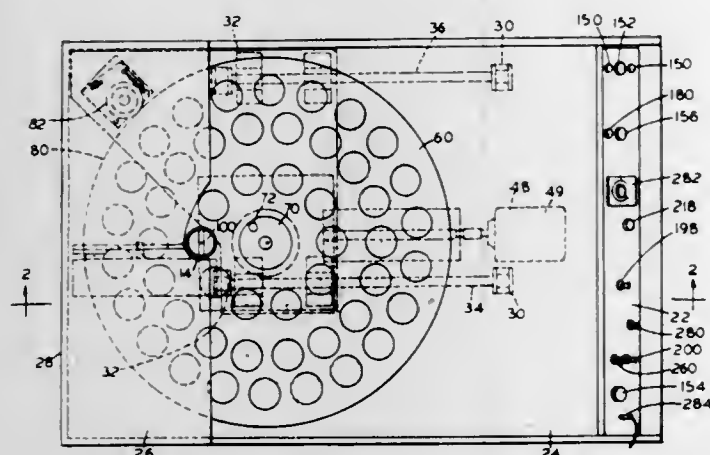
Jack D. Frank, Oriskany, and Michael L. Perretta, Manlius, both of N.Y., assignors to Vision Laboratories, Inc., Oriskany, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,259

Int. Cl. G01n 1/00

U.S. Cl. 73—53

5 Claims



Apparatus having a removable circular tray having a plurality of circular openings arranged in concentric circles to hold a plurality of beakers, and means to angularly advance the tray from beaker to beaker after elevating each beaker in sequence to a test position, at a beaker elevating station, and means to shift the tray laterally from one circle to another for repetition, at the conclusion of moving all the beakers in one circle through the test position.

3,636,778

METHOD AND MEANS FOR DIMENSIONAL INSPECTION OF TUBING

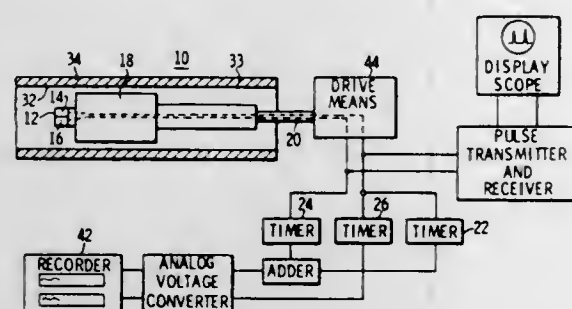
Richard O. Huffstetler, Bethel Park, Pa., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed June 5, 1970, Ser. No. 43,709

Int. Cl. G01n 29/00

U.S. Cl. 73—67.8 R

1 Claim



A dual transducer probe is rotatably driven through tubing in order to measure and record the inside diameter, ovality, wall thickness, wall eccentricity and outside diameter of same. A first transducer is connected to a timing device which is started by the transmission of a pulse generated by the first transducer and stopped by the reception of the reflected energy from the inside wall of the tubing. A second clock or timing device is also connected to the first transducer which is started by the reception of the reflected energy from the inside surface of the pipe and stopped by the reception of reflected energy from the outside surface of the

pipe. A second transducer is connected to still another timing device which is started by the transmission of a pulse from same and stopped by the reception of this pulse from the inside surface of the tubing. The elapsed time on the various timing devices, suitably converted to electrical voltages, are added in the case of the first and third timing devices in order to measure the inside diameter and ovality of the tubing; and the elapsed time on the second timing device may be recorded to indicate the thickness and eccentricity of the tubing.

3,636,779

VALVE DRIVE MECHANISM

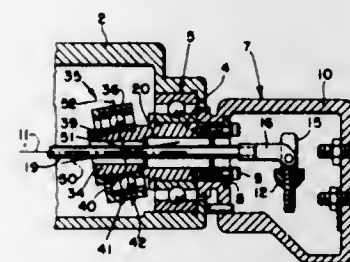
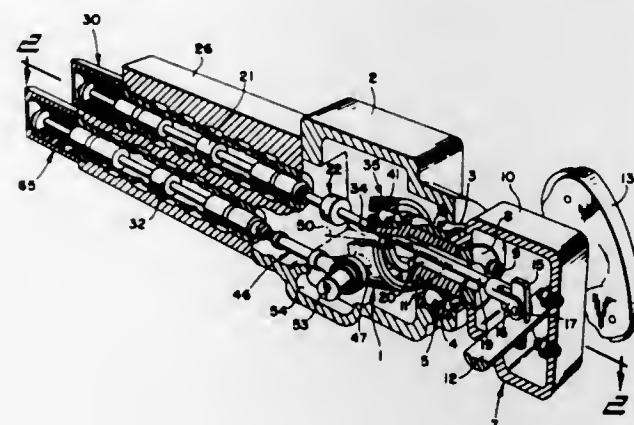
Richard J. Lappin, 442 Parkdale Blvd., Parchment, Mich.

Filed Dec. 5, 1969, Ser. No. 882,506

Int. Cl. F16h 33/00

U.S. Cl. 74—89

16 Claims



Drive mechanism includes a rotatably mounted, canted cylindrical land on which is journaled a drive assembly retained against rotation but permitted to move in a longitudinal direction, whereby rotation of the cylindrical land causes a nutating or wobbling movement of the drive assembly which is transmitted to an output device through a suitable link connection.

3,636,780

ACTUATABLE DRIVESCREW DEVICE

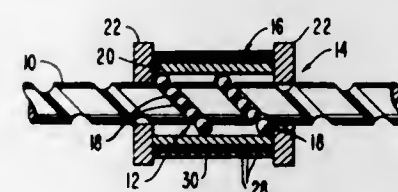
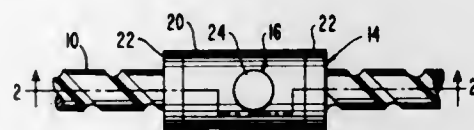
Harry L. Wallace, Garden City, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Mar. 9, 1970, Ser. No. 17,386

Int. Cl. F16h 27/02

U.S. Cl. 74—89.15

5 Claims



A drivescrew is provided with a sleeve-type housing containing a plurality of balls engageably associated with that portion of the helical threads of the screw translatable disposed therewithin, the balls being actuatably prevented or

permitted to revolve with the threads of the screw to thereby translate or not translate, respectively, the sleeve-type housing along the screw as the latter is rotated.

3,636,781

INCREMENTAL ROTATION APPARATUS

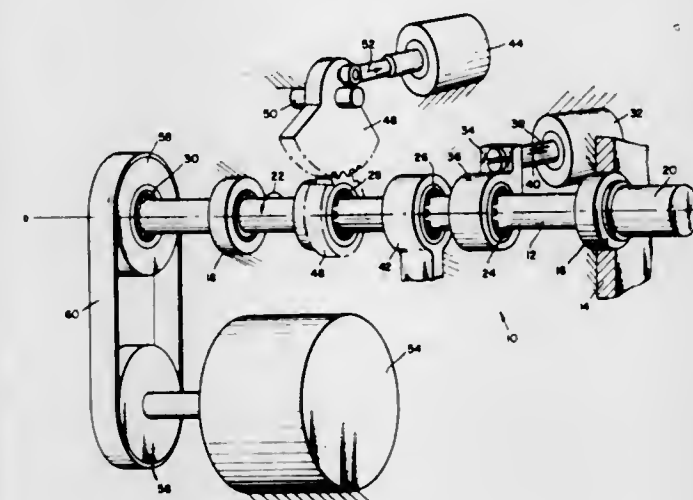
Robert R. Elliott, La Crescenta, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Oct. 2, 1969, Ser. No. 863,291

Int. Cl. F16h 29/00

U.S. Cl. 74—125.5

12 Claims



Apparatus for providing incremental rotation of a shaft and having a continuous drive capability. A plurality of unidirectional clutches are coupled in operative arrangement to the shaft such that the shaft is rotatable in one direction only relative to the clutches. First drive means is coupled to one of the clutches for incrementally driving the shaft in the one direction, while the outer housing of a second one of the clutches is maintained stationary for preventing backlash of the shaft. A third one of the clutches coupled to a motor for continuously driving the shaft. A preferred embodiment of the invention is utilized for incrementally driving a tape capstan and alternatively for continuously driving the capstan, and can further be provided with second drive means coupled to a fourth one of the clutches for producing an interblock gap on the tape.

3,636,782

INDEXING MECHANISM

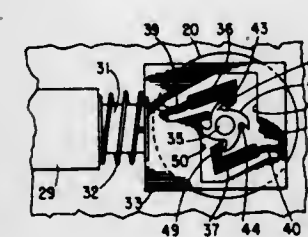
William B. Huber, Park Forest, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 17, 1969, Ser. No. 834,076

Int. Cl. F16h 27/02

U.S. Cl. 74—143

10 Claims



A pawl and ratchet device actuated by a solenoid for rotating the cam of a cartridge-type tape player to position the magnetic tape head adjacent different tracks on the tape includes a unitary plastic pawl element having an opening therein for receiving the ratchet wheel and further having first and second pawls integrally formed as part of the pawl element and attached to the sides of the opening thereof by a restricted portion forming a spring biasing the pawls into engagement with the ratchet. Surfaces are provided on opposite

3,636,783

FLEXIBLE BELT CARRIER MECHANISM

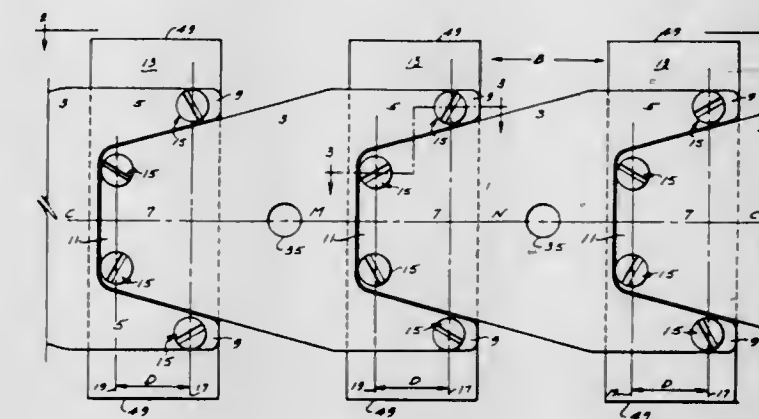
Duane W. Woltjen, Manchester, Mo., assignor to UMC Industries, Inc., St. Louis, Mo.

Original application Dec. 12, 1969, Ser. No. 884,511. Divided and this application Feb. 16, 1971, Ser. No. 115,258

Int. Cl. F16h 7/02; F16g 7/00, 13/02

U.S. Cl. 74—229

7 Claims



Rigid connectors between adjacent portions of flexible belt elements are fastened thereto in such a manner that when the belt flexes as it moves over supporting drums bending stresses are avoided at the fastenings. The flexible belt may be of segmental or continuous form. The connectors may be in the form of carrier plates employed to carry pieces to be worked upon during the movements of the connectors, or the connectors may be of a form or carry means to push unattached objects. In either case, movements may be continuous or intermittent. In cases in which the connectors are massive or carry massive parts, means are provided to prevent inertial oscillations during changes from translatory to angular movements of the connectors.

3,636,784

BELT-PULLEY TRANSMISSION

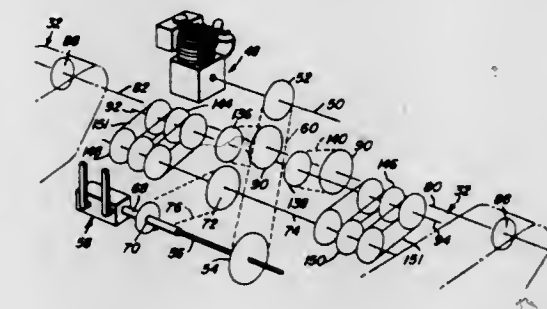
Grant H. Sanstrom, P.O. Box 2515, Yakima, Wash.

Original application Oct. 29, 1968, Ser. No. 766,078, now Patent No. 3,595,332. Divided and this application Apr. 15, 1971, Ser. No. 134,308

Int. Cl. F16h 9/00; B62d 11/00

U.S. Cl. 74—217 R

9 Claims



A drive system including a first rotary drive shaft, a pair of driven rotary half shafts and a pair of rotary jack shafts. The shafts generally parallel each other and the jack shafts are supported for independent swinging movement about the half shafts toward and away from the drive shaft. Longitudinally spaced portions of the drive shaft are drivingly connected to the jack shafts through drive belts trained about pulleys on the drive and jack shafts. The jack shafts are drivingly con-

nected to the half shafts through drive chains trained about sprocket wheels on the jack and half shafts and brake means are operatively associated with the jack shafts for braking the latter when they are moved toward the drive shafts, which movement of the jack shafts simultaneously untensions the belts drivingly connecting the drive shaft to the jack shafts.

3,636,785

V-BELT PULLEY

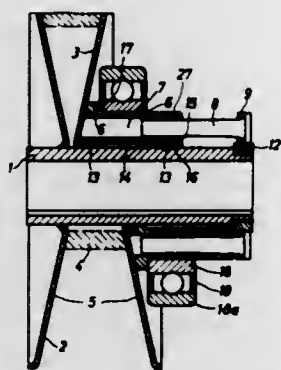
Berno Weindler, Wiesloch, Baden; Robert Ruprecht, Aichelberg Kreis Esslingen am Neckar, and Heinrich Grimm, Raldwangen Kreis Nurlingen, all of Germany, assignors to Ernst Heinkel Aktiengesellschaft, Stuttgart-Zuffenhausen, Germany

Filed Nov. 26, 1969, Ser. No. 880,235

Claims priority, application Germany, Nov. 30, 1968, P 18 11 935.2

Int. Cl. F16h 55/52

U.S. Cl. 74-230.17



A pair of belt transmission flanges are mounted on a rotatable shaft with at least one of the flanges biased in direction toward and axially movable to and from the other flange so as to adjust the width of the belt gap defined between the two flanges. The at least one movable flange comprises a hub, the inner peripheral surface of which spacedly surrounds the outer cylindrical surface of the rotatable shaft with a pair of bearing members axially spaced between and in contact with these surfaces. A torque transmitting member interconnects the at least one movable flange with the rotatable shaft so as to effect rotation of the former with the latter.

3,636,786

DRIVE ADJUSTMENT FOR FIXED CENTER DRIVE

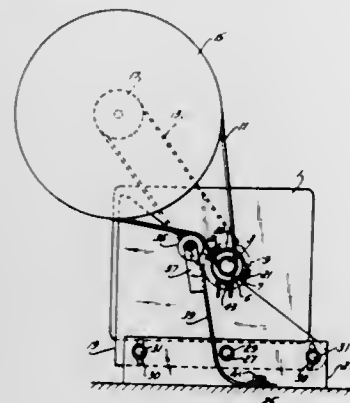
Leo V. Buck, Herrin, Ill., assignor to Fedders Corporation, Edison, N.J.

Filed Sept. 3, 1970, Ser. No. 69,232

Int. Cl. F16h 7/12, 7/10

U.S. Cl. 74-242.11 R

8 Claims



A motor, having a shaft, is pivotally mounted for rotation about an axis parallel to but displaced from the axis of the shaft. First and second pulleys are mounted on said shaft for

driving a pair of rotatable devices through first and second belts respectively. A spring mounted idler applies a predetermined tension to the second belt and a stop member is mounted to the motor for preventing the idler from contacting the second pulley when the second belt is either broken or removed. The stop is positioned so that the idler exerts upon the motor a predetermined moment about the axis when the idler contacts the stop and said moment establishes the proper tension of the first belt.

3,636,787

BELT POWER TRANSMISSION DEVICE

Kazumi Nagafuchi; Hitoshi Inada; Nobuaki Ohmura; Seiji Manago, all of Fukuoka; Asaji Tsunashima, and Masataka Hazu, both of Tokyo, all of Japan, assignors to Mitsubishi Electric Corporation and Shinwa Sangyo Company, Tokyo, Japan, part interest to each

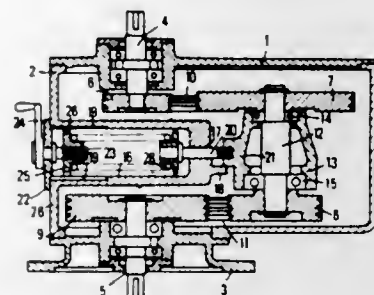
Filed Mar. 11, 1970, Ser. No. 18,664

Claims priority, application Japan, Mar. 20, 1969, 44/25213

Int. Cl. F16h 7/10, 7/12

U.S. Cl. 74-242.14 R

6 Claims



A belt power transmission device in which two intermediate pulleys, each being engaged through a different belt with another pulley, are mounted in spaced relation on opposite ends of a pulley shaft rotatably journaled in a supporting frame is provided with an apparatus for simultaneously adjusting the tension in both belts. The supporting frame is suspended from a casing support structure and is movable relative thereto along a given line, being normally urged in one direction along the line of relative movement by a spring-biasing means disposed therebetween for tensioning the belts, and the adjustment of the tension in the belts supported by the frame is made by varying the tension in the spring-biasing means and thereby causing the frame to be displaced from its original position in relation to the casing.

3,636,788

CHAIN LINK AND METHOD FOR MAKING SAME

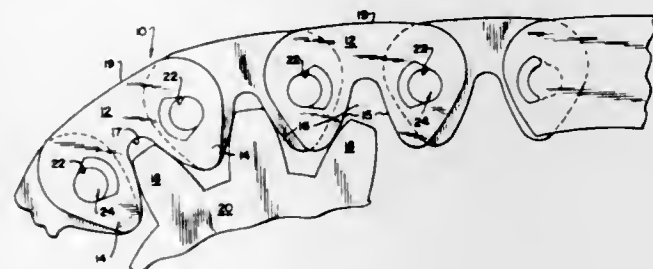
Joseph O. Jeffrey, Ithaca, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Original application Aug. 15, 1966, Ser. No. 572,590, now Patent No. 3,535,871, dated Oct. 27, 1970. Divided and this application Jan. 19, 1970, Ser. No. 8,143

Int. Cl. F16g 13/02

U.S. Cl. 74-250 S

2 Claims



This invention relates to chain links, and, more particularly, to a chain link adapted to form a part of an endless

drive chain for power transmissions and the like. The invention also relates to a method for making the chain link of the invention.

3,636,789

GEAR DRIVE WITH MEANS FOR THE REMOVAL OF THE PLAY OF THE TOOTHED PROFILE

Manfred Geiger, Hohenlimburg, Germany, assignor to Rheinmetall GmbH, Düsseldorf, Germany

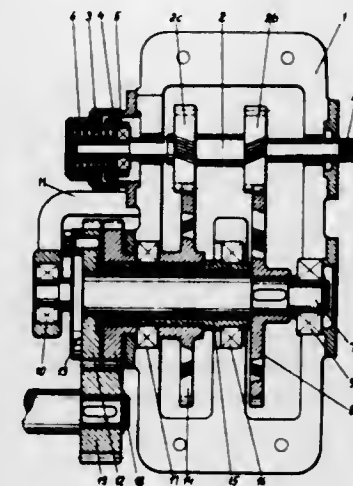
Filed Sept. 25, 1970, Ser. No. 75,352

Claims priority, application Germany, Oct. 18, 1969, P 19 52 545.2

Int. Cl. F16h 55/18

U.S. Cl. 74-409

7 Claims



A gear drive with means for removal of the play of the toothed profile, in particular laying mechanism for armored turrets, rotary ring gun carriages or the like of weapons, which comprises a double pinion shaft axially displaceable by means of a pressure medium and equipped with oblique toothings of opposite spiral directions including pinions of equal size. Counter gears are coaxially disposed and mounted independently from each other. The pinions are in mesh at least directly with the counter gears. Each of the counter gears are connected each with a further gear by means of a shaft. The further gears are of equal size and disposed directly adjacent each other. A still further counter gear is disposed outside of the drive housing, and the further gears mesh as driven gears jointly the still further gears.

3,636,790

PLAY-ELIMINATING SETTING APPARATUS

Hermann Bertrang, and Horst Spormann, both of Villingen, Germany, assignors to Klenzie Apparate GmbH, Villingen, Black Forest, Germany

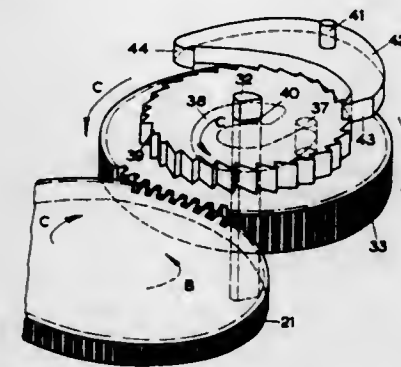
Filed Oct. 26, 1970, Ser. No. 84,060

Claims priority, application Germany, Oct. 25, 1969, G 69 41 650.8

Int. Cl. F16h 55/18; G01d 9/00

U.S. Cl. 74-409

10 Claims



The rotary pointer, and also a diagram carrier of an indicating and recording apparatus, are driven in a forward

direction from a motor through a gear train having two branch gear trains. When the device is manually set in forward direction, play is introduced into the gear trains which is eliminated by biasing means loaded by the gear train during forward movement. During continuous setting in the rearward direction, the biasing means would be untensioned which is prevented by one-way blocking means. A lost-motion device permits rearward setting for an angle of over 180°, and then couples the gear train with the blocking means so that the gear train is blocked after limited rearward setting which negligibly untensions the biasing means.

3,636,791

GEAR OR RACK CONSTRUCTION

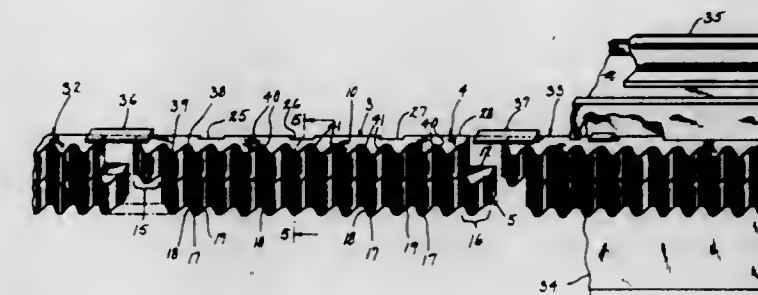
William A. Barr, Milwaukee, Wis., assignor to Milwaukee Gear Company, Milwaukee, Wis.

Continuation-in-part of application Ser. No. 40, Jan. 2, 1970, now abandoned. This application Feb. 11, 1970, Ser. No. 10,483

Int. Cl. F16h 1/04, 55/06

U.S. Cl. 74-422

9 Claims



A long rack to be engaged by a drive pinion of a gantry crane is made up of an assembly of segments mounted end-to-end. Each segment consists of two rack portions flame cut from a single blank and adhesively joined side-by-side with the respective teeth portions aligned. The teeth portions are tapered in thickness and joined at their narrow ends to make composite teeth with concave faces.

3,636,792

HERTZIAN STRESS-REDUCING MEANS FOR GEARS

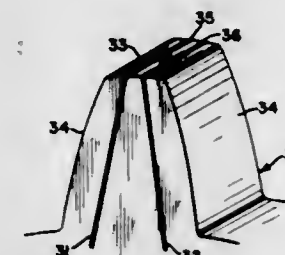
Zoltan Vigh, 112 North Mar Vista Ave, Pasadena, Calif.

Filed Sept. 5, 1969, Ser. No. 862,612

Int. Cl. F16h 55/14, 57/00

U.S. Cl. 74-461

9 Claims



Reduction in Hertzian and bending stresses in gears and in bearing assemblies is achieved by new configurations of gears and bearing assemblies employing combinations of materials in selected areas of the gears or bearing assemblies or cutting narrow slots into selected areas of the gear teeth or bearing assemblies. The increase in life of the gear or bearing assembly is expressed as $L_1 = cH/H_1n$. For gears $n=6.5$ for bearings $n=9$. The Hertzian stress reduction provides in addition to increased operating life, higher reliability, higher load-carrying capacity and gears or bearings of quieter running characteristics at higher rotational rates than gears and bearings in the prior art.

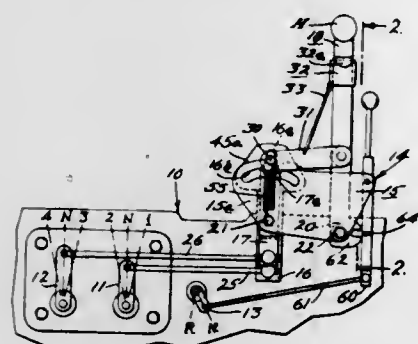
3,636,793 SHIFTING APPARATUS

William J. Bieber, Doylestown, Pa., assignor to Mr. Gasket Company

Filed Nov. 18, 1970, Ser. No. 90,548
Int. Cl. G05g 9/00

U.S. Cl. 74-473 R

17 Claims



A shifter is provided for use in conjunction with a four-speed automobile transmission to permit rapid sequential gear changes without jamming upon displacement of a shift lever in alternate directions in a single plane. The shifter includes two members mounted side by side in a frame to pivot relative to one another with one member being connected to the first-second shift arm on the transmission and the other member being connected to the third-fourth shift arm on the transmission. Each member is provided with a recess which is selectively engaged by a selector pin mounted on a link carried on the shift lever to cause one or the other member to be displaced upon displacement of the shift lever. The recesses are located so as to register with one another when the shift lever and members are located in a neutral gear position to permit the selector pin to be transferred from engagement with one member and to the other, for instance during shifting from second to third gears or from either third or fourth to first or second gear. Gate means is associated with the frame for engaging the pin to prevent transfer of the pin from the first-second member during displacement of the shift lever in one direction between limit positions but to guide the pin out of engagement with the first-second connected member and into engagement with the third-fourth connected member during displacement of the shift lever in the other direction, thereby preventing the shifter from inadvertently jamming during rapid shifting and preventing unintentional shifting of the transmission into nonsequential gears during rapid upshifting or downshifting.

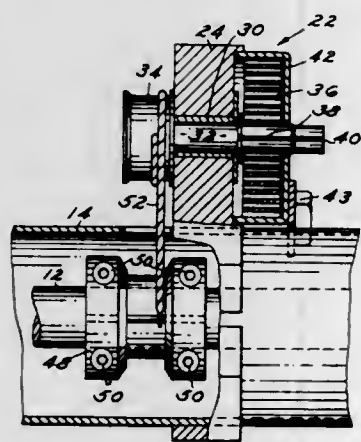
3,636,794 POWER STEERING SYSTEM

Warren A. Van Wicklin, Jr., Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 11, 1968, Ser. No. 782,948
Int. Cl. B62d 1/16

U.S. Cl. 74-495

2 Claims



A power steering system for a motor vehicle which in its presently preferred embodiment has a power steering gear, a

steering wheel, and a steering shaft connecting the wheel to the steering gear. A spiral leaf spring is connected to the steering shaft and exerts a force tending to center the steering wheel and shaft.

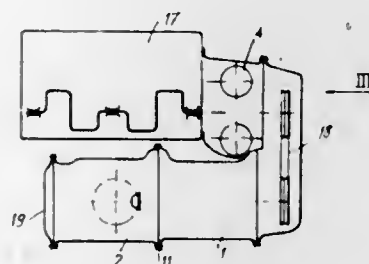
3,636,795 UNIT POWER PLANTS

Jean Maurice, and Jean Piret, both of Billancourt, France, assignors to Regie Nationale Des Usines Renault, Billancourt, France and Automobiles Peugeot, Paris, France

Filed Nov. 18, 1969, Ser. No. 877,781
Claims priority, application France, Nov. 26, 1968, 175359
Int. Cl. F16h 57/02

U.S. Cl. 74-606 R

3 Claims



Unit power plant comprising an engine, a one-piece hydraulic torque converter housing, a two-piece differential housing and a one-piece change-speed or transmission casing, which are interconnected through joint planes perpendicular or parallel to the longitudinal axis, and characterized in that at least one of said housings or casings comprises two identical joint planes.

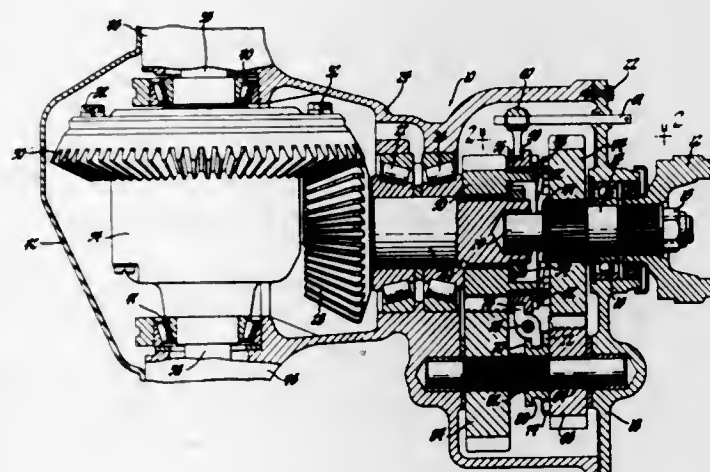
3,636,796 CHANGE-SPEED DRIVE AXLE

John C. Rau, Southfield, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 18, 1969, Ser. No. 886,108
Int. Cl. F16h 37/08, 3/08

U.S. Cl. 74-700

5 Claims



Drive axle having first and second countershaft mounted gears which mesh respectively with an input driven gear and with a gear secured to the pinion shaft drivingly connected to the axle shafts through differential gearing. For direct drive the input is connected directly to the pinion shaft by the engagement of a first clutch; a lever operable in response to engagement of the first clutch disengages a second clutch to prevent power flow through the meshing gears and the countershaft. For speed change the first clutch is disengaged and the lever effects engagement of the second clutch so that power flow is through the countershaft and the gearing provides for the geared ratio change.

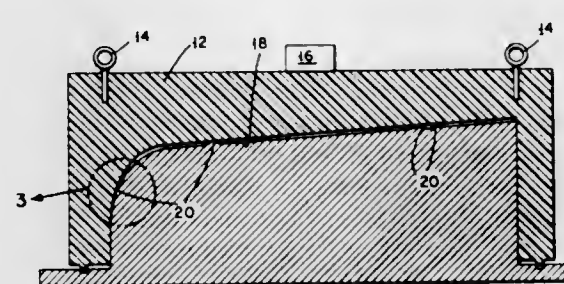
3,636,797 METHOD OF FINISHING A DIE

Amos J. Moore, Philadelphia, Pa., assignor to The Budd Company, Philadelphia, Pa.

Filed Oct. 26, 1970, Ser. No. 84,039
Int. Cl. B21k 5/20

U.S. Cl. 76-107 R

2 Claims



A method of vibrating a die-spotting rack in contact with a Kellared die for marking the irregularities of the rough die for proper material removal to produce a finished die.

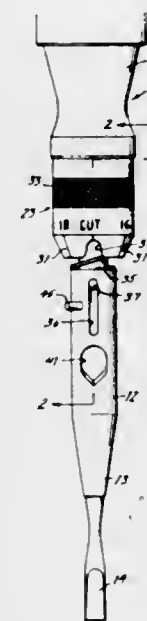
3,636,798 WIRE STRIPPER AND CUTTER

Leonard Van Dalen, Cherry Hill, and George S. Gadren, Oaklyn, both of N.J., assignors to Seaboard Fabricators, Inc.

Filed July 22, 1970, Ser. No. 57,095
Int. Cl. H02g 1/12

U.S. Cl. 81-9.5 R

6 Claims



A shank having a handle fixed on one end and a tubular part slidably telescoped on the other end, with coating cutting edges on the shank and tube for stripping and cutting wire. Carried on the shank between the handle and tube is an adjustable stop member for limiting engagement with a formation of the tube for operation on different sizes of wire.

3,636,799 APPARATUS FOR STRIPPING INSULATION FROM STRANDED ELECTRICAL CABLE

Larry R. Weitala, West Allis, and Ronald G. Anderson, Milwaukee, both of Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

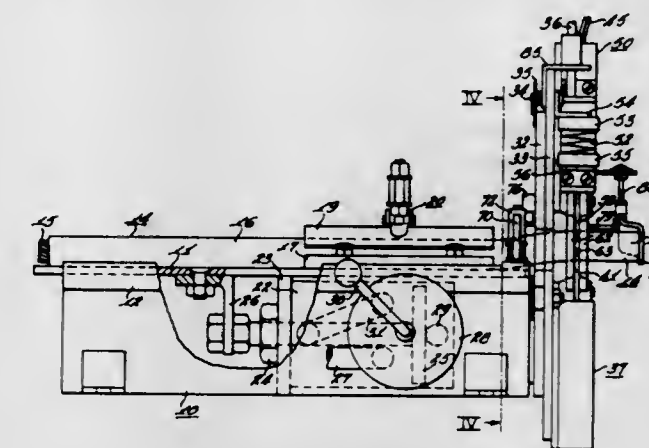
Filed Mar. 3, 1970, Ser. No. 16,190
Int. Cl. H02g 1/12

U.S. Cl. 81-9.51

5 Claims

Insulation is stripped from a multiple wire strand electrical cable by urging a pair of opposed, heated stripping blades

having blunt edges against the cable insulation to thermally deteriorate the insulation, rotating the stripping blades, and pulling the cable in a longitudinal direction away from the



stripping blades. The heated stripping blades penetrate the insulation but are sufficiently blunt so that they do not nick the wire strands of the cable.

3,636,800 PIPE WRENCHES

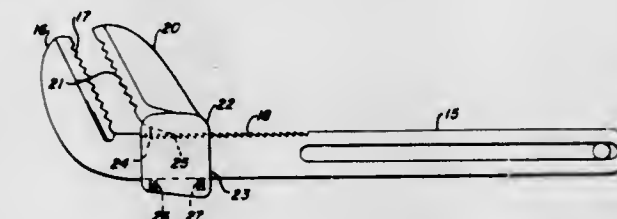
Herman A. Myers, Lake Lynn, Pa., assignor to Insta-Snap, Inc., Monongahela, Pa.

Continuation-in-part of application Ser. No. 21,376, Mar. 20, 1970, now abandoned. This application June 30, 1970, Ser. No. 51,397

Int. Cl. B25b 13/14, 13/18

U.S. Cl. 81-145

3 Claims



A pipe wrench comprising a handle terminating in a rigid jaw having a serrated gripping surface and a plurality of teeth along one surface of the handle. A movable jaw assembly having a serrated gripping surface, an opening therethrough and a plurality of teeth along the opening is slidably positioned over the handle so that the two sets of teeth are in locking engagement. A spring means is positioned to communicate with the opening and the handle, the depression of which disengages the teeth, permitting sliding adjustment.

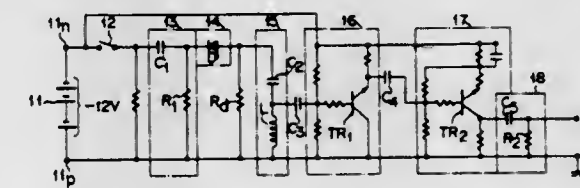
3,636,801 RIM-SHOT-SOUND-PRODUCING DEVICE FOR AN ELECTRONIC MUSICAL INSTRUMENT

Kiyoshi Ichikawa, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Mar. 18, 1971, Ser. No. 125,637
Claims priority, application Japan, Mar. 20, 1970, 45/23377
Int. Cl. G10h 3/00

U.S. Cl. 84-1.13

5 Claims



The rim shot sound of a snare drum is simulated. Upon manipulation of a key switch, a percussive sine wave having a sudden buildup and a subsequent decay is obtained. The percussive sine wave signal is introduced into a clipper circuit

wherein the wave peaks in the beginning portion having great amplitude are clipped. The signal is then passed through a differentiation circuit, from which is obtained a percussive signal with harmonics richer in the beginning portion and less toward end.

3,636,802

BAR-TURNING MACHINE

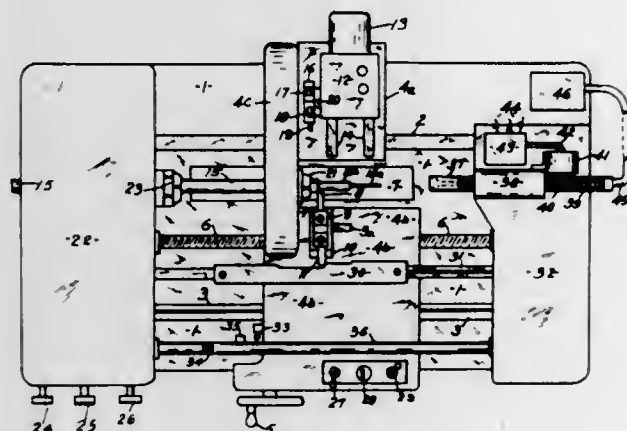
William A. Hessinger, North Tonawanda, N.Y., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed Dec. 29, 1969, Ser. No. 888,560

Int. Cl. B23b 13/02

U.S. Cl. 82-2.5

3 Claims



In U.S. Pat. No. 2,635,499 issued to M. R. Karge, there is described an apparatus for turning slender work. My invention includes improvements on the machine of Karge in that I provide a double tool arrangement for cutting the workpiece or bar from opposite sides and additionally I provide a turret-type template assembly and means for retrieving shaped workpieces by means of reduced air pressure.

3,636,803

PIPE-BEVELLING TOOL

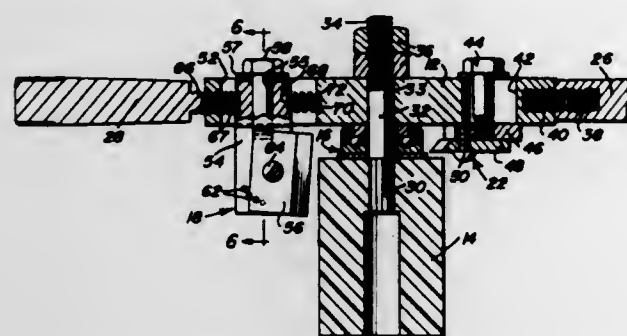
Cornelius C. Miller, 10135 S. W. Inez St., Tigard, Oreg.

Filed Nov. 14, 1969, Ser. No. 876,904

Int. Cl. B23b 5/16

U.S. Cl. 82-4 C

4 Claims



A manually operated unitary tool having a mandrel which is slidably inserted in a pipe end. The mandrel rotatably mounts a toolholder to which is connected a first blade causing bevelling of the pipe end as the toolholder is rotated. A second blade is mounted to the toolholder and squares the pipe end edge as the toolholder is rotated. The end result after utilizing the present tool is a finished bevelled pipe end which is easily inserted into a mating pipe end or fitting to form a joint.

3,636,804
MACHINE TOOLS
Raymond Allen Wyles, Windsor, Berkshire, England, assignor to William Owen McKenzie Jones, Hurley, Berkshire, England

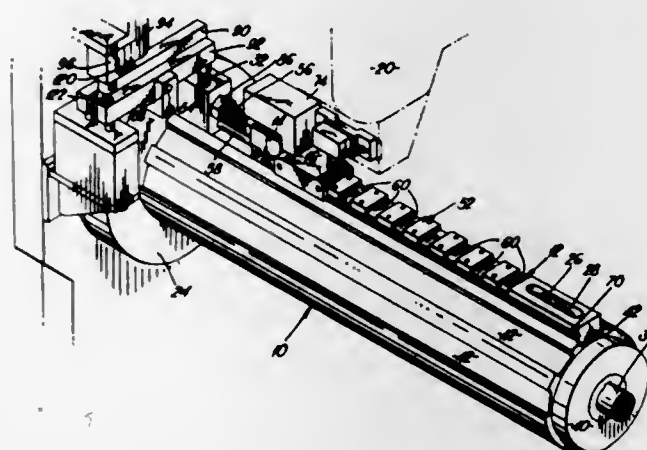
Filed June 20, 1969, Ser. No. 835,199

Claims priority, application Great Britain, June 20, 1968, 29,486/68

Int. Cl. B23b 25/06

U.S. Cl. 82-21

5 Claims



A rotatably indexable tool-programming drum for use in a machine tool having a rectilinearly reciprocal tool carrying assembly movable exteriorly over the length of the drum which carries one or more removable strip members having plural outwardly projecting and selectively positioned block members therealong, one of which has an end surface engageable with stop means on the tool carrying assembly for limiting the stroke of the assembly; the second of which has an outer cam surface engageable with follower means on the assembly and actuable for changing the rate of rectilinear movement of the assembly from rapid traverse to tool feed rate, and a third of which carries adjustable projections engageable with means actuated thereby for regulating the rotational speed of a workpiece in the machine tool and the feed rate of a work tool engaged with the workpiece; each strip member being removable from the drum for presetting of the block members in predetermined relative positions remotely of the machine tool as determined by a predetermined operating program and movements for an associated work engaging tool.

3,636,805

SINGLE-SETTING TURNING TOOL

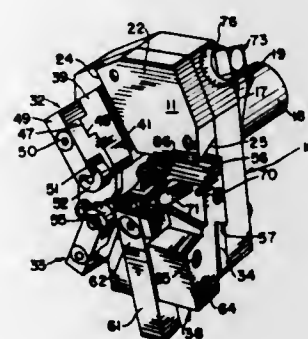
Henry J. Somma, and Herman R. Somma, both of Waterbury, Conn., assignors to Somma Tool Company, Inc., Waterbury, Conn.

Filed Sept. 30, 1969, Ser. No. 862,370

Int. Cl. B23b 29/16

U.S. Cl. 82-35

6 Claims



The invention is directed to a turning tool, particularly for automatic screw machines, which includes novel features of

design and construction facilitating the initial step-up of the tool and also its adjustment in use. One of the inventive features includes the arrangement for effecting simultaneous inward or outward adjustment of a cutting tool and two backup elements associated therewith, and at the same time, providing a simplified independent adjustment of the cutting tool, through a limited range, where it is desired to burnish the workpiece while it is being cut. The burnishing effect is achieved by the manipulation of a special control lever, which adjusts the cutting element without affecting the other adjusted settings of the tool, and manipulation of the lever back to its original position resets the tool for cutting in the normal way. The device includes a novel chip breaker element, adjustably mounted on the tool body and having a first operative position in which it forms a center setting stop for the cutting tool, and a second operative position in which it functions in its customary manner as a chip breaker during the cutting operation. The new turning tool also has additional desirable features for improved convenience in use and greater accuracy in cutting.

3,636,806

MULTIPLE ACTING CUTTER WITH ADJUSTABLE FEATURES

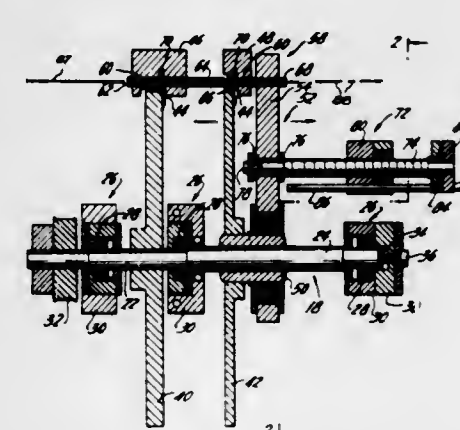
Johan Vyncke, Mariakerke Gent, Belgium, assignor to Dart Industries, Inc., Los Angeles, Calif.

Filed Mar. 2, 1970, Ser. No. 15,750

Int. Cl. B26d 5/08

U.S. Cl. 83-355

5 Claims



A cutoff device adapted to sever running lengths of stock material to length which includes a plurality of rotating cutting members that are adjustable with respect to one another. A telescoping material guideway is also provided as a part of the cutting member anvils and the anvil associated with the movable cutting member is similarly and simultaneously movable with that member.

3,636,807

COPY MACHINE PAPER CONTROL CIRCUIT

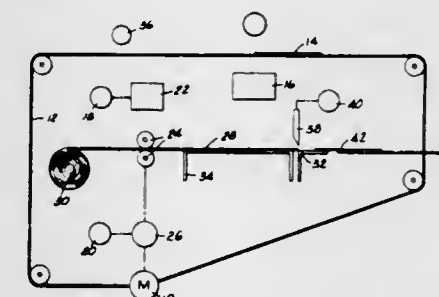
Richard E. Unangst, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.

Filed July 2, 1969, Ser. No. 838,416

Int. Cl. G03g 15/00

U.S. Cl. 83-203

8 Claims



A length of copy paper is automatically drawn by a feed roll from a supply roll precisely measured and cut therefrom

for merger with an original to be copied, by an integrated high-speed electronic control system in which movement of the original past an edge-sensor by a constant-speed motor starts the paper feed by closure of a feedroll clutch to the motor and the release of a feedroll brake, which feed continues at constant speed until the sensor initiates stoppage thereof by the application of the brake, opening of the clutch, and the paper cutting action of a knife, so that the so-cut length of copy paper corresponds substantially precisely to that of the original prior to subsequent copying of the original. A solid-state control circuit employing three storage capacitors and two commutating capacitors, is used to operate the three main elements of the system with such precise timing accuracy that a maximum variation of $\pm 1/64$ inch in length is obtained with a paper feed speed of 5 to 60 feet per minute.

3,636,808

MATERIAL-CUTTING MACHINE

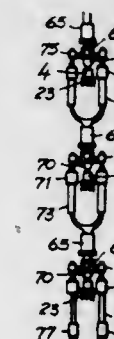
Hiroshi Tamnaga, 78, Matsugaoka, Kanagawa, Yokohamashi, Kanagawa-ken, Japan

Original application Mar. 12, 1969, Ser. No. 806,646, now Patent No. 3,596,650. Divided and this application Mar. 17, 1971, Ser. No. 125,233

Int. Cl. B23b 5/12, 11/00

U.S. Cl. 83-514

4 Claims



An apparatus for cutting off metallic material and the like with the application of shearing force which comprises cutting means including a cutting tool which is actuated by the energy in the form of fluid pressure conveyed instantaneously through fluid from a high-pressure generator, and at least one of other means, namely, work-holding means capable of holding the work with an adequately strong force, compression means capable of exerting a compressive force on the work in the direction normal to the shearing direction, and means for regulating the speed at which the cutting tool operates, said cutting means and said one of means being combined together to constitute cutting functional means which can instantaneously cut off a work of metallic material or the like with a great composite shearing force, not with the simple shearing force of conventional shears.

ERRATUM

For Class 84-1 see:
Patent No. 3,636,801

3,636,809

STRINGED MUSICAL INSTRUMENT

Hideyuki Ezaki, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed July 7, 1970, Ser. No. 52,842

Claims priority, application Japan, July 10, 1969, 44/54439

Int. Cl. G10d 1/00, 1/08

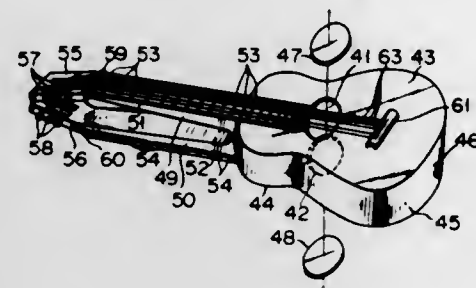
U.S. Cl. 84-263

3 Claims

A stringed musical instrument comprises one sound box having two sound boards each provided with a sound hole

and a sidewall joining the sound boards, two necks provided for the sound boards respectively, two heads connected to the necks, two seal caps for closing the sound holes, and

embodiment, the handle is removable so that the baton may be twirled in a normal manner. One end of the baton is



strings stretched between the heads and the sound boards, whereby musical tones having a variety of tone colors can be produced on both sides of the sound box.

3,636,810

TUNING FORKS AND OSCILLATORS EMBODYING THE SAME

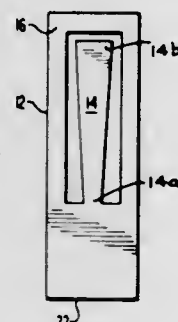
William E. Reefman, Santa Barbara, Calif., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed July 23, 1969, Ser. No. 843,923

Int. Cl. G10g 7/02

U.S. Cl. 84-457

8 Claims



A tuning fork assembly fabricated from a flat strip of material with the tines being formed by the removal of a portion of the strip so that the longitudinal axis of each tine lies in a plane which is substantially orthogonal to the directions in which the tines move during normal operation of the fork. A compliant base portion readily responds to and actuates drive and pickup transducers and for the purpose of reducing or cancelling spurious signals in the pickup transducer caused by unwanted ambient vibrational forces acting upon the fork, an auxiliary pickup is electrically connected in out-of-phase relationship to the main pickup.

3,636,811

TWIRLING BATON

Jack L. Bailey, 115 Cooper Circle, Oak Ridge, Tenn.

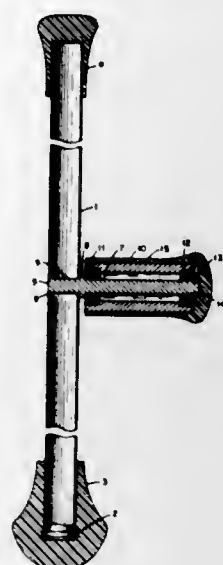
Filed July 30, 1970, Ser. No. 59,426

Int. Cl. G09b 15/02

U.S. Cl. 84-477 B

4 Claims

A twirling baton with a sturdily mounted side handle to enable a novice, as well as a professional, to twirl the same for long periods of time with little effort or attention. In one



weighted to increase momentum during twirling, and the handle includes bearings to reduce friction.

3,636,812

PRIMING TOOL

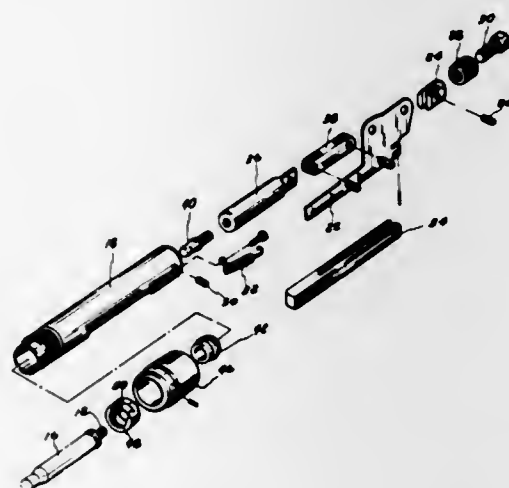
John N. Nuler, 12869 Dixie St., Detroit, Mich.

Filed Mar. 5, 1969, Ser. No. 804,445

Int. Cl. F42b 33/10

U.S. Cl. 86-33

1 Claim



A handtool having a shell holder for clamping the head of an ammunition case on the tool to align the primer pocket of the case with a punch. The punch is advanced in an adjusted motion to press each primer a uniform depth into the pocket of each case regardless of variations in the rim thickness between cases.

3,636,813

PNEUMATIC COUNTER-RECOIL MECHANISM FOR GUNS

Karl-Josef Wiemers, Grevenbroich, Germany, assignor to Rheinmetall GmbH, Dusseldorf, Germany

Filed June 4, 1969, Ser. No. 830,451

Claims priority, application Germany, July 6, 1968, P 17 03 764.8

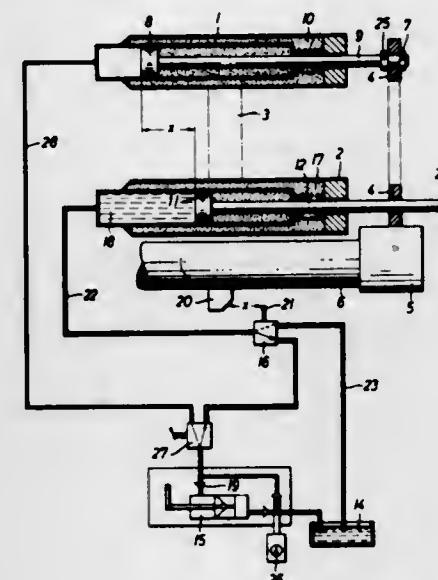
Int. Cl. F41f 19/12

U.S. Cl. 89-43 R

3 Claims

A pneumatic counter-recoil mechanism for guns, which comprises two counter-recoil cylinders operatively connected

in parallel arrangement, and means are provided for operatively securing the cylinders to the gun. One of the cylinders partly effects the counter-recoil and the other of the cylinders



ders includes means for feeding separately and storing a part of the energy required for the counter-recoil stroke of the barrel.

3,636,814

APPARATUS FOR AND METHOD OF CHECKING A TOOL OF A NUMERICALLY CONTROLLED MACHINE

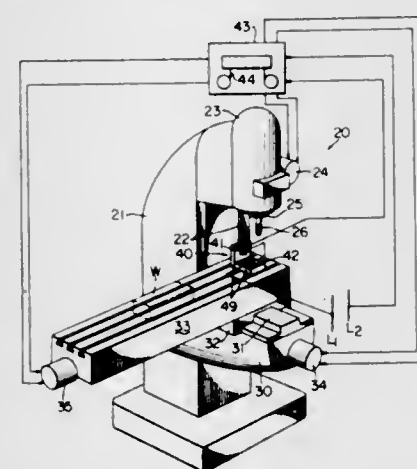
Robert E. Each, Dayton, Ohio, assignor to The Bendix Corporation

Filed Nov. 26, 1969, Ser. No. 880,039

Int. Cl. B23c 9/00

U.S. Cl. 90-11 R

22 Claims



A switch apparatus is provided and mounted on a numerically controlled machine having a programmer and a tool mounted in an associated tool holder. The tool holder with its tool and switch apparatus are relatively moved in operative association by moving means comprising the machine in accordance with a predetermined sequence provided by the programmer and the switch apparatus and programmer cooperate to stop the programmer and moving means in the event the size and/or setting of the tool is incorrect.

3,636,815

SURFACE CUTTING MACHINE TOOL

Walter Koehler, Guetersloh, Westfalen, Germany, assignor to IMA Klessmann, Guetersloh, Germany

Filed Nov. 5, 1969, Ser. No. 874,107

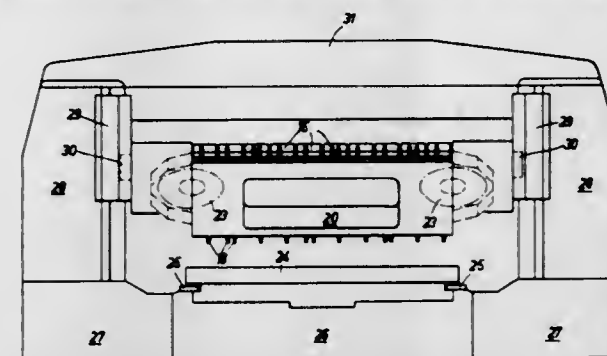
Int. Cl. B23d 1/18

U.S. Cl. 90-38

6 Claims

This invention is directed to a planar type of machine tool in which a plurality of cutting tools are individually mounted

on the respective links of continuously driven endless chain that is bodily oscillatable about an axis transverse to the path of travel of the workpiece so that the cutting tools on one flight of the chain engage the workpiece during one direction of travel thereof and the cutting tools on the other flight of



3,636,816

POWER UNIT FOR A STOOL AND THE LIKE

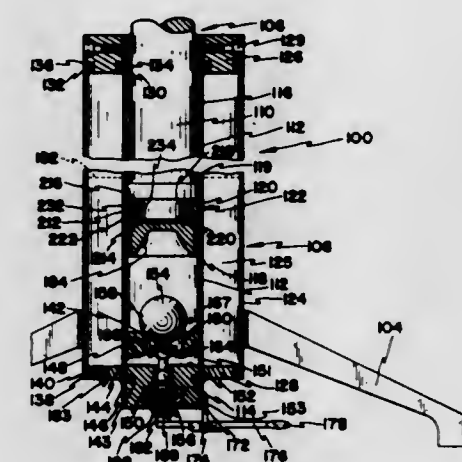
Dean H. Hale, 2500 North Main, Logan, Utah

Filed Apr. 15, 1970, Ser. No. 28,837

Int. Cl. F15b 21/04; F16j 9/08

U.S. Cl. 91-4 R

3 Claims



A power unit for a stool and the like. The stool may comprise a seat mounted upon a vertical post comprising the power unit, having upper and lower parts, the post being secured to a base. The power unit has a ram which telescopes within a cylinder. The power unit further comprises a reservoir containing oil under pressure of compressed air which can be used to change the effective length of the power unit. A flow control valve and a lever controls the flow of the oil between the reservoir and the cylinder so as to regulate the mentioned effective length. The reservoir and the valve are disposed at one end of the power unit. An improved seal having a center portion and flared inner and outer lips is used to seal parts of the power unit so as to prevent leakage of air or oil.

3,636,817

HYDRAULIC CONTROL SYSTEM FOR CROSSER MACHINE

Sumner Shapiro, Delmar, N.Y., assignor to Star Textiles & Research, Inc., Cohoes, N.Y.

Filed Aug. 14, 1969, Ser. No. 850,060

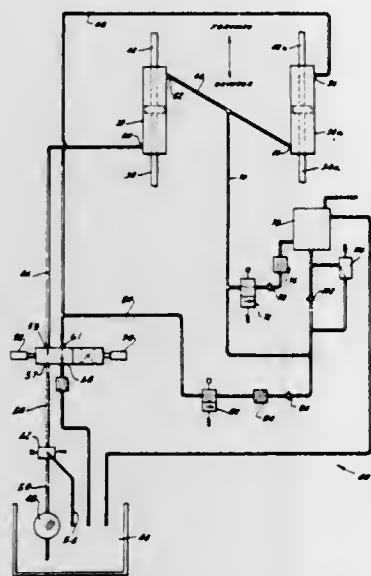
Int. Cl. F01b 25/04, 31/12; F15b 13/044

U.S. Cl. 91-171

8 Claims

An improved crosser machine is provided including a continuous apron driven by two spaced-apart reciprocating arms

that are adapted to move together through the action of separate hydraulic cylinders. The crosser includes a control mechanism for maintaining the alignment of the apron including valve means adapted to bleed small quantities of hydraulic fluid from the hydraulic lines as required to bring



the arms into alignment in the event one arm leads the other, and sensing means to determine the relative positions of the arms and to control the valve means. The crosser serves to lay alternate layers of a web back and forth over itself to build up a thickness of the web material.

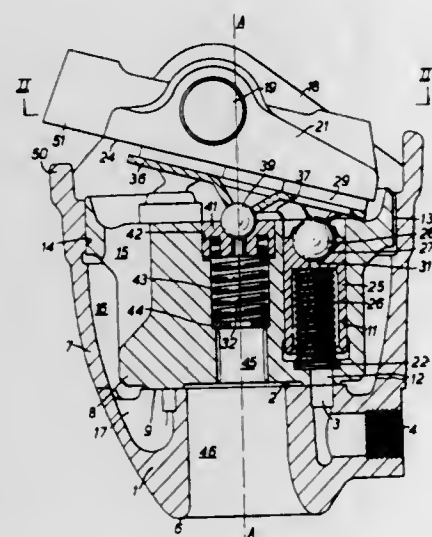
3,636,818

HYDRAULIC APPARATUS

Kenneth Raymond Boydell, Bredons Hardwick, near Tewkesbury, England, assignor to Dowty Technical Developments Limited, Cheltenham, England
Original application Dec. 29, 1967, Ser. No. 694,717. Divided and this application May 1, 1970, Ser. No. 33,720
Int. Cl. F01b 3/00; F04b 1/26

U.S. Cl. 91-475

7 Claims

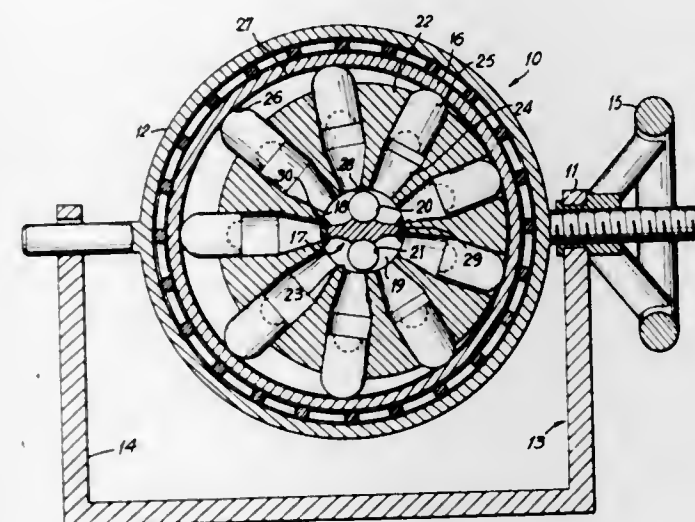


A swashplate pump comprising a rotary cylinder block having cylinders disposed parallel to or inclined to the rotation axis and rotating on a valve, a swashplate adjacent the cylinder block to engage slippers attached to pistons which project from the cylinders in the cylinder block, and a central spring acting on a slipper plate which engages all slippers and urges them to the swashplate. The swashplate is supported by trunnion means whereby the swashplate may tilt to vary the stroke of the pistons in the cylinders and the trunnion means is so located that tilting movement of the swashplate to increase piston stroke will also increase the compression of the central spring thereby to increase the spring loading exerted by the slipper plate on the slippers.

3,636,819
LEAK REDUCING RADIAL PISTON PUMP OR MOTOR
Jaromir Tobias, Box 141, Road #2, Rhinebeck, N. Y.
Continuation of application Ser. No. 795,325, Jan. 30, 1969, now Patent No. 3,520,233. This application Apr. 24, 1970, Ser. No. 31,680
Int. Cl. F04b 1/24

U.S. Cl. 91-498

2 Claims



A radial piston pump or motor having means for reducing leakage across the pintle lands.

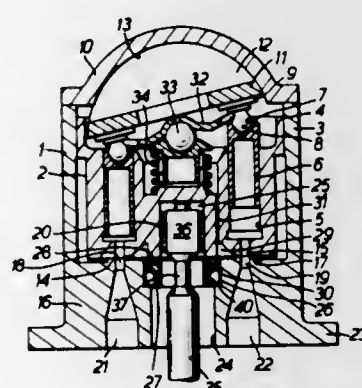
3,636,820

HYDRAULIC APPARATUS

Dennis Ernest Lambeth, Benhall, Cheltenham, England, assignor to Dowty Technical Developments Limited, Brockhampton, Cheltenham, England
Filed July 2, 1969, Ser. No. 838,607
Claims priority, application Great Britain, July 5, 1968, 32,109/68
Int. Cl. F04b 1/20

U.S. Cl. 91-499

1 Claim



A hydraulic pump or motor intended to fit on an engine or the like for connection to a drive shaft carried in bearings in the engine or the like. The pump comprises a rotary cylinder block having a plurality of cylinders either parallel to or inclined to the rotation axis. Pistons in the cylinders are reciprocable during block rotation by means of a swashplate at one end of the block. The cylinder block is mounted for rotation in a bearing which directly absorbs the side thrust exerted on the block through the pistons. Liquid is introduced to and taken from the pump through a valve having a flat valve surface located at the end of the block remote from the swashplate. An opening is defined by an aperture in the valve and a blind hole in the block to receive the shaft from the engine or the like and an annular sealing device is mounted between the valve member and the block concen-

tric with the opening, the sealing device being capable of accommodating axial and tilting movement of the block.

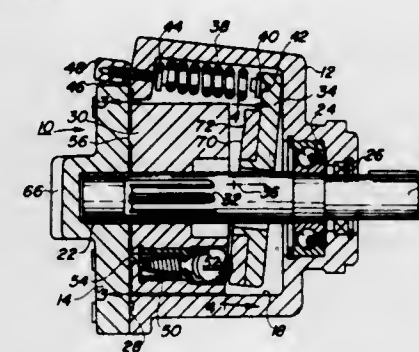
3,636,821

VARIABLE DISPLACEMENT DEVICE

Charles H. Rystrom, 696 Oak St., Winnetka, Ill.
Filed Sept. 10, 1969, Ser. No. 856,694
Int. Cl. F04b 1/20; F01b 13/04

U.S. Cl. 91-504

3 Claims



A positive displacement hydraulic device such as a pump or motor includes a plurality of hydraulically balanced ball piston actuators and pistons which are controllably reciprocated in cylinder bores by a tile plate having a circular groove in which the piston actuator balls roll, the groove having a pair of diametrically opposed depressions disposed opposite to the respective lands in the port plate.

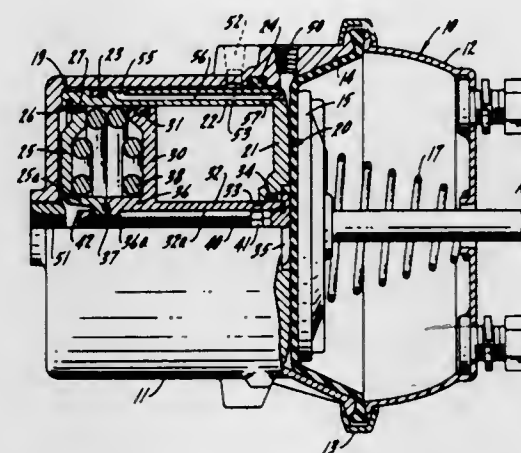
3,636,822

DUAL LINE BRAKE

Charles Horowitz, Niles, Ill., assignor to The Berg Manufacturing Company, Des Plaines, Ill.
Filed Apr. 6, 1970, Ser. No. 25,954
Int. Cl. F01b 7/20

U.S. Cl. 92-63

4 Claims



A vehicle brake actuator having a first movable wall responsive to a first supply of fluid pressure to apply the brakes and a second movable wall responsive to a second, independent supply of fluid pressure to apply the brakes.

3,636,823

HERMETICALLY SEALED MOTOR-COMPRESSOR APPARATUS

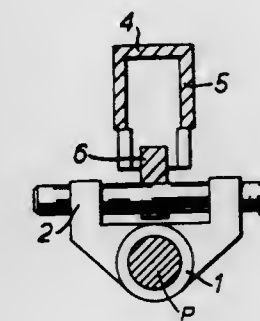
Ronald W. Lewis, and Eric Smith, both of Bognor Regis, England, assignors to Lec Refrigeration Limited, Bognor Regis, Sussex, England
Filed June 22, 1970, Ser. No. 48,067
Claims priority, application Great Britain, Apr. 13, 1970, 18,897/70
Int. Cl. F16j 1/18

U.S. Cl. 92-187

4 Claims

The present invention is concerned with improvements relating to hermetically sealed motor-compressor apparatus

as used in the cooling systems of mechanical refrigerators. More particularly the invention relates to an improved reciprocating mechanism for linking or yoking a crankshaft to a compressor piston and according to the invention the cylindrical piston is provided with a protruding skirt having a crossmember to which is attached a tongue of appreciably less width than the piston. Through a bore in this tongue



there passes a slide shaft which constitutes a yoke little end, the said tongue being secured to the slide shaft, e.g., by a pin. The tongue width is small and clearance is provided between the edges of the skirt and sidearms associated with the yoke big end and receiving the slide shaft so that one assembly as described may do service for a wide variety of piston member diameters.

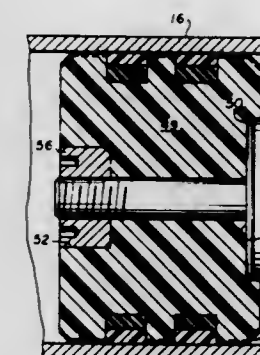
3,636,824

UNITARY PISTON ASSEMBLY INCLUDING A BODY MEMBER SERVING BOTH AS A HOLDER FOR SEALING RINGS AND AS PISTON-BEARING MEANS

Norman E. Clark, Newark, N.Y., assignor to Garlock Inc., Palmyra, N.Y.
Filed Jan. 13, 1970, Ser. No. 2,537
Int. Cl. F16j 1/02

U.S. Cl. 92-249

4 Claims



A single, ring-holding and bearing member is generally cylindrical and has one or more external parallel-walled grooves for separately carrying sealing rings. This unitary member is a mixture of nylon and mineral fibers which is substantially nonextrusive and capable of swelling under elevated temperature conditions but is substantially noncontractile irrespective of subsequent temperature conditions. Said member, at all axial points, is of substantial radial thickness and capable of swelling radially, upon initial operation, to establish and maintain a firm bearing engagement with the wall of a cylinder in which the piston operates. Such bearing engagement is firm enough to prevent extrusion of sealing rings which are of softer plastic material than the material of said member.

3,636,825

APPARATUS FOR CONVEYING WEBS

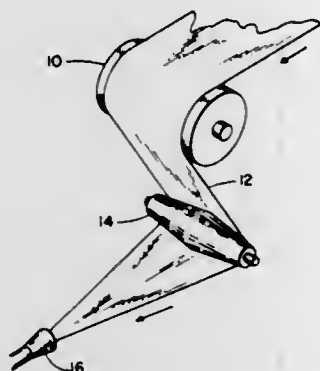
John Courtright Randall, and Marvin Roy Riek, both of Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Filed Jan. 6, 1969, Ser. No. 789,977

Int. Cl. B31d 5/02; B31f 1/00; B31c 5/00

U.S. Cl. 93-1 C

3 Claims



The uniformity of cigarette filters formed from coherent webs of filtration material is improved by feeding of the web about a convex idler roll just prior to feeding of the web into the garniture of a cigarette filter rod maker, and preferably feeding the web from the idler roll to the rod maker along the axis of the garniture.

3,636,826

FOLDING SHOE FOR USE IN A PACKAGING MACHINE

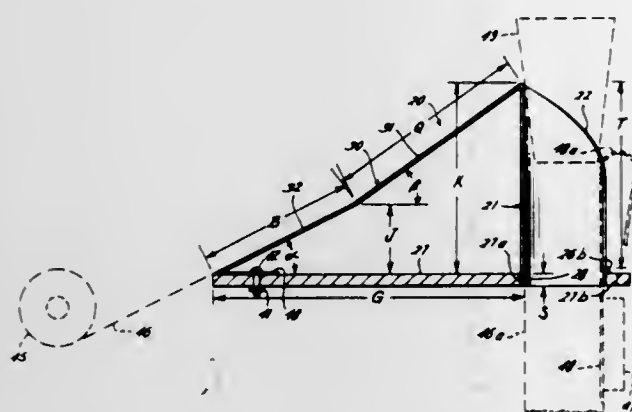
Burt R. Bowen, and William L. Heemer, Jr., both of c/o General Packaging Equipment Co. P.O. Box 19525, Houston, Tex.

Filed Oct. 24, 1969, Ser. No. 869,224

Int. Cl. B31b 1/42; B65b 9/00

U.S. Cl. 93-59 R

35 Claims



Flexible sheet material made of plastic, paper, metal foil, or the like is pulled off of a supply roll and passed over and through the folding shoe for forming packages or bags for holding various types of products. In one embodiment, the folding shoe includes a truncated tubular portion and a skirt portion surrounding such tubular portion and joined to the inclined throat formed by the truncated end thereof. Such skirt portion includes a sloping tail section extending outwardly from the high side of the throat for guiding the sheet material thereto. Such sheet material is then pulled downwardly through the throat and the tubular portion to fold it into a tubular form having an overlapping seam which is sealed as the tubular form leaves the folding shoe. After sealing the tubular form in a transverse or crosswise manner, the desired product can be loaded into the resulting tubular package by way of the passage through the tubular portion of the folding shoe, after which the package is transversely sealed above the product load and cut or severed from the folded sheet material then emerging from the folding shoe.

In another embodiment, the tubular portion of the folding shoe is omitted and only the skirt portion is used. In a further embodiment, most of the skirt portion is omitted, only the outer part of the tail section being used, such part being held in a spaced-apart relationship with respect to the tubular portion. In any of these various embodiments, the folding throat can be shaped to fold the sheet material into either a round or an obround or a flat form.

3,636,827

APPARATUS FOR DISTRIBUTING ERRORS IN THE FORMATION OF HELICALLY WOUND CONTAINER BODIES

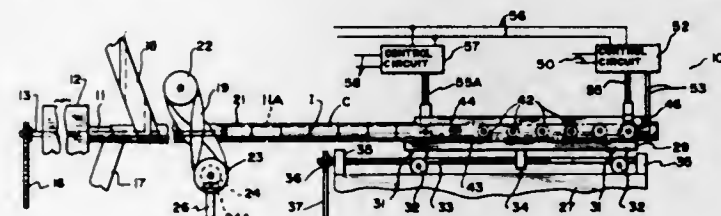
Richard C. Lindberg, Skokie, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed June 24, 1970, Ser. No. 49,214

Int. Cl. B31c 1/00

U.S. Cl. 93-80

5 Claims



In the formation of helically wound containers by first winding a "stick" consisting of connected container bodies, the error in each body accumulates throughout the length of the "stick." The error in each body is confined to such body by properly positioning each of an array of cutters, so as to sever the connected bodies into discrete bodies each having the individual error therein. The error in each body is readily accommodated in conventional closing machines, and there is no need to waste a trim ring when each stick is formed. All container bodies are thus identical in appearance, especially important when a label is helically wound.

Each of the cutters is mounted on a carriage movable along a pinion axis indexed to an error-distributing position, the pinion moving between a pair of racks engaging a group of such error-correcting pinions. The latter are each spaced a distance corresponding to the proper length of the container body plus or minus the error therein. The pitch diameter of the pinions varies from a minimum to a maximum according to the error accumulating in the formation of the stick.

3,636,828

CONVEYING APPARATUS

Fritz Achelpohl, Lengerich (Westphalia), Germany, assignor to Windmoller & Holscher, Lengerich (Westphalia), Germany

Filed Oct. 9, 1968, Ser. No. 766,079

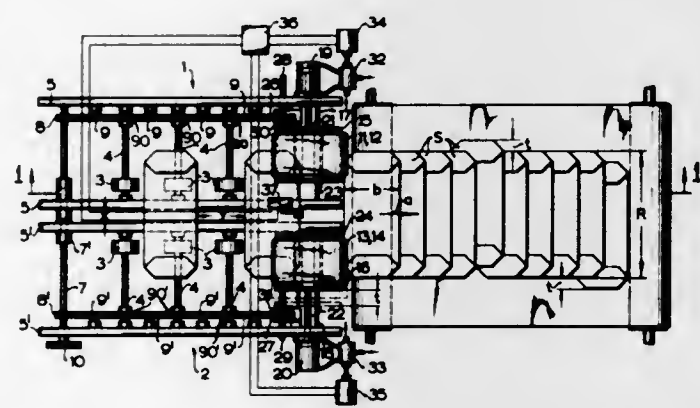
Claims priority, application Germany, Oct. 11, 1967, P 16 11

703.6

Int. Cl. B31b 1/96; B65b 57/20, 65/08

U.S. Cl. 93-93 K

6 Claims



Method and apparatus for indexing a predetermined number of flat articles which form a group within a continu-

ous series of such articles being conveyed by counting the articles, with means provided therefor, as they are conveyed until the predetermined number in the group is reached and then displacing, with means provided therefor, one of the articles, either the first or the last in the group, a short distance transverse to the direction of conveyance so that it extends laterally beyond one side of the series of articles.

3,636,829

PARKING BARRIER

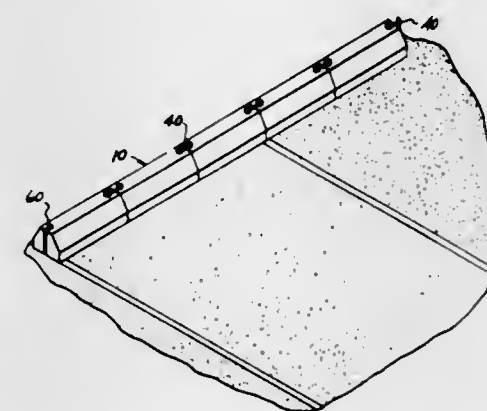
Sherwin Palmer, 1711 Woodslea Drive, Flint, Mich.

Filed Dec. 24, 1969, Ser. No. 887,906

Int. Cl. E01c 11/22

U.S. Cl. 94-31

3 Claims



An elongated bumper or curbing unit fabricated from poured concrete or the like for installation in multiples to provide a wall or border consisting of a series of individual units arranged and interconnected in an end-to-end relationship. Each curbing unit includes a vertically disposed cylindrical aperture formed adjacent each end thereof and a vertical slot connecting each of the apertures with its adjacent end. The curbing units are securely anchored to the ground and interconnected to each other by elongated generally U-shaped channel members which are inserted into the slots and apertures of adjacent curbing units and have a portion driven into the ground.

3,636,830

DRAIN TROUGH

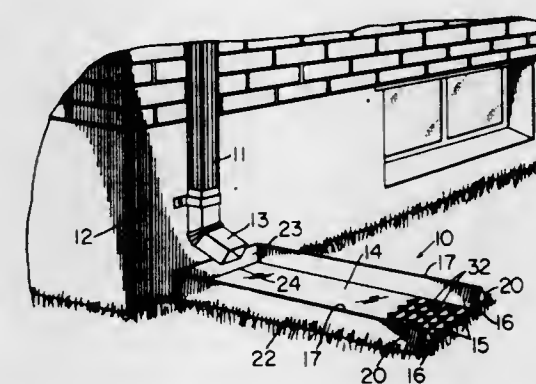
Richard M. Watts, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Jan. 29, 1970, Ser. No. 6,740

Int. Cl. E01c 11/24; E02b 9/04

U.S. Cl. 94-33

7 Claims



A sheet metal downspout drain trough is disclosed having an open front for drainage of water therethrough and having a bottom wall, a backwall, and a pair of sidewalls foldably connected to opposite side edges of the bottom wall. Each of the sidewalls has a top ridge and an extension which extends downwardly from the top ridge and outwardly of its associated sidewall to define a supporting leg for the trough. Integral anchoring means is provided on at least one of the supporting legs for anchoring the trough to the ground beneath

an associated downspout and integral anchoring tongues may also be provided extending from the bottom wall to anchor the front end of the drain trough in position.

3,636,831

PAVEMENT WIDENER

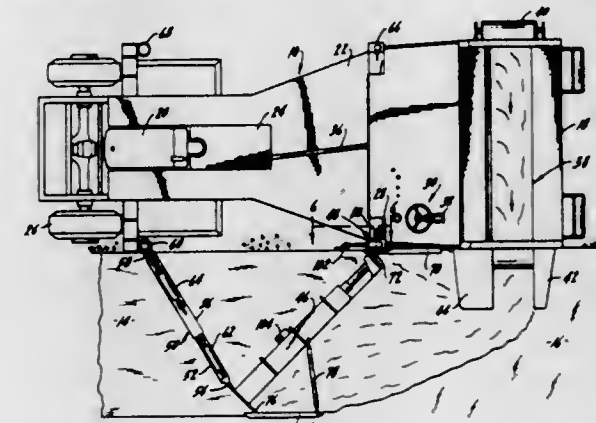
Donald R. Davin, Shelbyville, and Michael E. Grant, Charleston, both of Ill., assignors to Blaw-Knox Construction Equipment, Inc., Mattoon, Ill.

Filed Sept. 24, 1969, Ser. No. 860,584

Int. Cl. E01c 19/22

U.S. Cl. 94-45 R

9 Claims



A method and apparatus for depositing paving material in a widened course alongside an existing paved surface. Material deposited in a hopper of the apparatus is conveyed to one side and spread onto the course where a strikeoff blade levels the material to the desired width, grade and slope. A control circuit is provided to automatically control grade and slope in relation to predetermined reference datums. A grade sensor responsive to a first datum actuates the circuit to elevate or depress the inboard end of the blade for grade control, and a grade sensor responsive to a second datum actuates the circuit to elevate or depress the outboard end of the blade for slope control. In one form of the invention the second datum is the gravity force vector, and in another form this datum is the slope of the paved surface.

3,636,832

DUAL PAVER

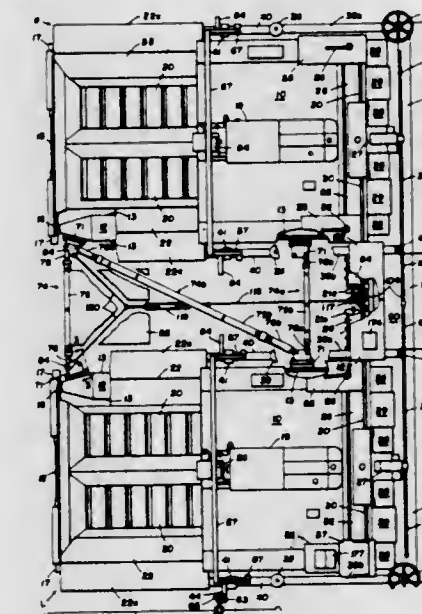
Vernon L. Schrimper, and Louis F. Fairchild, both of Cedar Rapids, Iowa, assignors to Iowa Manufacturing Company of Cedar Rapids, Cedar Rapids, Iowa

Filed Mar. 10, 1970, Ser. No. 18,106

Int. Cl. E01c 19/48

U.S. Cl. 94-46

28 Claims



A dual paver is composed of the tractors of a pair of typical single pavers, the tractors being linked in spaced side-by-

side relation and fitted across their rear with a single-screed assembly of the floating type. Two types of the screed assembly are shown, one, an elongated rigid screed formed from the two individual screeds and a special rigid center section with a central crowning mechanism, and the other a "split" screed, also formed from the two individual screeds but with a center section made up of two standard screed extensions resiliently secured to each other. The controls of each tractor are tied into a dual control console mounted on one tractor so that both can be conjointly operated as a unit. Various applications of automatic screed-leveling devices are also disclosed in combination with both types of screed assemblies.

3,636,833

LAYING OF CONCRETE KERBS, HAUNCHES AND THE LIKE

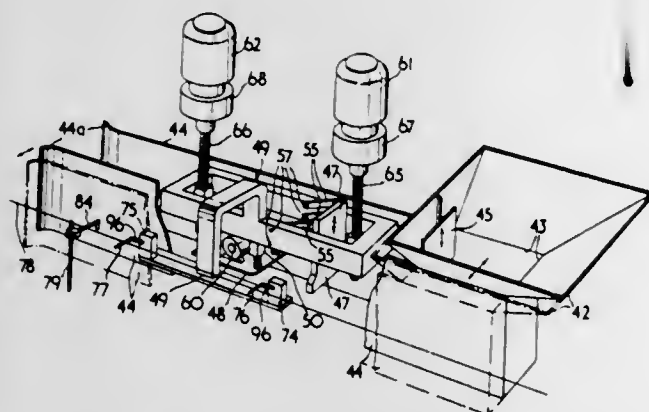
Michael David Lowen, London, and Alan Reginald Mountford, Hertfordshire, both of England, assignors to John Laing Research & Development Limited, London, England
Filed June 24, 1969, Ser. No. 836,078

Claims priority, application Great Britain, Sept. 3, 1968, 41,939/68

Int. Cl. E01c 19/48

U.S. Cl. 94-46

18 Claims



Concrete is laid to a surface defined by a datum wire extending e.g. over rough ground by a machine including a mobile carriage with a concrete hopper feeding concrete between slip forms in a controlled fashion using a gate vertically movable in dependence on the movement of sensing devices touching the wire. Smoothing devices one mounted on a subframe of the machine for vertical movement also in dependence on the sensing devices.

3,636,834

IMPLEMENT WITH VIBRATING TOOL

Hans-Georg Waschulewski, Mettmann; Hans Baumanns, Hubbelrath, and Hans-Reinhard Lambert, Hochdahl, all of Germany, assignors to Losenhausen Maschinenbau AG, Dusseldorf, Germany

Filed Nov. 19, 1970, Ser. No. 91,021

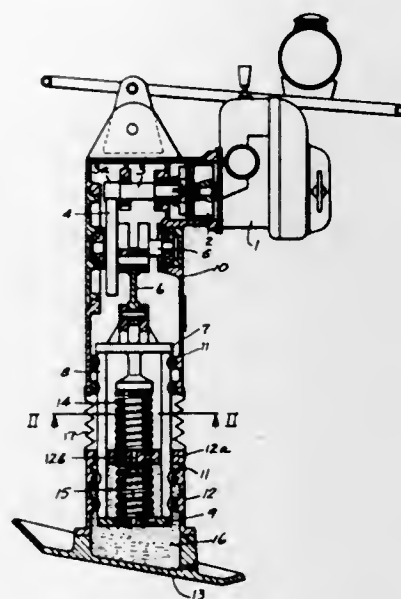
Int. Cl. E01c 19/30

U.S. Cl. 94-49

5 Claims

A prime mover is mounted on a main implement frame. A crank in the main frame is connected by a gear drive to the prime mover to be rotated thereby. In one embodiment, the crank is in a lower chamber in the main frame and the gear drive is in an upper, oil-filled, chamber in the main frame. Positioned a spaced distance from the lower end of the main frame is a housing having an internal chamber which, in another embodiment, is filled with oil. A bellows encloses the space between the housing and the main frame. An oil aperture extends through the top of the housing to the space within the bellows. A reciprocating frame comprises three rods supported by rollers for longitudinal movement in the lower chamber of the main frame and in the upper, adjacent, wall of the housing. The rollers are on the outside of the rods

and are grooved to fit the rods. The rods are positioned 120° apart. The reciprocating frame has a crossmember within the main frame at the upper ends of the rods, and a plate within the housing at the lower ends of the rods. The upper crossmember is connected to the crank so as to reciprocate the



reciprocating frame. A compression spring extends between the upper crossmember and the upper wall of the housing. A second compression spring extends between the upper wall of the housing and the plate in the housing. The bottom of the housing forms a tamping foot.

3,636,835

COMPACTION VEHICLE

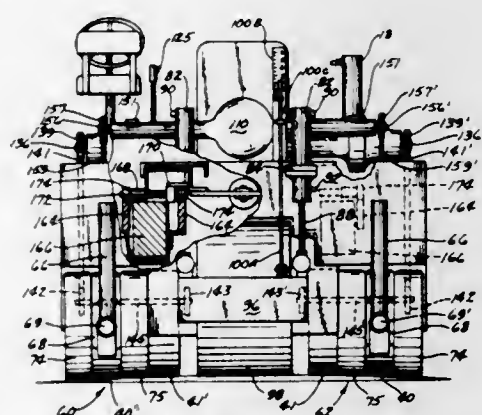
Vernon H. Reisser, 10617 Poppleton Ave., Omaha, Nebr.

Filed May 5, 1969, Ser. No. 821,624

Int. Cl. E01c 19/26

U.S. Cl. 94-50 R

8 Claims



A vehicle containing an area to carry the weight of substance, a compaction vehicle containing a weight box to carry the weight of substance, and movable weight containers and having a plurality of wheel groups being hoist supported and operatively connected by a hydraulic circuit to create predetermined equal and unequal loading conditions on the wheel groups while maintaining the three points of suspension.

3,636,836

PHOTOGRAPHIC PROCESS FOR PREPARING A SCREEN STRUCTURE FOR A CATHODE-RAY TUBE

William Joseph Maddox, and Morris Robert Weingarten, both of Lancaster, Pa., assignors to RCA Corporation

Filed June 1, 1970, Ser. No. 42,322

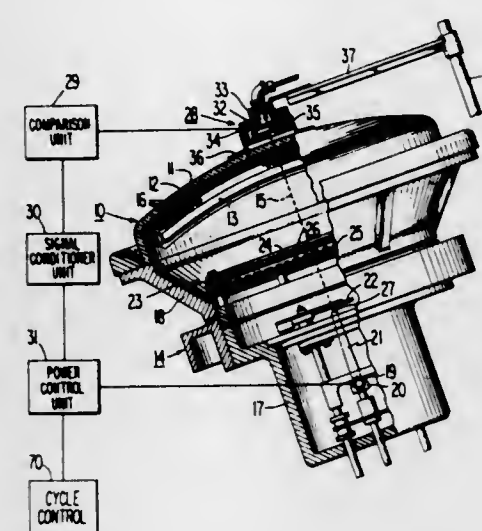
Int. Cl. G03

U.S. Cl. 95-1

5 Claims

A process for preparing a screen structure for a cathode-ray tube of the aperture-mask type comprising placing the

panel assembly including the aperture mask on a lighthouse and unshuttering the light source, thereby projecting light through the mask incident on the panel. During the exposure and after a delay following unshuttering, preferably of at least 0.4 seconds, a portion of the light transmitted through



the mask is continuously measured, and the light source is continuously adjusted to produce a total luminous flux on the film. In a preferred form of the novel process, the intensity level of the incident light is restored to a predetermined intensity value after the exposure.

3,636,837

LIGHT BEAM INFORMATION PRESENTATION CONTROL MEANS

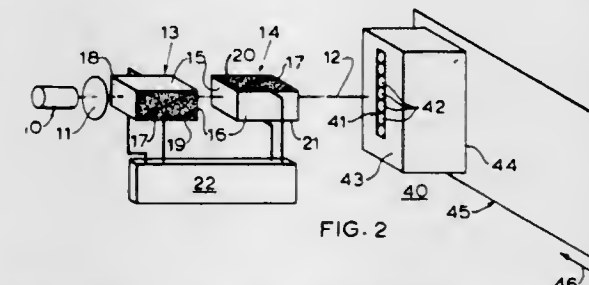
Joseph T. McNaney, 8548 Boulder Drive, La Mesa, Calif.

Filed Jan. 7, 1970, Ser. No. 1,102

Int. Cl. B41b 13/00

U.S. Cl. 95-4.5

6 Claims



Apparatus for controlling the formation and presentation of messages utilizing the high-speed light deflection characteristics of electro-optic light-refractive materials in combination with a longitudinally extended window of a light-limiting member supported in the path of a light beam. The light beam is deflected vertically and allowed to enter the window whereby a series of vertically oriented side-by-side lines of light may be exposed to the surface of a display medium. But, in the process of doing so, the light beam will be deflected horizontally and beyond the limits of the window so as to effect interruptions in lines of the series which correspond to the formation requirements of a message being presented.

3,636,838

BEAM MOTION COMPENSATION IN OPTICAL IMAGE TRANSFER SYSTEMS HAVING MOVING PARTS

David C. Chang, Pleasant Valley, and James Lipp, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 4, 1969, Ser. No. 813,446

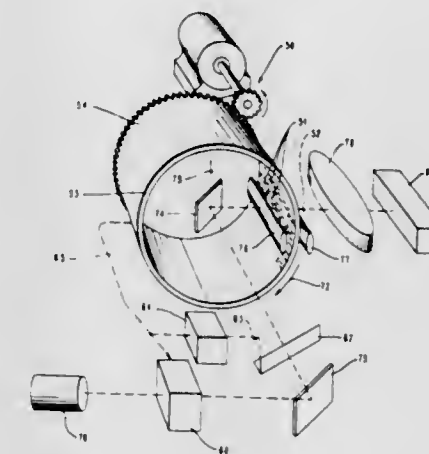
Int. Cl. B41b 17/12

U.S. Cl. 95-4.5

15 Claims

A static electro-optic crystal deflection element, subject to electrical control of refraction, is used as an inertialess com-

pensating element in mechanically controlled projection systems for laser beams. Electrical signals derived from the moving parts of the control mechanism are applied to the crystal to produce compensating refractions of the laser coordinated with short increments of movement of the mechanism. In one application blurring effects associated



3,636,839

ELECTRONIC SHUTTER CAMERAS WITH OCCLUDED LIGHT-MEASURING SYSTEMS

Masaru Yamamoto, Sagami, Japan, assignor to Yashica Company, Limited, Tokyo, Japan

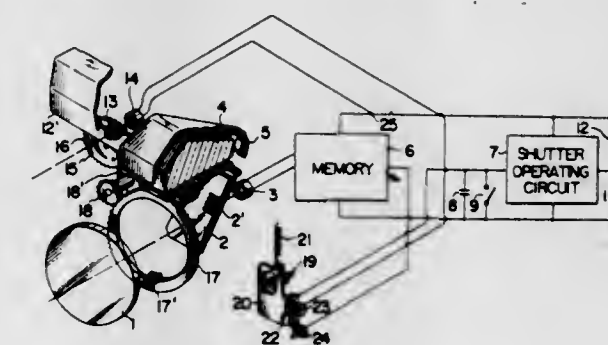
Filed Aug. 21, 1970, Ser. No. 65,847

Claims priority, application Japan, Aug. 27, 1969, 44/67181

Int. Cl. G03b 7/08, 9/62

U.S. Cl. 95-10 CT

2 Claims



In an electronic shutter camera of the type wherein the light quantity transmitted through the objective lens of the camera is measured by an occluded photoelectric transducer element and stored in a memory device and a shutter-operating circuit responsive to the output from the memory device is used to determine the shutter time, there are provided a second photoelectric transducer positioned to receive light reflected by an object illuminated by a flashlamp or a stroboscope, and a transfer switch for transferring the shutter-operating circuit between the memory device and the second photoelectric transducer element when a flashlamp or stroboscope is mounted on the camera.

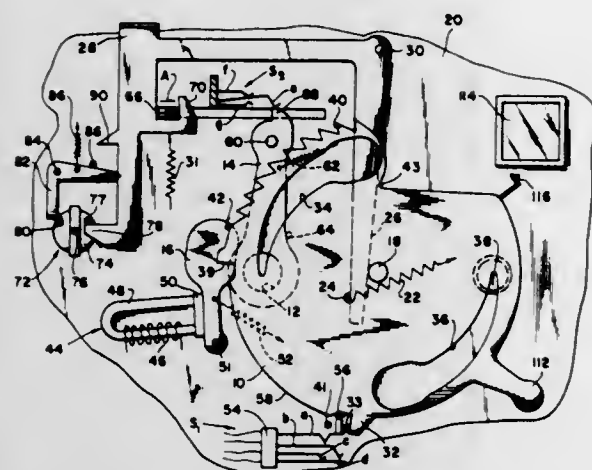
3,636,840

GENERATOR-POWERED EXPOSURE CONTROL
Donald M. Harvey, Webster, and George M. Ingils, Marion, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 27, 1970, Ser. No. 67,332
Int. Cl. G03b 7/08

U.S. Cl. 95—10 CE

6 Claims



An exposure control system including a photoelectric control circuit for adjusting the exposure aperture and shutter speed of a camera, and a generator for energizing the circuit. To reduce the power requirements on the generator, the system preferably is adapted to adjust the diaphragm with a fixed shutter speed in normal light conditions, and to adjust the shutter speed with a fixed diaphragm setting in low-light conditions.

3,636,841

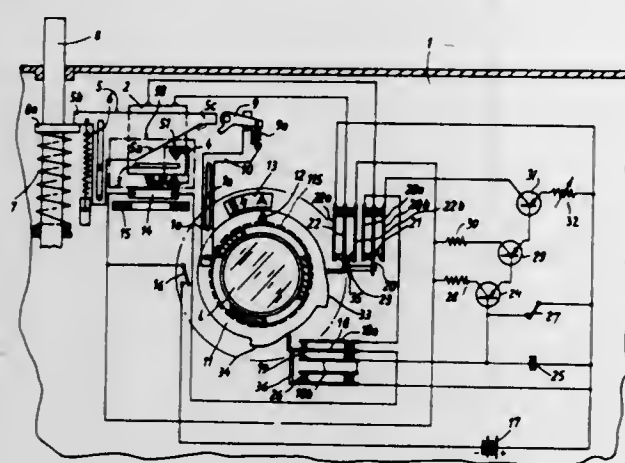
PHOTOGRAPHIC APPARATUS WITH BUILT-IN EXPOSURE CONTROL ASSEMBLY
Karl Wagner, Ottobrunn, and Josef Ganzer, Munich, both of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 26, 1971, Ser. No. 109,811
Claims priority, application Germany, Jan. 30, 1970, P 20 04 259.5

Int. Cl. G03b 7/04, 7/12, 9/58

U.S. Cl. 95—10 CT

15 Claims



A photographic camera wherein the pointer of a moving-coil measuring instrument is scanned by a device which adjusts the diaphragm and/or the shutter when the exposure control assembly of the camera is set for automatic determination of exposure values. When the exposure control assembly is set for the making of exposures with a relatively long exposure time, the instrument is connected with the output of a circuit whose input is then connected with a timer including a photosensitive resistor and a capacitor which is

charged by way of the resistor to cause the circuit to move the pointer to an end position when the capacitor is charged to a predetermined value. The user of the camera opens the shutter to thereby complete the circuit and observes the pointer to close the shutter when the pointer is caused to assume its end position. The photosensitive resistor is in circuit with the moving coil of the instrument when the exposure control assembly is set for automatic determination of exposure values.

3,636,842

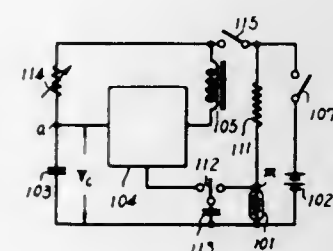
MEMORY-CONTROLLED AUTOMATIC SHUTTER TIMING NETWORK

Tsukumo Nobusawa, 255, Minamiozumachi, Nerima-ku, Tokyo-to, Japan

Filed June 26, 1969, Ser. No. 836,728
Claims priority, application Japan, July 3, 1968, 43/45877
Int. Cl. G03b 9/62

U.S. Cl. 95—10 CT

9 Claims



A memory-type shutter timing network comprises a solid-state switch controlling the shutter closure release and including a switching transistor and an emitter resistor. An RC network includes in series connection a variable resistor and a timing capacitor which is connected to the switch control input. A photoconductor and resistor are connected in series, and a memory capacitor connected through a camera controlled switch across the photoconductor is connected to the input of a transistor amplifier whose output is connected through the emitter resistor so that the switch triggering voltage is controlled by the memory capacitor charge and the switch input signal by the RC network.

3,636,843

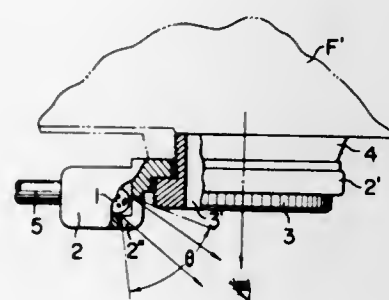
ELECTRONIC FLASHLIGHT ATTACHMENT FOR CAMERA VIEWFINDER

Kunihiko Hori, and Keno Okuno, both of Kawasaki-shi, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Sept. 18, 1969, Ser. No. 858,977
Claims priority, application Japan, Sept. 24, 1968, 43/82035
Int. Cl. G03b 19/02

U.S. Cl. 95—11 R

1 Claim



An attachment for rotatably mounting the pilot lamp of an electronic flashlight on the camera viewfinder eyepiece. By rotating the pilot lamp with relation to the viewfinder, the person using the camera can keep the pilot lamp within his field of vision while looking through the viewfinder, regardless of the position of the camera.

3,636,844

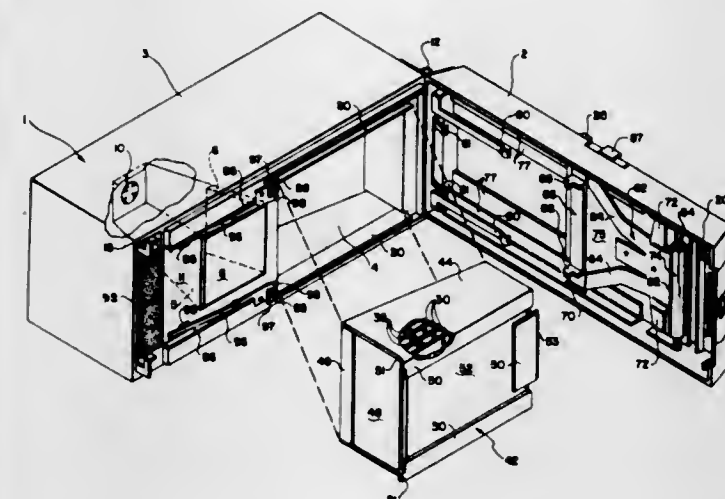
MECHANISM FOR USE IN A CAMERA FOR EXPOSING AND INITIATING THE PROCESSING OF PHOTOGRAPHIC UNITS

Leonard F. Kamp, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 17, 1970, Ser. No. 46,856
Int. Cl. G03b 17/50

U.S. Cl. 95—13

8 Claims



A mechanism for transporting and initiating the processing of "self-processing" film units in a camera that exposes and effects the processing of such units. The mechanism includes a reciprocable carriage which moves in a first direction over an exposed unit to release and spread processing solution across the unit, and in a return direction to transport a fresh unit from a supply chamber into position for exposure, while ejecting the exposed unit from the camera. The carriage is guided by cooperating rails both to prevent the premature release of processing reagent on film units in the supply chamber, and to effect transporting engagement between the carriage and the fresh unit when the carriage is moved in the return direction.

3,636,845

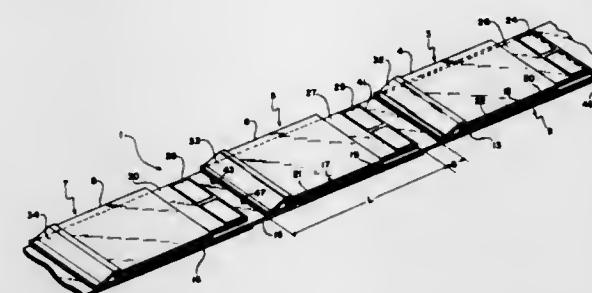
PHOTOGRAPHIC FILM UNIT ASSEMBLAGE

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 2, 1970, Ser. No. 77,512
Int. Cl. G03d 17/52

U.S. Cl. 95—13

24 Claims



An improved assemblage of integral self-processing film units interconnected by a unit-transporting web is disclosed wherein the length of web material between succeeding film units is approximately one-half the length of web material found between such units in prior assemblages of this type. The assemblage is adaptable to being arranged with its film units stacked in superposed relationship while being operably interconnected by the unit-transporting web for ready use in cooperating photographic apparatus. When the film units are so stacked, each unit in the stack is connected by the interconnecting web from a point that is located along the length of that unit forward of its trailing end, such as its midpoint or

its leading end or a point forward of its leading end, to the leading end of the next succeeding unit immediately below that unit.

3,636,846

SINGLE LENS REFLEX CAMERA WITH FOCAL PLANE SHUTTER UNIT

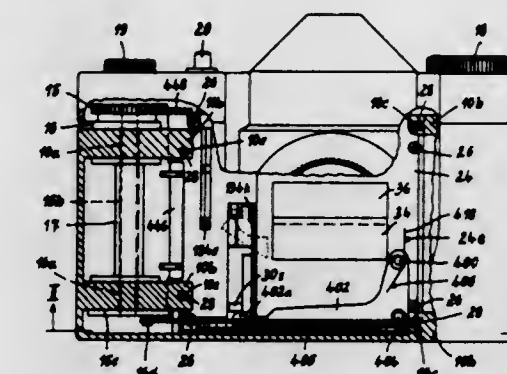
Franz Singer, Munich, Germany, assignor to Compur-Werk Gesellschaft mit beschränkter Haftung & Co., Munich, Germany

Filed June 26, 1970, Ser. No. 50,150
Claims priority, application Germany, July 1, 1969, P 19 33 365.4

Int. Cl. G03b 19/12

U.S. Cl. 95—42

5 Claims



A photographic camera of the single lens reflex-type with a focal plane shutter, in which the shutter is part of a pre-assembled unit which also includes the pivoted mirror and the interacting connections between the mirror and the shutter mechanism to insure operation of the swinging mirror in proper timed relation to the operation of the shutter slides or blades. This eliminates the assembling difficulties frequently encountered in prior cameras of the same general type, in which the mirror and its operating mechanism are customarily assembled on the camera body before the focal plane shutter unit is installed, the assembly of the proper connections between the shutter unit and the mirror and other parts mounted on the camera body being frequently quite troublesome.

3,636,847

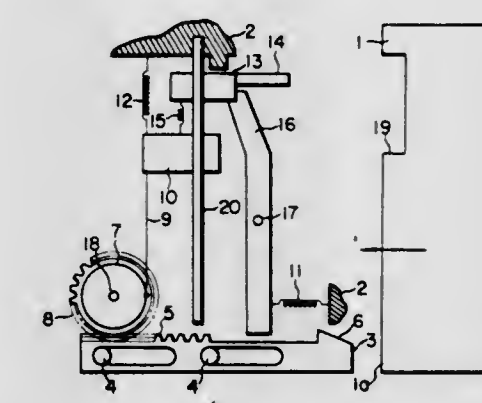
AUTOMATIC FILM SENSITIVITY SETTING DEVICE

Shigeo Akasaka, Tokyo, Japan, assignor to Nippon Kogaku K.K., Chuo-ku, Tokyo, Japan

Filed Nov. 17, 1970, Ser. No. 90,321
Claims priority, application Japan, Nov. 25, 1969, 44/111462
Int. Cl. G03b 19/18

U.S. Cl. 95—31 FS

7 Claims



An automatic film sensitivity setting device for a camera using a film container having at its periphery signal means representing the sensitivity of a self-contained film, and providing a sensing member for an exposure meter within the

camera connectable to said signal means. When the film container is mounted on the camera, the film sensitivity of the film container is introduced into the exposure meter.

3,636,848

FOLDLINE BELLOWS

Jiri Mazur, Prerov, Czechoslovakia, assignor to Meopta Prerov

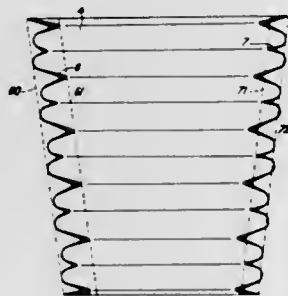
Filed July 27, 1970, Ser. No. 58,589

Claims priority, application Czechoslovakia, Aug. 8, 1969, PV5512-69

Int. Cl. G03b 17/04

U.S. Cl. 95—39

5 Claims



The foldline bellows consist of at least two mutually interposed systems of fold lines with a different ratio of the depth of the fold lines and with different thicknesses of individual parts of the walls of both systems. At maximum collapse some foldlines of both systems are staggered so that they require less space than ordinary bellows. They can be made of plastics and can have any arbitrary, for example, circular or square cross section and the form of a cylinder or a cone.

3,636,849

AUTOMATIC FOCUS CONTROL FOR A CAMERA

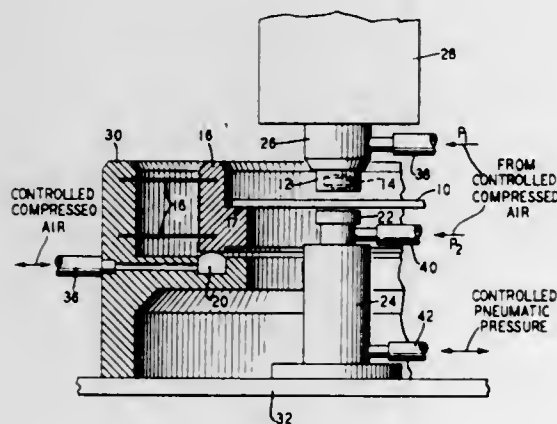
David Shepard Alles; John William Elek, both of Wescoesville; Benjamin Edward Nevis, Bethlehem, and Wallace Albert Schlegel, Bath, all of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 28, 1970, Ser. No. 6,438

Int. Cl. G03I 3/00

U.S. Cl. 95—45

6 Claims



A focus control for automatically maintaining the focus distance, i.e., lens-to-photoplate distance, of a camera within small tolerances utilizes gas-thrust bearings. The photoplate is mounted between two gas-thrust bearings called a lens bearing and a plate bearing. The lens bearing is very stiff and exerts a force which varies significantly with the float height; whereas, the plate bearing is very soft and exerts a force which is essentially independent of float height. Photoplate surface contours or irregularities are accommodated by a change in float height of the plate bearing while a substantially constant lens-to-photoplate surface distance is maintained by the stiff lens bearing.

3,636,850

SHUTTER OPERATOR USING PERMANENT AND ELECTROMAGNETS

Tomio Kikuchi, and Kiyoyuki Arai, both of Saitama-ken, Japan, assignors to Kabushiki Kaisha Koparu, Itabashi-ku, Tokyo, Japan

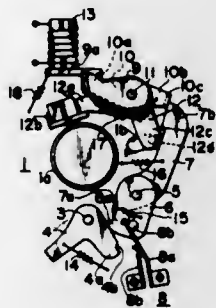
Filed Apr. 1, 1969, Ser. No. 812,092

Claims priority, application Japan, Apr. 24, 1968, 43/27557

Int. Cl. G03b 7/08, 9/62

U.S. Cl. 95—53 E

4 Claims



Mechanism for opening and closing shutter blade for use in electric shutter provided with an electromagnet adapted to be controlled by an electric delay circuit and a permanent magnet disposed integrally on a shutter blade opening and closing member, said two magnets being arranged so as to be able to face each other with reverse polarity, whereby the opening and closing of the shutter blade can be effected with accuracy and speed.

3,636,851

APPARATUS FOR AUTOMATIC FILM TESTING

Karl-Heinz Furst, Gotzenhain, Germany, assignor to E.I. du Pont de Nemours and Company, Wilmington, Del.

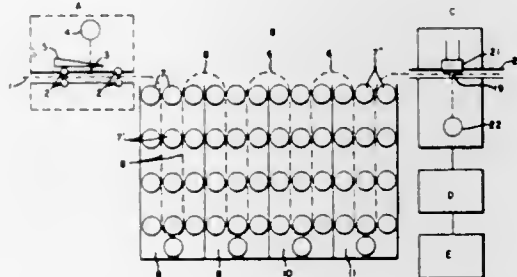
Filed Oct. 8, 1969, Ser. No. 864,730

Claims priority, application Germany, Nov. 7, 1968, P 18 07 403.8

Int. Cl. G03d 3/08

U.S. Cl. 95—89 K

8 Claims



Apparatus for automatic sensitometric testing of photographic film, characterized by direct sequence of stages, synchronized one with another with respect to the feed rate of a test film strip to be passed therethrough: (a) a sensitometer in which the test film strip is passed in synchronism with a density wedge at constant speed past an exposure slit; (b) a developing and fixing bath with washing and drying sections; and (c) a densitometer, the test film strip being passed at constant speed or at a rate controlled by the densitometer itself past a photoelectric data indicator while a scanner is connected after densitometer. The device permits rapid access to sensitometric data in a few minutes.

3,636,852

MINE VENTILATION CONTROL SYSTEM

James V. Burgess, Jr., P.O. Box 385, Madison, W. Va.

Filed May 11, 1970, Ser. No. 36,339

Int. Cl. E21F 17/00

U.S. Cl. 98—50

5 Claims

This invention relates to a ventilation control system and more particularly and specifically to ventilation control cur-

tain support members. The curtains and support members are used as line brattices, check curtains and temporary stoppings to create a flow path for ventilating air to the work-

another plane transverse to the first plane. The louver and vanes are so constructed that the vanes will shut off the air-



ing face of the mine. The flow path is such as to direct air down one side of the mine and return the air on the opposite side by traversing the mine at the working face to thereby remove harmful gases and dust therefrom.

3,636,853

EXHAUST STACK FOR OUTDOOR HEATERS

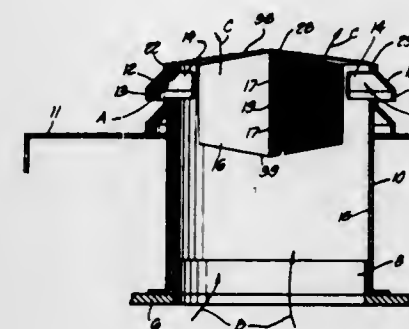
Chester A. Sable, Orange County, Calif., assignor to Anthony Industries, Inc., Los Angeles, Calif.

Continuation-in-part of application Ser. No. 889,475, Dec. 31, 1969, now abandoned. This application Mar. 6, 1970, Ser. No. 17,112

Int. Cl. F23I 17/02

U.S. Cl. 98—78

7 Claims



Exhaust stack for an outdoor heater including a vent pipe terminating in an upwardly directed open end having annular wind openings in the wall of the vent pipe which are positioned adjacent to its open end. Downwardly directed wind deflectors are positioned outwardly of and extending over the wind openings and spacer elements are positioned within the vent pipe adjacent its open upper end which divide the vent pipe into four substantially pie-shaped quarter sections, the spacer elements extending downwardly in the vent pipe past the wind openings. The upper surfaces of the spacer elements are inclined upwardly toward the center of the vent pipe and a wire mesh screen is positioned in contact with the upper surfaces of the spacer elements to form an upper surface for the vent pipe having a generally conical configuration.

3,636,854

FLUID CONTROL SYSTEM LOUVER UNIT

Arthur P. Cary, c/o Cary Products Co. Box A.C., Hutchins, Tex.

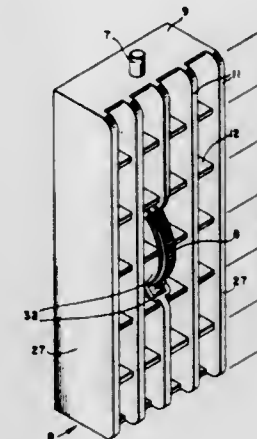
Filed Jan. 19, 1970, Ser. No. 3,869

Int. Cl. F24I 12/00

U.S. Cl. 98—110

6 Claims

A louver unit for controlling fluid flow, such as the cool air discharge from an air conditioning unit. The louver is tiltable in one plane and has a plurality of vanes that are tiltable in



flow and certain vanes will overlay other vanes in close juxtaposition to close any opening that might normally be present in the other vanes.

3,636,855

FOOD-COMPACTING AND DISPENSING MACHINE

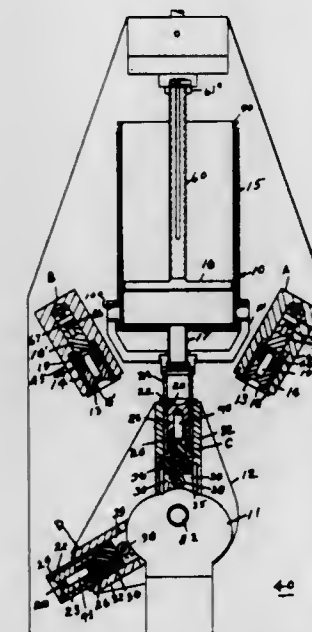
Anthony R. Serafini, 1118 F. St., Erie, Pa.; Joseph A. Balkovic, 1952 W. 33rd St., Erie, Pa.; Richard E. Waller, 534 Shenley Drive, and Karl A. Wunch, 3615 W. 12th., Erie, Pa.

Filed Feb. 24, 1970, Ser. No. 14,261

Int. Cl. A47J 43/20

U.S. Cl. 99—234

21 Claims

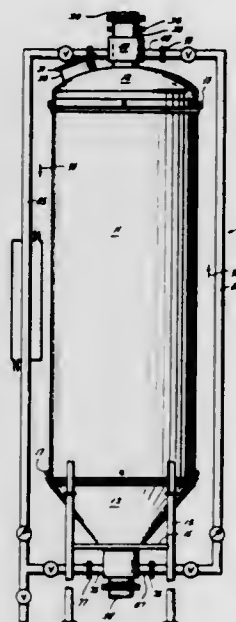


The specification discloses a food-compacting machine having a hopper for food and a piston for delivering said food to a loading cup, at least two loading cups mounted on an axle to move about a fixed cam. The food is loaded into the cups in one position, compacted in a second position and the cup is heated and the food is dispensed from the loading cups in a third position. The loading mechanism has a knife synchronized with the movement of the piston to assist in forming the food, and a cam arrangement is synchronized with the piston drive for controlling the loading, compacting and dispensing in synchronism with each other. The effective volume of the cups can be adjusted.

3,636,856 STEEPING TANK

James H. Neel, 6217 Ariel, Houston, Harris County, Tex.
Filed Apr. 22, 1970, Ser. No. 30,658
Int. Cl. A23b 9/00

U.S. Cl. 99—237



A tank for treating grain including a hollow cylindrically shaped body and an inlet end member and an outlet end member for moving the grain into and out of the body. The inlet and outlet end members include a plurality of nozzles or openings for enabling fluids and air to be circulated through the body while the steeping system is maintained in an isolated state for treatment of the grain inside the tank body.

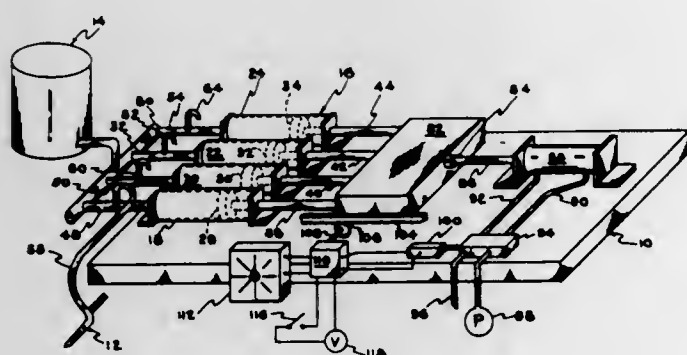
3,636,857 MEAT INJECTION SYSTEM

Mitchell W. Panek, Chicago, Ill., assignor to Swift & Company, Chicago, Ill.

Original application Apr. 9, 1969, Ser. No. 814,781, now Patent No. 3,556,808. Divided and this application Oct. 5, 1970, Ser. No. 77,862
Int. Cl. A23b 1/16

U.S. Cl. 99—257

3 Claims



Liquid material for injection at a plurality of sites in a food item is dispensed simultaneously in separate amounts, each amount being a desired proportion of a total quantity of liquid, and delivered for injection at the sites for equal intervals of time.

3,636,858 TOASTER

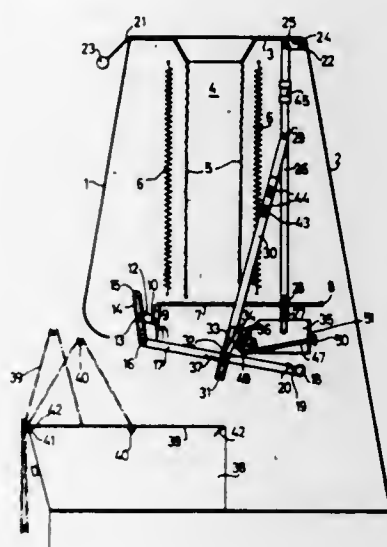
Julius Barclay Estrup Paankesen, Naverland 17-19, 2600 Glostrup, Denmark

Filed June 29, 1970, Ser. No. 50,454
Claims priority, application Denmark, July 22, 1969, 3950/69

Int. Cl. A47J 37/08

U.S. Cl. 99—335

9 Claims



A toaster having a vertically orientated toasting compartment with a hinged cover a hinged bottom which during a toasting operation is held in a horizontal position by means of a pawl. The pawl is withdrawn to discharge the toasted bread by means of a tripping device controlled by an adjustable timing device which thus determines the toasting period. Means are provided for operatively connecting the bottom, the cover and the timer so that lifting of the cover causes the bottom to be lifted to horizontal position and locked by the pawl and the timing device to start when the cover is subsequently closed. After the period of the timing device has run out, it actuates the tripping device to release the compartment bottom.

3,636,859 ULTRASONIC COOKING APPARATUS

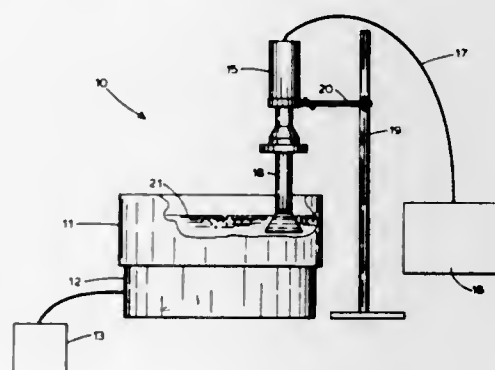
Lawrence E. Null, Albuquerque, N. Mex., assignor to Energy Conversion Systems, Inc., Albuquerque, N. Mex.

Filed Oct. 20, 1969, Ser. No. 867,571

Int. Cl. A47J 27/00

U.S. Cl. 99—348

5 Claims



An improved apparatus and method for cooking utilizing the application of ultrasonic energy above the audible frequency range and below the microwave frequency range to increase the speed and efficiency of cooking. The apparatus comprises a heat source coupled to a container with liquid cooking medium therein, an ultrasonic power supply and transducer and an acoustic horn for coupling the ultrasonic energy through the liquid cooking medium into the

item being cooked. The method comprises the steps of placing the food to be cooked in a liquid cooking medium, heating the cooking medium to cooking temperature for the particular food involved and applying to the cooking medium sound energy in the ultrasonic frequency range.

3,636,860

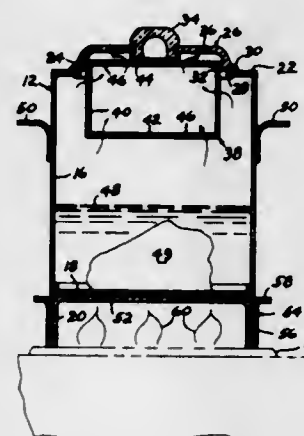
COOKING UTENSIL AND PROTECTIVE SUPPORT
Virginia L. Green, 2134 Watson, Detroit, Mich.

Filed Feb. 3, 1970, Ser. No. 8,211

Int. Cl. A47J 27/10

U.S. Cl. 99—410

4 Claims



An upwardly open cylindrical container is provided with a bottom wall spaced upwardly from the lowermost edge of its wall. A support, having an annular groove nesting the wall of the lower end portion of the container, shields the bottom thereof. An annular flange, forming the upward limit of the container, centrally supports a foraminated lid and hopper permitting the escape of steam and preventing fluid boilover.

3,636,861

STRAPPING MACHINE

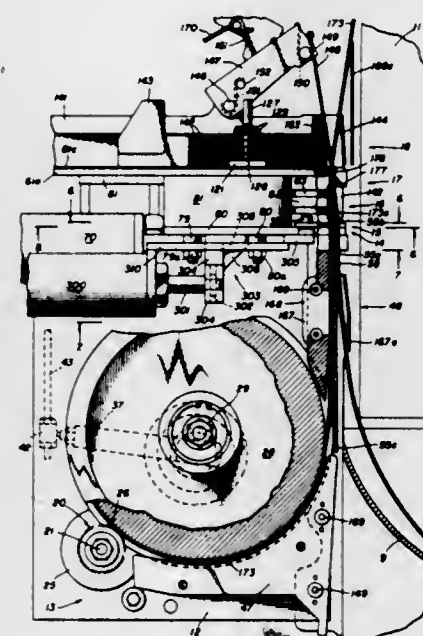
Frank C. Weller, Chicago, Ill., assignor to Interlake Steel Corporation, Chicago, Ill.

Filed Apr. 20, 1970, Ser. No. 30,006

Int. Cl. B65b 13/02

U.S. Cl. 100—4

23 Claims



A strapping machine for binding an object by providing plastic strap forming a loop having a supply portion and the leading end thereof overlapping. Tensioning and feeding mechanism, strap-gripping mechanism, strap-severing

mechanism, sealing mechanism, strap-gathering mechanism, and seal-feed mechanism are provided.

3,636,862

REFUSE COMPACTOR WITH SPRAY DEVICE

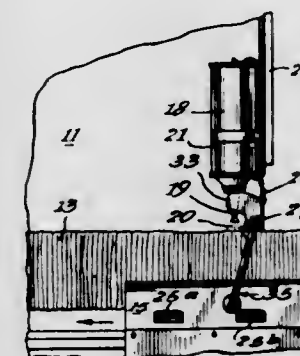
Michael J. Bottas, St. Joseph, and Charles R. Difley, Niles, both of Mich., assignors to Whirlpool Corporation

Filed Nov. 5, 1969, Ser. No. 874,250

Int. Cl. B30b 15/30

U.S. Cl. 100—45

16 Claims



A refuse compactor comprising a cabinet, a refuse receiver such as a drawer having a normally concealed access opening such as the top of the drawer for inserting loose refuse into the receiver and removing compacted refuse therefrom, a compacting ram in the cabinet movable into and out of the receiver to compact refuse therein, movable closure means on the cabinet for selectively exposing and concealing the access opening which in the case of the drawer would be the front panel, means for moving this closure to expose the opening for introduction of refuse into the receiver and to close the opening following the introduction, and means for applying a measured amount of treating agent to the refuse on closing movement of the closure means following the introduction. In the case of the drawer, the drawer would be pulled outwardly for the introduction of refuse, which is usually household refuse, for later compacting and the closing of the drawer activates the means for applying the treating agent to the refuse while the drawer is being closed.

3,636,863

ARRANGEMENT FOR COMPACTING REFUSE

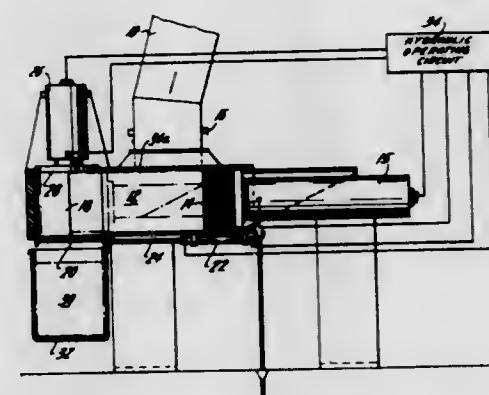
Stanley J. Woyden, Stamford, Conn., assignor to International Patents & Development Corp., Kings Point, N.Y.

Filed Aug. 21, 1969, Ser. No. 852,005

Int. Cl. B30b 15/16

U.S. Cl. 100—49

4 Claims



A control system for use in conjunction with a hydraulically operated refuse compactor. Input signals derived from sensors and limit switches on the compactor are applied to the controlled system which, in turn, generates controlling signals directed to the proper hydraulic valves, and in the correct sequence. Safety interlocks prevent operation of the

machine when possible damage may be incurred in the machine or by the operator.

3,636,864

SHREDDING AND BALING DEVICE

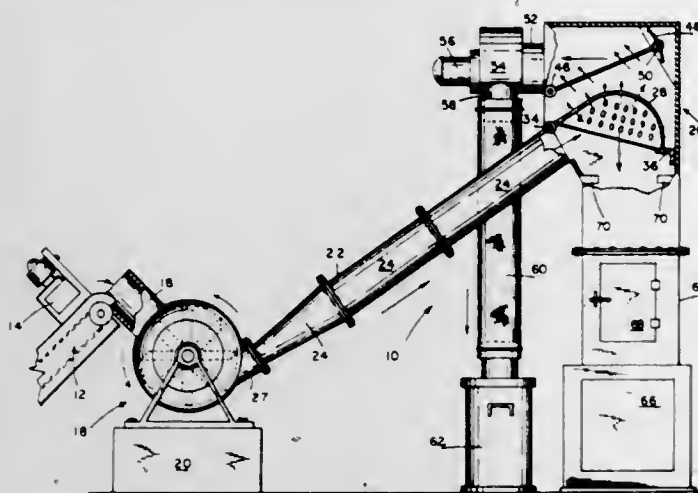
Alfred Loscialo, Merrick, N.Y., assignor to Gemini Paper Fibers Corporation, Merrick, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,133

Int. Cl. B30b 15/08

U.S. Cl. 100-91

10 Claims



A combination shredding and baling device comprising means for feeding paper, books, magazines and the like into the inlet conduit of a rotary shredding device, the outlet conduit of the shredding device is connected to a housing having vacuum-pumping means connected thereto in fluid flow communication with the outlet conduit, a pair of perforated screen members having elongated openings whose longitudinal axes are disposed substantially perpendicular to one another are positioned within said housing between the outlet conduit and the vacuum-pumping means, the housing includes an integrally formed vertically disposed passageway the upper portion of which is positioned beneath the screen members and the lower portion of which is connected to a baling device and the outlet of the vacuum-pumping means is connected to one end of a porous chute whose other end is secured to a refuse collection container.

3,636,865

PRINT HEAD FOR HIGH-SPEED PRINTERS

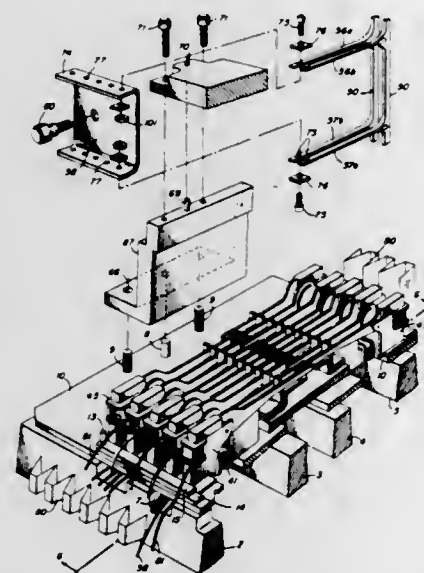
Joseph Konkel, Lynnfield, and Frank H. Schaller, Needham Heights, both of Mass., assignors to Data Printer Corp., Boston, Mass.

Filed May 8, 1969, Ser. No. 822,929

Int. Cl. B41j 9/02

U.S. Cl. 101-93 C

8 Claims



A print head in which a bank of hammers is disposed over a bank of actuators, comprising inner and outer actuator elements.

ments of complementary construction. The apparatus is constructed by successively pinning stamped plates to a base frame, one on top of the next. Alignment of the parts is accomplished by a series of dowels so that in general only one positioning step is required to align each part that is secured to the frame.

3,636,866

EMBOSSING PRESS INCLUDING AN ARCUATE OSCILLATING DIEHOLDER

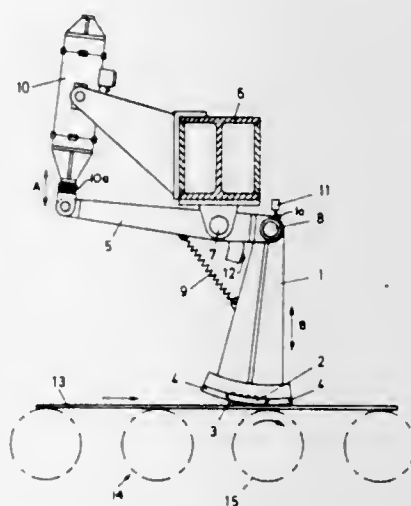
Rolf Stommel, No. 5, Lacherstrasse, 565 Sollingen-Widdert, and Hans Bieri, No. 55, Gasstrasse, 565 Sollingen, both of Germany

Filed July 18, 1969, Ser. No. 842,994

Int. Cl. B41f 1/00; B44b 5/00

U.S. Cl. 101-22

9 Claims



An embossing press for impressing markings and inscriptions into metal sheets traveling through the press on a roller bed, wherein the punch-holder of the press is hingeably attached to one arm of a two-armed lever for deflection in a vertical plane against a restoring force, whereas the other arm of the two-armed lever is operable by an electric actuator for lowering and raising the punch-holder.

3,636,867

PRINT TIMING AND SPEED CONTROL CIRCUIT FOR HIGH-SPEED PRINTERS

Giorgio Bonzano, Caluso, Italy, assignor to Honeywell Information Systems S.p.A., Turin, Italy

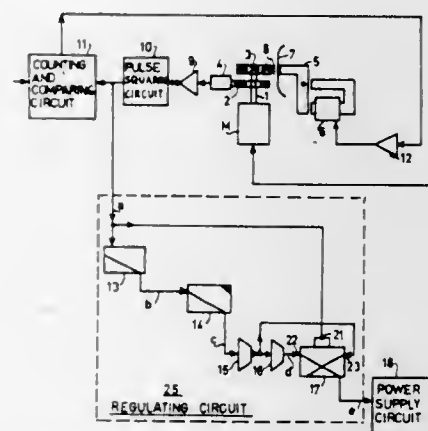
Filed June 25, 1970, Ser. No. 49,637

Claims priority, application Italy, June 28, 1969, 18919 A/69

Int. Cl. B41j 1/00

U.S. Cl. 101-93

10 Claims



A high-speed "on-the-fly" printer, wherein timing means is provided to identify the position of the print characters on a movable type-carrying member, to denote the instant for actuation of the print operation, and to control the speed of the motor driving the type-carrying member.

3,636,868

ENERGY-DISSIPATIVE IMPROVEMENT IN HIGH-SPEED PRINT HAMMER MECHANISMS

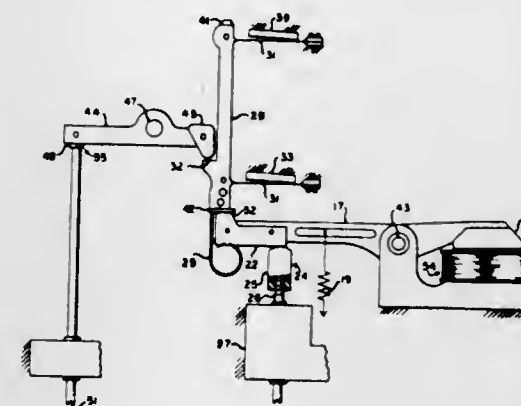
Lynn M. Johnston, West Milton; Chester G. Jones, Kettering; Harold D. Neal, Dayton, all of Ohio, and Samuel A. Redman, Garden City, N. Y., assignors to The National Cash Register Company, Dayton, Ohio

Filed Oct. 6, 1969, Ser. No. 863,826

Int. Cl. B41j 9/24

U.S. Cl. 101-93 C

22 Claims



A cooperative plurality of energy-dissipating means is incorporated into a high-speed mechanism so as to be sequentially activated and be operative upon a working member for timely extraction of precise quantities of excess kinetic energy and for producing long life and bounce-free fast operation of the working member. Incorporation of the invention into a high-speed printer wherein energy absorption from components of the printer is accomplished via structurally improved members is also disclosed.

3,636,869

FODDER BALER FEED MECHANISM

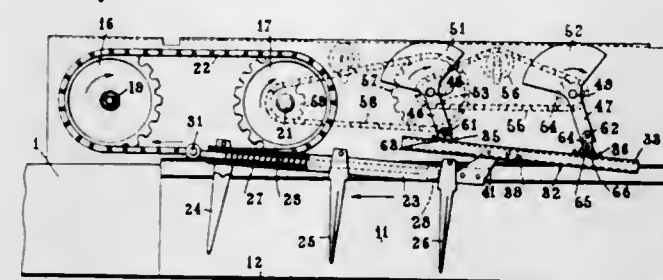
Alain F. D'Acremont, Morey St. Denis; Gerard Chaumont, Dijon, and Alain P. Lefevre, Perrigny-les-Dijon, all of France, assignors to Sperry Rand France S.A., Puteaux, France

Filed July 10, 1970, Ser. No. 55,300

Int. Cl. B30b 1/00

U.S. Cl. 100-189

7 Claims



This feed mechanism for fodder baler wherein the relative rates of motion of the moving component elements are of differential nature and same direction to permit a high rate of operation without reaching abnormally high speeds in the guide members, is characterized in that it comprises a device driving the guide member of the finger-supporting bar in order to impress a circular movement of translation thereto, wherein the guide member remains constantly parallel to itself and each one of its points describes a circle by performing a complete revolution at each cycle of the feed mechanism, that is, for each reciprocation of the baling piston, this mechanism being applicable not only to fodder baler but also to any machines designed for treating fiber materials.

3,636,870

DEVICE FOR EXTRACTING FRUIT JUICES

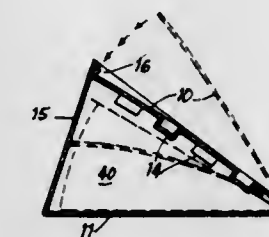
Samuel M. Arthur, 18549 Poplar Ave., Homewood, Ill.

Filed Jan. 26, 1970, Ser. No. 5,208

Int. Cl. A47j 19/02

U.S. Cl. 100-211

3 Claims



A device for storing and dispensing fruit segments and for extracting juices therefrom by squeezing comprising two disk members dimensioned to have a common edge whereby each of the disk members is movable relative to the other about the common edge, a wall member fixed to one of the disk members opposite the common edge to form a closed wedge-shaped container, and means for releasably latching the disk members to secure a fruit segment there between.

3,636,871

APPARATUS FOR REMOTELY ROTATING A MARKING WHEEL ON A MARKING DEVICE

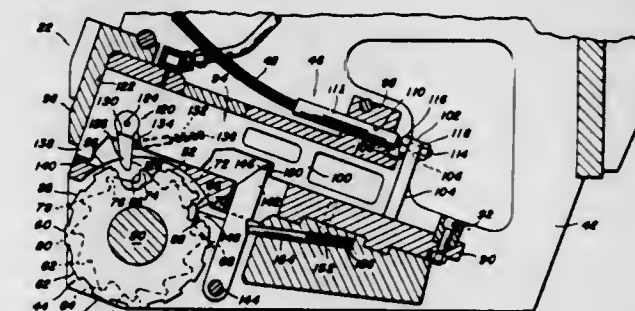
Edwin W. Speicher, Pittsburgh, Pa., assignor to M. E. Cunningham Company, Ingomar, Pa.

Filed Dec. 24, 1969, Ser. No. 887,809

Int. Cl. B41j 5/04, 7/34

U.S. Cl. 101-95

3 Claims



The characters on the periphery of a rotatable marking wheel are selectively rotated into marking position by a remotely controlled actuating mechanism. The marking wheel has a ratchet portion with a ratchet tooth for each character. The actuating mechanism includes a reciprocating slide with an actuating pawl pivotally connected thereto. For each forward stroke of the slide the actuating pawl engages a tooth and rotates the marking wheel and moves the adjacent character into marking position. A depending finger on the slide also moves into overlying relation with the adjacent tooth to prevent the wheel from rotating through too large an angle to move the adjacent character beyond the marking position. A centering and locking pawl is engaged by the slide on the reverse stroke and moved into engagement with another tooth on the ratchet to center the character in the marking position and maintain the wheel in that position.

3,636,872

RADIAL INTERLOCKING REFRACTORY TUYERE BLOCK

Roy E. Forcier, Fremont, Calif., assignor to International Minerals & Chemical Corporation

Filed Jan. 29, 1970, Ser. No. 6,667

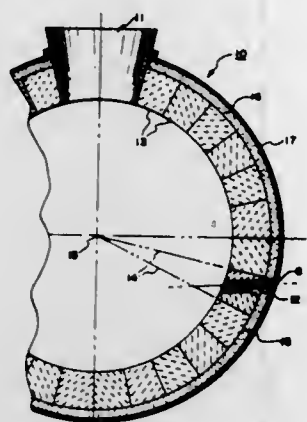
Int. Cl. F23i 5/00

U.S. Cl. 110-182.5

10 Claims

A two section refractory block for lining a horizontal cylindrical furnace, such as a copper converter, one section con-

taining a nonradial tuyere for said converter. The two sections of the block are held in abutting relationship to form a boundary extending from the inner radial wall of the converter to an outer radial wall. The sections are restrained



against relative radial movement by providing a depression in the boundary surface of the tuyere containing section and a complementary protuberance in the boundary surface of the other section.

3,636,873

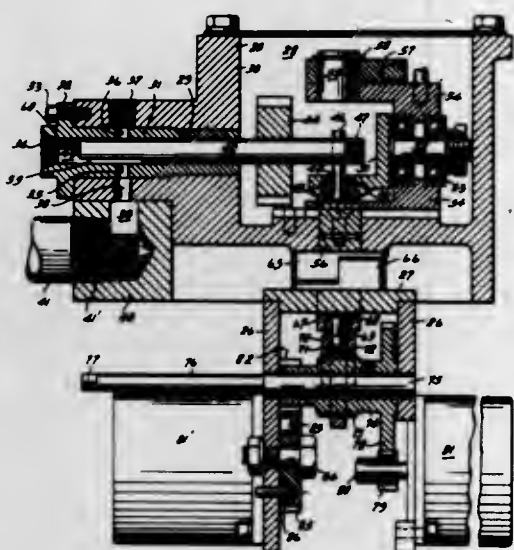
INKING PUMP MECHANISM FOR PRINTING MACHINES

Ralph L. Fusco, Commack, N.Y., assignor to Wood Industries, Inc., Plainfield, N.J.

Continuation-in-part of application Ser. No. 701,631, Jan. 30, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 431,130, Feb. 8, 1965, now Patent No. 3,366,051. This application Feb. 27, 1969, Ser. No. 803,023 Int. Cl. B41f 31/08

U.S. Cl. 101-366

11 Claims



An inking mechanism for supplying ink, by means of a measuring pump, to the ink rail of a printing machine. The pumping mechanism having a piston plunger rotatively and reciprocally carried in a ported cylinder and connected at one end to a crank mechanism for imparting the reciprocal motion. The angle of the crank mechanism and thereby the stroke of the plunger which regulates the amount of ink being supplied, is controlled by an adjusting mechanism which is operated either manually or remotely by means of an indexing motor. The pumping mechanism is driven through shafts and gearing directly from the press drive and may be silenced during nonprinting operations by means of an electrical clutch arrangement.

3,636,874 METHOD AND MEANS FOR DISPERSING CHEMICAL AGENTS

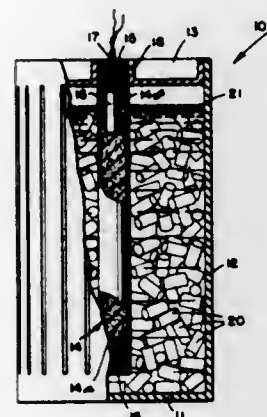
William A. Gey, and Armin T. Wiebke, both of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Mar. 31, 1965, Ser. No. 444,472

Int. Cl. F42b 13/14, 25/14

U.S. Cl. 102-6

3 Claims



In a device for dispersing liquid agents:

- a frangible charge;
- a burster charge;
- means mounting the burster charge within the casing near the center thereof;
- an electrical initiator mounted within said burster charge;
- electrical connecting means connected with said initiator and extending from said casing adapted to conduct an electrical current from a given source to said initiator for initiating an activation thereof;
- a plurality of open containers randomly disposed within said casing and grouped about said burster charge in a self-supporting group in a manner such that a plurality of voids are established between said containers in communication with the interior thereof;
- a preselected liquid agent filling said casing and containers;
- and
- means sealing said casing to provide a sealed liquid agent disseminator.

3,636,875

SHAPED CHARGE DEVICES FOR WIRE CARRIERS

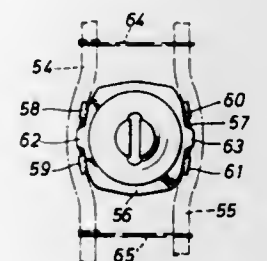
A. C. Dodson, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed June 29, 1970, Ser. No. 50,490

Int. Cl. F42b 3/08

U.S. Cl. 102-20

10 Claims



The particular embodiments described herein to illustrate the invention include encapsulated shaped charge devices having high-strength ceramic cases which are mounted on a wire carrier for movement into a well bore in which a per-

forating operation is to be conducted. As is typical, the wire carrier is comprised of a pair of paralleled rods or laterally spaced wire members respectively having spaced reversely curved portions and cooperatively arranged in relation to the other wire for defining a series of enlarged openings along the carrier which are respectively adapted for receiving an encapsulated shaped charge. To secure the shaped charges to the wire carrier, a lead band arranged around each charge case is provided with a pair of outstanding lugs respectively projecting outwardly from each side of the case and adapted to engage only a small portion of the rear face of each of the two carrier wires. In one embodiment of the invention, the forward faces of the two carrier wires are engaged against the rear of a circumferential flange formed around the ceramic case. In an alternative embodiment of the invention, one or more outstanding lugs are formed on each side of the lead band and spaced forwardly of the first-mentioned single lugs a distance corresponding generally to the thickness of the carrier wires. In either situation, upon detonation of the shaped charges, the lead bands will protect the carrier wires from laterally directed explosive forces and, by virtue of having only the single outstanding lugs in engagement with the rear face of each carrier wire, these rearward outstanding lugs will readily fail so as to prevent the forwardly directed explosive forces from twisting the carrier wires about their respective longitudinal axes which otherwise frequently causes failure of the wires at one or more points along their lengths.

3,636,876

METHOD AND APPARATUS FOR INSTALLING PIPE NIPPLE

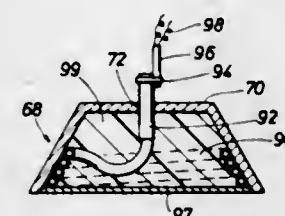
Richard V. Evans, Gretna; Virgil Williams, Jr., Mandevilla, and Max A. W. Reher, Gretna, all of La., assignors to Dick Evans, Inc., Harvey, La.

Original application May 12, 1967, Ser. No. 638,077, now Patent No. 3,492,824. Divided and this application May 8, 1969, Ser. No. 824,387

Int. Cl. F42b 1/00

U.S. Cl. 102-24

8 Claims



Methods and apparatus for installing a pipe nipple in the wall of a submerged casing in a fluidtight manner. The casing is tapped by cutting a hole in its wall sufficient that the nipple can be slidably inserted therein. An explosive charge of predetermined magnitude is detonated in the nipple and opposite the casing wall so as to expand the nipple in the hole.

3,636,877

ANTISUBMARINE MISSILE

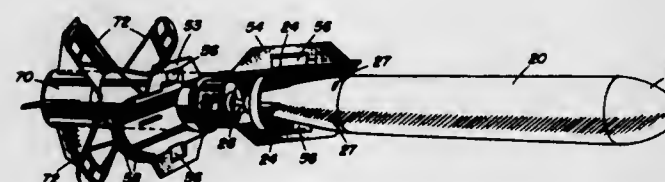
Alvin R. Eaton, Jr., Norbeck, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed June 2, 1964, Ser. No. 372,127

Int. Cl. F42b 17/00

U.S. Cl. 102-49.5

3 Claims



1. In an underwater missile that is launched from a conventional missile launcher with a conventional booster and un-

derwater weapon attached thereto, wherein this improvement comprises an adapter for said underwater weapon comprising the combination of:

- a clamshell section provided with external fins and having forward attachment means for attachment to said underwater weapon, said external fins providing stability to the weapon during flight;
- said clamshell section being formed in two halves, each half of said section being adapted to receive one-half of the tail section of the weapon employed;
- an aft section provided with additional external fins and having coupling means for connecting said aft section to said clamshell section, deceleration means and retaining means for said deceleration means, said additional external fins providing additional control and stability to said weapon during both the powered and the deceleration phases of the flight;
- said deceleration means comprises a plurality of drag brakes attached to said aft section and kept in a closed position by said retaining means, releasing means for releasing said retaining means and restraining means for limiting the rate and extent of opening of said drag brakes upon the operation of said releasing means;
- said clamshell section having separation means for separating the underwater weapon from said adapter after said deceleration means have reduced the velocity of both the adapter and the weapon to a predetermined value, whereby said weapon falls freely into the water in search of a target.

3,636,878

SAFETY GRENADE

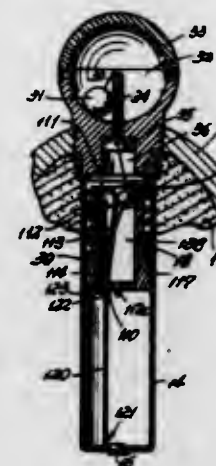
James P. Fay, 18 France St., Norwalk, Conn.

Filed Aug. 6, 1969, Ser. No. 847,852

Int. Cl. F42b 27/08

U.S. Cl. 102-64

11 Claims



A grenade having control means for arming the grenade in response to a predetermined free flight thereof and for firing an armed grenade in response to interruption of said free flight of the grenade, said control means having a safety time factor for preventing arming of the grenade in response to short periods of free flight. Means can also be provided for preventing unintentional operation of the grenade.

3,636,879

AIRBURST AND INERTIA IMPACT FUZE ASSEMBLY FOR MUNITIONS

David E. Benner, Webster, Ind., assignor to Avco Corporation, Richmond, Ind.

Filed Nov. 6, 1969, Ser. No. 874,526

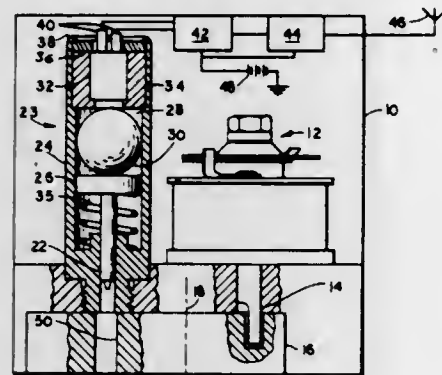
Int. Cl. F42b 5/08

U.S. Cl. 102-70.2 R

1 Claim

A fuze assembly for a bomb is shown. This assembly includes a firing device in which a squib is detonated within a

chamber to drive a firing pin against a detonator charge to detonate a bomb. The squib is exploded by any suitable means such as a proximity sensor to obtain an airburst explosion of the bomb.



An inertia ball, in the same chamber, causes the firing pin to strike the detonator charge upon impact of the bomb on a target, in the event the squib does not perform this function.

3,636,880

CONTROL APPARATUS

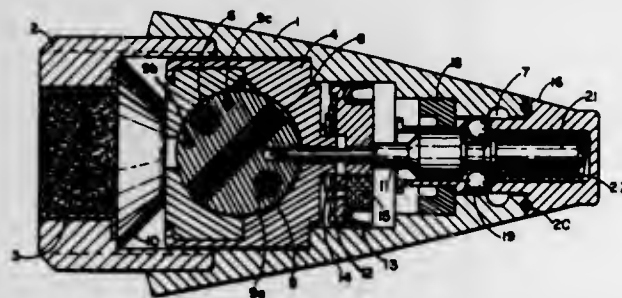
Robert L. Aske, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 13, 1968, Ser. No. 783,581

Int. Cl. F42c 15/04, 15/24, 15/26

U.S. Cl. 102-71 R

4 Claims



A velocity decay actuated self-destruct mechanism for use with stabilized projectiles. Dynamic pressure against a nose cap due to movement of the projectile through a fluid medium is balanced by spring pressure from within the ogive of the projectile. Movement of the nosepiece as the spring pressure overcomes the dynamic pressure causes self-destruct of the projectile.

3,636,881

GAS-GENERATING CHARGE

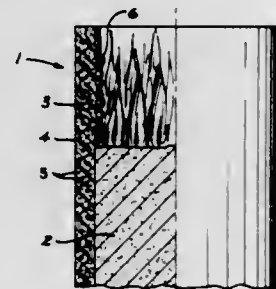
John N. Godfrey, Asheville, N.C., assignor to The Susquehanna Corporation

Filed July 25, 1966, Ser. No. 567,512

Int. Cl. F42b 1/00

U.S. Cl. 102-103

4 Claims



A shaped gas-generating charge comprising a solid, substantially oxidizer self-sufficient, gas-generating grain and a

combustion-restricting polymeric inhibitor containing a woven reinforcement and a vaporizable material to cool the polymeric inhibitor and to retard the decomposition of the inhibitor polymer to prevent the introduction of inhibitor decomposition products into the generated gas stream. Vaporizable material is present in the inhibitor in a concentration of from about 10 to about 50 percent by weight based on the total weight of the polymer and vaporizable material in the inhibitor.

3,636,882

DETERRENT COATING FOR PROPELLANT GRAINS

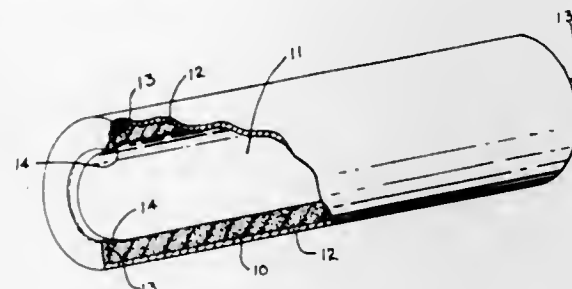
Henry A. Aaronson, Morris Plains; Frank R. Schwartz, Nutley, and Bernard Sukornick, Elizabeth, all of N.J., assignors to The United States of America as represented by the Secretary of the Army

Filed July 14, 1964, Ser. No. 383,270

Int. Cl. F42b 1/00

U.S. Cl. 102-104

4 Claims



1. A method of preparing progressive-burning, multiple-base propellants comprising tumbling grains of propellant having a perforation through the length of the grain with a powder mixture consisting essentially of about 65 percent copper resinate and about 35 percent lead naphthenate by weight and then applying heat to said grains and powder mixture during tumbling to soften said powder mixture sufficiently to form a continuous, adherent coating on said grains.

3,636,883

AUTOMATIC TRANSPORTATION SYSTEM WITH SELF-PROPELLED CARRIAGES

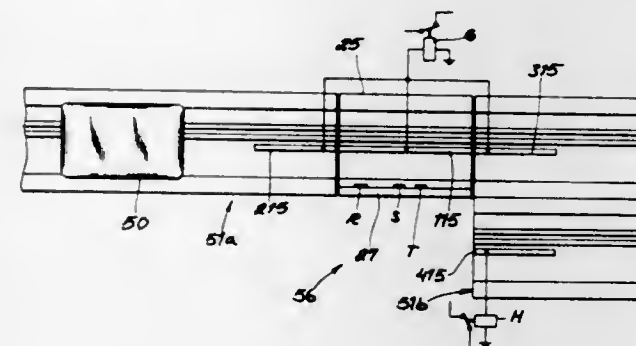
Erich Wesener, Munich-Laim, Germany, assignor to Buro Patent AG, Glarus, Switzerland

Continuation-in-part of application Ser. No. 626,197, Mar. 27, 1967, now Patent No. 3,502,038. This application Sept. 24, 1969, Ser. No. 860,699

Int. Cl. B61l 11/08

U.S. Cl. 104-50

6 Claims



Carriages driven by individual DC motors travel over a track with a pair of continuous main bus bars for energizing the motor and with an auxiliary bus bar extending along certain track sections where switching operations are to be carried out, this auxiliary bus bar being energizable from the two main bus bars with a predetermined polarity upon the passage of a carriage over such a track section. The carriage is subdivided into a wheeled frame riding on the rails of the

track and a swingable base carrying a traction wheel and contact brushes sliding along the bus bars, this base being spring loaded and weighted to maintain contact between the traction wheel and a cooperating track surface, as well as between the sliding brushes and the bus bars, even when the track is laid on a ceiling with the inverted carriages depending therefrom.

3,636,884

TOW PIN POSITION FOR FLOOR TRUCK TOW LINES

Shelden M. Kavleff, Farmington, Mich., assignor to Jervis B. Webb Company

Filed Jan. 20, 1966, Ser. No. 521,976

Int. Cl. B65g 17/42

U.S. Cl. 104-172 BT

20 Claims



A floor truck having a tow pin driven by a tow line pusher, and fixed front and rear bumpers enabling a driven truck to push a preceding nondriven truck. Interconnected front and rear tow pin positioning bumpers raise the tow pin by rearward and upward movement from a normal forward position when engaging a stop, or the rear positioning bumper of a preceding truck, so a bank of trucks may accumulate. A retaining device prevents return movement of the positioning bumpers and tow pin of any following truck until the tow pin of the leading truck in the bank is engaged by a pusher.

3,636,885

ANCHOR LINK

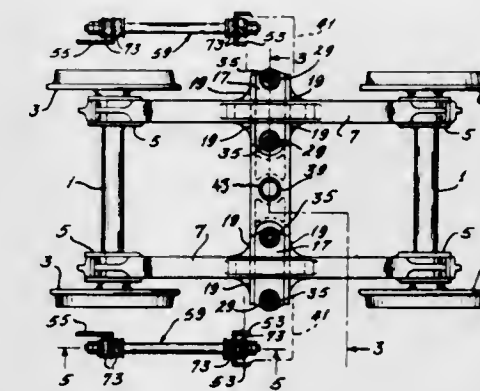
James B. Cunningham, Northwood, Mo., assignor to General Steel Industries, Inc., Granite City, Ill.

Original application Feb. 2, 1968, Ser. No. 702,576, now Patent No. 3,547,045, dated Dec. 15, 1970. Divided and this application July 30, 1970, Ser. No. 64,899

Int. Cl. B61f 5/08, 5/16; F16b 35/00

U.S. Cl. 105-157 A

3 Claims



A railway vehicle two-axle truck in which separate longitudinally extending side frames are supported at their ends on the axles, each side frame being formed at its center with transversely extending horizontal web structure wider than the side frame, a transverse transom resiliently connected at its ends to each transverse web structure at points spaced apart transversely of the truck, a transverse bolster pivotally related to the transom at the center of the truck and supported on the side frames by resilient side bearings, upright springs at the ends of the bolster for supporting a vehicle body, and means for transmitting tractive and braking forces from the bolster to the vehicle body. The last named means

preferably comprises longitudinally extending improved bolster anchor links each connected at one end to an end of the bolster and at the other end to the vehicle body.

3,636,886

HIGH-SPEED RAILWAY VEHICLE SUSPENSION

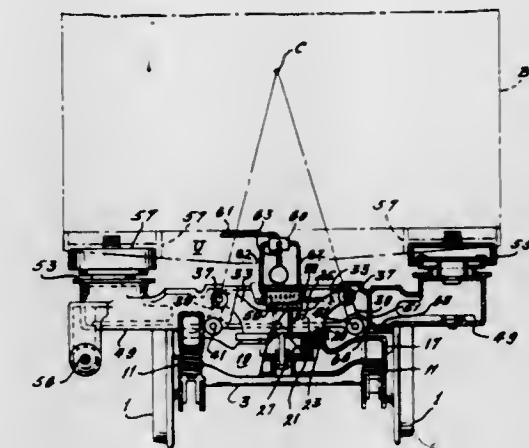
Richard L. Lich, Town and Country, Mo., assignor to General Steel Industries, Inc., St. Louis, Mo.

Filed June 11, 1970, Ser. No. 45,312

Int. Cl. B60g 21/06

U.S. Cl. 105-164

17 Claims



A suspension is provided for railway passenger cars, to enable such cars to round curves at extremely high speeds without undue discomfort to passengers by providing power means for tilting the car body transversely about a longitudinal axis at a high level, well within the car body, the angle of tilt being responsive to car speed and track curvature. The suspension comprises a yoke mounted on wheel supported truck framing to swivel about a vertical axis and spring support means supported from the yoke by transversely swingable hangers inclined such that their projections intersect at the desired axis of tilt of the car, the body of which is supported on high and widely spaced springs seated on the spring support means and arranged to provide vertical and lateral cushioning independently of the tilting. Transverse movements of the spring support structure on the yoke and consequent tilting of the spring support structure and the car body are effected by transversely acting power means mounted between the yoke and the spring support structure. In a modified form of the invention, the yoke supports separate spring support elements at each of its ends by transversely spaced upwardly converging swing hangers, and transversely acting power means is connected to the yoke and both spring seats to cause the latter to move transversely and tilt correspondingly about the axis of their convergence, thereby causing corresponding tilting of the vehicle body.

3,636,887

LOAD-DIVIDING GATE SUSPENSION WITH SAFETY MECHANISM

Marion G. Konrad, Hacienda Heights; John W. Erickson, Huntington Beach, and Frank Burnett, Costa Mesa, all of Calif., assignors to Preco, Inc., Los Angeles, Calif.

Filed Aug. 6, 1970, Ser. No. 61,604

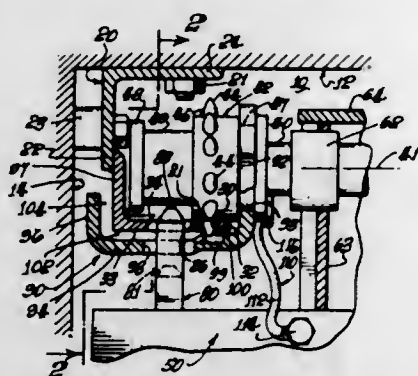
Int. Cl. B61d 45/00; B60p 7/14

U.S. Cl. 105-376

2 Claims

The present safety mechanism comprises a member journaled at each end of the squaring shaft of a gate suspension mechanism, extending generally horizontally below the supporting rail and then extending upward in spaced relation outward of the supporting rail. Such a member retains the defining sprocket in supported relation to the rail despite

failure of sprocket teeth. The member is preferably journaled and yieldably projecting from the socket of one pallet into the corresponding socket of an adjoining pallet.

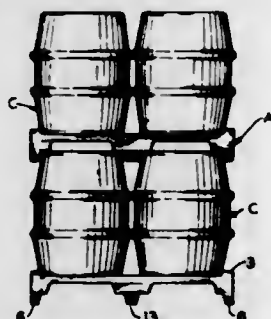


linkage to the gate structure. The gate structure is then supported despite failure of the shaft.

3,636,888 PALLET

John A. Angelbeck, Jr., Chesterfield, Mo., assignor to Pack-Rite Packaging & Crating Co., Inc.
Continuation-in-part of application Ser. No. 819,130, Apr. 25, 1969, now Patent No. 3,563,184. This application May 4, 1970, Ser. No. 34,096
Int. Cl. B65d 19/18

U.S. Cl. 108—51



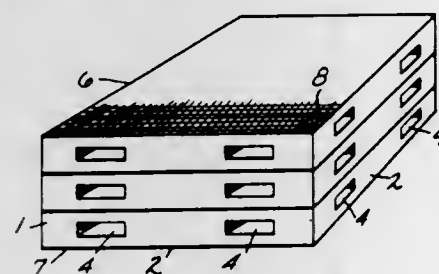
A pallet used for the storage and transporting of containers such as beer kegs and the like. The pallet is formed as a unitary plastic member in a rotational molding operation and includes a pair of spaced outer skins which are internally connected by a plurality of properly spaced webs for internal strength. The skins also have a plurality of strategically located apertures which extend through each of the skins. The pallet has a plurality of downwardly extending shoulders for engagement with containers on its underface and is also provided with supporting areas on its upwardly presented surface for removably supporting a plurality of like containers.

3,636,889 PALLET

Robert T. Mangold, Erie, Pa., assignor to Nosco Plastics, Incorporated, Erie, Pa.
Filed May 19, 1970, Ser. No. 38,773
Int. Cl. B65d 19/18

U.S. Cl. 108—53

1 Claim



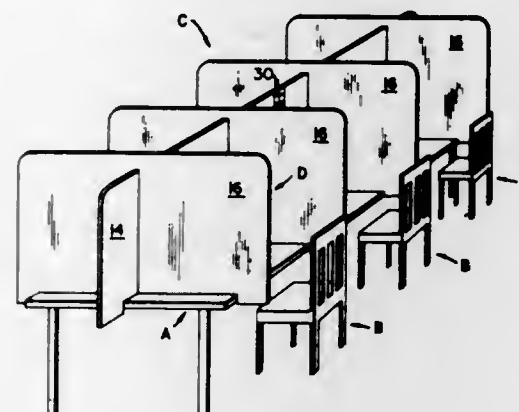
Stacked empty pallets having registering sockets in adjoining surfaces are interlocked by latch members carried by yieldable arms extending from the midsections of the sockets

3,636,890 PORTABLE CARREL CONSTRUCTION

Charles A. Huff, 699 Ashton Ave., Palo Alto, Calif.
Filed Sept. 8, 1969, Ser. No. 855,874
Int. Cl. A47b 41/02

U.S. Cl. 108—60

4 Claims



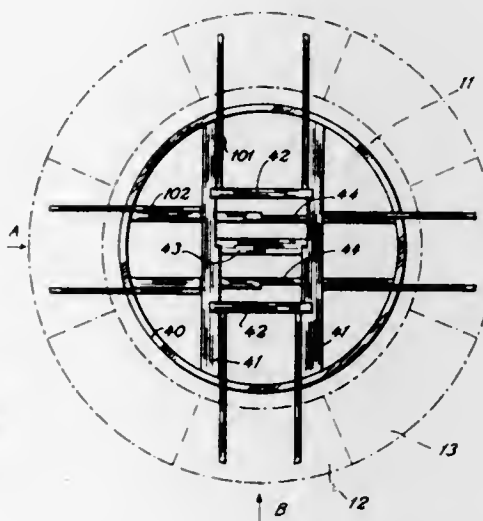
A portable carrel construction consisting of a plurality of longitudinal and transverse crossing opaque barriers is adapted for removable attachment to the upward surface of a table. When a student occupies a chair pulled to the side edge of the table between the crossing barriers, the spatial volume immediate the barriers and above the table is isolated into an individual study space which is insulated from ambient classroom distraction.

3,636,891 TABLE WITH EXTENSIONS

Henry Filso Bertelsen, 6933 Kibæk, Denmark
Filed Sept. 9, 1969, Ser. No. 856,362
Claims priority, application Denmark, Sept. 9, 1968, 4311/68
Int. Cl. A47b 1/00

U.S. Cl. 108—66

3 Claims



The table is made with a solid undivided table top and is provided with leaves which are to be arranged peripherally of the tabletop. The leaves are of the draw-type and are contained under the main tabletop. Slidable bars are disposed under the main tabletop for sliding out to support the leaves. The leaves can be formed so as to fold over on themselves about a hinged joint.

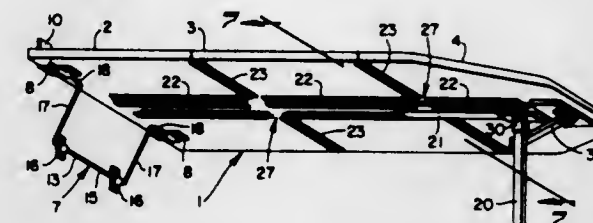
This invention relates to a table having an undivided tabletop with extensions of the draw-table-type.

3,636,892 CONVERTIBLE TABLE

Thomas W. Linton, Bellville, Ohio, assignor to The Snyder Trailer Company, Butler, Ohio
Filed Aug. 8, 1969, Ser. No. 848,438
Int. Cl. A47b 1/04

U.S. Cl. 108—79

5 Claims



Convertible table comprises two or more table sections hinged together and having a main support leg freely slidable in guide tracks along the underneath side of the table from one table section to another for supporting the table either in the fully extended position or with one or more table sections folded downwardly in dropleaf position.

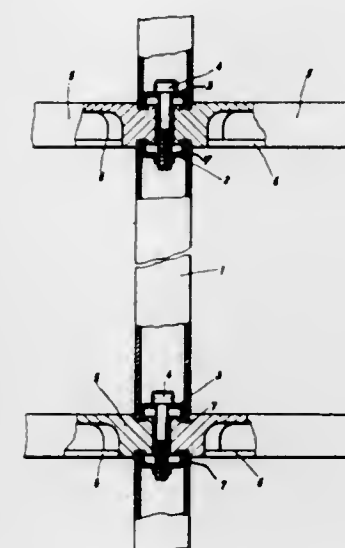
3,636,893 FREE-STANDING HOUSEHOLD SHELF ARRANGEMENT

Joachim Lange, Karlsruhe-Waldstadt, Germany, assignor to Karl Kubel Gesellschaft mit beschränkter Haftung, Worms, Germany
Filed Mar. 30, 1970, Ser. No. 23,594
Claims priority, application Germany, July 8, 1969, G 69 26 906.3

Int. Cl. A47b 3/00

U.S. Cl. 108—111

6 Claims



A free-standing household shelf arrangement which includes a plurality of supporting columns arranged vertically and in horizontally spaced relationship to each other each of which comprises hollow individual supports having their ends provided with closure caps while each two adjacent closure caps have interposed therewith shelf means which are connected to the supports by connecting members invisible from the outside.

3,636,894 TABLE CONSTRUCTION

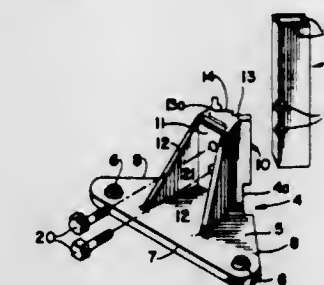
Carl H. Hage, Youngstown, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio
Filed Sept. 18, 1970, Ser. No. 73,513
Int. Cl. A47b 3/06

U.S. Cl. 108—156

12 Claims

A furniture structure of the type having a horizontal planar surface supported by a plurality of legs which are bounded by

skirt sections includes a mounting bracket at each corner defining a vertical channel below the planar surface adapted



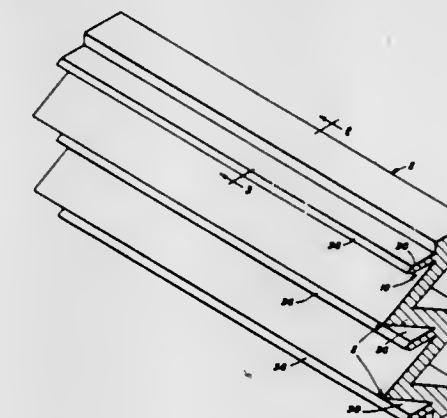
to mate with two sidewalls of a tubular leg. Mating fastener means carried by the bracket and interior of the leg provide means to removably attach each leg.

3,636,895 ARMOR STRUCTURE

Ronald A. Kelsey, New Kensington, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Sept. 19, 1969, Ser. No. 859,395
Int. Cl. F411 5/16

U.S. Cl. 109—78

8 Claims



A substantially rigid armor wall element having an impact surface provided with alternate peaks and valleys. The peaks are generally parallel to each other and taper outwardly in a first transverse direction. The valleys are generally parallel to each other and open in a first transverse direction. Reinforcing means for resisting projectile penetration of the armor element by providing improved resistance at the peaks and valleys. The reinforcing means may be integrally formed or independent elements secured to the wall element. The peaks and valleys preferably include an angle of about 40° to 100°. A wall structure formed from these armor elements by joinder, as by welding, at the abutting marginal edges of complementary configuration.

3,636,896 SOLID FUEL COMBUSTION APPARATUS

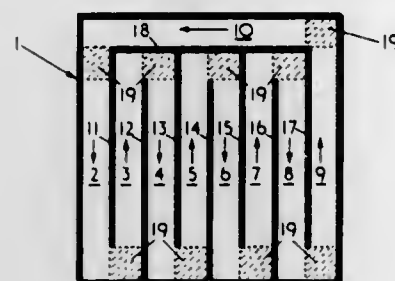
James McLaren, Gotherington, near Cheltenham, and Walter Harris, Carlton, both of England, assignors to Coal Industry (Patents) Limited, London, England
Filed May 12, 1970, Ser. No. 36,647
Claims priority, application Great Britain, May 16, 1969, 25,013/69
Int. Cl. F23g 5/00

U.S. Cl. 110—8 R

19 Claims

Combustion apparatus for burning solid fuel in particulate or divided form includes a plurality of air-permeable floor elements e.g., trays or membranes arranged within a housing. Each element is provided for supporting a fluidized bed of the solid fuel and in one form is inclined to assist the passage of material along the element. In another form of apparatus each element is horizontal and the passage of material along

the tray is effected by the buildup of a hydraulic gradient between the feed end and the discharge end of each element. Gas-operated means are located adjacent the discharge end of one element and to feed end of an adjacent element, and



are provided for transferring solid material from one element to an adjacent element. The elements may be in side-by-side relationship or they may be arranged one above the other, adjacent trays being either oppositely inclined relative to one another or horizontal and mutually parallel.

3,636,897

APPARATUS FOR PRECISION PLANTING

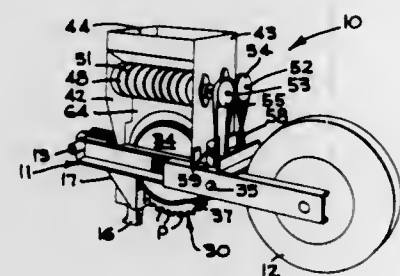
Edwin H. Brink, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 6, 1969, Ser. No. 797,061

Int. Cl. A01c 7/16; B65h 5/00

U.S. Cl. 111-77

6 Claims



Seeds confined within cylindrical-shaped capsules are planted by opening a furrow in soil, retaining each side of the furrow in an upstanding position, depositing on the bottom of the furrow a seed capsule standing on its circumferential surface with both end surfaces aligned in vertical planes extending lengthwise of the furrow, and releasing both sides of the furrow to slide inward and engage the end surfaces of the seed capsule. Seed capsules are planted in such a manner by a planter that includes an earth traversing frame, a plow suspended from the frame for opening a furrow in soil, a pair of sidewalls extending rearwardly from the plow for retaining each side of the furrow in an upstanding position and defining a chute therebetween through which a seed capsule can be deposited on the bottom of the furrow, means for inserting seed capsules into said chute at intervals in relationship to ground movement of the planter to provide precise spacing between capsules at the bottom of the furrow, and means for orienting and feeding seed capsules to said capsule inserting means.

3,636,898

EDGE CONTOUR GUIDANCE CONTROL FOR PIECES OF MATERIAL

William R. Conner, Jr., Shelbyville, Tenn., assignor to Kellwood Company, St. Louis, Mo.

Filed June 18, 1968, Ser. No. 738,036

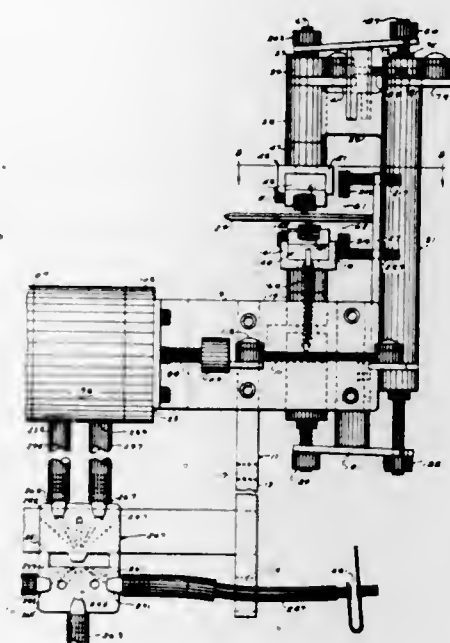
Int. Cl. D05b 27/00

U.S. Cl. 112-203

25 Claims

Apparatus for automatically guiding material being fed through a sewing machine to effect contour stitching of the material, whatever its edge contour. The material is auto-

matically shifted laterally to effect contour stitching in response to pneumatic sensing of the position of the edge of the material at any instant relative to the needle of the sewing machine. A first embodiment of the apparatus is for contour seaming of two pieces of material, which may have dif-



ferent edge contours, in which two pneumatic sensors are provided, one for each piece of material, and in which each piece of material is automatically shifted laterally in accordance with its edge contour. A second embodiment of the invention is for overstitching an edge of one piece of material, having a single pneumatic sensor.

3,636,899

TOP FEED MECHANISM FOR OVEREDGE SEWING MACHINE

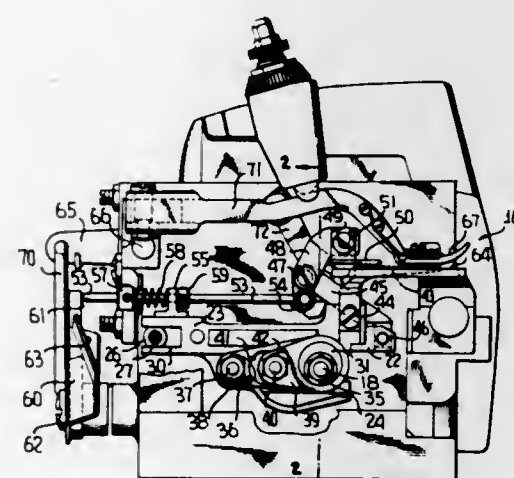
Larry Dean Crisler, Philadelphia, Pa., assignor to Union Special Machine Company, Chicago, Ill.

Filed Mar. 6, 1970, Ser. No. 17,088

Int. Cl. D05b 27/06

U.S. Cl. 112-207

18 Claims



This disclosure relates to a top feed mechanism for an overedge sewing machine in which a top feed dog is articulately mounted upon a top feed bar to which feed and lift motions are transmitted by eccentrics. The top feed dog is carried by a pivotally mounted arm which is in turn connected to a slidably mounted rod above and generally in the plane of the top feed bar. Biasing means normally urge the rod in a direction tending to move the feed dog toward its fabric engaging position. Cam means carried by a rotatable plate are provided for moving the rod against the biasing force of the spring to pivot the arm and the feed dog carried thereby to an out-of-the-way position. Lifting motion is im-

parted to the top feed bar and a main feed bar by eccentrics which are generally 180° out of phase whereby the feed dogs move toward each other to grip fabric therebetween during the feed cycle and move away from each other to release fabric incident to the return cycle of the mechanism.

3,636,900

CONTROL DEVICE FOR THE WORK FEEDING MECHANISM OF A SEWING MACHINE

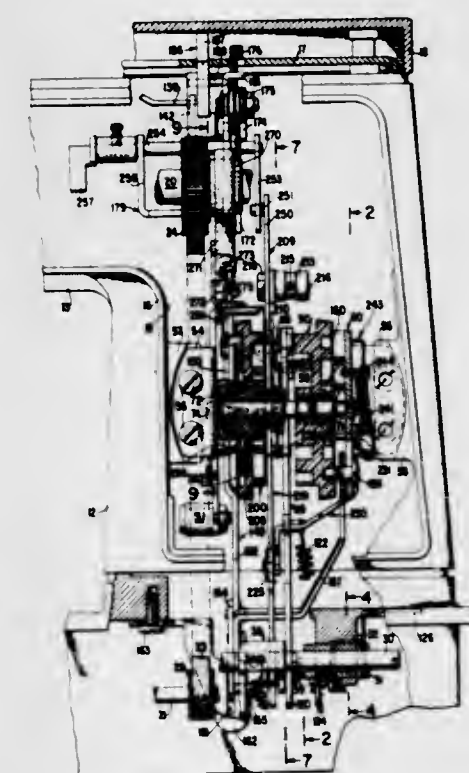
Frederick Rogers, Union, N.J.; Robert Bradus, Brooklyn, N.Y., and Joseph J. Winar, Roselle, N.J., assignors to The Singer Company, New York, N.Y.

Filed Aug. 24, 1970, Ser. No. 66,329

Int. Cl. D05b 27/00

U.S. Cl. 112-210

5 Claims



A control device for the work feeding mechanism of a sewing machine in which any one of three separate linkages may selectively be coupled to the feed regulating means of the sewing machine. The three linkages, for manual feed control, pattern cam influence of work feed, and automatic group stitching such as buttonholing, while organized in a compact subassembly are distinct and individually tailored each to satisfy its own special requirements.

3,636,901

NEEDLE-POSITIONING ATTACHMENT FOR A SEWING MACHINE

Nigel Sturges, Chatham, and Leonard Charles Nutton, Rochester, both of England, assignors to Sewprima Limited, Brompton, Gillingham, Kent, England

Filed Feb. 24, 1970, Ser. No. 13,657

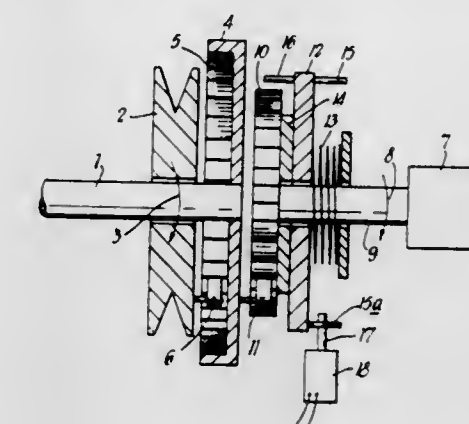
Claims priority, application Great Britain, Oct. 29, 1969, 52,949/69

Int. Cl. D05b 69/22

U.S. Cl. 112-219 A

3 Claims

A needle-positioning attachment for a sewing machine having a main drive spindle for reciprocating a needle, including a main drive wheel connected to the main drive spindle for rotation in one sense with overrun, a secondary drive motor continuously driving a secondary drive spindle which, through coupling means, drives the main drive wheel; and a



selector device which is operatively at rest whereby the secondary drive spindle rotates within said device and drives

the main drive wheel to a stop position when the drive from the main drive motor ceases.

3,636,902

CONTROL DEVICE FOR THE OPERATION OF A SEWING MACHINE

Toru Matsubara; Tadashi Kozuka; Hiroaki Shinomiya, and Noritoshi Aoyama, all of Tokyo, Japan, assignors to Tokyo Juki Kogyo Kabushiki Kaisha

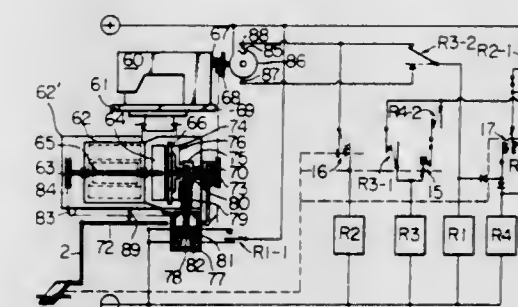
Filed Dec. 29, 1969, Ser. No. 888,492

Claims priority, application Japan, June 19, 1969, 44/48726

Int. Cl. D05b 69/22

U.S. Cl. 112-219 A

4 Claims



A control device for the operation of a sewing machine comprising in combination a sewing machine for carrying out a sewing cycle; an electric driving device for electrical connecting to and disconnecting from said sewing machine; a manual control device having an inoperative position and different operative positions for controlling said driving device so as to drive and stop said sewing machine; and an electric stop device connected to said driving and control devices for selectively stopping a sewing machine needle at a predetermined upper or lower point.

3,636,903

RECTANGULAR-DUCT FORMING MACHINE

Leroy E. Anderson, and Gerald J. Munn, both of Detroit Lakes, Minn., assignors to Snappy, Inc., Detroit Lakes, Minn.

Filed Feb. 19, 1970, Ser. No. 12,663

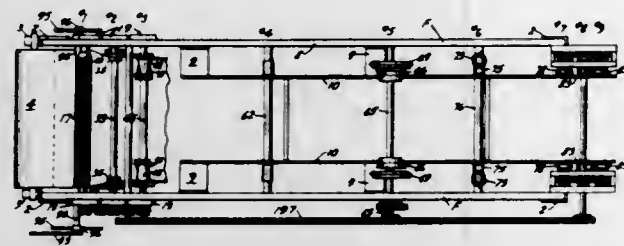
Int. Cl. B21d 39/02

U.S. Cl. 113-54

32 Claims

A machine designed to continuously progress a pair of elongated flat sheets of metal longitudinally through a plurality of cooperative dies which progressively in sequential steps gradually shape the two sheets into a duct having a rectangular cross-sectional configuration. The machine utilizes cooperative rotary dies to shape and form the duct in a continuous operation to a length equal to that of the sheets so that rectangular ducts of any desired length can be

produced in an automatic operation by merely inserting into the machine a preprepared roll comprised of a pair of sheets



of metal of the desired length, the sheets entering the machine at one end and leaving the same at the other end in the form of a continuous rectangular duct.

3,636,904

ICEBREAKER EQUIPMENT FOR SHIPS

Charles Blanchet, Grenoble, France, assignor to Societe Grenoble d'Etudes et d'Applications Hydrauliques, (SOGREAH), Grenoble, France

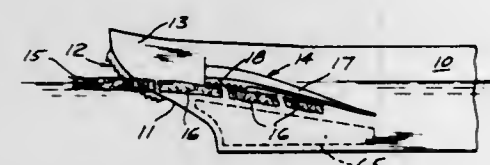
Filed Jan. 14, 1970, Ser. No. 2,893

Claims priority, application France, Jan. 17, 1969, 6900922

Int. Cl. B63b 35/08

U.S. Cl. 114-41

7 Claims



The icebreaker ship herein disclosed has means for cutting a slit in an ice layer mounted on its prow forwardly of the ship's stempost, and set back from such cutting means, are means enabling the ship to bear its weight down on the slit portion of the ice layer so as to break the latter into pieces of ice. Located rearwardly of the bearing means are guiding means for immersing the ice pieces below the ice layer and coacting with the sides of the ship's prow to force the immersed ice pieces laterally so that they are pushed beneath the ice layer.

3,636,905

WINCHING SYSTEM FOR WATERBORNE VESSELS

John Hart Wilson, deceased, Late of Wichita Falls, Tex.; Evelyn Wilson Egan; J. N. Sherrill, Jr., both of Wichita Falls, and Virginia Wilson Hulver, Houston, executors, all of Tex. Continuation-in-part of application Ser. No. 677,520, Oct. 24, 1967, now Patent No. 3,552,344, dated Jan. 5, 1971. This application Mar. 31, 1970, Ser. No. 24,178

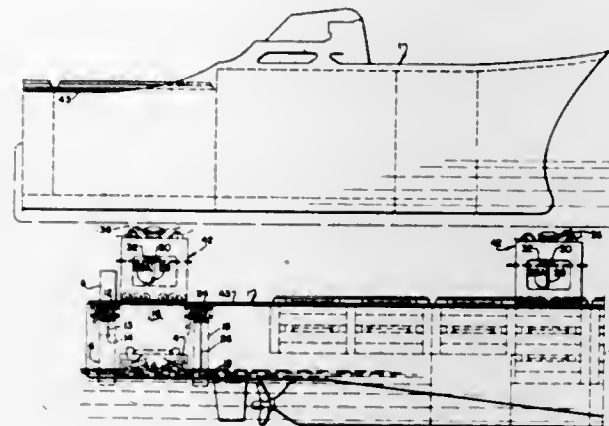
Int. Cl. B63b 35/44

U.S. Cl. 114-43.5

10 Claims

A winching arrangement for lifting barges and the like from a water area in which a waterborne vessel is located. The present winching arrangement comprises at least two pairs of winches, each pair of which winches utilizes a common line to operate a block and tackle arrangement, with one of the winching mechanisms of each pair of winches being driven by a relatively high-speed motor and the other winch of the winching mechanism being driven at a relatively slow speed by a high-torque motor of greater horsepower. With the winches being connected to opposite ends of the common line of the block and tackle arrangement, with at least one pair of winches lifting one end of a barge or the like and another pair of winches lifting the other end of the barge or the like. The winches and the controls therefor, are so constructed that, as the waves or swells rise and cause the barge to rise faster than the ship or vessel on which the winching arrangement is located, the high-speed winches will

take up the slack in the line as the barges are being lifted by the waves or swells and the slow-speed, high-torque motors will lift the barge onto the vessel as the waves or swells recede. The high-speed winching mechanism is held against retrogression by a one-way, releasable brake or the like, and the high-torque, slow-speed motor will continue to wind the winch line onto a winch drum until the barge or the like is at



sufficient elevation that it may be moved into place or placed in storage, whereupon, the barge or the like is lowered into position on the vessel and this is repeated until the waterborne vessel is loaded. Reverse provisions are made for lowering the barges from the winch mechanisms into the water. Controls are provided for sensing the tension of the cable which controls the particular winch being operated.

3,636,906

HYDROGLYDER

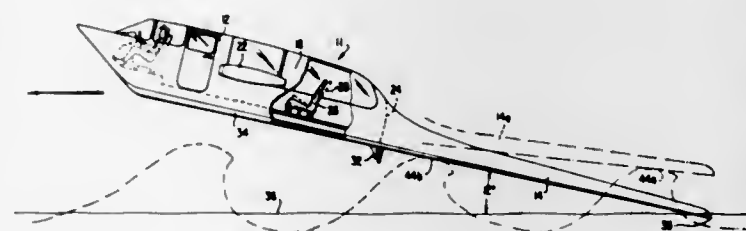
Carl Frank Wray, 10033 Hull St. Road, Richmond, Va.

Filed May 11, 1970, Ser. No. 36,023

Int. Cl. B63b 1/18

U.S. Cl. 114-66.5 R

22 Claims



A rough-water craft having a cabin and a long rigid tail is disclosed. Aerodynamic wings attached to the cabin lift the cabin out of contact with the water's surface but the rear tip of the tail maintains contact with the water's surface and skims therealong. The tailboom is streamlined. Flaps maintain the craft at a 12° attitude when it is in operation. Selectively adjustable cargo carriers hold the cargo level when the craft's attitude is not level.

3,636,907

HYDRACUSHION BOAT

Francis M. Scarritt, Sr., 1338 Park St. North, Saint Petersburg, Fla.

Filed Mar. 16, 1970, Ser. No. 19,824

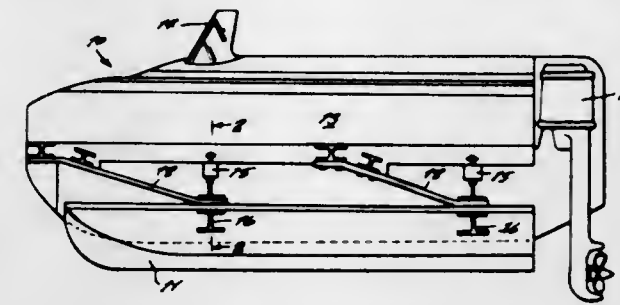
Int. Cl. B63b 1/18

U.S. Cl. 114-66.5 R

3 Claims

A water craft comprising a boat for small travel in rough water, the boat incorporating fiberglass springs for absorbing

the impact of wave action, the fiberglass springs being directly attached at one end to a float and the other end to a



main subhull, and the boat including a special built recoil shock absorber for rebound control.

3,636,908

MOBILE DOCK FOR SMALL CRAFT

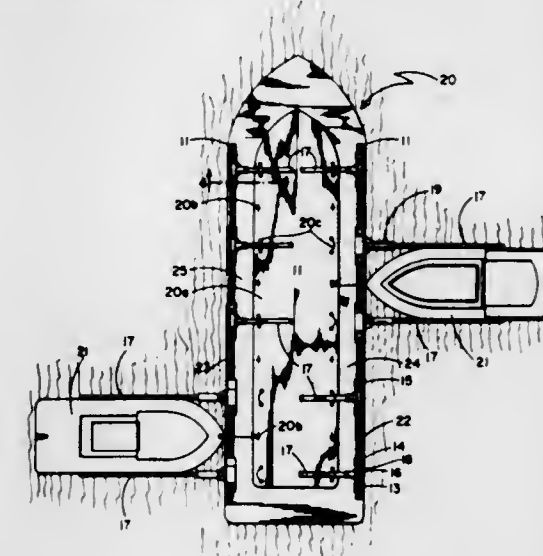
Albert Feldman, 4 Upton Road, and Robert Feldman, 7 Laris Road, both of Framingham, Mass.

Filed July 29, 1969, Ser. No. 845,759

Int. Cl. B63b 21/00

U.S. Cl. 114-230

1 Claim



A mobile dock for small craft is described, comprising a ship whose hull has relatively straight and low sides and at least one substantially flat side deck. A track is mounted on the deck to hold movable assemblies. Each assembly has an elongated pole member pivotally movable in a transverse plane. A pair of pole members when extended out horizontally from the deck hold the hull of a small craft.

3,636,909

MARINE POWER TRANSMISSION

Carl I. Benson, Jr., Westwood, Mass., assignor to Paragon Gears Incorporated, Taunton, Mass.

Filed Oct. 7, 1970, Ser. No. 78,850

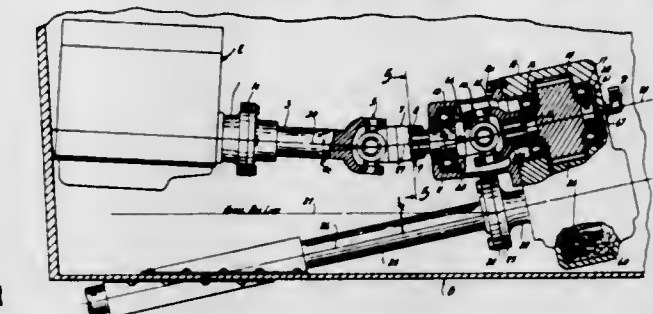
Int. Cl. B63h 23/06

U.S. Cl. 115-34 R

10 Claims

A power transmission including universal joints for transmitting power between two shafts which are inclined to one another, such as between the shaft of the engine and the propeller shaft which extends at an angle from the engine shaft. The transmission includes a gear housing having an angled housing in which one of the universal joints is rotatably journaled and also includes another universal joint located outside of the angled housing. The universal joint which is located within the angled housing accommodates approximately one-half the angle between the engine shaft centerline

and the propeller shaft centerline. The second universal joint located externally of the housing accommodates the remaining angular displacement between the shafts and serves another function of acting as a flexible joint to compensate for small additional angular misalignment between the engine and the propeller shafts which may occur due to manufactur-



ing and installation tolerances, hull deflections, flexible engine mounts, etc.

A lubricating means including an impeller driven by the universal joint is located within the angular housing, which impeller forces oil through a conduit and to an antifriction bearing assembly to assure a flow of oil through the assembly and also good circulation in other parts of the transmission.

3,636,910

MARINE STEERING DEVICE FOR SHIPS EQUIPPED WITH TWO PROPELLERS

Teruo Tsuchiya, Tokyo, Japan, assignor to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan

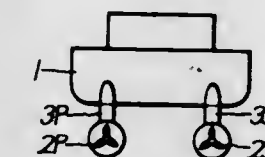
Filed Nov. 13, 1969, Ser. No. 876,340

Claims priority, application Japan, Nov. 22, 1968, 43/85921

Int. Cl. B63h 5/12

U.S. Cl. 115-35

2 Claims



A marine steering device for ships equipped with two propellers having at least one frictional coupling mechanism provided in association with shafts of steering handles for coupling the handles to control the rotation of the two propellers about their vertical shafts to control the ship's heading.

3,636,911

POWER DRIVEN AQUAPLANE

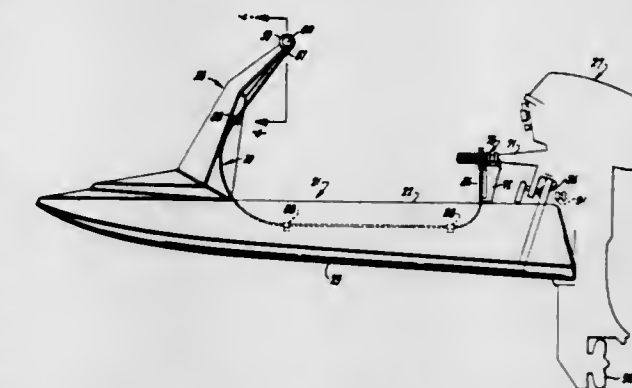
Joe E. Piazza, Pacifica, and Paul E. Nichols, Sunnyvale, both of Calif., assignors to Leisure Products Corporation, Menlo Park, Calif.

Filed Feb. 16, 1970, Ser. No. 11,574

Int. Cl. B63b 35/00

U.S. Cl. 115-70

10 Claims



A power driven aquaplane adapted for steering by body motion alone and having a transverse throttle bar mounted

above a forward portion of the plane or boat which is operable from either end to control the speed of an outboard motor mounted on a stern plate of the vehicle.

3,636,912

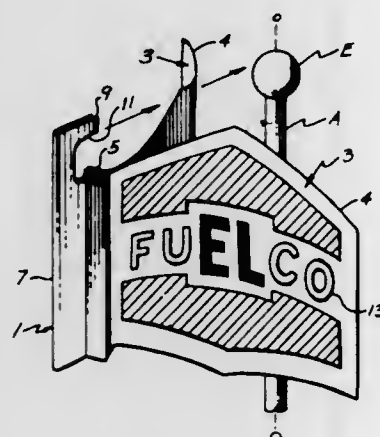
DEVICE FOR ATTACHMENT TO AN ELONGATED SUPPORT EXTENDING FROM A VEHICLE

Leonard F. Kamp, 766 Elmwood Terrace, Rochester, N.Y.
Filed May 6, 1970, Ser. No. 34,983

Int. Cl. B60q

U.S. Cl. 116—28

5 Claims



A device for attachment to an elongated support extending from a vehicle for indicating the location of the vehicle and for serving as an advertising medium, includes a rigid portion visible from all directions and a variety of types of elements for gripping the external surface of the support to secure the device thereto.

3,636,913

ROADSIDE MARKER EXTENSION

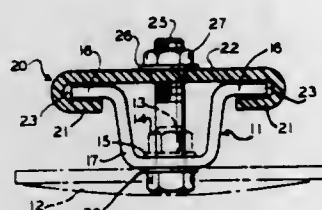
Peter Glavey O'Brien, 166 Parkside Ave., Syracuse, N.Y.

Filed July 2, 1970, Ser. No. 52,012

Int. Cl. G09f 7/18

U.S. Cl. 116—114 R

1 Claim



An extension member for roadside marker stakes is formed of an elongated strip of material with flanges bent over at either edge to form longitudinally extending grooves for receiving the transversely projecting flanges of the stakes. The extension member is slid telescopically down over the end of the stake and the extension is secured to the stake by a bolt through holes through the stake and member.

3,636,914

DIAL INDICATOR STOP

Kenneth O. Speed, Petaluma, Calif., assignor to Speed Gage & Tool Company, Petaluma, Calif.

Filed July 6, 1970, Ser. No. 52,185

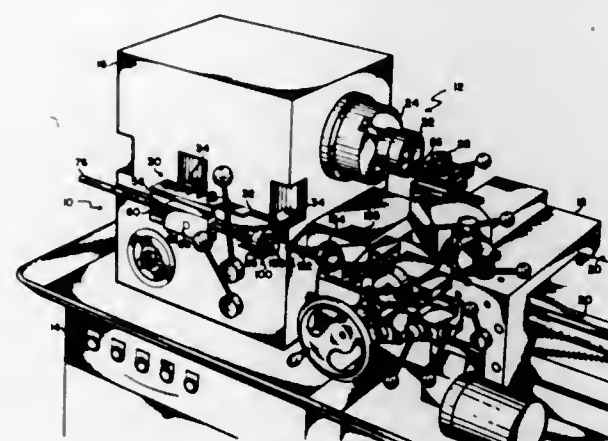
Int. Cl. B23q 17/00

U.S. Cl. 116—115.5

9 Claims

A dial indicator stop mechanism for use with machines such as lathes can be constructed utilizing two separate assemblies, either of which can be mounted upon a fixed part of such a machine and the other of which can be mounted on a movable part of such a machine. Preferably, the assembly utilized upon the fixed part of the machine such as the head-

stock of a lathe comprises a rod mounting member through which there projects a measuring rod. The rod mounting member and the rod are provided with coating detent means enabling the rod to be positioned in various positions relative to the rod mounting member. Preferably an end of the rod mounting member carries a turret which can be rotated so that a selected member on it is in the line of travel



of the second assembly of the complete indicator stop. This second assembly includes an indicator mount adapted to be attached to a movable part of the machine such as the carriage of the lathe and a known dial indicator mounted upon such a mount so that the actuating rod extending from the indicator will engage the member on the turret which is in the line of travel of the second assembly.

3,636,915

ROTARY PRISM DISPLAY

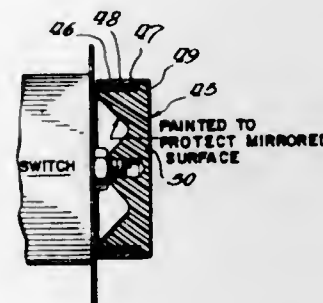
Albert L. Ruppert, Middleton, Wis., assignor to Oak Electro-Netics Corp., Crystal Lake, Ill.

Continuation-in-part of application Ser. No. 747,717, July 25, 1968. This application May 19, 1969, Ser. No. 825,898

Int. Cl. G09f 9/00

U.S. Cl. 116—124

6 Claims



A rotary display device using a transparent circular prism having a conical reflecting surface, an object surface and an image surface. Indicia is positioned adjacent the object surface and is visible at the image surface at least partially by the use of ambient light from the image surface.

3,636,916

COATING APPARATUS AND SYSTEM

Alfred J. Thelen; Nils H. Bergfelt, and Eugene A. Eufusia, all of Santa Rosa, Calif., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Mar. 14, 1966, Ser. No. 533,996

Int. Cl. B05c 11/00

U.S. Cl. 118—8

5 Claims

Coating apparatus having a chamber with means mounted in the chamber for carrying a plurality of substrates to be coated. First and second sources are disposed in the chamber and contain coating materials which can be evaporated to

produce vapor streams. Masking means is disposed between the first and second sources and the substrates for controlling the amount of each of the coating materials deposited by the vapor stream upon the substrates. The masking means includes a pair of masks and means for moving the pair of masks in accordance with a preprogrammed function so that a coating is deposited on the substrates which is comprised of a mixture of the coating materials having proportions related to the preprogrammed function. The means for moving the pair of masks includes first and second coaxially aligned

optic means for receiving light reflected from the material deposited on the substrate.

3,636,918

APPARATUS FOR TREATING A SURFACE OF A DOUBLE-FACED CORRUGATED UNIT

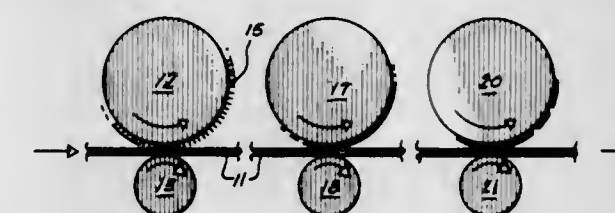
John P. Fletcher, East Grand Rapids, and Vern R. Kahler, Grandville, both of Mich., assignors to Packaging Corporation of America, Evanston, Ill.

Filed Nov. 24, 1969, Ser. No. 879,193

Int. Cl. B05c 11/12

U.S. Cl. 118—37

2 Claims



A method and apparatus are provided for treating one surface of a double-faced corrugated unit, such as fiberboard, so as to render the latter more responsive to vacuum pressures when said unit is as a substrate in combination with a heat-softened film during formation of a skin-pack-type package. In utilizing the instant method only one surface of the unit is perforated and then coated with a suitable material whereby the heat-softened film can be readily responsive to the vacuum pressures exerted on the unit and at the same time become securely bonded to the substrate. The perforating and coating steps are accomplished expeditiously during one pass of the unit through the apparatus.

3,636,919

APPARATUS FOR GROWING FILMS

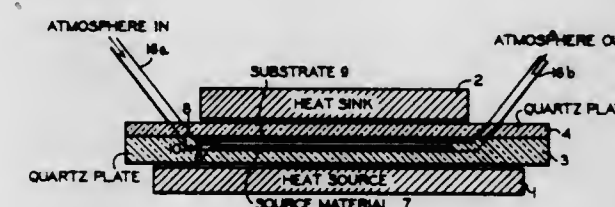
Carl O. Bozler, Columbus, Ohio, assignor to The Ohio State University, Columbus, Ohio

Filed Dec. 2, 1969, Ser. No. 881,512

Int. Cl. C23c 11/00

U.S. Cl. 118—48

4 Claims



Vapor deposition apparatus has a closed chamber formed by a first platelike member having a recess to receive evaporant source material and a shoulder in the top surface thereof to support a substrate closely spaced from said source material and with the substrate back surface generally flush with said top surface. A second plate member overlies said top and back surfaces and in sealing relationship therewith. Means communicate said space with a gaseous medium.

3,636,920

GLUE-DOBBING AND TRAY-FORMING METHOD AND APPARATUS

Paul F. Bowman, 500 Northern Parkway, Ridgewood, N.J.

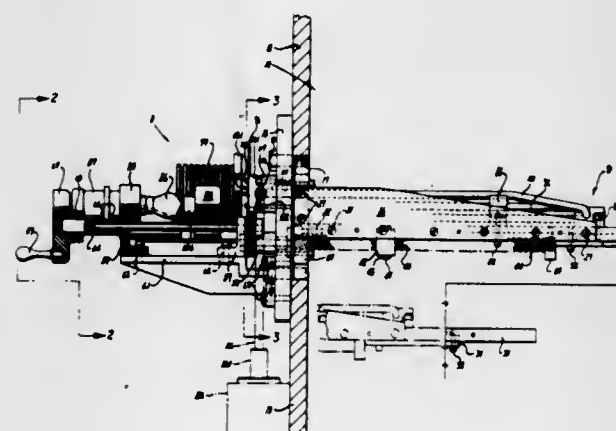
Filed June 12, 1969, Ser. No. 832,782

Int. Cl. B05c 1/02, 11/10

U.S. Cl. 118—243

6 Claims

Optical-monitoring apparatus utilizing fiber optics for use with a chamber to monitor material being evaporated from a source having an aperture plate through which vapors being evaporated can be evaporated onto a substrate with fiber optic means for supplying light to the substrate and fiber



forming the glued blank into a carton are provided. The glue-dobbing apparatus is comprised of a glue tank which feeds glue intermittently through a solenoid valve to a glue fountain. One surface of the glue fountain is comprised of a resilient sponge which receives the glue from the solenoid valve. A plurality of glue spotters are adapted to contact the surface of the sponge under pressure to uniformly spread the glue within the sponge and conjointly remove a portion of the glue therefrom. The glue spotters are moved into contact with the blank whereby the glue carried by them is deposited on predetermined areas of the blank in controlled quantities.

A tray former mechanism comprised of a mandrel and die cavity for forming the paperboard blank into a carton is also provided. The die cavity is comprised of an opening having a plurality of formers for folding the unglued sides of the blank

from the lower surfaces of the wheel housing. The present structure virtually eliminates such drippings by forming the housing with lower surfaces that incline continuously downward toward a lower termination region closely adjacent a wheel side face, the angle of inclination being sufficient that liquid adheres to the surfaces and flows downward to the termination region, from which it is transferred to the wheel. The housing is relieved where the wheel side faces reenter the housing. Liquid transferred to the wheel then is reliably carried upward and returned to the supply of available liquid in the wheel chamber. Retention of liquid in the wheel chamber is aided by novel shaping of the upper chamber walls.

3,636,922

FLUID APPLICATORS

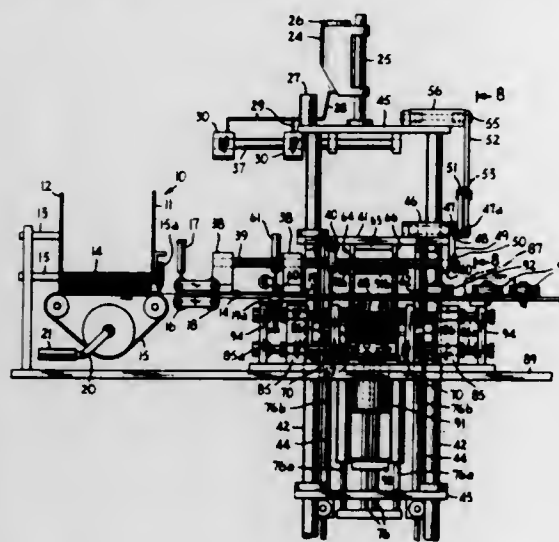
David C. Ketner, 108 East 82nd St., New York, N.Y.

Filed Feb. 19, 1970, Ser. No. 12,721

Int. Cl. B05c 11/10

U.S. Cl. 118-264

5 Claims



A fluid applicator comprises a sheet, pad, ball or other shaped body made of porous material. Inside the body is one or more sealed nonporous pouch, capsule, bag or other container having one or more compartments enclosing liquid, lotion, cream, paste, salve or other fluid or semifluid substance. The container is frangible and will open under pressure to release the fluid into or through the nonporous material for application to a surface to be treated. One side of the porous body may be covered by a nonporous, moistureproof material to prevent penetration of the fluid through the covered side.

3,636,923

APPARATUS FOR COATING MICROSPHERES WITH PYROLYTIC CARBON

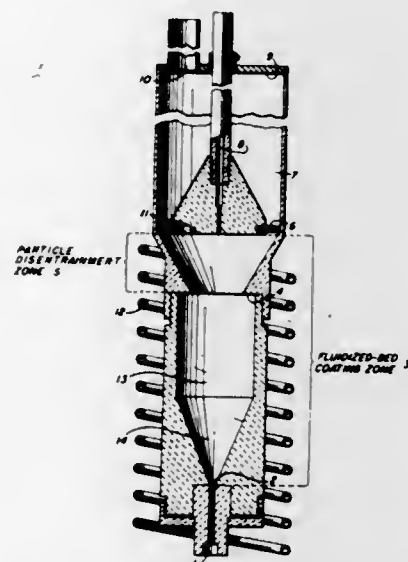
William J. McCreary, and Donald B. Court, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 4, 1970, Ser. No. 16,507

Int. Cl. B01j 9/00

U.S. Cl. 118-400

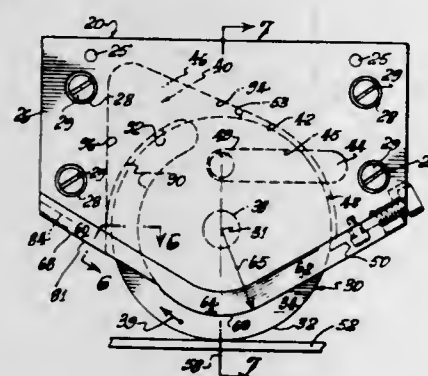
2 Claims



3,636,921
INVERTED WHEEL APPLICATOR
Glynn H. Lockwood, Carmel Valley, Calif., assignor to Lockwood Technical, Inc., San City, Calif.
Filed June 24, 1970, Ser. No. 49,343
Int. Cl. B05c 1/08

U.S. Cl. 118-259

6 Claims



When liquids such as hotmelt adhesives are applied to an upwardly facing surface by an inverted applicator wheel, liquid has tended to drip onto the work from the wheel or

A fluidized bed coater capable of depositing uniform coatings of high-density, oriented pyrolytic carbon having a

smooth microstructure on a charge of particles having an initial surface area of 44,000 cm². The deposition is accomplished from an atmosphere containing methane and an inert gas at a temperature of about 1,200° C.

3,636,924

FUR BRUSH DEVELOPING APPARATUS

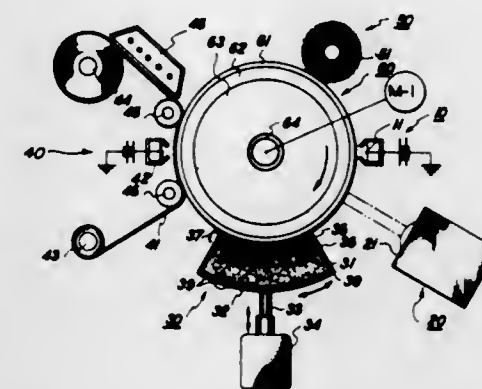
Ernest A. H. Weller, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,576

Int. Cl. B05c 5/02; G03g 15/00; B05b 5/02

U.S. Cl. 118-629

7 Claims



Fur brush developing apparatus for developing a latent electrostatic image on an electrostatic member with toner by simultaneously contacting the member to a toner cloud and toner-laden fur brush including a container to hold toner having a portion of its surface covered by a fur brush, the fur brush and the portion of the container covered thereby having a plurality of apertures, and means to oscillate the container while the fur brush is in contact with the electrostatic member so that toner in the container that is maintained in a mobile, agitated condition passes through the apertures onto and between the fibers of the fur brush and is deposited on the electrostatic member by the fur brush. The fur brush apparatus can be oscillated in an orbital manner so that it gives a multidirectional effect to the developing process producing developed images free of directional marks and background.

3,636,925

INTENSIFICATION ELECTRODE ASSEMBLY FOR DEVELOPER IN OFFICE PHOTOCOPY MACHINE

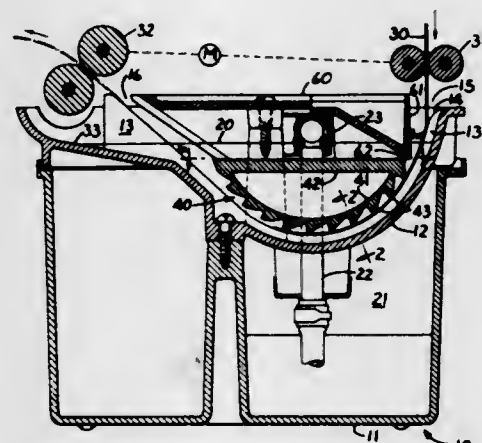
Henry G. Reuter, Jr., Glenview, and Seno Sparer, Evanston, both of Ill., assignors to American Photocopy Equipment Company, Evanston, Ill.

Filed Aug. 31, 1970, Ser. No. 68,355

Int. Cl. G03g 13/00

U.S. Cl. 118-637

5 Claims



An electrode assembly for use in an office photocopy machine of the type in which a copy sheet carrying a latent

image made up of electrostatic charges is guided into a developer tray having a developer liquid in the form of a colloidal suspension of toner particles in a dielectric vehicle. The electrode has a cylindrical face formed into ridges and appearing, in transverse section, to be of sawtooth configuration. The electrode is submerged in the developer liquid closely adjacent the copy sheet. Means are provided for preventing initial contact between the electrode and the leading edge of the copy sheet.

3,636,926

ELECTROGRAPHIC APPARATUS

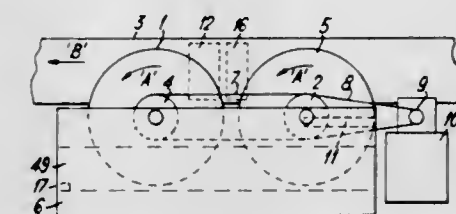
Robert James Hodges, Cheshunt, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Apr. 1, 1969, Ser. No. 812,230

Int. Cl. G03g 13/08

U.S. Cl. 118-637

29 Claims



A combination powdering and scavenging device for electrographic printing and/or display apparatus. Powder is transferred between a powder reservoir and at least one movable recording surface in a manner which provides for a lossless powder system for the apparatus. Powder transfer is accomplished by a readily detachable device comprising a pair of movable surfaces which are spaced apart in the direction of movement of the recording surface and which are parallel thereto. With one surface for powdering and the other for scavenging at least one of the pair is permanently magnetized or charged electrostatically and partially submerged in powder contained in the reservoir.

3,636,927

ANIMAL LITTER AND PROCESS

Harold M. Baum, Pepper Pike, Ohio, assignor to SCM Corporation, Cleveland, Ohio

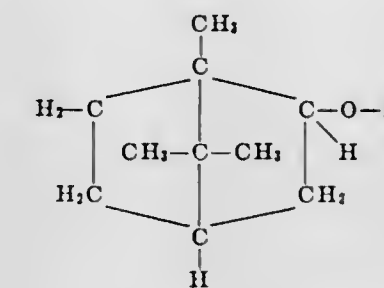
Filed June 18, 1970, Ser. No. 47,600

Int. Cl. A01k 67/00

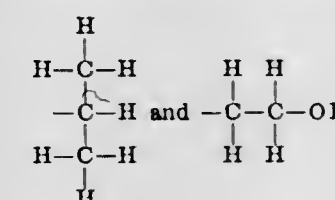
U.S. Cl. 119-1

7 Claims

Odor-inhibiting litter materials comprising litter containing an odor-inhibiting quantity of a compound of the formula:



where R is selected from the group consisting of



are described. Materials formed in accordance with this invention exhibit odor-inhibiting or odor-masking properties.

The odor-inhibiting litter materials of this invention are advantageous in that they can be used as animal bedding and the like to mask and/or prevent the formation of undesirable odors in animal laboratories, pet shops, and the like.

3,636,928

AUGER CONSTRUCTION

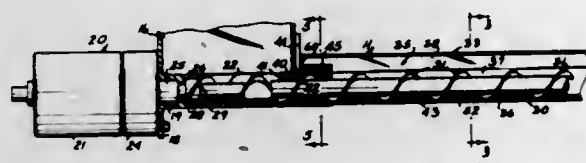
Elton Sumner, 452 Brookwood Drive, Athens, Ga., and Aaron W. Adams, Jr., Douglas, Ga.

Filed Sept. 17, 1970, Ser. No. 72,971

Int. Cl. A01k 5/00, 39/00

U.S. Cl. 119—52

18 Claims



An auger construction including an elongated flexible resilient open-cored spring-type auger with a core member within the open core of the auger and substantially filling this core yet movable with respect to at least a plurality of flights of the auger so that, as the auger flights move with respect to each other while the auger is conveying particulate matter such as poultry feed, the flights and core member will move relative to each other. The core member may be substantially rigid for a straight auger or flexible for a curved auger and may be forcibly moved or held stationary within the auger. The feeder system described includes a feed supply means with means for regulating the amount of feed carried by the auger and return mechanism is provided for returning the excess feed discharged from the auger back to the supply means for recycling this feed.

3,636,929

APPARATUS FOR GENERATING HIGH-TEMPERATURE STEAM

James Richard Sanders, 15 River Gardens, Carshalton, England

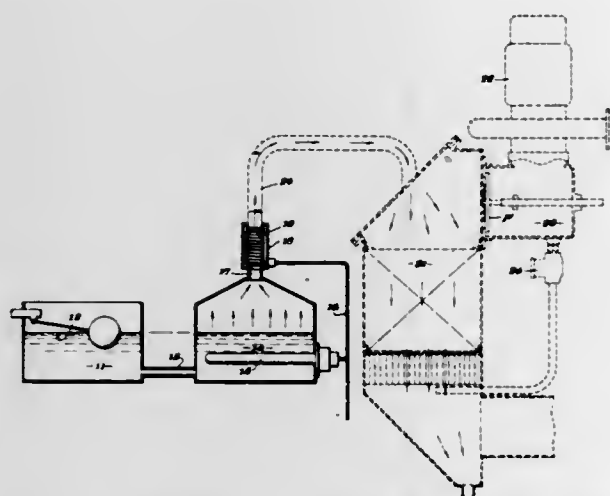
Filed Apr. 29, 1970, Ser. No. 32,957

Claims priority, application Great Britain, June 18, 1969 30,812/69

Int. Cl. F22g 3/00

U.S. Cl. 122—460

1 Claim



A generator of a free flow of superheated steam in a duct comprises a boiler with means for maintaining constant water level therein and a steam outlet duct leading from the boiler through a superheating chamber having electric or other

heating means for superheating the steam passing through the duct in the superheating chamber.

3,636,930

ROTARY ENGINE

Fukumatsu Okada, 4-151 Aza Umembri-zaka, Ohaza Ueda, Tenpaku-cho, Showa-ku, Nagoya, Japan

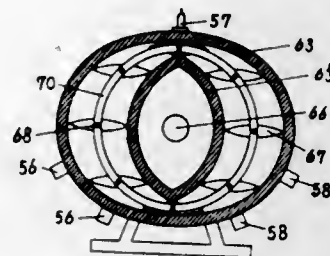
Filed Feb. 3, 1970, Ser. No. 8,247

Claims priority, application Japan, Mar. 28, 1969, 44/23610

Int. Cl. F02b 55/14

U.S. Cl. 123—8.45

6 Claims



The present invention relates to a rotary engine in which the cylinder is ring shaped and is constructed by an elliptical outer circumferential wall, a leaf-shaped inner circumferential wall, a front wall and rear wall, and the cross section of said cylinder is rectangular and becomes larger at first, smaller next, then larger and smaller at last along the cylinder circumference. Into said ring-shaped cylinder several leaf-shaped pistons are inserted airtightly at equal intervals and the engine has a device to revolve said pistons around the center of said cylinder maintaining their attitudes always in horizontal state. Further the engine has, in the outside of cylinder, the device of connecting the engine output shaft and the piston axes which are fixed to the pistons, whereby the force of explosion gas which acts on the pistons is transmitted smoothly to the output shaft of engine.

3,636,931

FUEL INJECTION CONTROLLING SYSTEM FOR INTERNAL COMBUSTION ENGINE

Seiji Suda, and Masayuki Ishizaki, both of Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

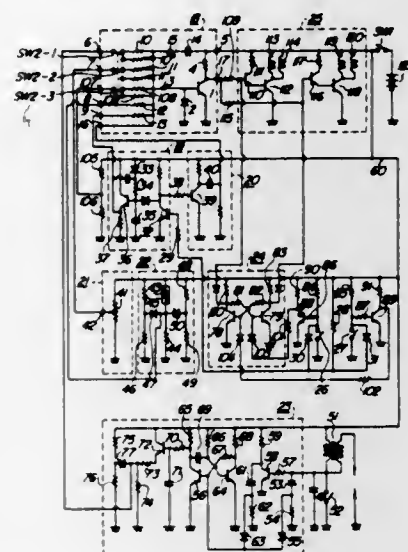
Filed Apr. 11, 1969, Ser. No. 815,320

Claims priority, application Japan, Apr. 17, 1968, 43/25206; Sept. 11, 1968, 43/64960

Int. Cl. F02m 51/02

U.S. Cl. 123—32 EA

12 Claims



A fuel injection controlling system for internal combustion engines, wherein the various conditions of the internal combustion engine are converted to signal currents, these signal currents are superimposed upon a timing signal current, the

magnitude of which corresponds to a lapse of time, and then supplied to an input terminal of a current level detecting circuit so that there is produced an output pulse signal of which the duration is related to the quantity of fuel required by the internal combustion engine, and a fuel injection valve is opened in accordance with said output pulse signal thereby to control the quantity of fuel supplied to the internal combustion engine.

3,636,932

TAPPET WITH MEANS FOR RELIEVING ENTRAINED AIR

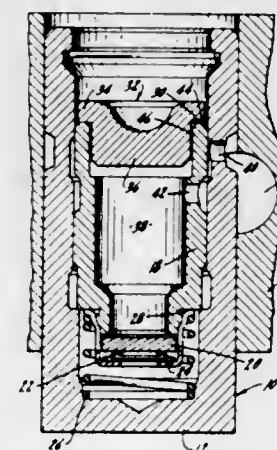
William B. Hamilton, Batavia, and Kenneth W. Leshner, Wheaton, both of Ill., assignors to Stanadyne, Inc., Windsor, Conn.

Filed May 18, 1970, Ser. No. 38,257

Int. Cl. F011 1/24

U.S. Cl. 123—90.55

6 Claims



A hydraulic tappet is formed by a barrel having a closed end and a plunger reciprocal within the barrel. The plunger has an oil chamber and a cap is seated on one end of the plunger to close the oil chamber. Passage means are provided at the seat of the cap upon the plunger for the relief of air within the plunger chamber.

3,636,933

ELECTRONIC GOVERNOR FOR INJECTION-TYPE INTERNAL COMBUSTION ENGINES

Yoshio Ohtani; Akiko Fukushima, both of Higashi, and Todomu Kakijima, Fukuoka, all of Japan, assignors to Diesel Kiki Kabushiki Kaisha, Tokyo, Japan

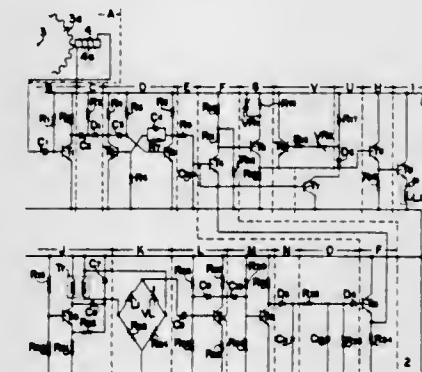
Filed May 27, 1970, Ser. No. 40,793

Claims priority, application Japan, May 27, 1969, 44/40630

Int. Cl. B60k 31/00; F02d 11/10

U.S. Cl. 123—102

1 Claim



An electronic governor for injection-type internal combustion engines, having a fuel oversupply mechanism for facilitating the starting up of the engine, a speed regulation setting circuit, an electromagnetic fuel control mechanism of

movable type and a means for providing an "ungleich" action, in which an output DC voltage proportional to the rotation speed of engine generated by a DC voltage generating circuit and an unbalance output voltage relative to the position of the fuel supply lever of the engine from a bridge circuit are compared by a voltage comparator circuit, the output of the comparator circuit is fed to an amplifying circuit, and a fuel control rod of the fuel control mechanism is actuated by the output signal from the amplifying circuit.

3,636,934

VEHICULAR AIR-POLLUTION PREVENTIVE SYSTEM

Yasuo Nakajima, Yokosuka, and Yoshimasa Hayashi, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

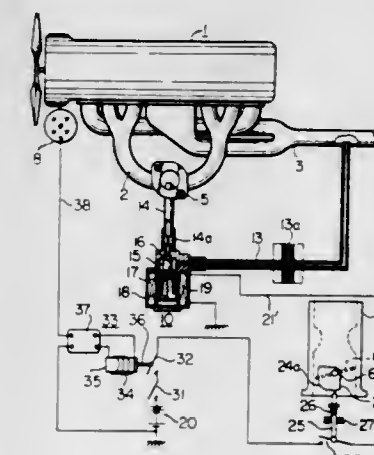
Filed Mar. 11, 1970, Ser. No. 18,497

Claims priority, application Japan, Mar. 22, 1969, 44/21282

Int. Cl. F02m 25/06; B60k 37/00

U.S. Cl. 123—119 A

6 Claims



A vehicular air-pollution preventive system serious use with an internal combustion engine, which system is adapted to reduce the quantity of nitrogen oxides produced during acceleration or hill-climbing in such quantities as to cause a serious air-pollution problem especially when the vehicle is driven in urban areas, having switches closing when the vehicle is driven under predetermined conditions providing the acceleration or hill-climbing and a solenoid valve which is adapted to pass exhaust gases from the exhaust manifold to the intake manifold when the switches are closed concurrently. The conditions in which the switches are closed concurrently are represented by variables such as the combination of angular position of a carburetor throttle valve and engine speed or vehicle speed.

3,636,935

VEHICLE ENGINE LIQUID CIRCULATING SYSTEM

David A. Martens, Washington, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 9, 1970, Ser. No. 26,832

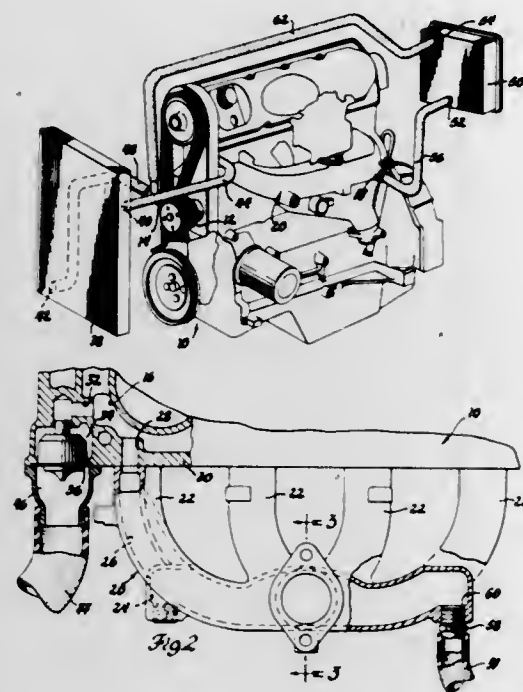
Int. Cl. F02m 31/10; B60h 1/04

U.S. Cl. 123—122 AB

1 Claim

A vehicle engine includes a cooling system having a main flow path through the engine coolant passages to the vehicle radiator and back to the engine water pump for return to the coolant passages. A parallel flow path exists from the coolant passages through the engine intake manifold for heating the intake mixture and thence through the vehicle heater core and back to the water pump inlet. A thermostatic valve in the main flow path to the radiator controls the coolant temperature by opening or completely shutting off flow to the radiator.

tor as necessary. Bypass flow through the manifold and heater core is continuous so that engine coolant heat is



available to the manifold and vehicle heater as soon as possible after engine starting.

3,636,936

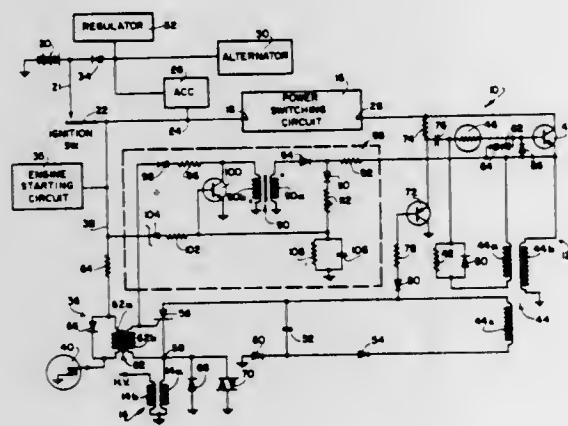
AUXILIARY SPARK STARTING CIRCUIT FOR IGNITION SYSTEMS

Gunter G. Schuette, Addison, and William J. Warner, Schaumburg, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Jan. 9, 1970, Ser. No. 1,759
Int. Cl. F02p 3/06; F02n 17/00

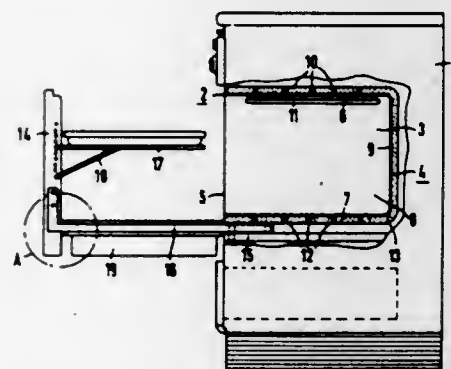
U.S. Cl. 123-148 E

10 Claims



An ignition discharge capacitor is provided for applying pulses to an ignition coil in synchronization with external switching means such as the breaker-points of an automobile. A controlled oscillator is responsive to a reference voltage device which, when a normal voltage value is applied thereto, disables the oscillator. On starting, when the voltage applied thereto is below the normal voltage value, the oscillator will oscillate to produce auxiliary trigger pulses to cause a multitude of spark discharges at the spark plugs of the internal combustion engine in addition to the initial pulse from the ignition capacitor.

3,636,937
BAKING AND ROASTING OVEN
Heinrich Detterbeck, and Heinrich Kaehs, both of Traunreut, Germany, assignors to Siemens-Electrogerate GmbH, Berlin and Munich, Germany
Filed Dec. 9, 1969, Ser. No. 883,457
Claims priority, application Germany, Dec. 11, 1968, P 18 13 866.4
Int. Cl. A21b 1/00; F24c 15/16
U.S. Cl. 126-19 R 7 Claims



A baking and roasting oven for cooking food and storing utensils has a muffle that defines an enclosure having an opening. A mounting is disposed beneath the muffle and a carriage is provided that movably engages the mounting. A door for closing the opening is mounted to the carriage at fixed angle. The carriage is constructed as a rigid frame and supports a bin for storing the utensils.

3,636,938

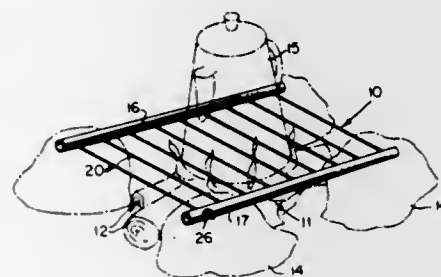
PORTABLE COOKING GRILL

Edward J. Faltersack, 19517 Almaden Road, San Jose, Calif.
Filed Nov. 12, 1968, Ser. No. 774,770

Int. Cl. A47j 37/00; F24b 3/00; F24c 1/16

U.S. Cl. 126-30

5 Claims



A cooking grill which can be dismantled and reassembled in compact form for storage and ease of handling.

3,636,939

METHOD AND APPARATUS FOR THERMALLY TREATING VEGETATIVE MATERIALS

Pieter Herman Sijbring, Rhenen, Netherlands, assignor to Instituut Voor Bewaring en Verwerking Van Landbouwprodukten, Wageningen, Netherlands

Filed Aug. 14, 1969, Ser. No. 850,076

Claims priority, application Netherlands, Aug. 16, 1968, 6811715

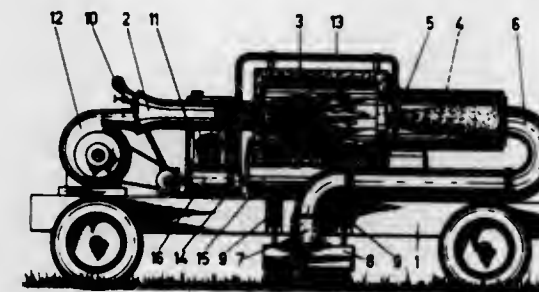
Int. Cl. A01m 21/04

U.S. Cl. 126-271.2 R

8 Claims

Vegetative materials are thermally treated, before or dur-

ing mowing, by directing a mixture of flue gases and steam low-alarm comparator units and other sphygmomanometer signals to activate an alarm, and electronic logic circuitry for



on said materials to sufficiently damage the cell structure thereof causing a substantial loss in turgescence.

3,636,940

METHOD FOR COLLECTING CELLULAR MATERIAL BY CIRCULATING A FLUID WITHIN A BODY CAVITY

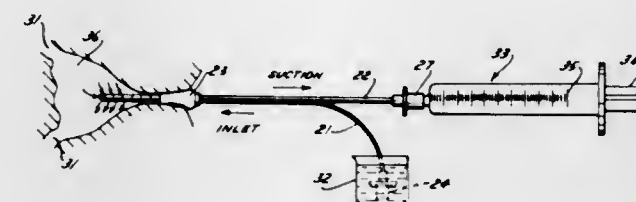
Leland C. Gravlee, 3508 Brookwood Road, Mountain Brook, Ala.

Original application Dec. 7, 1967, Ser. No. 688,723, now Patent No. 3,527,203, dated Sept. 8, 1970, which is a continuation-in-part of application Ser. No. 421,013, Dec. 24, 1964, now abandoned. Divided and this application Mar. 10, 1970, Ser. No. 18,184

Int. Cl. A61b 10/00

U.S. Cl. 128-2 B

8 Claims



A washing method for irrigating a body cavity using an apparatus having an inlet tube which is open at both ends, and is adapted to have its forward end extend into a body cavity and its rear end connected to a source of washing fluid. Additionally, an outlet tube, which is open at both ends forms part of the apparatus. The inlet tube has its forward end adapted to extend into the body cavity with its rear end connected to a source of suction. A sealing member is positioned on the outlet and inlet tubes intermediate their ends and is adapted to seal the entrance to the body cavity. In operation, the source of suction provides a negative pressure to the body cavity and washing solution will pass through the inlet tube into the body cavity, accumulate cells and matter therefrom and pass through the outlet tube to a collection point.

3,636,941

SPHYGMOMANOMETER ALARM RESET TECHNIQUE

Lawrence Norayr Guevrekian, Kendall Park, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

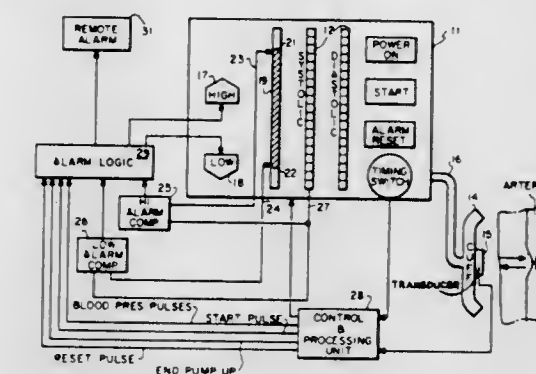
Filed Jan. 12, 1970, Ser. No. 2,013

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 A

7 Claims

An alarm reset technique in a sphygmomanometer adapted for automatically monitoring a patient's blood pressure at regular intervals, having electronic detection circuitry responsive to an alarm condition defined by high- and/or



resetting a prior interval activated alarm without inhibiting subsequent activation of the alarm in the interval when reset.

3,636,942

CENTRAL VENOUS PRESSURE MONITOR TUBE SUPPORT ARRANGEMENT

Alice Wade Nye, 7534 Greendowns, Houston, Tex.
Filed Aug. 27, 1969, Ser. No. 853,263

Int. Cl. A61f 5/02

U.S. Cl. 128-2.05 D

4 Claims



A support arrangement for a central venous pressure monitor tube to maintain the monitor tube in substantial vertical position and its lower end in a predetermined horizontal alignment with a predetermined portion of the torso of an animal. The support arrangement includes bracket means which enables the monitor tube to be adjusted vertically to align it with an animal torso and a level with a cord or chain attached thereto so that the lower end of the pressure tube can be horizontally aligned with a predetermined portion of the torso of an animal.

3,636,943

ULTRASONIC CAUTERIZATION

Lewis Balamuth, New York, N.Y., assignor to Ultrasonic Systems, Inc., Farmingdale, N.Y.

Filed Oct. 27, 1967, Ser. No. 678,649

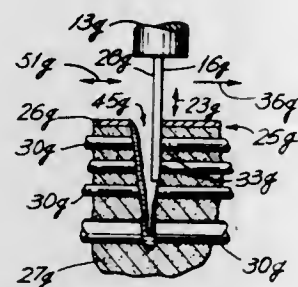
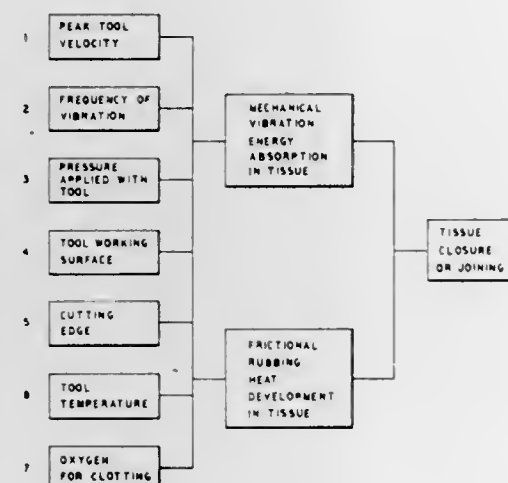
Int. Cl. A61b 17/36, 17/32; A61b 23/00

U.S. Cl. 128-24 A

20 Claims

The method and apparatus of the invention use ultrasonic energy in the form of mechanical vibrations transmitted by a tool member to close off small severed blood vessels, such as in humans, by the formation of closures at the terminal portions thereof, and stop what is called "ooze," that requires constant mopping or cleansing techniques during an operation. This tool member may be in the form of a knife ultrasonically vibrated to simultaneously sever and close off

respective terminal portions of the severed blood vessels while performing surgical procedures. The tool member, of a proper configuration, may also join together layers of tissue,



including the walls of unsevered blood vessels, and with respect to the latter is foreseen as replacing the "tying off" of arteries and veins currently necessary in surgery.

3,636,944

BUOYANT AIR-WATER MASSAGE DEVICE

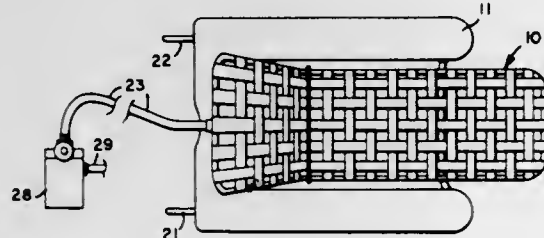
David L. Bryant, 787 West Sunnyoaks Ave., Campbell, Calif.

Filed Jan. 29, 1970, Ser. No. 6,726

Int. Cl. A61h 29/00

U.S. Cl. 128-24.1

7 Claims

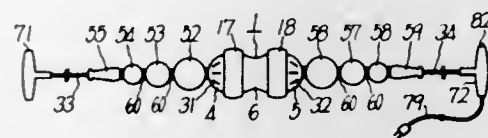


A buoyant chair to be used in a swimming pool provided with plumbing having nozzles for directing air and water jets against the body of the person occupying the chair. The plumbing is connected to the pool water heater and a booster pump is provided in this connection to cause heated water to be circulated through the plumbing and nozzles. One or more air inlets is provided to the plumbing to supply air to be mixed with the water which mixture is released through the nozzles to provide a massaging action on the body of the person reclining in the chair.

3,636,945
ELECTRICAL MASSAGE INSTRUMENT
Sanro Sato, Yao, Japan, assignor to Matsushita Electric Works, Ltd., Osaka-hu, Japan and Hoshidenki-Seizo Kabushiki-Kaisha, Osaka-hu, Japan
Filed May 27, 1970, Ser. No. 40,953
Claims priority, application Japan, June 19, 1969, 44/58273; Nov. 1, 1969, 44/103924
Int. Cl. A61h 1/00

U.S. Cl. 128-36

17 Claims



An electrical massage instrument is provided which comprises a main body, 8-shaped in section, having connected at its opposite ends a pair of flexible strings each tying a plurality of spherical members in a row. The main body houses an electrically energized source of vibration such as an electric motor having eccentric weights mounted on the motor shaft. One of the tying strings include lead wires for supplying electric power to the source. The free ends of the tying strings are attached with grip members.

3,636,946
EXERCISING APPARATUS

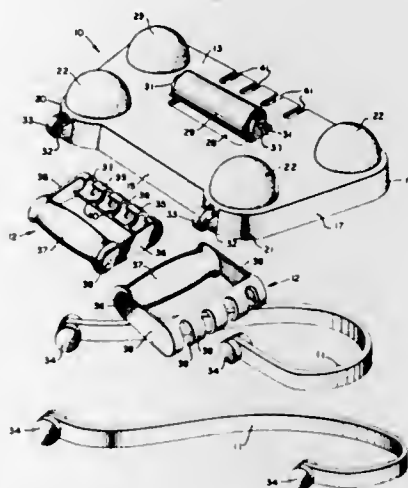
Peter S. Hardy, c/o Peerless Aluminum Foundry Co., Inc. 55 Andover St., Bridgeport, Conn.

Filed Oct. 30, 1969, Ser. No. 872,693

Int. Cl. A61h 1/100

U.S. Cl. 128-57

8 Claims

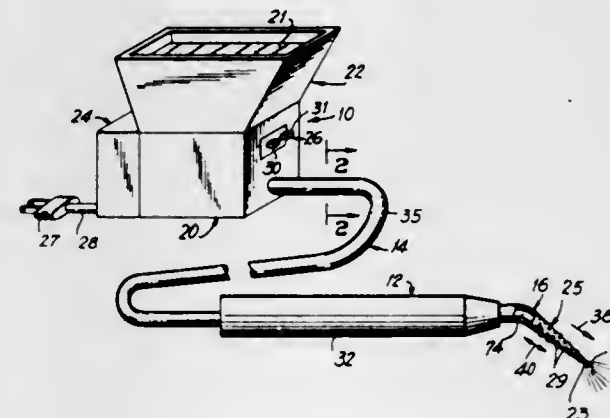


An exercising apparatus includes a portable platform base having top and peripheral walls defining a recessed lower side, the top wall having mounted thereon right and left pairs of semispherical resilient members, so spaced that the right and left feet of the user, while in a standing or other suitable posture, are engaged with the respective pairs of semispherical members with one member beneath the arch and heel region of the foot and the other member beneath the toes, thereby providing exercising and massaging treatment for foot ailments, such as flat feet, swollen ankles, and the like. The spacing of the members of each pair of adjustable to accommodate different size feet. A roller is arranged transversely between the pairs of semispherical members for rotational engagement by a foot of the user with a forward and backward reciprocal massaging movement. For the purpose of additionally providing exercise for the arms and other parts of the body, a pair of elastic stretch bands are provided together with a pair of handgrip members, each band having a knoblike means at each of its ends for detachable connection in one of a series of notch formations in each of the handgrip members, enabling a handgrip member to be attached to one or both ends of one or both bands.

3,636,947
ULTRASONIC HOME DENTAL INSTRUMENT AND METHOD
Lewis Balamuth, New York, N.Y., assignor to Ultrasonic Systems, Inc., Farmingdale, N.Y.
Continuation-in-part of application Ser. No. 722,313, Apr. 18, 1968, now Patent No. 3,547,110, dated Dec. 15, 1970.
This application Dec. 3, 1970, Ser. No. 94,651
Int. Cl. A61h 9/00

U.S. Cl. 128-66

42 Claims



A method and apparatus for hygienic care of the oral cavity for regular use in the home, in which an ultrasonic applicator is used for cleaning of teeth as by the removal of tartar, plaque, calculus deposits, stubborn stains, such as are produced by smoking, and simultaneous stimulation of the gingiva or gums. The ultrasonic applicator or stimulator has a polishing effect when used with a liquid medium and in engagement with the tooth and gingival structures of the oral cavity for the removal of foreign substances from the teeth.

3,636,948
THERAPEUTIC DEVICE

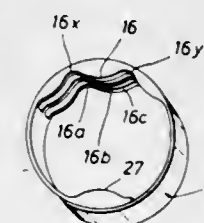
Otto Atchley, P. O. Box 1049, 1901 Richmond Road No. 128, Texarkana, Tex.

Filed May 7, 1970, Ser. No. 35,404

Int. Cl. A61f 5/00

U.S. Cl. 128-79

12 Claims

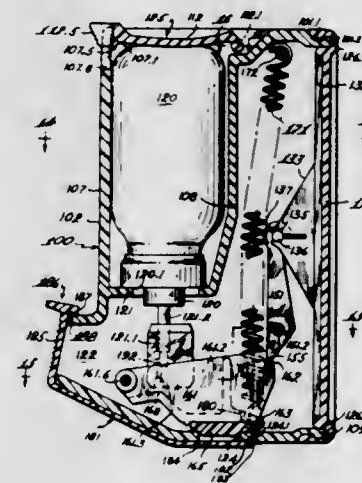


A male genital device for effecting or enhancing erection of the penis comprising a resilient band suitable for being tightly wrapped around the penis near the pubic bone. The band thus assumes a circular orientation in use, and has a plurality of radially extending projections on the inner surface thereof, said projections being effective to restrict the flow of blood from the penis to thereby achieve the intended result.

3,636,949
INHALATION-INITIATED AEROSOL DISPENSER
Willis A. Kropp, Warner, N.H., assignor to Armstrong-Kropp Development Corp., West Roxbury, Mass.
Continuation-in-part of application Ser. No. 759,652, Sept. 13, 1968, now abandoned. This application Aug. 8, 1969, Ser. No. 850,694
Int. Cl. A61m 11/00

U.S. Cl. 128-173 R

22 Claims



For dispensing to a respiratory patient single discharges of metered aerosol medication, a conventional aerosol container designed to deliver in response to a single actuation a metered amount of aerosol compound, is combined with a chamber partly formed by a breath-operated membrane linked with a spring-retained catch and latch actuator which on release by the inhalation-deflected membrane presses on the metering valve of the container delivering a single discharge in exactly timed relation with the patient's breathing, and also opens a valve communicating with the outside, to admit free air during the final part of the aerosol discharge for continued inhalation. The actuator linkage and the air valve have to be reset by hand to ready the device for the next cycle of operation.

In an especially compact embodiment, a unitary housing fully encloses the aerosol bottle which is inserted through an opening closed by a retention cover hinged to the housing. A flexible strap serves as a protective cover for the mouthpiece and the air ingress valve, as well as for resetting the mechanism which it locks when covering the valve and the mouthpiece. The actuator linkage has two straight levers at right angles with the catch and latch at their intersection, and the spring tangentially correlated with the breath-responsive membrane.

3,636,950
DISPOSABLE CARTRIDGE FOR ADMIXING TWO COMPONENTS OF INJECTABLE MEDICAMENT

Eloy A. Gomez, Frazer; Stephen W. Goodair, King of Prussia, and Dominik A. Marrocco, Springfield, all of Pa., assignors to American Home Products Corporation, New York, N.Y.

Filed Nov. 14, 1968, Ser. No. 775,726

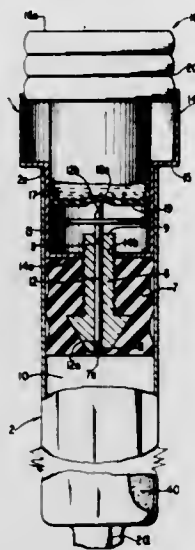
Int. Cl. A61m 05/00

U.S. Cl. 128-218 M

7 Claims

A cartridge unit for use in, or as a syringe, and comprising two chambers, each for containing a separate component of the final injectable mixture, wherein one of said chambers is detachably mounted on the unit, the other chamber is provided in the unit, and means are provided for communicating said two chambers and then causing the contents of the

removable chamber to be introduced into the other chamber, whereafter the detachable chamber is removed to permit at-



tachment of a push rod to the plunger or stopper when the unit is to be used.

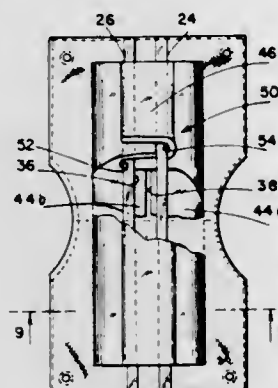
3,636,951

DISPOSABLE DIAPER OF IMPROVED ABSORBENCY
Horace K. Glasgow, Bayside, N.Y., assignor to Frances M. Falbisch, Laurel, Md.; Sandra Glasgow, Queens; Marilyn Pomerantz, Baldwin; Daniel Glasgow, Massapequa and Norman Glasgow, Massapequa, N.Y., part interest to each
Filed Aug. 28, 1969, Ser. No. 853,686

Int. Cl. A61f 13/16

U.S. Cl. 128—284

8 Claims



A disposable diaper of improved absorbency comprising a sheet of absorbent material folded into a multilayered structure in such a manner that a highly improved absorption effect is achieved while at the same time maintaining a garment comfortable to the wearer, and the diaper in combination with a diaper holder specially adapted to receive and hold the same.

3,636,952

DISPOSABLE COMBINATION FLUSHABLE DIAPER AND PROTECTIVE COVER

Donald K. George, Aiken, S.C., assignor to Riegel Textile Corporation, Ware Shoals, S.C.

Filed Apr. 24, 1970, Ser. No. 31,610

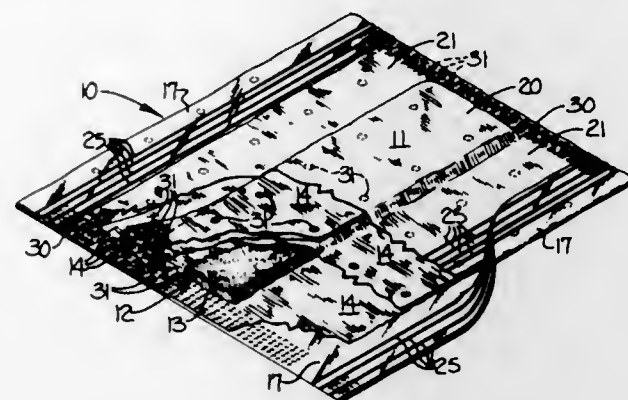
Int. Cl. A61f 13/16

U.S. Cl. 128—287

7 Claims

A disposable, unitary, combination flushable diaper and protective cover characterized by serving the dual function of a conventional diaper and protective pants and by being easily disposable by stripping off the protective cover and flushing the diaper in an ordinary water closet. The product includes a dispersible, fluid-permeable, body contacting layer for receiving the moisture of the wearer and preferably comprising flat regenerated cellulose fibers of the collapsed mul-

ticellular form. A flushable, moisture absorbing, interior pad is superimposed on the body contacting layer for absorbing the moisture of the wearer. The pad comprises a batt of fiberized cellulosic fibers for providing absorbency and at



least one ply of cellulosic sheet material on each side of the batt for providing strength. A protective cover of moisture impervious material is preferably superimposed on the pad and forms an envelope with the body contacting layer around the interior pad.

3,636,953

DISPOSABLE PANTY WITH IMPROVED CROTCH CONSTRUCTION

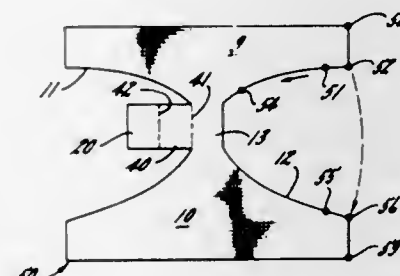
Joseph Benevento, Brooklyn, N.Y., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed May 21, 1969, Ser. No. 826,347

Int. Cl. A61f 13/16

U.S. Cl. 128—291

5 Claims



A disposable panty has an improved crotch construction in which two auxiliary layers, of the same material as the panty, are disposed over the crotch area. The panty is made from a single sheet of material, all portions cut as a contiguous blank.

3,636,954

COMPOUND LEVER MECHANISM

David Frederick Weston, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Nov. 17, 1969, Ser. No. 877,227

Claims priority, application Great Britain, Nov. 29, 1968, 56,781/68

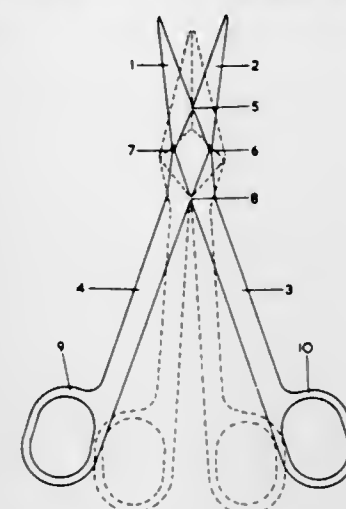
Int. Cl. A61b 17/28

U.S. Cl. 128—321

9 Claims

A compound lever mechanism of integral construction comprising a pair of opposed compound levers having common fulcrum each compound lever comprising two or more simple first order levers articulated in series, the common fulcrum and joints between the simple levers being provided by localized zones of the construction adapted to flex preferentially when sufficient force is applied to the levers.

The mechanism is suited for incorporation in a compound lever forceps or like device, thus enabling devices having a



scissors action to be formed in one piece, for example as one-shot polypropylene injection moldings.

3,636,955

SURGICAL CUTTING NEEDLE

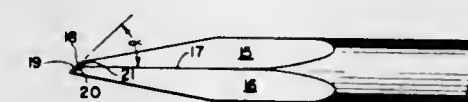
Leonard D. Kurtz, Woodmere, N.Y., assignor to Deknatel, Inc.

Filed Dec. 3, 1969, Ser. No. 881,673

Int. Cl. A61b 17/32

U.S. Cl. 128—305

6 Claims



An improved surgical needle of the type having a simple main cutting edge extending across the needle and formed by the intersection of two planar surfaces, for use in cutting through bone, cartilage or other hard body tissue material. The forward end of the needle includes a third planar surface extending at an angle to the axis of the needle and forming, as its intersection with one of the first two mentioned planar surfaces, a strong rearwardly sloped chisel cutting edge arranged to impinge on the hard material to be cut.

3,636,956

POLYLACTIDE SUTURES

Allan K. Schneider, Wilmington, Del., assignor to Ethicon, Inc., Somerville, N.J.

Continuation-in-part of application Ser. No. 700,036, Jan. 24, 1968, now abandoned, which is a continuation-in-part of

application Ser. No. 449,630, Apr. 20, 1965, now abandoned, which is a continuation-in-part of application Ser. No.

308,688, Sept. 13, 1963, now abandoned, which is a continuation-in-part of application Ser. No. 231,860, Oct. 19,

1962, now abandoned. This application May 13, 1970, Ser. No. 36,797

Int. Cl. A61b 17/00

U.S. Cl. 128—335.5

79 Claims



Absorbable surgical sutures that are dimensionally stable within the body may be prepared by the extrusion of polylac-

tide polymer, including copolymers of L(-) lactide with up to 35 mole percent of glycolide. Said polymers are characterized by an inherent viscosity of at least 1.0, and the extruded filaments are oriented by drawing at a temperature of about 50° to about 140° at a draw ratio of up to 11x, and annealed. Sutures so prepared have a tensile strength of from 25,000 p.s.i. to 100,000 p.s.i.

3,636,957

CIGAR SMOKE FILTER AND METHOD FOR IMPROVING THE QUALITY OF CIGAR SMOKE

Charles M. Saffer, Jr., 2 Rockwood Road, Levittown, Pa. Continuation-in-part of application Ser. No. 728,314, May 10, 1968, now abandoned. This application Mar. 5, 1971, Ser. No. 121,521

Int. Cl. A24b 15/02

U.S. Cl. 131—10 R

2 Claims

Improving the taste and flavor of cigar smoke which involves using a filter employing an activated carbon filter material having a high-adsorptive capacity for the volatile organic components of cigar smoke and particularly between about 0.04 and 0.17 weight parts per weight part of tobacco of activated carbon filter material having a pore volume of at least about 0.3 cm.³/gm. in the pore diameter range from about 10 to 40 angstrom units and containing between about 8 percent and 35 percent by weight of adsorbed moisture.

3,636,958

CIGAR HANDLING APPARATUS

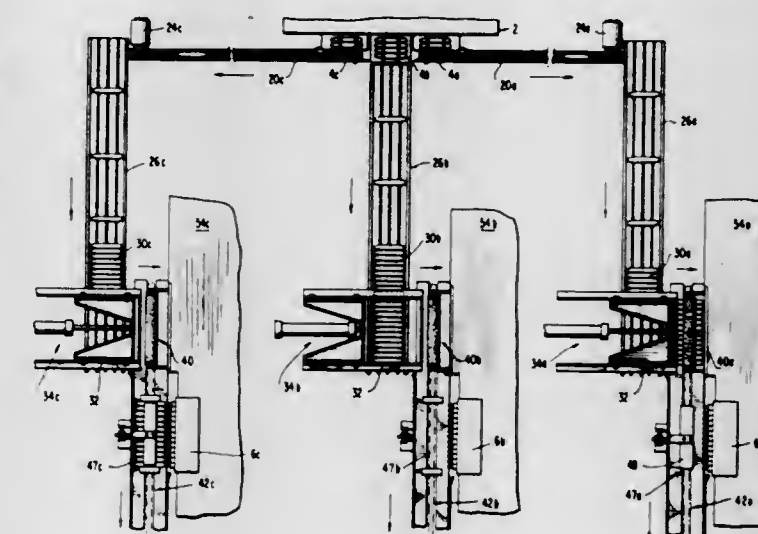
Robert C. Sundberg; William Carlson, and Lampkin H. Wood, all of Jacksonville, Fla., assignors to Jno. H. Swisher & Son, Inc., Jacksonville, Fla.

Filed Aug. 3, 1970, Ser. No. 60,543

Int. Cl. A24c 01/38; A24f 13/24

U.S. Cl. 131—82

5 Claims



Cigars issuing three abreast from a pressing machine are split into three laterally spaced horizontal conveyors, collected into groups, fed through a head-punching apparatus, and thence fed towards a wrapping machine.

3,636,959

DEVICE FOR INFUSING AN ARTICLE WITH A GASEOUS SUBSTANCE

Jean Marand, Norwalk, Conn., assignor to Geigy Chemical Corporation, Greenburgh, N.Y.

Filed May 25, 1970, Ser. No. 40,052

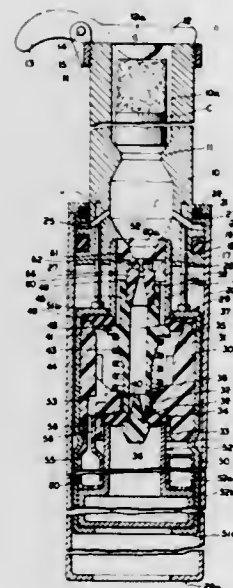
Int. Cl. A24b 03/12; A24f 25/00

U.S. Cl. 131—133 A

9 Claims

A device for infusing an article with a gaseous substance. An article holder having a hollow interior adapted to hold an article to be infused has a cylindrical exterior and a piston

head on one end. A cylinder is slidable on said piston head and has an annular piston thereon in sliding engagement with said cylindrical surface of said article holder to form an expanding chamber between said article holder and said cylinder when said article holder and cylinder are telescoped. The article holder has passages formed therein between the interior of said article holder and said expanding chamber. A



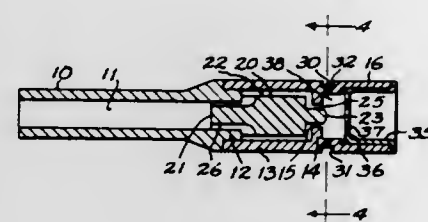
dispensing means for dispensing a gaseous substance with which the article is to be infused is engaged with said article holder and opens into said article holder. The dispensing means is engaged by said cylinder and actuated when said article holder and said cylinder have been moved relative to each other to expand said expandable chamber to produce a vacuum within the interior of said article holder.

3,636,960

SMOKER'S WITHDRAWAL KIT

Lester L. Blount, P.O. Box 748, Baldwin Park, Calif., and Leonard L. Thomas, 14092 Ash Ave., Westminster, Calif.
Filed Aug. 13, 1970, Ser. No. 63,401
Int. Cl. A24f 13/00

U.S. Cl. 131-187



A set of smoking devices such as cigarette holders having air inlet orifices for admitting cooling air into a smoke stream drawn from a front end receptacle through a restricted annular passage against an annular shoulder on the front end of a barrier body disposed within a barrel extending from the receptacle to a mouthpiece stem. After impinging on the barrier shoulder the smoke passes radially outwardly into an elongated annular tar collection chamber, depositing a portion of its entrained tar therein. The orifices of the respective holders are of graduated sizes, whereby by rotating from the use of one holder to another the smoker may undergo successive stages of smoking in which the amount of tar removal is gradually increased so as to successively abate the desire for smoking.

3,636,961

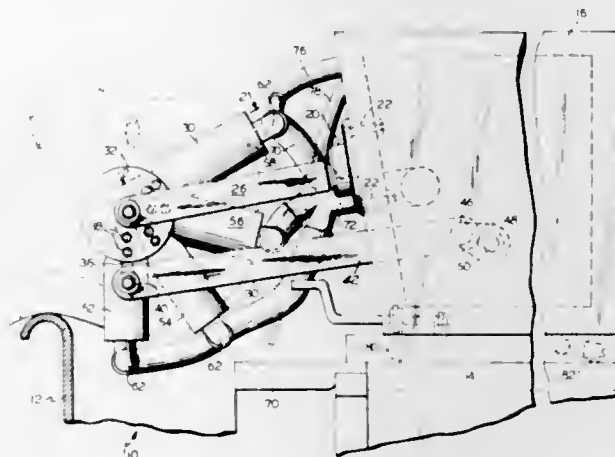
AUTOMATIC SHAMPOO MACHINE

Romeo F. John, and Lennice L. John, both of Route 3, Taylor, Tex.

Filed Dec. 4, 1970, Ser. No. 95,172
Int. Cl. A45d 19/00

U.S. Cl. 132-9

5 Claims



Automatic shampoo machine for use in a beauty shop without necessity of an attendant, characterized in providing a plurality of arcuate or generally U-shaped semicircular elements of increasing size from a lower one to an upper one, having projections of resilient or elastomeric material extensively provided on the inner surfaces thereof for extending inwardly for massaging the patron's head, scalp and hair, and jets or apertures for directing water flow from between said projections essentially inwardly to the patron's head, scalp and hair, when positioned therein. The U-shaped members form liquid applicator and massaging mechanisms which are mounted from an end of a support arm and are provided for being arcuately moved by a pitman and crank arm system mounted from a counter top, the liquid applicator and massaging mechanism being mounted over a shampoo bowl.

3,636,962

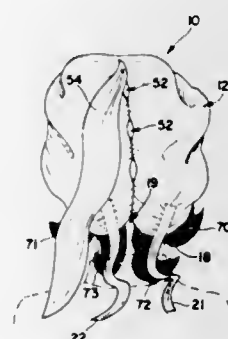
WOMAN'S HAT WITH DEFENDING HAIR TRESSES

Angelika Marie Frackowiak, 17 Bendale Blvd., Scarborough, Ontario, Canada

Filed Nov. 10, 1969, Ser. No. 875,343
Int. Cl. A42b 7/00

U.S. Cl. 132-60

9 Claims



A hat intended for concealing a woman's natural hair, for example, in the event that such natural hair is wound on curlers or is otherwise unrepresentable, includes a voluminous, crushable and generally opaque covering member held around the wearer's head by a stretchable elastic section extending partially along the peripheral edge of the covering member and a pair of tie strings provided on opposite sides of a cutaway portion in the peripheral edge of the covering member generally opposite the stretchable elastic section. Hairlike tresses are secured, preferably detachably, to the inner surface of the hat inwardly of the peripheral edge

thereof and at several positions therearound so as to extend beyond such peripheral edge.

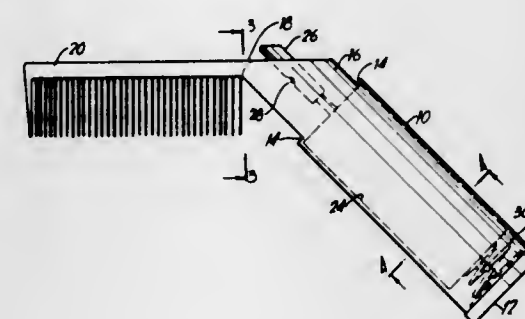
3,636,963

COSMETIC SPRAY COMB

Elmer B. Olson, Gardena, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Dec. 7, 1970, Ser. No. 95,429
Int. Cl. A45d 24/22

U.S. Cl. 132-112

5 Claims



A spray can containing hair treating material is secured to one end of a comb in such manner as to spray said material onto the hair of the user when the comb is in use.

3,636,964

COMPRESSED AIR FEED SYSTEM FOR PURE FLUID DEVICES

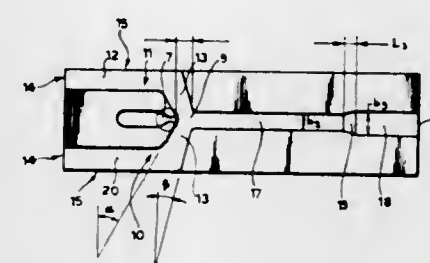
Arturo Ferrara Colamussi, and Pier Gabriele Molari, both of Novafeltria, Italy, assigns to Consiglio Nazionale Delle Ricerche, Rome, Italy

Filed Nov. 14, 1969, Ser. No. 876,934

Claims priority, application Italy, Nov. 20, 1968, 53972 A/68
Int. Cl. F17d 1/14

U.S. Cl. 137-13

4 Claims



A jet ejector-type device for feeding compressed air to pure fluid devices is supplied by mains air at a pressure of about 6 atmospheres. The mains air passes through a Laval nozzle into a mixing chamber into which open a plurality of inlets from the atmosphere. Atmospheric air is drawn into the mixing chamber, is mixed with the mains air, and the resulting stream passes through an outlet conduit having a portion of enlarged section to feed the pure fluid devices.

3,636,965

QUICK-CLOSING VALVE MECHANISM

Benjamin John Damiani, Flossmoor, Ill., assignor to Union Tank Car Company

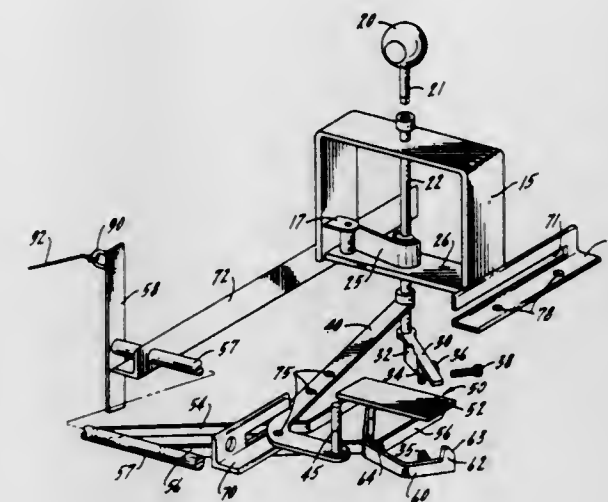
Filed Apr. 15, 1970, Ser. No. 28,885
Int. Cl. F16k 17/38, 31/46

U.S. Cl. 137-77

8 Claims

The invention comprises: a ball valve having an open position permitting fluid flow therethrough and a closed position preventing fluid flow therethrough; a spring to tension the valve towards its closed position; a valve stem attached to the valve; an operating arm, attached to the valve stem, having a first position wherein the valve is in its closed position and a

second position wherein the valve is in its open position; a member, having a flange thereon, pivotally attached to the operating arm; a handle movable so as to permit contact with the flange and thereby move the operating arm from its first



position to its second position; retention means associated with the handle to retain the operating arm in its second position; and trigger means to pivot the member so as to release the handle from contact with the flange thereby permitting the operating arm to return to its first position.

3,636,966

UNDERWATER SPACE SUIT PRESSURE CONTROL REGULATOR

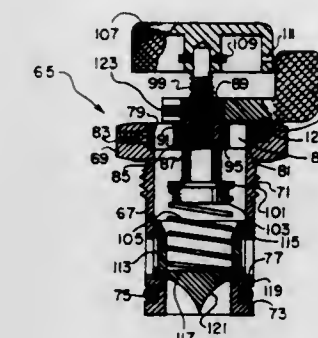
Billy R. Aldrich, Huntsville; Charles R. Cooper, Madison, and John R. Rasquin, Madison, all of Ala., assigns to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 24, 1969, Ser. No. 869,260

Int. Cl. F16k 17/20

U.S. Cl. 137-81

8 Claims



A device for regulating the pneumatic pressure in a ventilated space suit relative to the pressure imposed on the suit when being worn by a person underwater to simulate space environment for testing and experimentation. A box unit located on the chest area of the suit comprises connections for suit air supply and return lines and carries a regulator valve that stabilizes the air pressure differential between the inside and outside of the suit. The valve and thus suit pressure is controlled by the suit occupant and the valve includes a mechanism for quickly dumping the suit pressure in case of emergency. Pressure monitoring and relief devices are also included in the box unit.

3,636,967

CONTROL OF FLUIDIC DEVICES

Norman Moss, Ilford, and Michael John Broad, Enfield, both of England, assignors to The Plessey Company Limited, Ilford, England

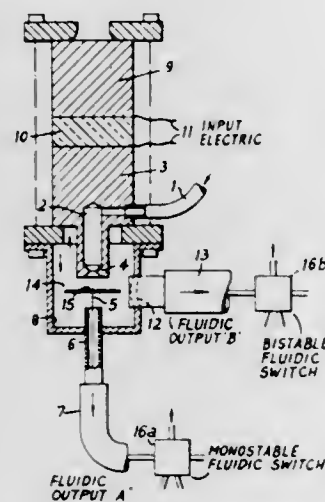
Filed June 2, 1970, Ser. No. 42,634

Claims priority, application Great Britain, June 24, 1969, 31,730/69

Int. Cl. F15c 3/12

U.S. Cl. 137—81.5

7 Claims



A pressure change suitable for the control of a fluidic switch can be achieved without the use of movable valves by the application of ultrasonic vibrations to a nozzle producing a jet of fluid directed at a coaxial collector orifice. Either collector orifice may be the inlet end of a preferably sharp-edged dynamic-pressure tube, and the pressure in this tube utilized, or the collector tube may be used as a vent of a vessel in which the jet is formed, the change in the pressure in this vessel due to the application of the oscillations, which may be a change from negative to positive relative pressure, being then utilized as a control pressure.

3,636,968

CROSS-CONNECTION CONTROL VALVE

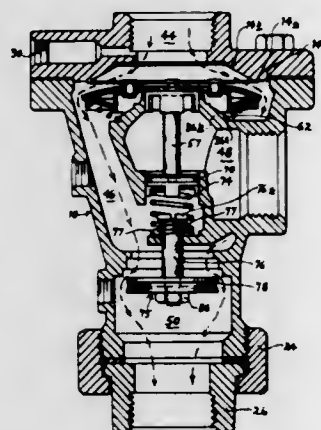
Sebastian David Tine, Lawrence, Mass., assignor to Watts Regulator Company

Filed Oct. 5, 1970, Ser. No. 78,057

Int. Cl. F16k 17/04

U.S. Cl. 137—102

15 Claims



A cross-connection valve provides vertically spaced inlet and outlet valve seats with a balanced relief valve means interposed vertically between the inlet and outlet valve seats and a single abutment for bias means that effects closure of the outlet valve and biases the relief valve means toward a normally open condition. A special flexible construction and arrangement of valve parts and seats permits interconnection

of the inlet valve and the relief valve means. The arrangement of parts provides for material reduction in size and cost of construction.

3,636,969

RELIEF AND UNLOADING VALVE

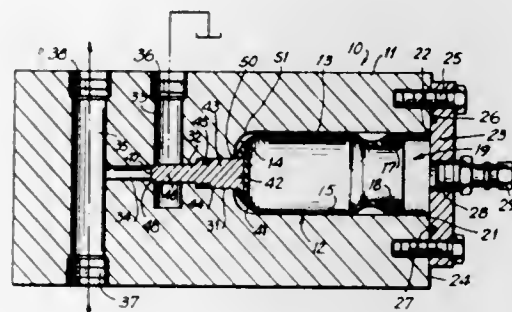
Alphonse A. Jacobellis, Los Angeles, Calif., assignor to Greer Hydraulics, Inc., Los Angeles, Calif.

Filed Feb. 17, 1970, Ser. No. 12,037

Int. Cl. F16k 15/02

U.S. Cl. 137—115

1 Claim



This invention relates to the art of relief and unloading valves which are connected to a hydraulic circuit to relieve excess pressure and more particularly a valve which has a deformable bladder which is precharged with gas under pressure to a value such as to retain a valve member in closed position until the fluid pressure in the circuit exceeds a predetermined amount, overcoming the force exerted by the charged bladder, at which time the valve member will open to relieve the fluid pressure.

3,636,970

FLUID FLOW REGULATOR VALVES

Willard Denis Griffith, and Harry William Norton, both of Ludlow, England, assignors to F. W. McConnell Limited, Ludlow, England

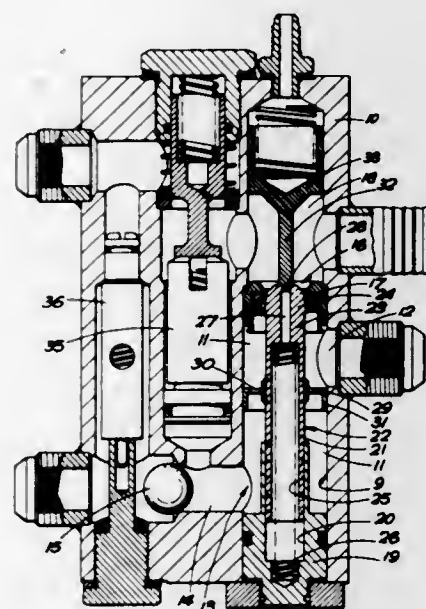
Filed Feb. 17, 1970, Ser. No. 11,957

Claims priority, application Great Britain, Feb. 18, 1969, 8,747/69

Int. Cl. F16k 31/14

U.S. Cl. 137—117

11 Claims



A fluid flow regulator valve comprises a valve chamber having an inlet communicating with fluid under pressure, a service port communicating with a device operated by fluid pressure, and an outlet communicating with exhaust. In the chamber there is a movable valve member having a spring

urging it to close the outlet. A flow-responsive element on the valve member causes a force, dependent on the rate of fluid flow through the chamber to act on the valve member in such a manner as to overcome the spring and move the valve member away from the outlet port when the rate of fluid flow reaches a certain value. The valve member and outlet port are so dimensioned that the pressure of fluid within the valve chamber assists the spring, so that the rate of fluid flow at which the outlet port is opened increases with increase of fluid pressure in the chamber.

3,636,971

GATE VALVE

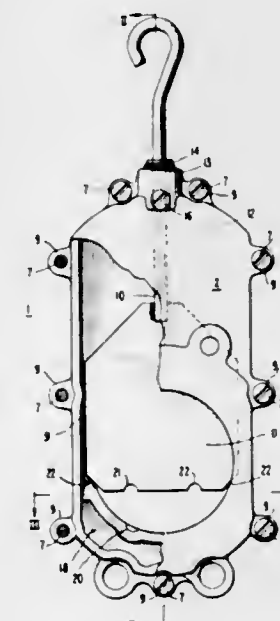
Donald K. Hagar, Macungie, Pa., assignor to Mosser Industries, Incorporated

Filed Sept. 25, 1970, Ser. No. 75,498

Int. Cl. F16k 3/34

U.S. Cl. 137—238

10 Claims



A gate valve with a self-flushing function for use in a pipeline in which solid material or particles are dispersed or entrained in a fluid is disclosed. The valve is composed of a housing having inlet and outlet ports defining an opening and a slidable gate adapted to move vertically in a channel in the interior wall of the housing so as to open or block the opening. A depression is provided in the top edge of each of the opposite walls of the channel, and the bottom edge of the gate contains recesses in correspondence with the depressions. As the slidable gate is lowered, the recesses and depressions will correspond to form an opening on the inlet side and an opening on the outlet side of the gate as the gate otherwise blocks the opening defined by the inlet and outlet ports. The fluid in the pipeline enters the opening formed in the inlet side, flows under the bottom edge of the gate and exits the opening formed in the outlet side and during the traverse under the gate flushes away any solid material clogging the channel below the level of the opening.

3,636,972

JACKETED VALVE

Domer Scaramucci, 3245 South Hattie, Oklahoma City, Okla.

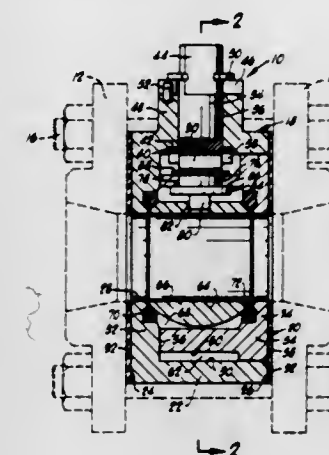
Filed May 7, 1970, Ser. No. 35,353

Int. Cl. F16k 49/00

U.S. Cl. 137—340

19 Claims

A valve for use in a service requiring the valve to be heated or cooled, wherein the chamber for circulation of the heat transfer medium is formed between the outer periphery of the valve body and the inner periphery of a surrounding operating housing. The operating housing carries the valve operator and a valve stem. The valve body is insertable



when the valve body is inserted into the operating housing. The valve is adapted for use between mating pipe flanges. Various types of rotary valves and valve body and operating housing configurations are disclosed.

3,636,973

ANALOG POSITION CONTROLLER

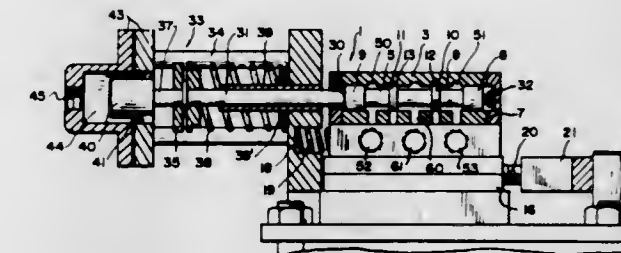
Eugene A. Roeske, 440 Three Mile Road, Racine, Wis.

Filed June 1, 1970, Ser. No. 41,896

Int. Cl. G05d 16/06

U.S. Cl. 137—488

12 Claims



An analog position controller for varying the operative position of a control device such as a valve in response to a pressure signal proportional to a variable parameter being controlled by the control device. The analog position controller includes a control valve assembly slidably mounted to respond to the variable parameter wherein movement of the valve transmits a pressure signal to a pressure-sensitive power means to change the position of the control device. The power means is continuously controlled until a null level is reached by the valve assembly at which time the changing of the operative position of the control device is stopped.

3,636,974

EVACUATOR SYSTEM WITH SHUTOFF VALVE

Luis Beguiristain, St. Paul, Minn., assignor to The Torit Corporation, St. Paul, Minn.

Filed Mar. 4, 1970, Ser. No. 16,381

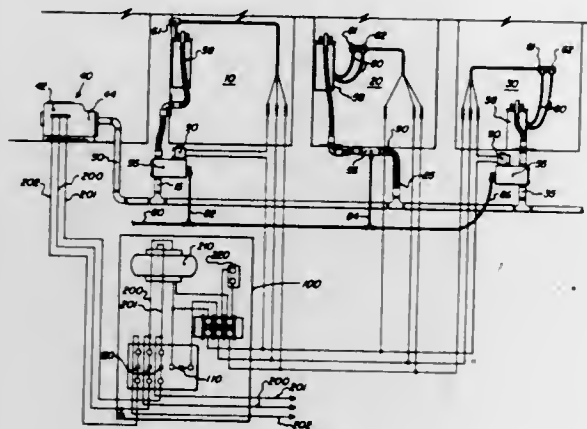
Int. Cl. A61c 17/04; F16k 31/02

U.S. Cl. 137—565

13 Claims

An improved evacuation system with shutoff valve in which a plurality of stations having evacuator units therein may be operated from a single vacuum source, such as a motor-driven vacuum pump. The individual stations are connected from a main flow line of the vacuum pump through branch lines which include an improved shutoff valve which is piloted and electrically controlled by hanger switches at the individual stations. The improved circuit includes an ar-

rangement by means of which operation of any of the hanger switches will energize and operate the respective valve and



also energize the operation of the vacuum pump simultaneously therewith.

3,636,975

UTILITY ARRANGEMENT AND CONSTRUCTION FOR REVOLVING STRUCTURES

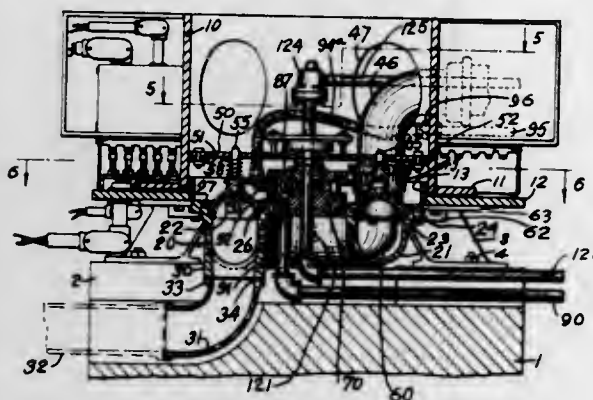
Russell D. Kirkman, 857 Ruland St., San Francisco, Calif.; Chester A. Kirkman, 128 Romley Drive S., San Francisco, Calif., and Wesson A. Kirkman, 9 Linnell Ave., Napa, Calif.

Filed Feb. 2, 1970, Ser. No. 7,554

Int. Cl. F16I 27/08

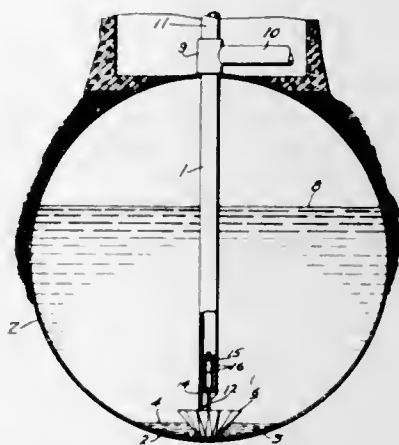
U.S. Cl. 137-580

9 Claims



A revolving structure having toilets, wash basins, sinks, tubs, and other utilities mounted therein so that the utilities rotate with the structure. The revolving structure is mounted on a base or turntable which is centrally provided with a hub casing, and an annular waste gland has a chamber member and a cover plate axially positioned relative to the annular hub casing. The chamber member is fixed against rotation and is mounted on a fixed foundation member while the cover member is rotated by the hub casing as the revolving structure rotates. Waste material from the utilities is directed through the cover plate into the chamber member in such a manner that the waste material is directed to a waste outlet leading to the sewage system as the structure rotates. A water gland is positioned centrally of the waste gland and supported by the waste gland. The water gland is annular and provided with a nonrotatable outwardly facing annular chamber which is closed by a ring which is revolved as the structure revolves. The ring forming with the annular chamber a water manifold, with suitable piping communicating with the manifold for delivering water to the utilities in the revolving structure.

3,636,976
SUCTION VORTEX ELIMINATOR
William B. Hansel, Media, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
Filed Apr. 2, 1970, Ser. No. 25,107
Int. Cl. E03b 11/00; E21f 17/16; B67d 5/60
U.S. Cl. 137-590 3 Claims



A bowl-shaped member, whose cross-sectional area is large compared to the cross-sectional area of the pipe, is mounted below the pump suction pipe in a subterranean liquid storage tank. This member rests in upright position on the bottom of the tank, with its open end at the top. The member is so designed that it can be collapsed for insertion into the tank, and for withdrawal therefrom, through the suction pipe.

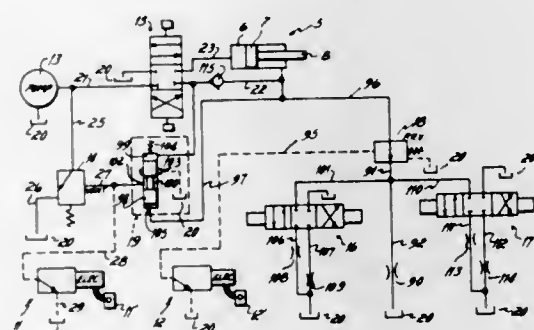
3,636,977

ELECTROHYDRAULIC FLOW CONTROL CIRCUIT

Cecil E. Adams, Columbus, Ohio, assignor to Abex Corporation, New York, N.Y.
Filed Mar. 4, 1970, Ser. No. 16,363
Int. Cl. F16k 11/20

U.S. Cl. 137-608

4 Claims



An electronically programmable pressure and flow control hydraulic circuit. The circuit comprises a pair of electronically programmable pressure control valves, one of which is cooperable with a pressure reducing valve and one or more orifices to control flow through the circuit and the other of which controls pressure in the circuit. When the circuit is used in combination with a hydraulic ram or motor, it enables both the force and speed of the ram or motor to be electronically controlled and programmed.

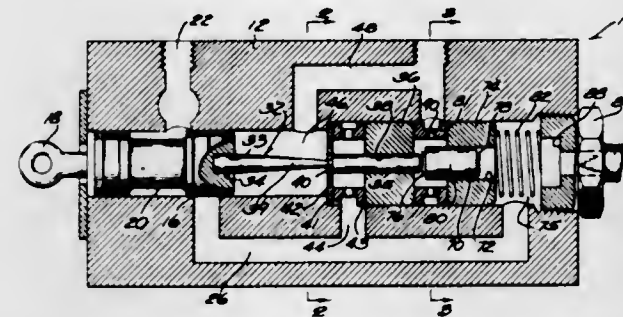
3,636,978
HYDRAULIC PRESSURE FEEDBACK CONTROL VALVE
James R. Byers, 3620 Mountain Drive, Brookfield, Wis.
Filed Aug. 24, 1970, Ser. No. 66,318
Int. Cl. F16k 11/07

U.S. Cl. 137-625.26

9 Claims

Disclosed herein is a hydraulic valve with a valve plunger, a metering valve and feedback piston in tandem. A metering valve member has one end fixed to the end of the plunger

and a free end supported in a sleeve to guide a valve portion having a variable cross section through a metering orifice to exhaust fluid into a vent passage and vary the pressure at the valve outlet as the valve plunger is moved. Interchangeable metering valve assemblies containing valve members and orifices with different configurations and dimensions afford dif-



ferent metering characteristics, and thus, different output pressure ranges for different valve applications. The feedback piston is freely reciprocal axially of the plunger and has a feedback face exposed to the valve output chamber and another piston face engaging the free end of the metering valve member to provide a counterforce on the plunger and a "feel" of the output pressure to the valve operator.

3,636,979

HYDRAULIC VALVE

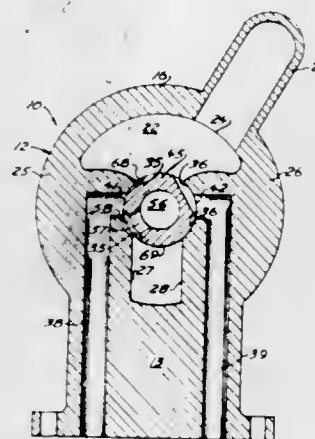
Shig K. Kamachi, and Roy Lancaster, both of New Westminster, B.C., Canada, assignors to Queensboro Marine Equipment Ltd., New Westminster, British Columbia, Canada

Filed Nov. 24, 1969, Ser. No. 879,465

Int. Cl. F16k 11/02

U.S. Cl. 137-625.23

3 Claims



A valve for controlling flow of hydraulic fluid between a positive displacement pump and a reversible motor. A pair of relatively movable members, having mating surfaces in sliding sealed contact and having ports defining ends of fluid passages, movable into and out of registry, each relatively movable member provided with leads tapering away from the ports in a direction of relative movement of the surfaces, so metering fluid flow through the passages.

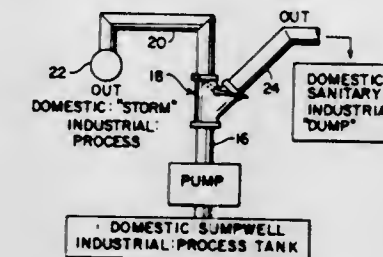
3,636,980
DIVERTER VALVE
Gerald P. Maloney, 44 West Central Ave., Roselle, Ill.
Filed Oct. 16, 1969, Ser. No. 866,961
Int. Cl. F16k 11/02

U.S. Cl. 137-625.44

1 Claim

Fluid pump-effluent is completely and instantaneously routed to one of two conduits in a system which includes a vertically extending main line, passing through a special

valve, and a secondary line passing laterally from said valve. The valve includes a closure member pivotable around a pivot line through an arch which is upstream with respect to



said pivot line, and generally below said pivot line, the pivot line being positioned at one side of said main steam above the secondary line, the closure member being seatable on both primary line, and secondary line, valve seats.

3,636,981

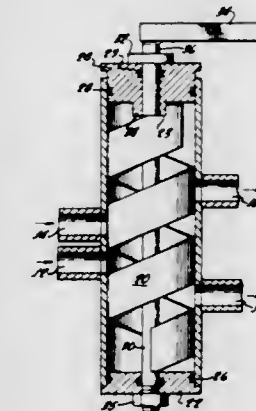
FLOW VALVE

Frederick D. Henry, 18413 Florwood Ave., Torrance, Calif.
Filed May 4, 1970, Ser. No. 34,328

Int. Cl. F16k 11/06

U.S. Cl. 137-625.46

18 Claims



A tubular valve housing is ported to provide for fluid flow to and from the interior of the housing. A helical valve spool having coils of rectangular cross section is rotatably mounted within the housing and has the width of the coils thereof equal to or greater than the ports in the housing whereby various ones of the housing ports are opened or closed by the helical spool coils in various rotational positions of the spool. Temperature compensation and wear compensation are provided by an adjustable tie rod that extends axially through the helical spool to provide a predetermined amount of axial compression which may be adjustable as the spool and housing wear.

3,636,982

INTERNAL FINNED TUBE AND METHOD OF FORMING SAME

Charles E. Drake, Stroudsburg, Pa., assignor to The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

Filed Feb. 16, 1970, Ser. No. 11,623

Int. Cl. F28f 13/12

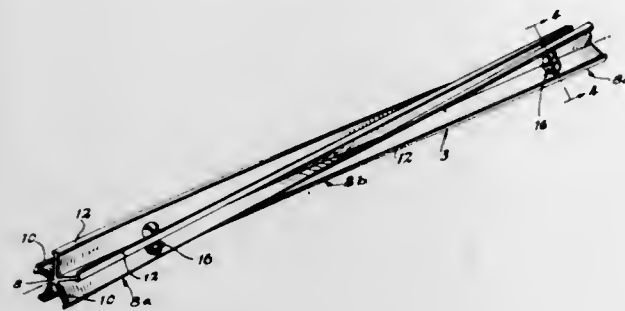
U.S. Cl. 138-38

4 Claims

A tube-type heat exchanger wherein a fin member, including a central core portion and a plurality of fins extending radially therefrom, is located within a tube such that the fins have a close interference fit with the inner wall of the tube. The core portion is composed of a plurality of axially spaced segments, and the fins bridge a space between and interconnect adjacent segments. The space between adjacent segments establishes communication across the core portion

between flow paths bounded radially of the core portion by the tubular member and fins.

The core portion is segmented subsequent to extrusion



forming of the fin member by directing a cutting member into engagement with the core portion along a line extending transversely of the fin member.

3,636,983

METHOD AND APPARATUS FOR INCREASING FLUID FLOW

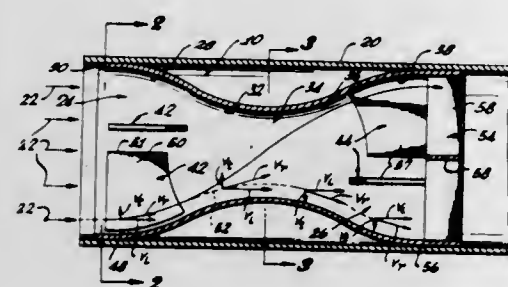
Edwin J. Keyser, 14513 Mulholland Drive, Los Angeles, Calif.

Filed Aug. 14, 1970, Ser. No. 63,691

Int. Cl. F15d 1/02

U.S. Cl. 138—39

16 Claims



A method and fluid flow device for increasing the rate of flow of a fluid by inducing angular velocities in the flow entering the device thereby to reduce the upstream static pressure, and carrying the angular velocities through the device where it is nullified before leaving the device, thereby to increase the downstream static pressure. Reducing the static pressure of the fluid entering the device and increasing the static pressure of the fluid leaving the device results in two forces of acceleration tending to increase the rate of flow through the device. In one embodiment, the device is a venturi-type nozzle having a forward set of baffles in the converging section and a rear set of baffles in the diverging section, and in another embodiment, the device is a teardrop-shaped flow restriction in a conduit and has a forward set of corrugated baffles and a rear set of corrugated baffles.

3,636,984

HINGED BRIDGING PLATES FOR LAY-IN WIREWAYS

Warren C. Rauhauser, Detroit, Mich., assignor to Keystone Columbia, Inc., Warren, Mich.

Filed Feb. 4, 1971, Ser. No. 112,703

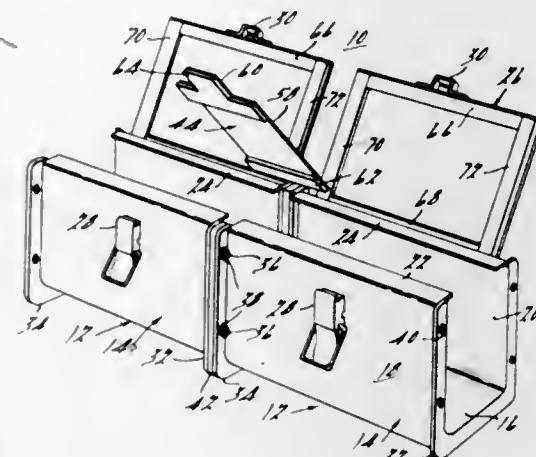
Int. Cl. H02g 3/04, 3/06

U.S. Cl. 138—155

16 Claims

This invention relates generally to a lay-in wireway comprising a plurality of hollow rectangular channel sections secured in end-to-end relation and provided with hinged covers which overlap similarly hinged bridging plates disposed therebetween. The bridging plates are provided with

resilient gaskets which sealingly engage the open sides of the channel sections and the covers are similarly provided with



gaskets which sealingly engage the tops of the bridging plates.

3,636,985

TUBULAR STEEL SHEETING

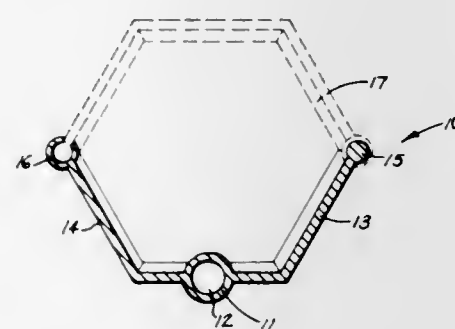
Keith L. Burchett, 26 Valley Road, Beloit, Wis.

Filed Mar. 16, 1970, Ser. No. 19,862

Int. Cl. F16l 9/22

U.S. Cl. 138—162

1 Claim



Tubular material having a longitudinal opening for the passage of an auger or other devices. This tubular structure includes side pieces of a desired width which are set at the center of the longitudinal opening of the sheeting and may be used for various purposes.

3,636,986

OPEN BACK SHED LOOM

Thomas W. Langley, Bon Air, and Robert A. Cloud, Richmond, both of Va., assignors to Texaco Inc., New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,219

Int. Cl. D03c 13/00

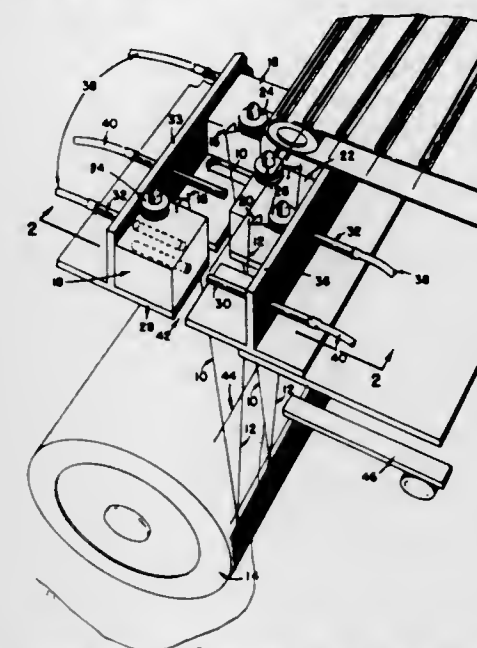
U.S. Cl. 139—17

5 Claims

A loom and method of looming weft filaments which cannot be wound, wherein the warp filaments are arranged at their upper end on carriages which move laterally to form an

open shed and wherein the weft filaments, which are cut into predetermined lengths, are dropped into endless belt carriers

ing of pile fabrics this invention is directed to a method and apparatus in which a plurality of weftwise rows of vertically movable and weftwise movable pile yarn guides are em-



which, in turn, deposit them in the open shed at each alternation of the carriages.

3,636,987

ADJUSTABLE WEAVING LOOM

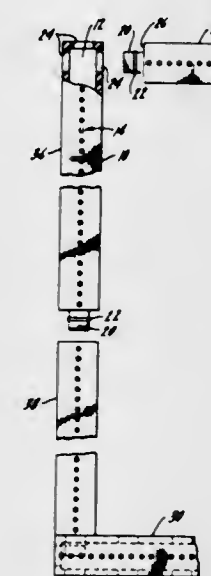
Beverly B. Forby, 4980 North Marine Drive, Chicago, Ill.

Filed Mar. 11, 1970, Ser. No. 18,606

Int. Cl. D03d 29/00

U.S. Cl. 139—34

3 Claims



An adjustable weaving loom made up of a plurality of loom sections, each of which has a top surface with a plurality of generally equally spaced upstanding knobs. The loom sections are held together by socketlike joints in which a projection on one loom section is inserted into an opening on an adjacent loom section. The cross section of the projection and opening are such that relative turning movement between the two sections is prevented.

3,636,988

APPARATUS AND METHOD FOR WEAVING FABRIC WITH INTRICATE PILE FORMATIONS

James E. Troy, and John T. MacIsaac, Jr., both of Eden, N.C., assignors to Fieldcrest Mills, Inc., Eden, Rockingham, N.C.

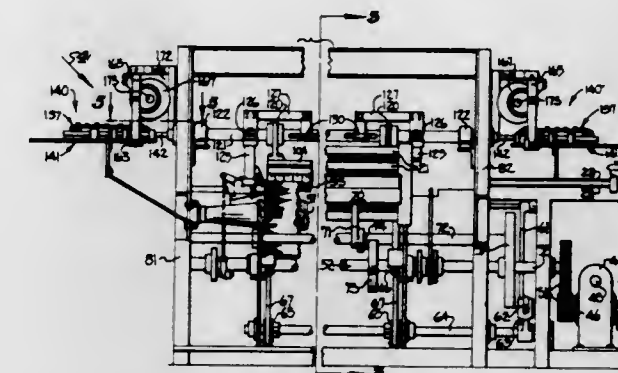
Filed Dec. 8, 1969, Ser. No. 882,851

Int. Cl. D03d 39/20

U.S. Cl. 139—46

51 Claims

Utilizing the principle of shogging pile yarns above and across warpwise extending pile formers or wires in the weav-



played and wherein the rows of pile yarn guides and the respective pile yarns are shogged weftwise varying amounts independently of each other under control of a pattern mechanism.

3,636,989

WIRE LOOM WITH BOBBINLESS WEFT INSERTING MEMBER

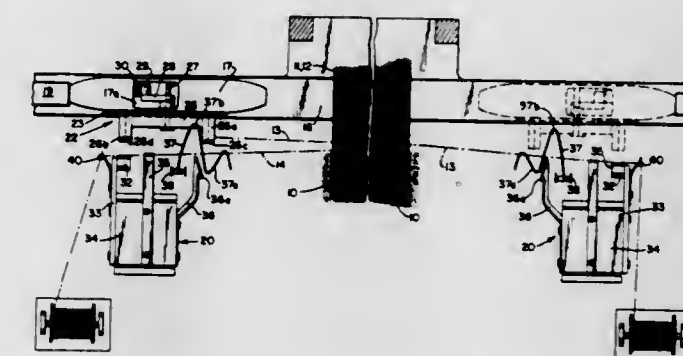
Adolf Rieker, Reutlingen, and Rudolf Boklen, Stuttgart, both of Germany, assignors to Hermann Finckh Metalltuch- und Maschinenfabrik, Reutlingen, Germany

Continuation of application Ser. No. 708,258, Feb. 26, 1968, now abandoned. This application Dec. 29, 1969, Ser. No. 888,169

Int. Cl. D03d 47/24

U.S. Cl. 139—125

13 Claims



A loom for weaving wire cloth in which a supply of weft wire is provided at each side of the loom and a gripper-type shuttle is picked back and forth across the loom and draws weft wires alternately from said supplies. In each end position of the shuttle it is moved transversely to the picking direction thereof and the transverse movement is employed to release the shuttle from the weft wire last inserted and to connect the shuttle to the next weft wire to be inserted and to cut off the weft wire connected to the shuttle between the shuttle and the loom.

3,636,990

METHOD AND APPARATUS FOR WINDING DYNAMOELECTRIC MACHINE FIELD COILS

Robert J. Eminger, and William N. Brown, both of Fort Wayne, Ind., assignors to Fort Wayne Tool & Die Inc., Wayne, Ind.

Filed Dec. 17, 1969, Ser. No. 885,684

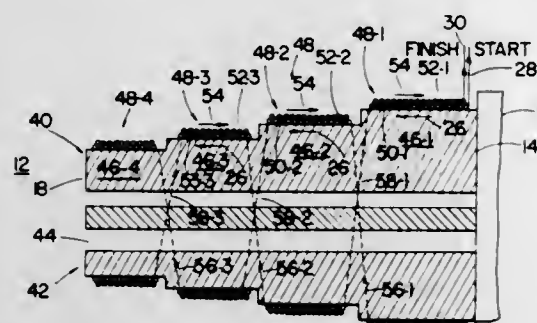
Int. Cl. B21f 3/04

U.S. Cl. 140—92.1

23 Claims

A method and apparatus for winding a plurality of interconnected dynamoelectric machine field coils providing in-

tercoil connections of minimum length. At least two coil forms are provided each having a distal end and a proximal end secured to a support, the coil forms extending radially outwardly from the support in angularly spaced relation. Each coil form has at least two steps with the largest step adjacent the proximal end and the smallest step adjacent the distal end. A flyer-winder is provided supported for axial movement thereby to wind the coils on the coil forms. A first latching mechanism is provided for moving the flyer forwardly in incremental steps thereby to position the flyer for winding on the respective coil form steps, and a second latching mechanism is provided for moving the flyer rearwardly in incremental steps, likewise to position the flyer for winding on respective coil form steps. A traversing mechanism is provided for moving the flyer axially thereby to



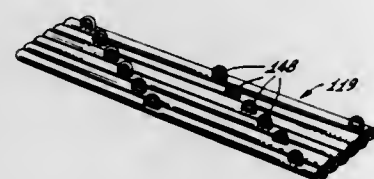
traverse the flyer across the coil form independently of the incremental steps provided by the latching mechanisms. With this construction, a part of a coil on one coil form is wound progressing in a forward direction from the proximal end toward the distal end with the starting end of the coil being adjacent the proximal end, and the remaining part of the coil is wound in a direction progressing rearwardly from the distal end toward the proximal end with the finishing end of the coil being adjacent the proximal end. Thus, when the support is rotated to move another coil form into winding relationship with the flyer, the starting end of the coil forms a continuation of the finishing end of the previously wound coil, both of these ends and the interconnection therebetween being adjacent the proximal ends of the respective coil forms and the support, thereby minimizing the length of the intercoil connections.

3,636,991

METHOD AND APPARATUS FOR PUNCHING TERMINAL LOOPS FROM MULTIPLE WIRE CABLE
Adrian D. Webster, Huntington Beach, Calif., assignor to Spectra-Strip Corporation, Garden Grove, Calif.
Filed Dec. 3, 1969, Ser. No. 881,730
Int. Cl. B21f 1/00

U.S. Cl. 140-105

19 Claims



The method and apparatus for punching terminal loops from multiple wire flat ribbon cable in which the wires are pulled bodily relative to their own loose insulation as the loops are formed to avoid wire drawing and reduction in cross section of the wire. The loops extend at right angles to the plane of the cable and are longitudinally and transversely spaced in groups in a staggered pattern. The loops are started adjacent the middle of the cable and are progressively formed toward each end, with immediately preceding loops forming anchoring points holding the wires, while new groups

of loops are being pressed out toward the opposite ends. The wires are bodily slid within their insulating jackets from the ends to provide material for the newly formed loops. Punches and dies are mounted on slides movable in opposite directions from the center of the machine and cable and the slides are indexed in positions for punching a new group of loops and for anchoring an immediately preceding formed group by properly spaced lights which are indexed with a photocells on a slide. The cycle of operations repeats through the final groups of loops adjacent the ends of the cable whereupon the slides are returned to their central position and the cable is withdrawn, its ends sheared, and a new cable blank inserted into punching position.

3,636,992

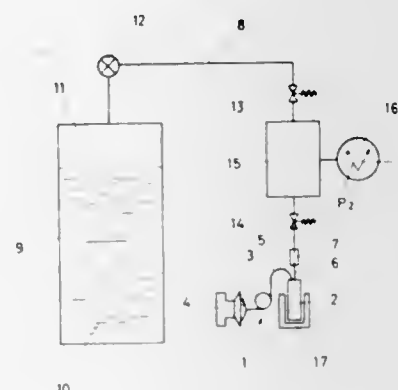
METHOD AND APPARATUS FOR CHARGING A THERMOSTATIC SYSTEM

Eric Weidner, Augustenborg, Denmark, assignor to Danfoes A/S, Nordborg, Denmark
Filed May 11, 1970, Ser. No. 36,000
Claims priority, application Germany, May 7, 1969
P 19 23 370.6

Int. Cl. B65b 31/00

U.S. Cl. 141-4

5 Claims



A method and apparatus for charging a thermostatic system with a condensable fluid. Essential parts of the apparatus are a storage container for the condensable fluid, a metering container and a charging head. The condensable fluid in the storage container exerts a vapor pressure and, with the use of valve means, vaporized fluid is caused to flow to the metering container until a first predetermined pressure is reached. With the use of other valve means vaporized fluid in the metering container is caused to flow through the charging head to the thermostatic system to be charged until a second lower predetermined pressure is reached. A reducing valve is between the storage container and the metering container to effect a superheated condition for the fluid flowing to the metering container.

3,636,993

ADAPTER FOR FILLING HEAD FOR FILLING AEROSOL DISPENSER

Marvin L. Thornton, Bayside, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 31, 1968, Ser. No. 788,245

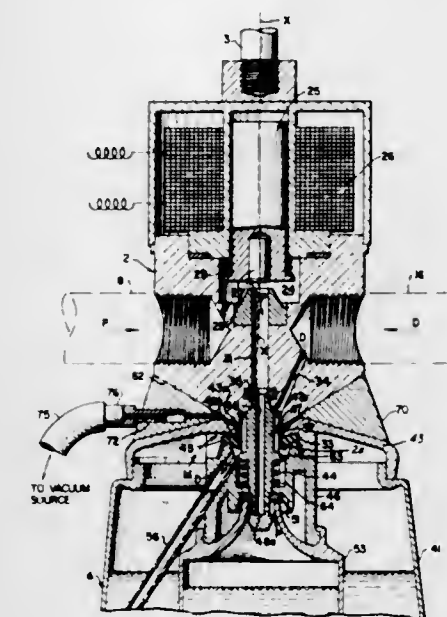
Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-20

2 Claims

An adapter for positioning between a filling head and an aerosol-type dispenser having a separate product container. The adapter is an annular member having the upper surface tapered with a taper complementary to the taper of the lower surface of the filling head and the lower surface tapered with a taper complementary to the taper of the upper surface of the dispenser. The axial dimension of the annular member at the inner periphery thereof is sufficient to space the filling head from the dispenser. The annular member has at least

one air escape passage extending from the inner periphery thereof to the outer periphery thereof to which vacuum



means can be connected to assist in air withdrawal as the product container is filled.

3,636,994

PNEUMATIC CONTROL DEVICE
Gustaf Lennart Lilljefors, Lidingo, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

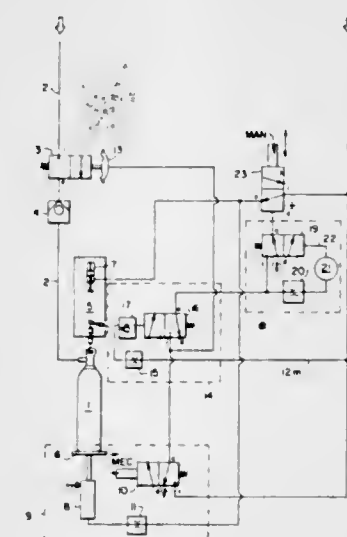
Filed Mar. 16, 1970, Ser. No. 19,788

Claims priority, application Sweden, Mar. 15, 1969, 3526/69

Int. Cl. B65b 1/32, 3/28

U.S. Cl. 141-83

11 Claims



A pneumatic control device for automatic charging of containers placed on a weighing machine with one or more substances. The control device comprises a manually operable starting valve actuating a delay circuit to operate the weighing machine. After this, a delay circuit together with a shutoff valve controlled by the weighing machine and arranged in a weighing valve circuit actuate a main valve in one of the supplying conduits, selected by an alternating or selecting circuit. Having charged all the determined substances the control device is reset to the initial position by a reset circuit giving an impulse to the starting valve.

3,636,995

TENSIONER FOR SAW CHAIN

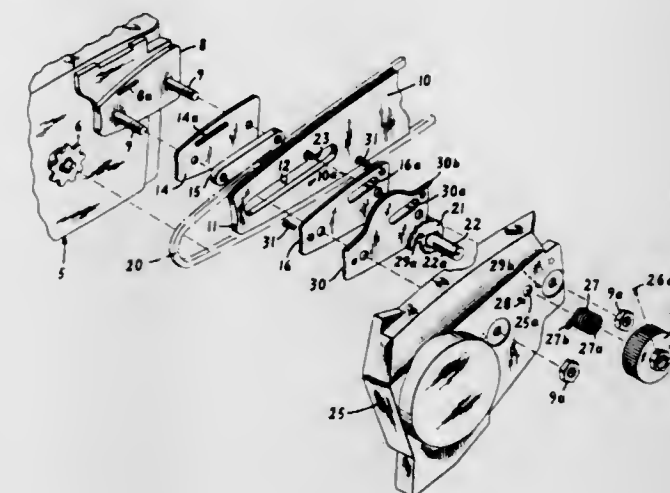
Albert K. Newman, Noroton, Conn., assignor to Textron, Inc., Providence, R.I.

Filed July 2, 1970, Ser. No. 51,988

Int. Cl. B27b 17/14

U.S. Cl. 143-32 J

16 Claims



A chain saw is provided with means for tensioning the cutting chain to compensate for wear and thermal expansion during operation. The chain guide bar is slidably mounted on the chain saw frame so as to be movable longitudinally toward and away from the chain-driving sprocket. A spring-operated cam rotatably mounted on the frame engages a pin on the guide bar to move it in a direction away from the driving sprocket and thereby tighten the chain. The cam has a generally spiral cam contour with equally spaced cusps and intervening concavities.

3,636,996

CHAIN SAW ANTIPINCH GUARD ARM

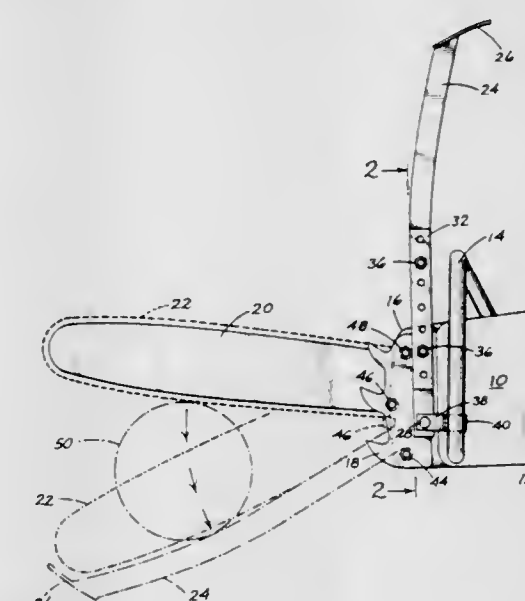
Donald D. Lanz, Route 2, Box 155, Oregon City, Oreg.

Filed Dec. 12, 1969, Ser. No. 884,456

Int. Cl. B27b 17/02; B27g 19/06

U.S. Cl. 143-32 F

7 Claims



An antipinch guard arm for chain saw blades comprises a stiff, strong arm and pivotal mounting means mounting one end of the arm on the saw in a plane parallel to the plane of the saw blade. The arm is pivotal between a first position, downwardly divergent from the blade, a second position substantially parallel and adjacent to the blade, and a third position, upwardly divergent from the blade. At the beginning of the saw operation, the blade is placed on one side of a log or

other object to be sawn and the arm in its downwardly divergent position on the opposite side. The free end of the arm is braced against the ground or other support. The chain saw then is applied to the log in the usual manner. As the cut progresses, the blade moves in the direction of the arm, which supports the object from the opposite side and thus prevents pinching. At the conclusion of the cut, the arm lies in its second position immediately adjacent the blade, where it protects the saw chain from damage by contacting the ground. When desired, the saw may be shifted to the third position, where it serves as an auxiliary handle when felling and limbing.

3,636,997

HACKSAW FRAME

Mark W. Keymer, Hopkins, Minn., assignor to Malco Products, Inc., Minneapolis, Minn.

Filed June 29, 1970, Ser. No. 50,456

Int. Cl. B27b 21/06

U.S. Cl. 145—33 A

3 Claims



A hacksaw frame with a frame arm telescopically adjustable within a socket in a handle assembly, the frame arm being locked in operating position within the socket and a blade simultaneously tensioned by a movable lever on the handle assembly. Moving the lever from an open to a locked position cocks and binds the frame arm within the socket thereby rigidly securing the hacksaw frame in operating position.

The purpose of the foregoing abstract is to enable the Patent Office and the public generally, and especially the scientists, engineers, or practitioners in the art who are not familiar with patent or legal terms of phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,636,998

METHOD OF MANUFACTURING HOLLOW CORE PANELS WITH EMBOSSED SHAPED FRAMES

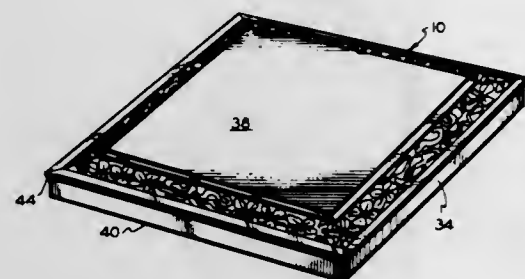
John L. Sarraill, Covina, Calif., assignor to Evans Products Company, Portland, Oreg.

Filed Apr. 15, 1970, Ser. No. 28,754

Int. Cl. B27m 1/00

U.S. Cl. 144—328

9 Claims



A method of making hollow core panels and like structures having an embossed shaped frame comprises cutting a dado

into the face of a piece of frame stock parallel to the outer edge thereof, embossing a design into such dado along the length thereof and forming a frame from the piece of frame stock. A facing sheet is adhered to the embossed face of the frame and a backing sheet to the back of the frame, and such facing and backing sheets extend over the outer edges of the frame. The thus faced and backed frame is then passed through a shaper to form a desired edge detail, the shaper cutting the facing sheet back from the outer edges of the frame at least to expose the embossed dado therein.

ERRATUM

For Class 145—33 see:
Patent No. 3,636,997

3,636,999

GARLIC BULB APPENDAGE REMOVER

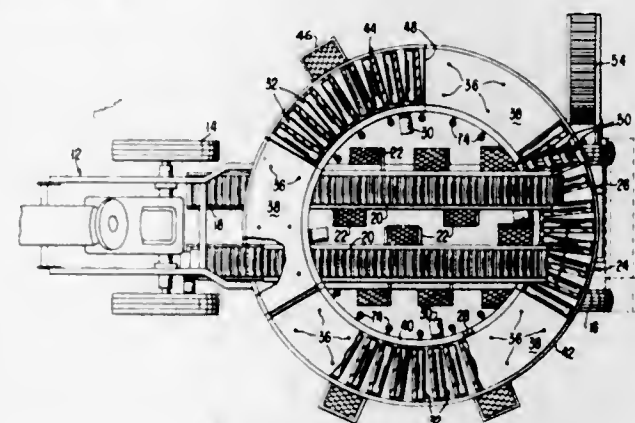
Henry P. Cordes, Vacaville, Calif., assignor to Basic Vegetable Products Inc., San Francisco, Calif.

Filed July 7, 1969, Ser. No. 839,364

Int. Cl. A23n 15/04

U.S. Cl. 146—81

6 Claims



Apparatus for pulling tops and root tendrils from garlic bulbs. Multiple sets of opposed rolls with firm resilient surfaces engage the protruding tops and roots of gently rotating bulbs and remove them by pulling regardless of the stage of the maturity of the garlic, to expose inner portions of the bulb thereby preparing the bulb for further processing or marketing. Treatment times and conditions are widely variable allowing optimum treatment on all types of feedstock encountered.

3,637,000

FIRE-RESISTANT BAG

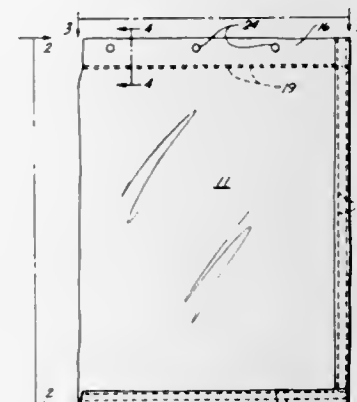
Philip F. Walger, Seal Beach, and William F. Walger, Pasadena, both of Calif., assignors to Minx Products, Inc., South El Monte, Calif.

Filed Jan. 9, 1970, Ser. No. 1,811

Int. Cl. A45c 11/22; B65d 33/16

U.S. Cl. 150—3

5 Claims



A fire-resistant bag for carrying valuable documents or money. The bag has a multilayer sidewall with plies which

are separated by heat-insulating air spaces. Each ply includes a sheet of asbestos or similar heat-insulating material, and one ply has a metal-foil outer face for reflecting heat. A zipper closure is provided, and the zipper is protected from direct exposure to flame by multilayer lips or flaps on the bag which cover the zipper. Snap fasteners secure the zipper cover in place when the bag is closed.

3,637,001

PNEUMATIC TYRES

Glyn B. Roberts, Four Oaks, Sutton Coldfield, and Thomas Holmes, Walmley, Sutton Coldfield, both of England, assignors to The Dunlop Company Limited, London, England

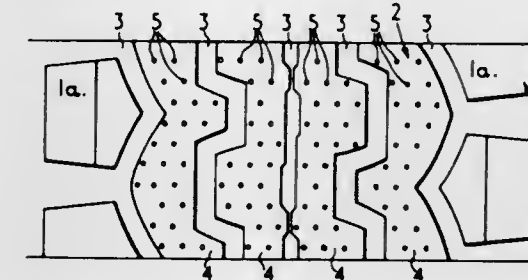
Filed Dec. 20, 1968, Ser. No. 785,626

Claims priority, application Great Britain, Dec. 28, 1967, 58,833/67

Int. Cl. B60c 11/10

U.S. Cl. 152—209

10 Claims



A pneumatic tire particularly adapted for use over water wet surfaces having a tread portion provided with water-absorbing chambers of relatively small cross-sectional area at the ground-contacting surface of the tread, such as cylinders of small diameter, extending radially inwardly into the tread, for absorbing water during contact of the chamber with the water wet surface, and ejection of absorbed water at a later stage in a revolution of the tire.

3,637,002

AUTOMOBILE TIRE VALVE ADAPTER

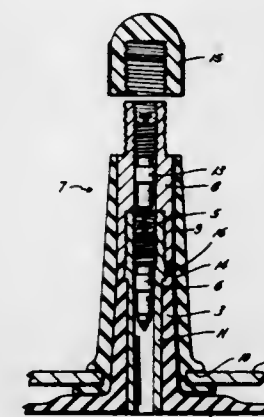
George W. Hughes, 2601 Mills St., Houston, Tex.

Filed July 2, 1969, Ser. No. 838,576

Int. Cl. B60c 29/00

U.S. Cl. 152—429

1 Claim



A pneumatic tire valve adapter to be mounted on the valve stem extending from an inner tube, and having a flexible valve stem mounted on said inner tube valve stem, and having a peripheral groove at the bottom thereof adapted to be received by the edge of the valve stem orifice in the vehicle wheel, to seal the annulus between the inner tube and casing, and a valve core in each of said valve stems through which air is admitted into the inner tube.

3,637,003

COMPOSITE BREAKER BELT FOR RADIAL PLY TIRE

Brian Edward Clapson, Cwmbran, England, assignor to Imperial Chemical Industries Limited, London, England

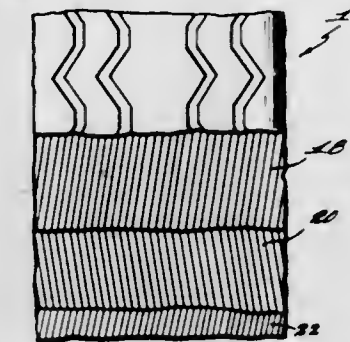
Filed Sept. 2, 1966, Ser. No. 577,023

Claims priority, application Great Britain, Sept. 2, 1965, 37,513/65

Int. Cl. B60c 9/18

U.S. Cl. 152—361

5 Claims



A tire having an embedded breaker belt, the belt being composed of one or more intermediate plies, which are relatively rigid in the lengthwise direction, sandwiched between plies which are relatively deformable in the lengthwise direction. The intermediate plies may be rayon, and the sandwiching plies may be nylon.

3,637,004

ROLLING DOOR OPERATING MECHANISM

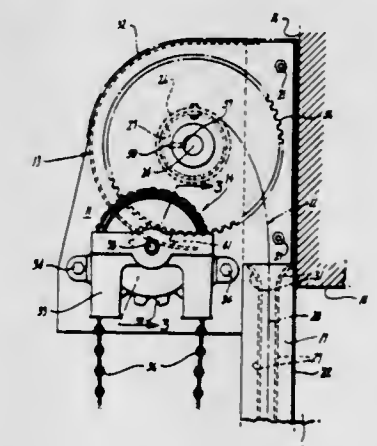
Russell Wardlaw, San Rafael, and Robert Peter Cole, San Francisco, both of Calif., assignors to The Cookson Company, San Francisco, Calif.

Filed Oct. 24, 1969, Ser. No. 869,212

Int. Cl. E06b 9/08, 9/208

U.S. Cl. 160—133

8 Claims



A clutch for a rolling door operating mechanism safeguards a door counterbalance mechanism by actuating a rotatable brake member against a stationary drum should the counterbalance fail. The brake is released again by normally driving the operating mechanism. In one form, the clutch is arranged on a stationary shaft coaxially with the driving input; in a second form the clutch is on the rotatable shaft of the door barrel.

3,637,005

REFRIGERATION DEFROST SYSTEM WITH CONSTANT PRESSURE HEATED RECEIVER

Otto J. Nussbaum, Allison Park, Pa., assignor to Halstead Industries, Inc., Zelienople, Pa.

Filed Feb. 5, 1970, Ser. No. 8,873

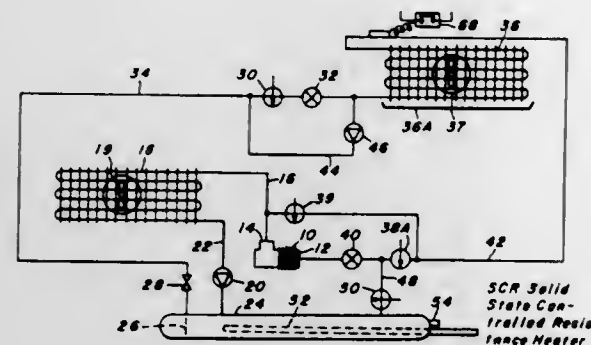
Int. Cl. F25b 29/00

U.S. Cl. 165—17

7 Claims

A compression-type refrigeration system utilizing a conventional suction line as a defrost conduit and including means for heating a liquid refrigerant in the receiver of the

system to maintain the refrigerant at a predetermined pressure and temperature to serve as a source of heat during a defrost cycle. The power supplied to the heating means is regulated, preferably by semiconductor controlled rectifiers



utilizing phase commutation techniques, such that the pressure within the receiver is maintained substantially constant at all times and does not vary even if the receiver is located exteriorly of a building enclosure where it may be exposed to low temperatures.

3,637,006

PROPORTIONING CONTROL UNIT

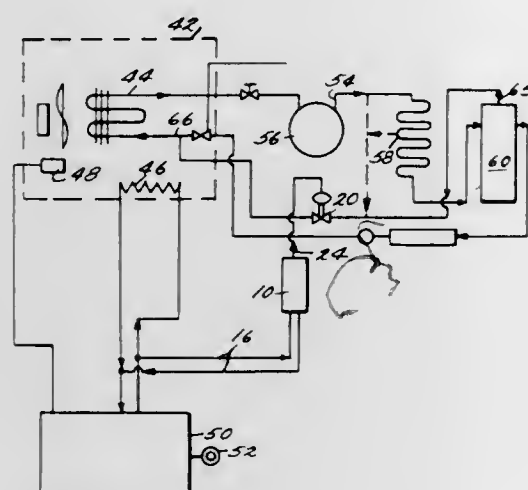
Thomas K. Decker, Marietta, Ohio, assignor to Forma Scientific, Inc., Marietta, Ohio

Filed Apr. 8, 1970, Ser. No. 26,739

Int. Cl. F25b 29/00

U.S. Cl. 165-26

19 Claims



A control device for producing a first control variable or parameter substantially proportional to the duty cycle or ratio of "on" to "off" times of a second variable by heating a block of metal or other thermally conducting material during the "on" time of the second variable and utilizing the resultant block temperature or some other proportional variable as a control variable. In the preferred embodiment of this invention, the block temperature is used to establish the temperature and hence pressure of a closed body of fluid which pressure may be connected for use as a control variable. Several specific temperature regulation systems using such a control device in a refrigeration system are also enclosed.

In substantially upright U-tube bundles of steam generators, tube holders located at substantially horizontally extending turns of the U-tube bundles and comprising a plurality of wave-shaped bands disposed substantially parallel to one another between respective rows of tubes located in the same plane, the waves of each of said bands forming respective bulges, adjacent bands being disposed relative to one another so that the bulges thereof alternately face away from and toward one another, the respective pairs of bulges facing away from one another defining spaces therebetween respectively for receiving individual tubes therein, the bulges facing toward one another being firmly secured to and prestressed toward one another.

3,637,007

METHOD OF AND MEANS FOR REGULATING THERMAL ENERGY TRANSFER THROUGH A HEAT PIPE

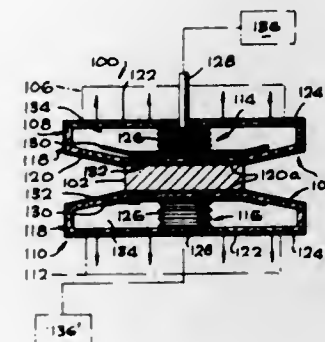
Arnold P. Shlosinger, Los Angeles, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Original application Aug. 14, 1967, Ser. No. 660,400, now Patent No. 3,502,133, dated Mar. 24, 1970. Divided and this application Dec. 29, 1969, Ser. No. 888,255

Int. Cl. F28f 15/0

U.S. Cl. 165-32

7 Claims



A method of and means for regulating the rate of thermal energy transfer through a heat pipe containing a heat transfer fluid in its liquid and vapor phases by regulating the pressure at the liquid-vapor interface. A regulated thermal generator embodying thermally regulated heat pipe means for transmitting thermal energy at a controlled rate to a heat sink or thermal load.

3,637,008

HOLDER FOR U-TUBE BUNDLES OF STEAM GENERATORS

Eberhard Michel, Nurnberg, and Hans Mayer, Erlangen, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin, Munich, Germany

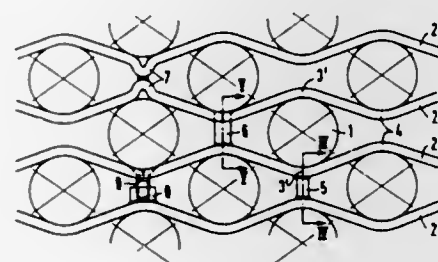
Filed Sept. 18, 1969, Ser. No. 859,088

Claims priority, application Germany, Sept. 20, 1968, P 17 76 098.4

Int. Cl. F28f 9/00

U.S. Cl. 165-69

7 Claims



3,637,009

LUBRICATOR ASSEMBLY DEVICE

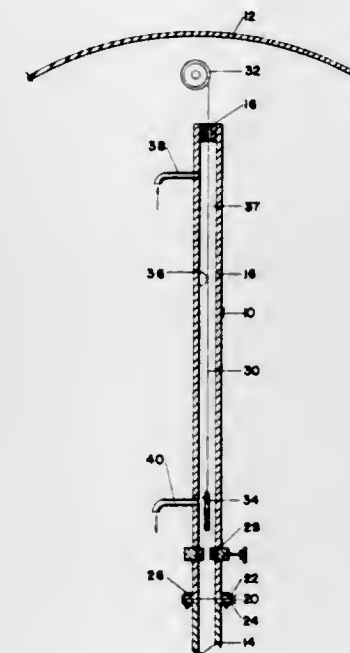
Theodore K. James, Norman, Okla., assignor to Transworld Drilling Company, Oklahoma City, Okla.

Filed Aug. 19, 1969, Ser. No. 851,197

Int. Cl. E21b 33/035

U.S. Cl. 166-5

9 Claims



The invention provides a well lubricator assembly device which is capable of eliminating or substantially minimizing contamination of the surrounding area in which it is used, from leaking oil and gas. The lubricator device is in the form of an elongated tubular member adapted for mounting on the top of the wellhead of an oil or gas well. A wire line is provided to pass through the lubricator to lower a tool or other workpiece into the well. Seals to pack off around the wire line are provided at the top of the lubricator and near the end which is affixed to the wellhead. A chamber is provided between the two seals for the passage of a circulating fluid. The lubricator is adapted for use on wells located on land as well as those submerged under water such as in the ocean. In the latter case, the device is adapted to be transported by and used in a chamber which may be submersed into mating relation with the well to provide a watertight working area.

3,637,010

APPARATUS FOR GRAVEL-PACKING INCLINED WELLS

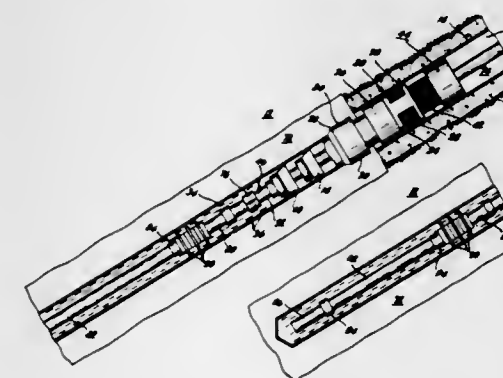
George P. Maly, Newport Beach, and Joel P. Robinson, Santa Ana, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed Mar. 4, 1970, Ser. No. 16,502

Int. Cl. E21b 43/04

U.S. Cl. 166-51

6 Claims



Apparatus is disclosed for hydraulically placing a uniform gravel pack in a well around the exterior of a perforate liner,

and especially for forming uniform gravel packs in wells inclined from the vertical. The apparatus is comprised of a number of tubular members that can be axially assembled to form a stinger pipe that is attached to a conventional gravel-packing tool and placed in the interior of the perforate liner during the gravel-packing operation. A plurality of flexible, radial flow control baffles are slidably mounted on the tubular members so that the assembled tool is axially movable within the liner, within a limited travel, and rotatable independent of the baffles.

3,637,011

CLAMP FOR WELL PIPE

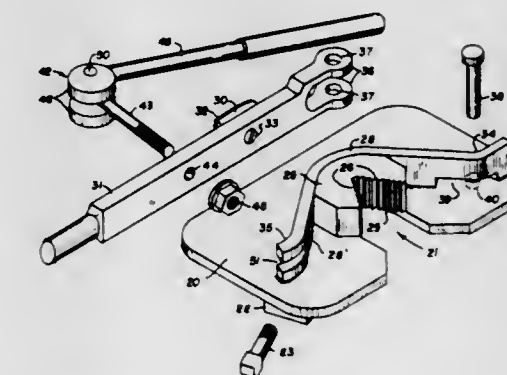
Eugene F. Wheeler, Franktown, Colo.

Filed Oct. 30, 1970, Ser. No. 85,360

Int. Cl. E21b 33/03

U.S. Cl. 166-77.5

6 Claims



A clamp for holding a string of pipe suspended in a well. The clamp is mounted upon a flat plate which is secured to the well casing to prevent it from rotating. The plate has a throat at one side to receive a pipe suspended in the well and vertically splined jaws form a V-notched abutment at the crotch of the throat. A clamp arm having a horizontally splined head is pivotally mounted upon the plate to be pulled against a pipe in the throat to engage the pipe between the jaws and the head. A cammed pull rod connecting with the arm engages a cam seat on the plate to lock the jaws and head onto the pipe and prevent it from slipping and rotating in the clamp.

3,637,012

WELL FLOW CIRCULATING METHODS

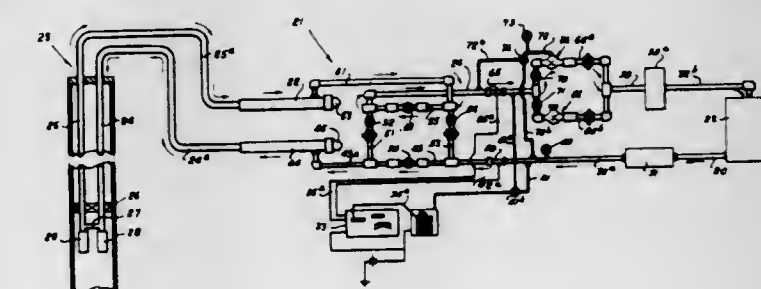
Phillip S. Sizer, Dallas, and Harry E. Schwegman, Richardson, both of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Original application Nov. 14, 1967, Ser. No. 682,874, Pat. No. 3,608,631. Divided and this application Oct. 20, 1969, Ser. No. 870,617

Int. Cl. E21b 41/00, 43/12

U.S. Cl. 166-250

12 Claims



A system and method for pumping tools into and out of a well through fluid circulation passages in the well including fluid input and return passages communicating with each other in the well bore and with surface apparatus for controlling fluid flow through said passages. The surface apparatus includes a manifold system for directing flow through the well circulation passages in either direction and includes

variable choke means in the fluid return portion of the manifold for a controlled back pressure on the well passages and pressure and flow rate measuring means for monitoring fluid flow in the well passages.

3,637,013

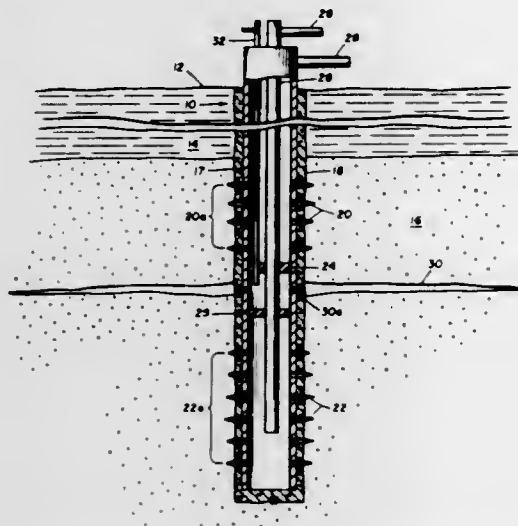
IN SITU COMBUSTION PROCESS USING TIME-DEPENDENT SHEAR-THINNING LIQUID BARRIER
Lloyd G. Jones, Dallas, Tex., assignor to Mobil Oil Corporation

Filed Mar. 2, 1970, Ser. No. 15,702

Int. Cl. E21b 33/138, 43/24

U.S. Cl. 166—257

5 Claims



In situ combustion processes in which a barrier formed of a time-dependent shear-thinning liquid is employed to control the vertical migration of the combustion front. The reservoir is fractured in order to form a horizontally extending fracture between the injection and production systems employed in the combustion drive. Thereafter a time-dependent shear-thinning liquid is introduced into the fracture. This liquid undergoes an increase in viscosity with time in order to form the barrier. The invention may be employed in conjunction with in situ combustion drives carried out in multiply completed wells or in horizontally spaced injection and production wells.

3,637,014

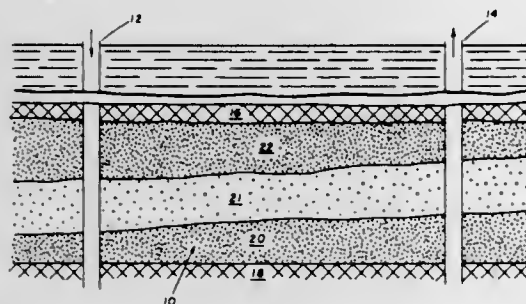
SECONDARY OIL RECOVERY PROCESS USING TIME-DEPENDENT SHEAR-THINNING LIQUID
Lloyd G. Jones, Dallas, Tex., assignor to Mobil Oil Corporation

Filed Mar. 2, 1970, Ser. No. 15,553

Int. Cl. E21b 43/22

U.S. Cl. 166—273

6 Claims



Secondary oil recovery process in which at least a portion of the driving fluid injected into the oil reservoir is a time-dependent shear-thinning liquid. The time-dependent liquid retains a relatively low viscosity induced by the shear rates encountered during injection and thereafter undergoes an increase in viscosity with time. As the viscosity of the time-de-

pendent liquid increases, it functions to increase the sweep efficiency of the secondary recovery process.

3,637,015

METHOD FOR IMPROVING THE INJECTIVITY OF BRINE INTO WATER INJECTION WELLS

Le Roy W. Holm, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Apr. 20, 1970, Ser. No. 30,240

Int. Cl. E21b 43/22

U.S. Cl. 166—273

10 Claims

The injection rate of brine into an injection well that exhibits low injectivity because of oil saturation in the formation adjacent to the well can be increased by introducing a small quantity of substantially anhydrous soluble oil into the well, then introducing low-salt-content fresh water, and thereafter displacing the soluble oil into the formation with subsequently injected brine. This treatment substantially reduces the oil saturation of the formation adjacent to the well, thereby increasing the relative permeability of the formation to brine.

3,637,016

METHOD FOR IMPROVING THE INJECTIVITY OF WATER INJECTION WELLS

LeRoy W. Holm, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Apr. 20, 1970, Ser. No. 30,241

Int. Cl. E21b 43/22

U.S. Cl. 166—273

15 Claims

The injection rate of water into an injection well that exhibits low injectivity because of oil saturation in the formation adjacent to the well can be increased by alternately introducing into the well a series of successive small quantities of substantially anhydrous soluble oil and low salt-content water, and thereafter injecting flood water through the well and into the formation. This technique is particularly useful for improving the injectivity of wells penetrating relatively thick and/or heterogeneous formations.

3,637,017

SURFACTANT FLOODING PROCESS

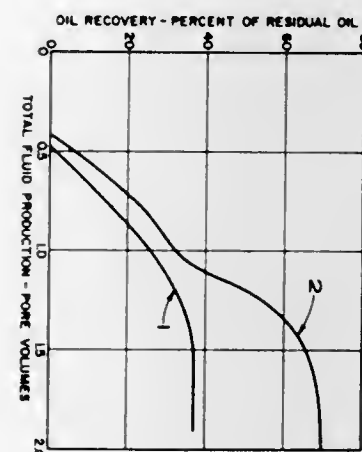
Walter W. Gale, and Euell R. Rorie, both of Houston, Tex., assignors to Esso Production Research Company

Filed June 1, 1970, Ser. No. 42,358

Int. Cl. E21b 43/22

U.S. Cl. 166—274

18 Claims



A method of recovering oil from a subterranean oil-bearing formation in which an aqueous surfactant solution is injected into the formation and displaced by a dilute solution of alcohol in water. In another embodiment, the alcohol and surfactant are contained in the same solution and this solution is displaced through the formation to recover oil.

3,637,018

IN SITU RECOVERY OF OIL FROM TAR SANDS USING WATER-EXTERNAL MICELLAR DISPERSIONS

Joe T. Kelly, deceased, late of Littleton, Colo. (by Laverne S. Kelly, executrix), and Fred H. Poettmann, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Dec. 29, 1969, Ser. No. 888,897

Int. Cl. E21b 43/22, 43/24

U.S. Cl. 166—272

19 Claims

Oil from subsurface tar sand having an injection means in fluid communication with a production means is recovered by injecting a water-external micellar dispersion at a temperature above 100° F., into the tar sands, displacing it toward the production means and recovering the oil through the production means. The micellar dispersion can be preceded by a slug of hot water which can optionally have a pH greater than about 7. Also, the micellar dispersion can have a pH of about 7-14 and preferably a temperature greater than about 150° F. The micellar dispersion contains hydrocarbon, surfactant, aqueous medium, and optionally cosurfactant and/or electrolyte.

3,637,019

METHOD FOR PLUGGING A POROUS STRATUM PENETRATED BY A WELLBORE

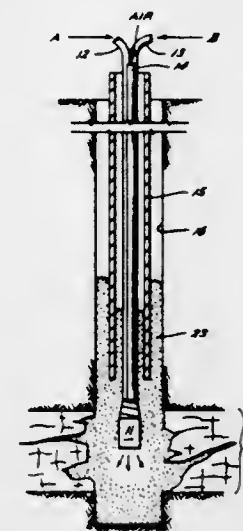
Jimmy D. Lee, Houston, Tex., assignor to Dalton E. Bloom, Houston, Tex., a part interest

Filed Mar. 16, 1970, Ser. No. 19,977

Int. Cl. E21b 33/138

U.S. Cl. 166—295

5 Claims



The apparatus includes a mixing head forming a mixing chamber communicating with the wellbore, with the chamber having baffle means therein for creating turbulence as fluids are flowed therethrough. The mixing head is arranged for insertion into the wellbore to a position generally adjacent to the porous stratum. Three conduit means are arranged to extend down the wellbore to the mixing head for conducting A and B components of polyurethane and a mixing gas such as air. Means are provided for forcing the components and gas down the conduits to the mixing chamber at predetermined pressures and volumes whereby the components are mixed in the mixing chamber by the turbulence created by the gas and baffle means, and the mixing chamber is maintained clear of hardened polyurethane by the flow of the gas or fluid therethrough. After the polyurethane which has been deposited in the wellbore has set up, it may thereafter be drilled through, with the hardened polyurethane consolidating the lost circulation zone adjacent the wellbore.

3,637,020

TENSILE-STRESS FRACTURING

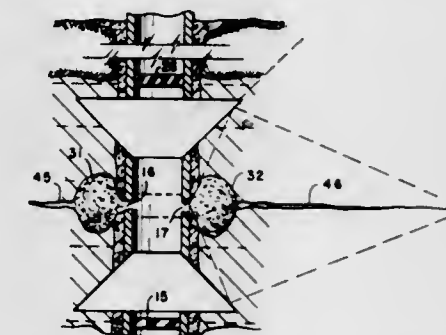
Roy T. McLamore, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed July 18, 1969, Ser. No. 842,852

Int. Cl. E21b 43/26

U.S. Cl. 166—298

6 Claims



In fracturing a subsurface earth formation, an oriented tensile stress that is focused in a plane that is perpendicular to the axis of a borehole is utilized to initiate a horizontal fracture. The stress is produced by notching the walls of the borehole to form diverging conical surfaces and detonating an explosive substantially midway within the confined section between the notches. The explosion propagates a semicylindrical compressive wave and is reflected from the conical surfaces as a pair of tensile waves. The waves then intersect on a horizontal plane and generate a tensile force which is focused in the vertical direction. The net result is a horizontal fracture along the plane of intersection of the two reflected tensile waves.

3,637,021

METHOD AND APPARATUS FOR REMOVAL OF PETROLIFEROUS ADHERENT SOLIDS FROM AN INACCESSIBLE SURFACE

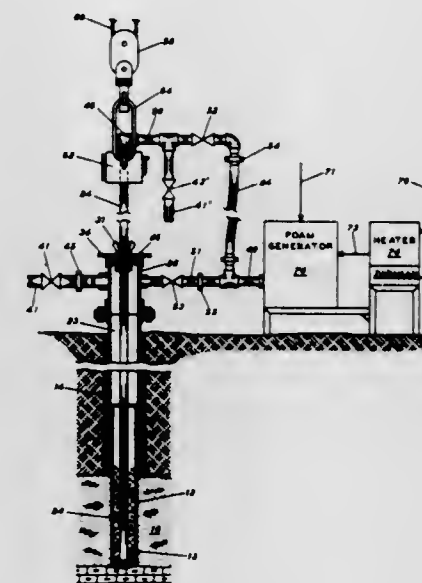
Stanley O. Hutchison, Bakersfield, and John C. McKinnell, Taft, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Jan. 30, 1970, Ser. No. 7,062

Int. Cl. E21b 21/00

U.S. Cl. 166—302

9 Claims



Petroliferous solid matter adhering to an inaccessible surface, such as the well bore in the producing zone of an oil well, are removed by contact of the solid with aqueous gas-liquid foams having a temperature above 140° F.

3,637,022

USE OF HIGH WATER CONTENT OIL-EXTERNAL MICELLAR SOLUTIONS FOR EXTINGUISHING FIRES

Joe T. Kelly, deceased, late of Littleton, Colo. (by La Verne S. Kelly, executrix), and Jack L. Hummel, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Oct. 30, 1969, Ser. No. 873,732

Int. Cl. A62d 1/00

U.S. Cl. 169-1

12 Claims

A fire-retardant composition comprising an oil-external micellar dispersion containing from about 50 to about 90 percent water, from at least about 3 to about 15 percent surfactant, and from at least about 4 to about 40 percent hydrocarbon is used to extinguish fires, especially hydrocarbon fires, occurring in or near water (e.g. on ships), offshore drilling rigs, etc., and fires occurring in oil and refining facilities where it is imperative to quickly remove the burning oil from the equipment. Additionally, the oil-external micellar dispersion may comprise a cosurfactant, various fire-extinguishing salts, halogenated hydrocarbons, gelling agents, corrosion inhibiting agents, and coloring agents.

3,637,023

METHOD OF HARVESTING PEANUTS

George C. Wood, P.O. Box 448, Edenton, N.C.

Continuation of application Ser. No. 751,722, Aug. 12, 1968, now abandoned. This application Aug. 28, 1970, Ser. No. 68,011

Int. Cl. A01d 29/00

U.S. Cl. 171-1

7 Claims

The peanut vines with the peanuts adhering thereto are first dug and deposited with their vines or a portion of them buried in the ground and the peanuts extending upwardly therefrom so that they may be accessible for harvesting either by hand or by machinery after several days. In this manner the familiar flavor of the peanuts is retained and the development of mold or other injurious organism is prevented or deterred.

3,637,024

TRACTOR MOUNTED, GROUND-RAKING AND ROCK-GATHERING APPARATUS

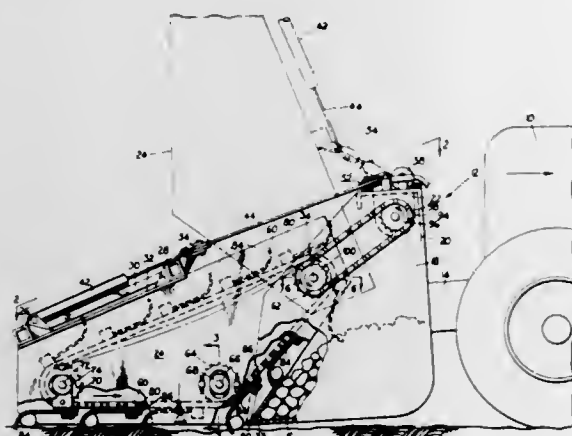
Theodore N. Baskett, 9514 Portland Ave., Tacoma, Wash.

Filed May 14, 1970, Ser. No. 37,244

Int. Cl. A01b 43/00

U.S. Cl. 171-63

10 Claims



Ground-raking and rock-gathering apparatus comprises an attachment for a tractor having a forwardly located, material-handling bucket, i.e., a "front end loader." The attachment includes a rotatably mounted endless, flexible support having mounted thereon a plurality of raking teeth. Pivotal mounting means mount one end of the support on the bucket with the support extending forwardly of the bucket in upper and lower runs. The lower run is arranged to deliver to the bucket solid objects gathered by the teeth. Drive means are

connected to the support for driving it in a rotational direction predetermined to move the lower run in the direction of the bucket. Elevating means are connected to the support for moving it angularly about the pivotal mounting means between raised and lowered positions.

3,637,025

POWER DRIVEN CULTIVATOR

Otto Rosenkranz, Sonke-Nissen-Koog near Husum, and Cornelius Jensen, Sollwitt near Husum, both of Germany, assignors to Martin H. Ketelsen, Great Neck, N.Y., a part interest

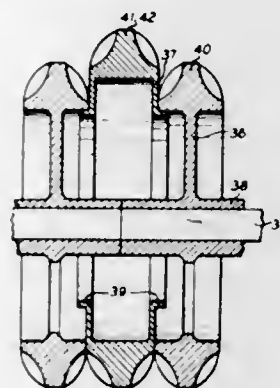
Filed Apr. 3, 1969, Ser. No. 813,065

Claims priority, application Germany, Apr. 3, 1968, P 17 57 136.7

Int. Cl. A01b 33/02, 35/28

U.S. Cl. 172-52

6 Claims



A power driven cultivator which comprises frames and a plurality of rollers which are rotatably mounted in the frames. A driving motor is operatively connected with the rollers and supported by the frames. The rollers are equipped with ribs and bearing means are secured to the frame for the rotatable mounting of the rollers. The latter are coupled together in pairs by means of chain wheels and chains to provide a rear pair of rollers and a front pair of rollers. The rear pair of the rollers is pulled and disposed in the frame at a gap behind two of the front drivable pair of rollers. A platform is disposed between the front pair of rollers supporting the driving motor and coupling means, chain wheels and a chain are operatively connected with the driving motor.

3,637,026

CROSS SLOPE CONTROL OF MOBILE MACHINERY

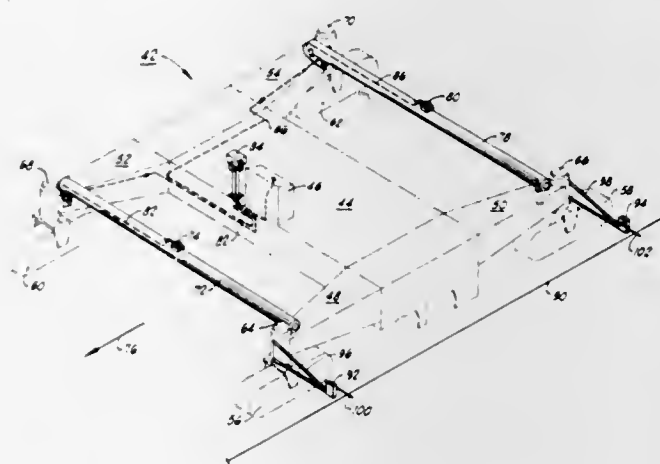
Ralph K. Snow, Oklahoma, Okla., assignor to CMI Corp., Oklahoma City, Okla.

Filed Oct. 6, 1969, Ser. No. 864,122

Int. Cl. E02f 3/76; E01c 19/48

U.S. Cl. 172-4.5

6 Claims



Apparatus for controlling the cross slope of mobile machinery relative to an external reference such as a string

line. The apparatus consisting of accelerometer assemblies affixed at selected transverse midpoints of the machinery to provide a continual electrical output proportional to the cross slope angle of the machinery, whereupon this continual output is compared to a reference voltage selected in accordance with the desired cross slope angle to provide a further control output for use in keeping or repositioning the tilt angle of the machinery so that it is continually maintained at a desired cross slope angle. Such cross slope control assembly works in conjunction with machinery elevation control mechanisms responsive to a string line or other external reference such that cross slope is maintained with respect to an established level.

3,637,027

HYDRAULICALLY FOLDABLE SOIL CONDITIONER

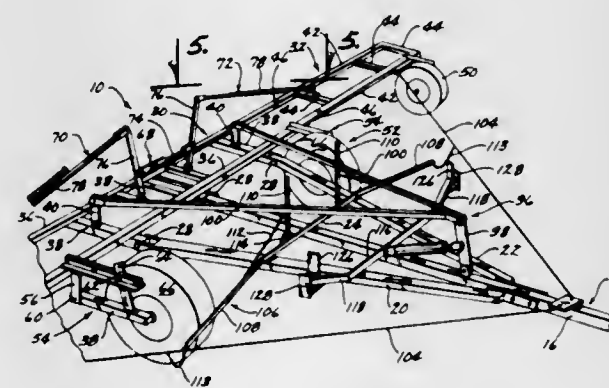
Henry L. Kovar, Osseo, Minn., assignor to John R. Kovar Mfg. Co., Inc., Anoka, Minn.

Filed Aug. 19, 1970, Ser. No. 65,033

Int. Cl. A01b 49/00, 63/32, 65/04

U.S. Cl. 172-311

20 Claims



A foldable soil conditioner includes a main frame and a wing frame hinged adjacent the rearward end of the main frame. The wing frame includes a central member having two wing members hinged to its opposite ends. A pair of reinforcing chains interconnect the wing members with a forward portion of the main frame. A hydraulically operated linkage is adapted to swing the wing frame about its hinged connection with the main frame from an operable position wherein the hinged axes of the wing members are horizontal to an intermediate position wherein the hinged axes of the wing members are vertical. A takeup device is mounted on the main frame and includes swingable arms connected to the reinforcing chains so as to swing and lift them upwardly to take up any slack therein. A pair of levers is hinged to the main frame and is connected to the swingable arms for swinging them. A hydraulically operated mechanism interconnects both of the wing members and the central member and is adapted to swing the wing members towards the lateral sides of the main frame. This mechanism includes links which engage the aforementioned levers when the wing frame is in its intermediate position. When the mechanism is actuated it causes the wing members to fold and simultaneously causes the swingable arms to take up the slack in the reinforcing chains.

3,637,028

OFFSET DISK HARROW

Jerome L. Fueslein, Linden, and William M. Adams, Stockton, both of Calif., assignors to International Harvester Company, Chicago, Ill.

Filed June 8, 1970, Ser. No. 44,453

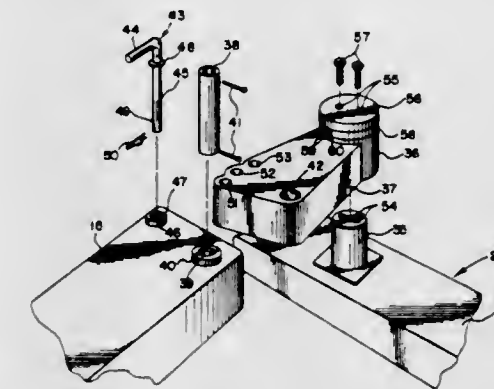
Int. Cl. A01b 23/04, 65/02

U.S. Cl. 172-582

5 Claims

An offset disk harrow wherein the front and rear gangs are supported by a unitary frame structure to the ends of which each gang is connected by a single pivot, and wherein the

frame structure includes articulated parts, one of which supports the rear gang and can be laterally angled relative to the



other frame part and rigidly held in selected adjusted positions to laterally shift the rear gang bodily relative to the front gang.

3,637,029

HAND-HELD POWER TOOL WITH ANTIVIBRATION MOUNT

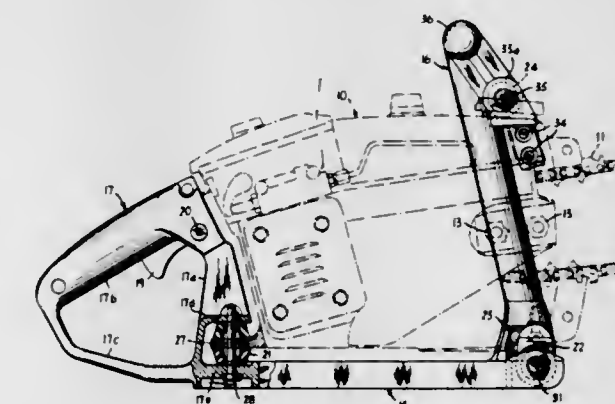
Noble P. Sherwood, Jr., Greenwich, and James P. Strickland, Fairfield, both of Conn., assignors to Textron, Inc., Providence, R.I.

Filed Sept. 14, 1970, Ser. No. 71,829

Int. Cl. B27b 17/02

U.S. Cl. 173-162

13 Claims



A hand-held power tool comprises an internal combustion engine on which a power tool is mounted and by which it is driven. The engine is mounted by vibration isolators on an essentially rigid supporting structure comprising a base portion, a front handle and a rear handle. Four vibration isolators are so arranged as to isolate the supporting structure from vibration of the engine while providing effective control of the tool by an operator holding the supporting structure by the front and rear handles. The vibration isolators are shown in the form of hollow barrel-shaped bodies of elastomeric material.

3,637,030

COMPOSITION FOR AND METHOD OF SUBSTANTIALLY REDUCING PILE-UP OF CUTTINGS ON HOLE BOTTOM IN CABLE DROP DRILLING

Allen E. Bardwell, Princeton, N.J., assignor to Trident Industries, Inc., Princeton, N.J.

Filed Jan. 7, 1970, Ser. No. 1,180

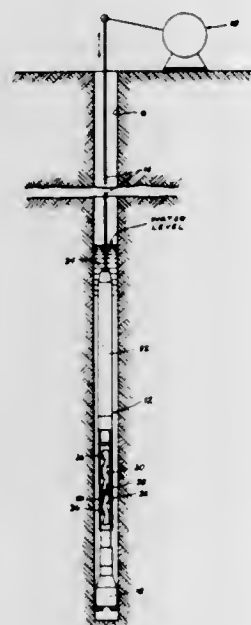
Int. Cl. E21b 21/04

U.S. Cl. 175-65

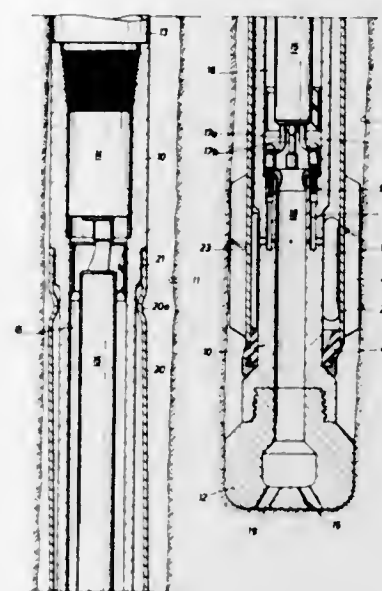
9 Claims

This is a composition for and a method of rapidly materially increasing the viscosity of the water and increasing the lubricity effect on suspended cuttings in cable drop drilling to float the cuttings to provide a relatively clear area for each drill impact and to coat the cuttings to reduce the wear on

the drill in its impact therewith. The composition comprises substantially two-thirds calcium chloride and one-third Galactomannan, a Guar bean product. About one ounce of the composition is added to each gallon of drill water. The



and its associated apparatus is rotated in the direction opposite the direction that the drill pipe is rotated and at the



same speed, so that the pendulum is substantially nonrotative relative to the earth.

3,637,033

DRILLING APPARATUS

William Mayall, 6 Arundel Gardens, Ash Lane, Rustington, Sussex, England

Filed Jan. 6, 1970, Ser. No. 942

Claims priority, application Great Britain, Jan. 22, 1969, 3,566/69

Int. Cl. E21b 17/00, 31/06

U.S. Cl. 175-320

15 Claims

method includes depositing a sack or more of the composition in the lower part of the drill water and rupturing the same on drilling to quickly gel the lower portion of the water column. The sack is soluble in water preferably.

3,637,031

DRILLING FLUID AND METHOD OF ROTARY DRILLING THEREWITH

Jerry D. Hull, Tulsa, Okla., and Robert E. Finch, Denver, Colo., assignors to Standard Brands Chemical Industries, Inc., Dover, Del.

Filed Dec. 12, 1969, Ser. No. 884,718

Int. Cl. B01d 21/01; C10m 3/30

U.S. Cl. 175-66

7 Claims

Polyacrylamide homopolymer, in which the ratio of pendant amide groups to pendant carboxylic acid or carboxylic acid salt groups is between 130 and 500, is effective as either a selective or nonselective flocculation agent to remove cutting fines from aqueous rotary drilling fluids.

3,637,032

DIRECTIONAL DRILLING APPARATUS

John D. Jeter, Route 1, Box 195, Cocoa, Fla.

Continuation-in-part of application Ser. No. 869,056, Oct. 24, 1969, now abandoned. This application Jan. 22, 1970, Ser. No. 4,943

Int. Cl. E21b 7/08

U.S. Cl. 175-73

25 Claims

A pendulum is mounted in the drill pipe close to the drill bit to assume a vertical position in the azimuthal plane of the drill pipe. When the position of the pendulum is such that the inclination of the drill pipe is not a preselected amount or the azimuthal direction of the pipe is not the preselected direction, a lateral force is imposed on the drill bit urging it to drill in a direction that will return the drill pipe to said preselected inclination or azimuthal direction. The pendulum

The invention relates to an assembly for collecting magnetic waste material for insertion in the drill string of drilling apparatus.

The assembly includes a plurality of magnets held in place around a first nonmagnetic tubular member by means of a second nonmagnetic tubular member which is swaged around the magnets to form a longitudinally extending recess between each pair of magnets.

3,637,034

HYDRAULIC SCALE

Chester H. Wickenburg, 1125 Forest Drive, Elgin, Ill.

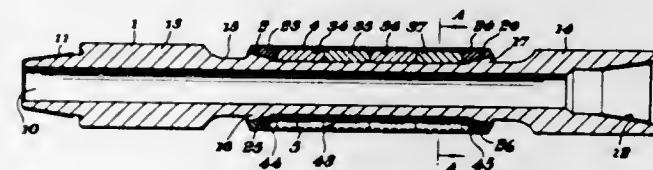
Continuation-in-part of application Ser. No. 880,092, Nov. 26, 1969, now abandoned. This application July 6, 1970, Ser. No. 52,593

Int. Cl. G01g 5/04; G011 7/02

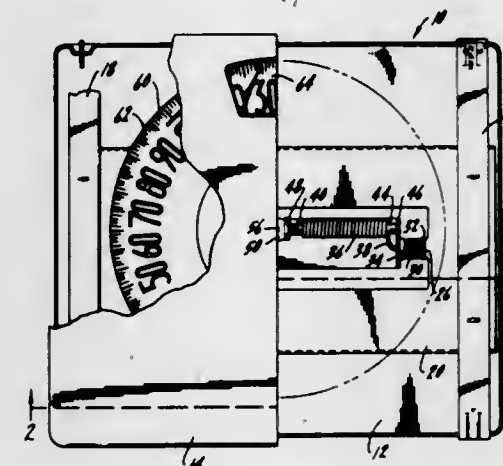
U.S. Cl. 177-208

27 Claims

There is disclosed a hydraulic weighing scale comprising a base member, a platform member mounted for vertical movement relative to the base member in response to a force being placed upon the platform, a bellows positioned between the platform and the base, lever means operatively



connected between the platform and one side of the bellows wherein vertical movement of the platform results in a pressure increase in the bellows, a helically coiled hydraulic tube having either a horizontal or vertical axis wherein the first end of the tube is connected to the second side of the bellows and an indicator connected to the second end of the hydraulic tube wherein the pressure increase from the bellows causes an expansion of the hydraulic tube thereby causing a displacement of the indicator means, the displacement being proportional to the downward force on the platform.



A second embodiment discloses a hydraulic scale wherein the helically coiled hydraulic tube is replaced by a hydraulic tube helically coiled in a clock spring configuration. As in the first embodiment, one end of the hydraulic tube is connected to the bellows and the second end of the hydraulic tube is connected to an indicator.

In either of the two embodiments, the indicator and the helically coiled hydraulic tube may be located between the base member and the platform member or they may be located remotely to or externally from the platform member and base member.

3,637,035

SNOWMOBILE

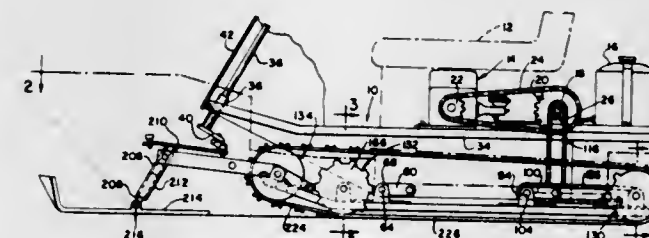
Brice P. Washburn, Box 40-A, Los Lunas, N. Mex.

Filed Nov. 7, 1969, Ser. No. 874,890

Int. Cl. B62m 27/02

U.S. Cl. 180-5 R

14 Claims



The chassis of a snowmobile is supported at either side thereof by endless tread assemblies which are connected to each other such that as one track assembly is raised, the other lowers and vice versa, thus allowing the chassis to remain vertical while traversing a slope or to permit the chassis to be leaned into a turn for better weight distribution or placement of the center of gravity of the vehicle and to incline the endless tread devices correspondingly inwardly with respect to the turn to obtain a better bite on the snow surface. The suspension mechanism also operates to couple the prime mover which is mounted on the chassis to the drive sprockets of the endless tread devices. Each track assembly includes an elongate frame mounting a drive sprocket at its rear end and an idler sprocket at its forward end, over which

sprocket an endless tread member is trained and each further includes a forward extension projecting beyond the endless track member and which carries a ski at its forward extremity, the skis "feeling" the terrain ahead of the endless treads tending to "telegraph" variations in terrain to the tread assemblies while also accommodating for steering action of the vehicle.

3,637,036

HYDROSTATIC DRIVE SYSTEM

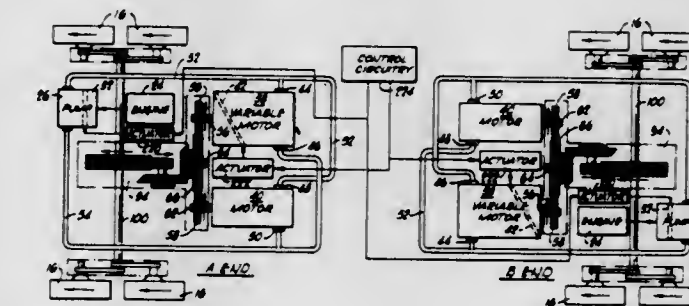
George W. Swisher, Jr., Oklahoma City; Don W. Smith, Edmond, and Ralph K. Snow, Jr., Oklahoma City, all of Okla., assignors to CMI Corporation, Oklahoma City, Okla.

Filed June 15, 1970, Ser. No. 46,129

Int. Cl. B60k 17/10

U.S. Cl. 180-66 R

21 Claims



A drive system for a vehicle, particularly suited for use with highway construction equipment. The system employs a constant speed engine driving a variable displacement pump, and the pump, in turn, drives a variable displacement motor and a fixed displacement motor connected in parallel to the drive wheel means of the vehicle. Controls are provided to operate the pump between zero and maximum displacement while the variable displacement motor is at maximum displacement, and to vary the displacement of the motor while the pump is at maximum displacement, such that the drive wheels of the vehicle are provided a maximum torque in the lower speed range where the hardest work is done by the vehicle, yet provide for higher speeds at reduced torque for traveling from one location to another. A dual drive system is also disclosed.

3,637,037

AUTO THEFT PROTECTION SYSTEM

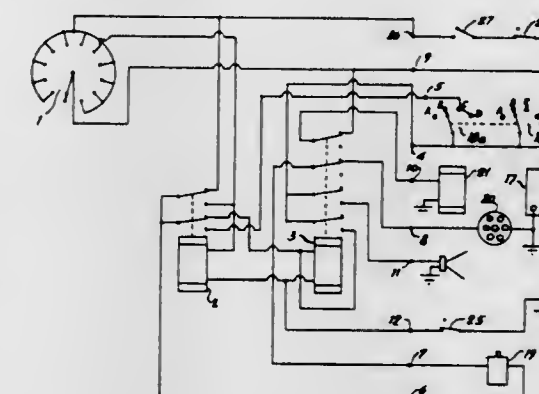
George D. Doland; George J. Doland, and Charles M. Doland, all of 1602 Redway Lane, Houston, Tex.

Filed Nov. 24, 1969, Ser. No. 879,346

Int. Cl. B60r 25/04, 25/10

U.S. Cl. 180-114

6 Claims



An automobile anti-theft device which sounds an alarm and makes the automobile inoperative even when the automobile is "hot wired" or the ignition keys are available to the thief.

A multiposition ignition switch has a first terminal which completes a circuit to energize a first relay to enable normal starting and operation; and a number of other terminals which complete a circuit to energize a second relay which energizes an alarm and other circuits for making the automobile inoperative.

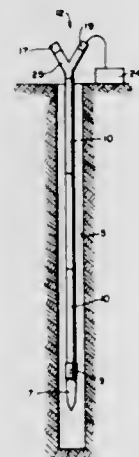
3,637,038

METHOD FOR RETRIEVING A LOST TOOL IN A BOREHOLE USING AN ACOUSTICAL WELL SOUNDER

Harley L. Tanner, Houston, Tex., assignor to Texaco Inc., New York, N.Y.
Filed July 24, 1970, Ser. No. 57,916
Int. Cl. G01v 1/00

U.S. Cl. 181-0.5

8 Claims



A method is disclosed using an overshoot retrieving device which is lowered into a borehole by means of tubing until the overshoot arrives at a lost tool. An attempt is made to engage the tool with the overshoot and after the attempt the overshoot is raised a predetermined distance. An acoustical well sounder provides a soundwave in the tubing. When the overshoot has successfully engaged the lost tool, the recorder of the well sounder provides a recording having a primary deflection in one sense in response to a reflection of the soundwave to indicate that the tool has been engaged. When the overshoot has not engaged the tool, the reflection of the soundwave causes the recording to have a primary deflection in an opposite sense to indicate that the tool has not been engaged. An operator may then remove the overshoot, the lost tool and tubing or repeat the engagement operation in accordance with the record provided by the recorder.

3,637,039

STEREO SPEAKER SYSTEM

Daniel Raichel, Wyckoff, and Chris G. De Vries, Jersey City, both of N.J., assignors to Dathar Corporation, Paterson, N.J.

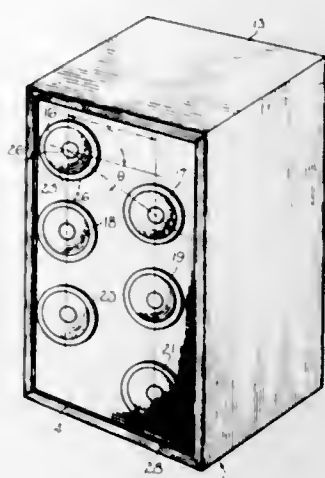
Filed Apr. 19, 1971, Ser. No. 135,126
Int. Cl. G10k 13/00; H04r 1/28

U.S. Cl. 181-31 B

9 Claims

A speaker system having an array of speakers and a sealed enclosure, the number of speakers in the array being a multiple of six and the arrangement of the array being such that there is a multiple of three equally spaced speakers in each row and a multiple of two equally spaced rows. The center-to-center distance between adjacent rows is a function of the diameter of the speaker. The speakers in adjacent rows are not arranged in a rectangular array but in a parallelogram array and the angle between the centerline through speakers in one row and the center of the most closely adjacent speaker in the next row being between 30° and 60°. If two

such speaker systems are connected in a stereo system, they are arranged so that the placement of the speakers in one en-



closure is a mirror image of the placement of the speakers in the other enclosure.

3,637,040

EAR DEFENDERS

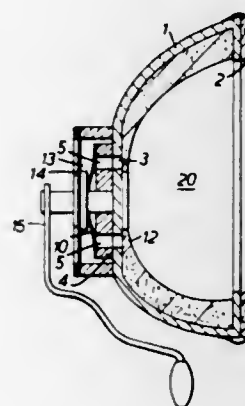
Anthony Graham Gorman, Ruislip, England, assignor to Amplivox Limited

Filed July 22, 1969, Ser. No. 843,405

Claims priority, application Great Britain, Aug. 1, 1968, 36,842/68; June 4, 1969, 28,339/69
Int. Cl. G10k 11/04; H04r 1/10

U.S. Cl. 181-33 R

10 Claims



An ear defender in which acoustic elements are added which in conjunction with the shunt capacitance provided by the volume enclosed by the shell thereof and the wearer's head constitute a low-pass or band-pass filter.

3,637,041

SOUND SUPPRESSION SYSTEM FOR FAN JET ENGINES

Jack H. Hilbig, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

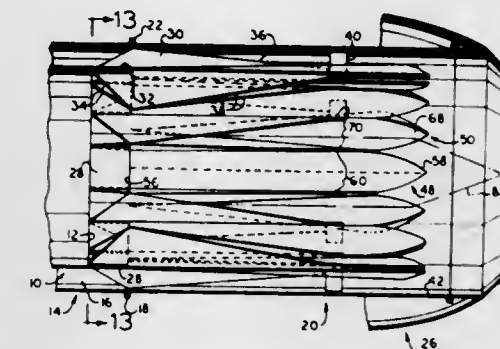
Filed Sept. 2, 1970, Ser. No. 68,867
Int. Cl. B64d 33/06; F01n 1/14

U.S. Cl. 181-33 HC

10 Claims

System is intended for use with a jet engine having an engine separator sleeve for discharging turbine exhaust gases, and an engine casing surrounding and spaced from the separator sleeve to form therewith an annular flow path for fan air rearwardly around the exhaust gas stream. A tail pipe is attached to and forms a continuation of the engine casing and defining a discharge zone to receive and control the turbine exhaust gas and fan airstreams. A series of partitions extend generally inwardly in alternately arranged pairs from the tailpipe in fore-and-aft planes to define a peripherally arranged series of flow passages for gas and air. A guide vane pivotally mounted in each passage has a stowed position

aligned with the separator sleeve to form a continuation thereof and segregate turbine exhaust gas and fan airflow. The vanes swing in unison, but in alternately opposite directions about transverse axes to cause their leading ends to swing radially in and out in alternation about the periphery so that one set of vanes directs fan air into the engine exhaust



gas flow path, and the other set of alternately interposed vanes directs turbine exhaust gas into the fan airflow path. The result is a thorough intermixing of air and exhaust gas before leaving the engine nozzle, thereby reducing the temperature and velocity of the mixture and lowering the total jet noise.

3,637,042

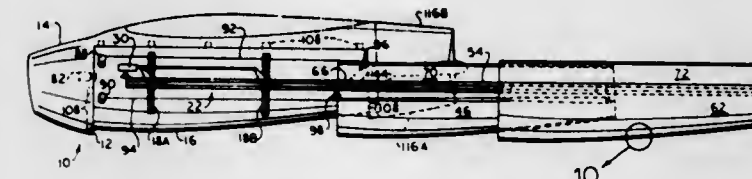
METHOD AND APPARATUS FOR SUPPRESSING THE NOISE OF JET-PROPELLED AIRCRAFT

Burt F. Raynes, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed July 27, 1970, Ser. No. 58,387
Int. Cl. B64d 33/06; F01n 1/08, 1/14

U.S. Cl. 181-33 E

10 Claims



A first shield of substantially hemicylindrical form is mounted on an engine nacelle of a jet-propelled aircraft so that the longitudinal axis thereof is substantially parallel with the longitudinal axis of the nacelle. The first shield is movable axially of the nacelle between a retracted position wherein it is alongside the latter and a deployed position wherein it is disposed under the jet stream discharged from the engine in the nacelle. A second shield is mounted on the outer side of the first shield and conforms therewith, this second shield being movable axially of the first shield so that it can also be positioned under the jet stream. Means are provided for moving the shields between their retracted and deployed positions. Each shield is preferably provided with rotatable panels which extend longitudinally along the upper portion of the sides thereof.

3,637,043

ARTICULATED AERIAL DEVICE

Daniel H. Zwigl, and Roy Balogh, both of St. Louis County, Mo., assignors to McCabe-Powers Body Company, St. Louis, Mo.

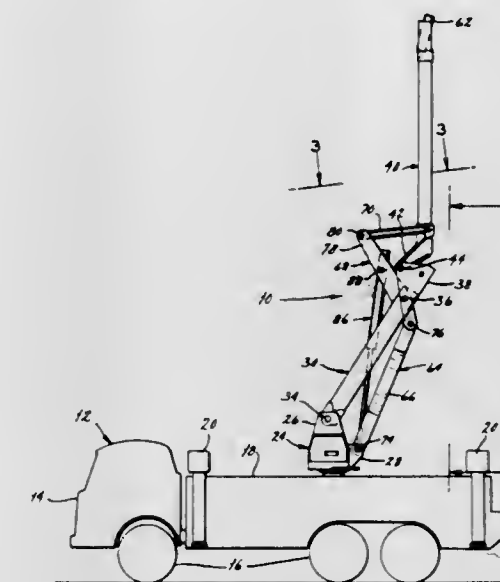
Filed June 15, 1970, Ser. No. 46,223
Int. Cl. B66f 11/04

U.S. Cl. 182-2

25 Claims

An articulated aerial device comprises a base and lower, middle and upper beams pivotally connected to one another, the lower beam being pivotally connected to the base. An

upper linkage mechanism pivotally interconnects the upper and middle beams and a hydraulic cylinder is connected to the upper linkage for swinging the upper and middle beams with respect to one another. A Z-shaped linkage pivotally interconnects the base, the lower beam and the middle beam.



A lower hydraulic cylinder is connected at one of its ends to the base and at the other of its ends to the Z-shaped linkage. Extension of the lower hydraulic cylinder causes the lower beam to swing with respect to the base and simultaneously causes the middle beam to swing with respect to the lower beam.

3,637,044

LIFTING EQUIPMENT

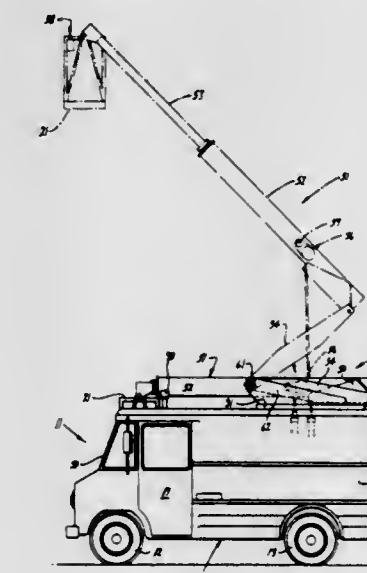
Jay M. Eitel, Atherton, Calif., assignor to General Cable Corporation

Continuation of application Ser. No. 751,890, Aug. 12, 1968.
This application June 26, 1970, Ser. No. 56,071

Int. Cl. E04g 1/18

U.S. Cl. 182-141

11 Claims



Lifting equipment having a boom structure which includes an outer boom, an inner boom mounted for telescoping movement within the outer boom and an arm, one end of which is pivotally connected to the rearward end of the outer boom to permit movement of the outer end of the boom structure about a substantially horizontal axis and the other end of which is pivotally mounted upon a support structure to permit movement of the first named end of the arm about a substantially horizontal axis.

3,637,045

KNOCKDOWN SAWHORSE

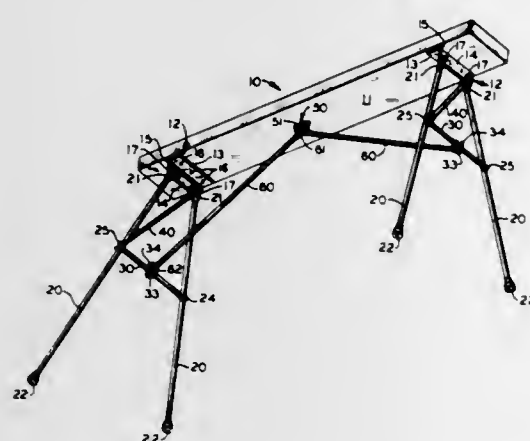
Donald E. Poffenbaugh, 581 Collina Drive, and Carl W. Piepmeyer, 918 South Avenue, both of Toledo, Ohio, assignors to Said Poffenbaugh by said Piepmeyer

Filed Apr. 29, 1970, Ser. No. 32,851

Int. Cl. E04g 1/32; F16m 11/00

U.S. Cl. 182-155

7 Claims



A pair of hinges and a pivot bracket which may be attached to a board to form a sawhorse, which hinges each have pivotally connected thereto a pair of divergent tubular legs and which bracket has pivotally connected thereto a pair of struts. Each pair of legs have detachably connected thereto a cross and a diagonal brace, and the struts are detachably connected to the cross braces. The outer ends of the legs may be extensible and/or may have rubber feet thereon. By disconnecting the struts the two pairs of legs may be collapsed against the board, and by disconnecting their cross braces, the legs of each pair may be further collapsed to further decrease the space required for storing the sawhorse when not in use.

3,637,046

FOLDABLE LADDER

George Harvey Emmons, 11 South 12th St., Marshalltown, Iowa

Continuation-in-part of application Ser. No. 847,099, Aug. 4, 1969, now Patent No. 3,540,549. This application July 23, 1970, Ser. No. 57,484

Int. Cl. E06c 1/383

U.S. Cl. 182-170

17 Claims



A step ladder structure having a foldable tripod supporting frame. The ladder component utilizes substantially parallel

side pieces with connecting steps and with one of the legs of the tripod frame serving as one of the ladder side pieces. The other side piece has an upper and lower section hingedly attached in longitudinal alignment so that the lower section is capable of a slight misalignment with the upper section. The lower section is normally capable of engaging a level support surface to serve as a support leg when weight forces are on any step attached thereto and on a slightly unlevel surface, the hinged construction permits the lower section to also engage such support surface as a support leg when weight is concentrated on any steps connected to such section. However, this is merely a matter of convenience when mounting on and dismounting from the ladder for if there is no ground engagement by such lower section, the stability of the ladder is not affected since appropriate brace structure is operatively associated with the tripod frame to assure that weight forces on any step of the ladder are appropriately distributed to the tripod frame and when weight forces are on any step not connected to the lower section, such section is not required to and does not function as a support leg irrespective of whether it may be in contact with the ground support. This ladder includes adjustable brace structure for securely holding it in selective positions of partially extended position so that it may be utilized in confined areas. This ladder also includes a removable standard to steady a person standing on the top plate and such standard may be employed to contain an umbrella as a shield from the sun. A removable seat and a removable foot rest are provided relative to the top plate for the convenience of the user under different circumstances. Detachable bearing feet are provided to make the ladder usable efficiently in soft or muddy ground and to also maintain the ladder component in an appropriate vertical plane when the ladder may be used on uneven or unlevel ground.

3,637,047

STABILIZED PLATFORM FOR WINDOW CLEANING AND LIKE USES

Eric William Cox, 2 McLachlan Ave., Artarmon, New South Wales, Australia

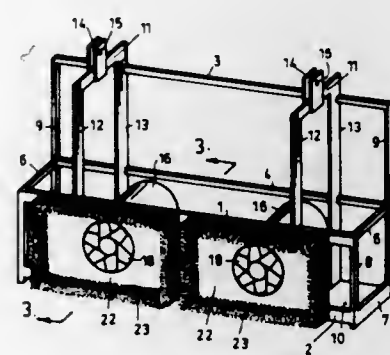
Filed Mar. 12, 1970, Ser. No. 19,046

Claims priority, application Australia, Mar. 25, 1969, 52419

Int. Cl. F04g 3/10

U.S. Cl. 182-222

9 Claims



A suspendible platform comprising a frame with a decking, means on the frame for urging the frame towards a surface to be traversed by the platform and surface-engaging means on the frame.

3,637,048

AUXILIARY LUBRICATING SYSTEM

Gordon L. Mount, West Monroe, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Sept. 22, 1969, Ser. No. 859,935

Int. Cl. F16n 29/02

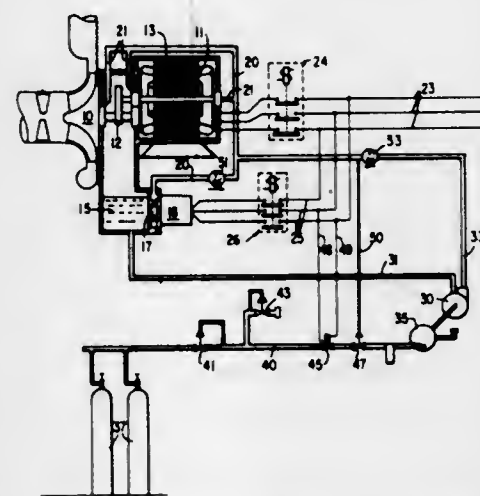
U.S. Cl. 184-6.1

4 Claims

The lubricating system includes an auxiliary oil pump, powered by an auxiliary power supply for supplying oil under pressure to a machine having a large, heavy rotating part,

such as an impeller, which has a coast down period of substantial length upon interruption of the operating power to

and leading to annular spaces between the inner and outer races of the bearings. The holes have two portions of different diameter to form a step therebetween the outer hole portion being of larger diameter. The inner hole portion is



the machine. The system is so rigged that the auxiliary pump is not powered unless the machine was in operation at the time of the power interruption.

3,637,049

CONTINUOUS, SELF-PUMPING LUBRICATIONS SYSTEM FOR SPLINED SHAFTS

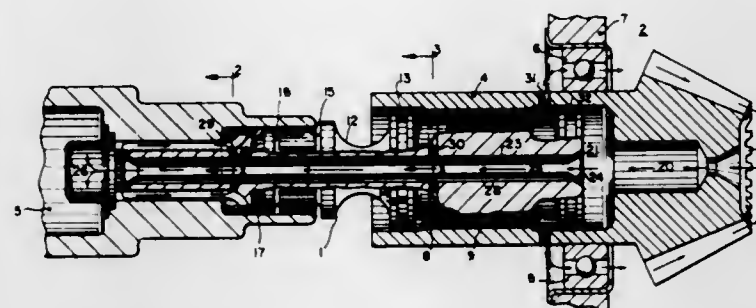
John L. Butterfield, and George E. Bracey, both of Erie, Pa., assignors to General Electric Company

Filed Mar. 3, 1970, Ser. No. 16,009

Int. Cl. F16n 7/36

U.S. Cl. 184-6.12

8 Claims



A lubrication system for a splined shaft is described in which rotation of the shaft produces a continuous pumping action of the lubricant through the splines. A central bore is formed in the shaft. A hollow tube of smaller diameter than the bore is positioned in the bore forming an annular passage between the tube and the shaft bore. Radial holes at opposite ends of the shaft communicate between the exterior of the shaft and the annulus to provide a return path for the oil. Rotation of the shaft and the radial holes produce a pumping action which pumps the lubricant through the tube and the splines and back into the annular return passage and out the other radial hole to produce continuous pumping of the oil through the shaft splines.

3,637,050

DENTAL ANGLE HANDPIECE HEAD

Erich Hoffmeister, Biberach/Riss, Germany, assignor to Kaltenbach & Voigt, Bismarckring, Germany

Filed Mar. 11, 1970, Ser. No. 18,594

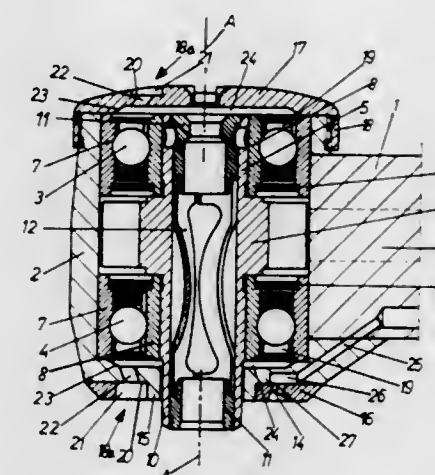
Claims priority, application Germany, July 11, 1969, P 19 35 342.5

Int. Cl. A61c 1/10; F16n 1/00

U.S. Cl. 184-6 R

4 Claims

A dental angle handpiece head has a rotor shaft mounted in ball bearings which are lubricated through respective holes at opposite ends of the head, the holes opening externally



inclined towards the axis of rotation of the rotor shaft in a direction away from the head and also in the direction of rotation of the shaft from the outside to the inside of the housing.

3,637,051

IMPACT ENERGY ABSORBING SYSTEM UTILIZING FRACTURABLE MATERIAL

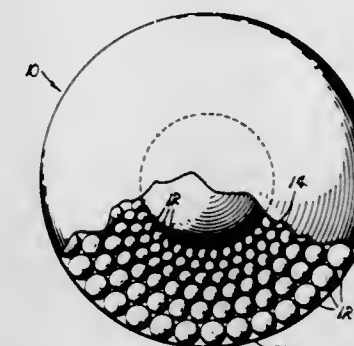
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Earl R. Collins, Jr., LaCanada, Calif.

Filed Sept. 15, 1969, Ser. No. 857,967

Int. Cl. F16d 63/00

U.S. Cl. 188-1 B

8 Claims



A shock absorber particularly suited for use as a protective barrier in an impact energy absorbing system, characterized by the utilization of a myriad of contiguous spheres arranged in multiple strata for absorbing forces developed on impact, a feature of the shock absorber being the employment of a brittle material in the fabrication of the spheres, whereby payload rebound is inhibited and impact force dissipation is enhanced through a sequential fracture and collapse of successive strata of spheres.

3,637,052

WAGON RETARDERS

David Ewart Bick, Cheltenham, England, assignor to Dowty Mining Equipment Limited, Ashchurch, Tewkesbury, England

Filed Aug. 20, 1970, Ser. No. 65,381

Claims priority, application Great Britain, Sept. 12, 1969, 45,107/69

Int. Cl. B61k 7/02

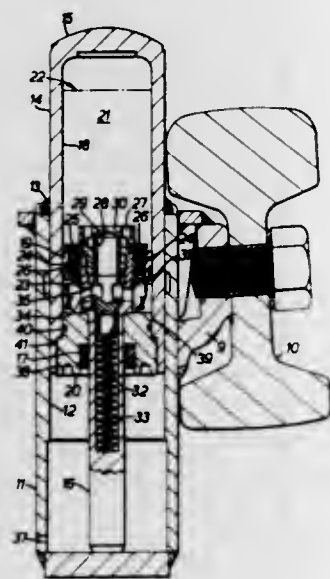
U.S. Cl. 188-62

9 Claims

A wagon retarder for installation on a railway track has a telescopic cylinder and piston device containing hydraulic

fluid and compressed gas, said device being contracted by an approaching wheel and then being extended by the compressed gas as the wheel moves away. The cylinder slides in a fixed guide cylinder, and it slides on the piston which has a piston rod of smaller diameter extending through a sealing device into engagement with the base of the guide cylinder.

The piston carries a flow-sensitive valve which is closable



during contraction of the device whereby hydraulic fluid flows from one side of the piston to the other side through a pressure relief valve. The relief valve generates a pressure which acts on the cylinder to exert a retarding force against the wagon wheel. During extension of the device, the flow-sensitive valve opens to enable hydraulic fluid to flow in the reverse direction across the piston.

3,637,053

DISC BRAKE APPARATUS

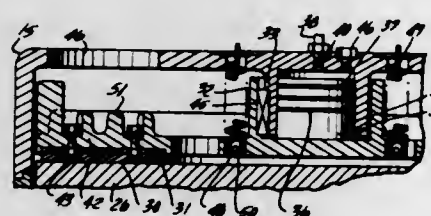
Elmo N. Boyles, Orange County, Fla., assignor to Disco Industries, Inc.

Filed Mar. 30, 1970, Ser. No. 23,808

Int. Cl. F16d 55/228

U.S. Cl. 188—71.1

12 Claims



A vehicle brake apparatus for attachment to the axle of a vehicle, has rotatable disc attached so as to rotate with the wheel of a vehicle and having free-floating pistons adapted to slide in cylinder bores of cylinders attached to the axle of the vehicle, and a telescoping brakeshoe actuated in one direction by the free-floating pistons whereby pneumatic or hydraulic pressure on the cylinder will move the piston telescoping the brakeshoe and brake lining into frictional engagement with the disc. The telescoping brakeshoe has bearings to maintain the telescoping portion in alignment and may have segmented portions for cooling and a spring return.

3,637,054 PNEUMATIC-HYDRAULIC BRAKING SYSTEM FOR RAILWAY CARS

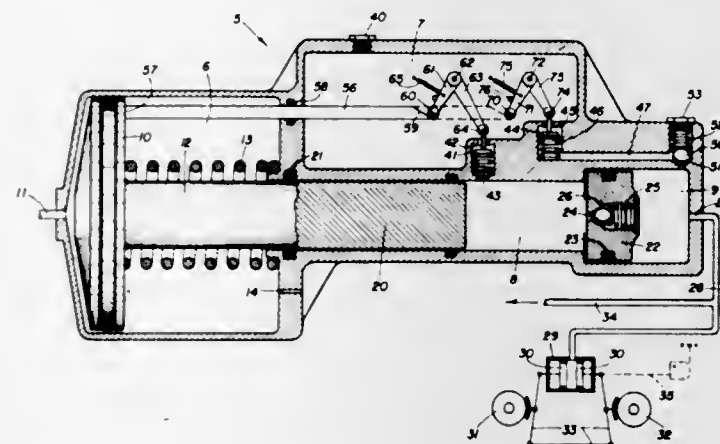
Henry R. Billeter, Deerfield, Ill., assignor to Sloan Valve Company, Chicago, Ill.

Filed Mar. 23, 1970, Ser. No. 21,769

Int. Cl. B60t 8/18

U.S. Cl. 188—195

24 Claims



In this braking system the airbrake cylinder on the railroad car actuates a master hydraulic cylinder connected to hydraulic-operated truck cylinders to operate the wheel brakes. Provisions are made for replenishing the hydraulic fluid in the system and an automatic hydraulic slack adjuster together with an empty and load-compensating arrangement is included in one unitary structure.

3,637,055

PRICE INCREMENT UNIT FOR LIQUID-DISPENSING APPARATUS

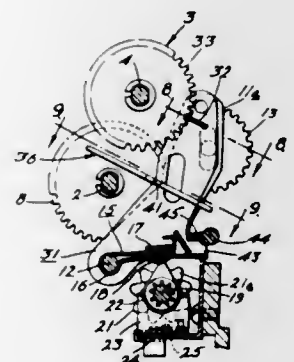
Einar T. Young, Newtown Square, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed July 10, 1970, Ser. No. 53,888

Int. Cl. F16d 67/00; F16h 3/34; B67d 5/06

U.S. Cl. 192—4 R

8 Claims



The price increment unit used in a multigrade liquid fuel-dispensing apparatus comprises a selective gearing arrangement which causes a driven or output shaft to be driven at various preselected speeds less than or greater than the speed of the driving or input shaft, one such preselected speed for each respective grade of liquid fuel being dispensed, above the pricing base grade. When the pricing base grade is selected for dispensing, the output shaft of the unit is locked against rotation. Means are provided for causing a locking of this output shaft to occur also when a different grade of fuel is selected for dispensing, thereby to establish the price of this different grade at the same number of cents per gallon as the pricing base grade.

3,637,056 SELECTIVELY DISENGAGEABLE HELICAL SPRING CLUTCH

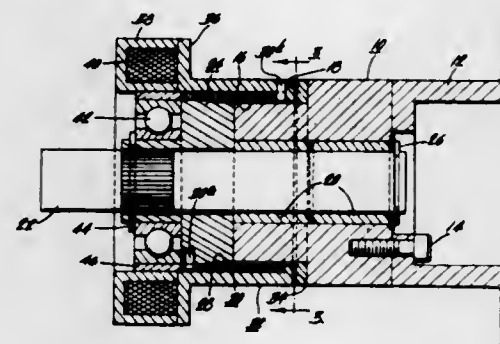
John S. Baer, Medford Lakes, N.J., assignor to Warner Electric Brake & Clutch Company, South Beloit, Ill.

Filed July 22, 1970, Ser. No. 57,044

Int. Cl. F16d 67/02

U.S. Cl. 192—12 BA

10 Claims



A helical clutch spring is attached one end to the output hub and at its other end to a collar and lies opposite a cylindrical clutch surface of an input hub. The clutch spring tends to be normally out of engagement with the clutch surface. However, by virtue of resilient means urging a surface on the collar into an opposed surface on the input hub, the rotation imparted to the collar causes the spring to engage the input hub and drive the output hub through the spring. Actuator means may be selectively caused to act upon the collar to draw it in opposition to the resilient means away from the input hub and allow the spring to return to its normal position and the clutch to disengage.

3,637,057

APPARATUS FOR RELEASING CLUTCH AND BRAKES TO PREVENT WHEEL SKID

Tosiaki Okamoto, Toyota-shi, Japan, assignor to Aisin Seiki Company Limited, Toyo-shi, Japan

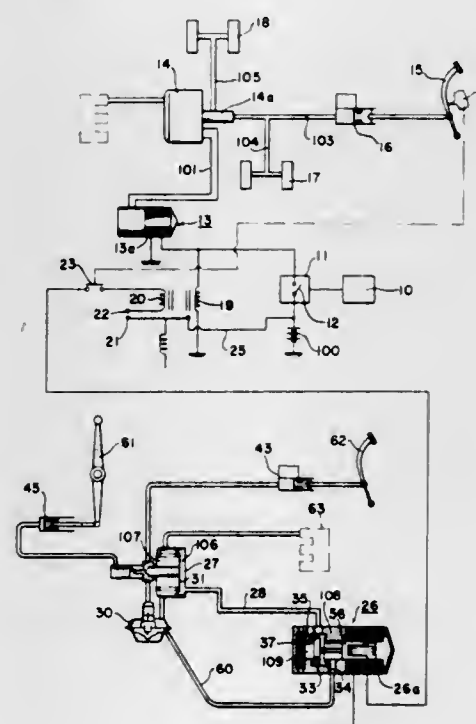
Filed Oct. 21, 1969, Ser. No. 868,141

Claims priority, application Japan, Oct. 22, 1968, 43/76574

Int. Cl. F16d 67/04

U.S. Cl. 192—13 R

6 Claims



A vehicle having a conventional clutch pedal and brake pedal is provided with an antiskid brake system wherein a wheel rotation sensor provides a signal for the automatic release and reapplication of the brakes during a substantial

wheel lock condition. Upon the initial reception of the signal, the clutch will automatically be released and will be maintained in the release position during any subsequent automatic release and reapplication of the brakes during a continuous single operation of the brake pedal.

3,637,058

SPINDLE-ORIENTED STOP MECHANISM FOR MACHINE TOOL

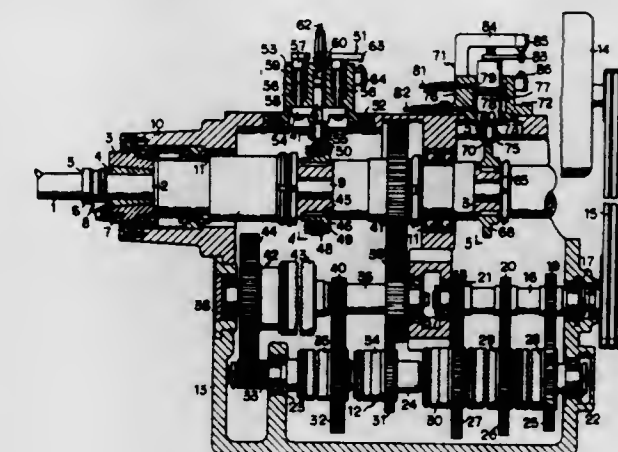
Yoshikazu Sato, No. 1026, Shimotakaido, 4-chome, Suginami-ku, Tokyo, and Masaru Tanaka, No. 2211, Okura, Machida-shi, Tokyo, both of Japan

Filed Sept. 24, 1969, Ser. No. 860,716

Int. Cl. F16d 71/00

U.S. Cl. 192—146

6 Claims



A stop mechanism for stopping the spindle of a machine tool in a preselected position. The drive mechanism for the spindle is deenergized by a signal from a tape-operated controller and the inertia of the drive system is permitted to drive the spindle till the energy of the system is dissipated. A second signal from the controller operates a system of electromagnetic clutches and gear trains to slowly drive the spindle till a sensing device feels a selected position of the spindle. The device then deenergizes the slow drive and the inertia of the system moves the spindle toward the selected position. A stop mechanism is operated to stop the slowly coasting mechanism and to lock the spindle in the selected position. In the event the spindle does not reach the selected position, the slow drive is again energized and the process of driving and coasting repeated till the position is secured.

3,637,059

COIN-OPERATED ELECTRIC POWER SUPPLY STATION

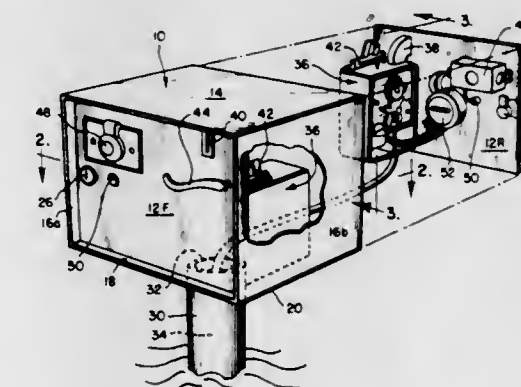
Robert L. Schmidt, Fort Collins, Colo., assignor to Travelers Electric, Inc., Fort Collins, Colo.

Filed Apr. 20, 1970, Ser. No. 30,020

Int. Cl. G07f 5/10

U.S. Cl. 194—9 T

4 Claims



A coin-operated electric power supply station especially adapted for use in remote unsupervised locations. The station

includes a substantially vandalproof metal box having one or more removable walls which are positively locked in place by a key-operated lock. The control elements of the station are mounted on the interior side of the removable wall so as to be readily accessible for repair. When the box is closed, only an actuating handle, a coin slot and an electric power outlet are accessible from the exterior of the box.

3,637,060

EMBOSSING TOOL WITH SELF LOADING TAPE FEED MECHANISM

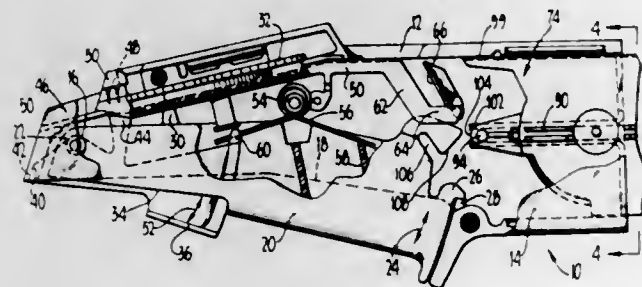
John McMahon, Livermore, Calif., assignor to Dymo Industries, Inc., Emeryville, Calif.

Filed Nov. 10, 1969, Ser. No. 875,467

Int. Cl. B41J 1/30

U.S. Cl. 197-6.7

13 Claims



A simplified hand-held, hand-operated, plastic tape embossing tool having a novel means for engaging the distal end of a coil of tape disposed in a cartridge or magazine and for feeding the same to and through a tape embossing station, without the necessity of manually feeding such tape end through the normal tape feed rolls.

3,637,061

LINE-SPACING MECHANISM FOR A TELEPRINTER OR SIMILAR PRINTING MACHINE

Alessandro Cortona, and Pietro Musso, both of Turin, Italy, assignors to Ing. C. Olivetti & C.S.p.A., Ivrea, (Turin), Italy

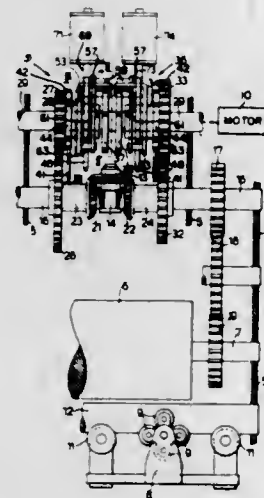
Filed Nov. 8, 1968, Ser. No. 774,375

Claims priority, application Italy, Nov. 16, 1967, 53754 A/67

Int. Cl. B41J 19/76

U.S. Cl. 197-114 R

6 Claims

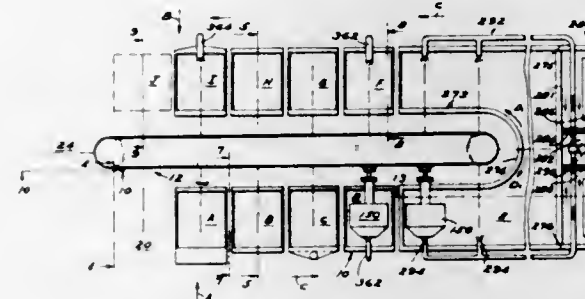


A line-spacing mechanism for a motor-operated printing machine, such as a teleprinter, said mechanism comprising, a differential including a planetary gear drivingly connected to the platen shaft of the machine and at least one sun gear drivingly meshing with the planetary gear, and a clutch drivingly connecting the motor of the machine to the sun gear for imparting rotation thereto, so that the platen of the machine will be rotated in response to selective engagement of the clutch.

3,637,062
BARREL-TYPE PROCESSING APPARATUS
 James Barton, Gross Pointe Woods, and Patrick H. Norton, Birmingham, both of Mich., assignors to Ionik International Inc., Warren, Mich.
 Original application July 27, 1966, Ser. No. 568,287, now Patent No. 3,521,650, dated July 28, 1970. Divided and this application Oct. 1, 1969, Ser. No. 870,707
 Int. Cl. B05c 3/00; B23g 5/22

U.S. Cl. 198-19

10 Claims



A plurality of barrels transported on a horizontal frame have entrance openings facing outwardly of the frame to facilitate the loading and unloading thereof and overall processing operations. Each barrel is in the form of a hollow perforated receptacle of octagonal top and sidewall configuration, closed at its inner end or bottom, and with the polygonal outer walls of its top converging toward the barrel axis. Each barrel is mounted on the frame of the machine by a lift arm, the lift arm and barrel assembly having a generally horizontal position or attitude when at a treating station and at the loading station, and an inclined transfer attitude, with the entrance opening of the barrel facing upwardly, when the barrel is moved from station to station. The assembly has an inclined downwardly extending attitude when at the unloading station.

3,637,063

APPARATUS FOR SEPARATING GLASS SHEETS

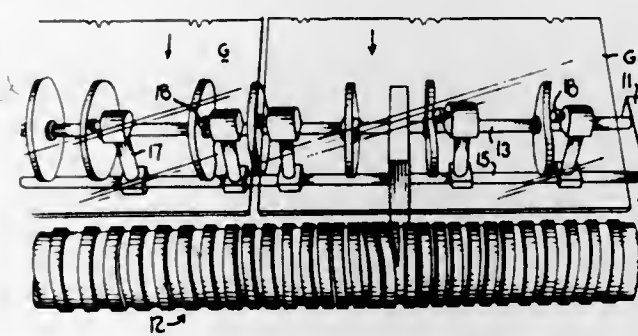
Cecil R. Ward, Gibsons, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed July 10, 1969, Ser. No. 840,629

Int. Cl. B65g 47/22

U.S. Cl. 198-29

4 Claims



Apparatus for transporting and separating severed glass sheets having flexible discs, and means for imparting an eccentric motion to the periphery of the discs, so as to impart an eccentric direction and separate the glass sheets.

3,637,064

APPARATUS FOR AND METHOD OF TRANSFERRING ARTICLES

Daniel S. Cvacho; Harry W. Lee, Jr., and Field I. Robertson, Jr., all of Chesterfield County, Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed May 23, 1969, Ser. No. 827,380

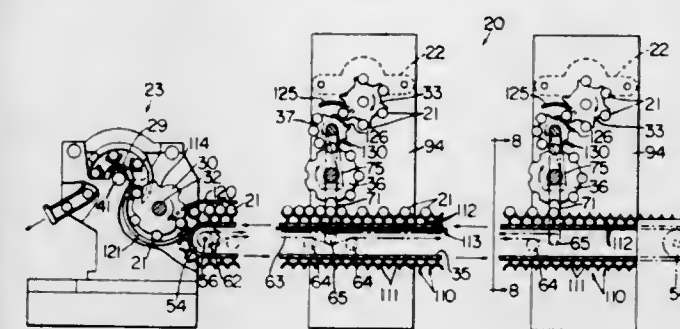
Int. Cl. B65g 47/30

U.S. Cl. 198-32

30 Claims

An apparatus for and method of transferring articles, such as cylindrical cans, from a plurality of can forming devices to

a high speed can trimming machine whereby cans are transferred in a positive and efficient manner and shutdown of



one or more of the plurality of can forming devices will not require stopping of the can trimming machine.

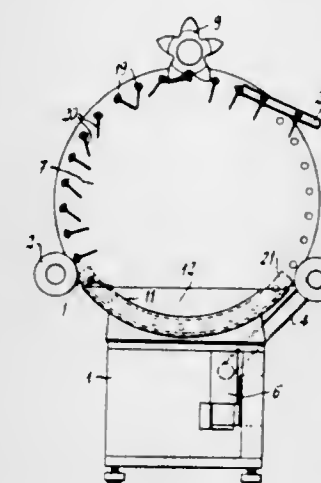
3,637,065

MAGNETIC DISC ORIENTOR FOR AEROSOL VALVES

Tomaso Ruscitti, Milano, Italy, assignor to Coster Tecnologie Speciali S.p.A., Milan, Italy
 Filed June 18, 1970, Ser. No. 47,432
 Claims priority, application Italy, June 28, 1969, 18891 A/69
 Int. Cl. B65g 17/46, 47/24

U.S. Cl. 198-33

5 Claims



Device for the withdrawal from a trough of aerosol container valves provided with drawing tube and orderly conveyance thereof to a collecting guide, the device comprising a trough and a rotating disc, the lower portion of which extends within said trough, a plurality of permanent magnets being mounted on the disc periphery. A spider wheel is provided at the top portion of the disc, rotating therewith and having teeth extending on the front disc surface between the magnets on which the teeth never overlie. A fixed guide for valve collection is provided adjacent the spider wheel and has a mouth or inlet opening adjacent the front disc surface and at the circular path along which the permanent magnets move as the disc rotates.

3,637,066

CONVEYOR SYSTEMS

Arne S. Idskov, Brabrand, and Jacob A. Nielsen, Viby J., both of Denmark, assignors to Cripplant A/S, Bryggervej, Risskov, Denmark

Filed Dec. 1, 1969, Ser. No. 881,146

Claims priority, application Great Britain, Nov. 29, 1968, 56,746/68

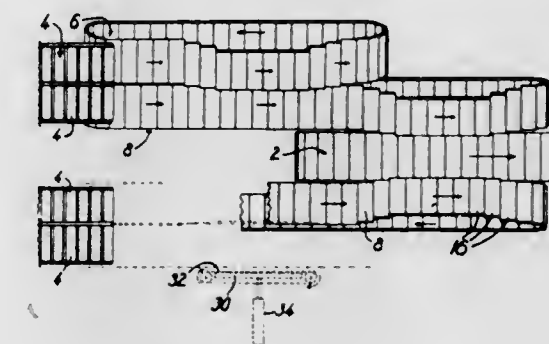
Int. Cl. B65g 47/34

U.S. Cl. 198-38

9 Claims

A conveyor system primarily for use in automatic sorting systems in which it is desired to transfer articles from a number of feeding stations to a common sorting conveyor

with a well-defined transfer time, said conveyor system comprising at least a first and a second conveyor, a partial length of said first conveyor extending closely along a partial length of said second conveyor substantially parallel therewith, said conveyors being driven at equal velocities, and transfer



means participating in the movement of the conveyors at least along said partial length and operable to laterally displace an article from one of said conveyors to the other of said conveyors by a movement substantially perpendicular to the moving direction of the conveyors along said partial lengths thereof.

ERRATA

For Classes 197-184 see:
 Patent Nos. 3,637,090 and 3,637,091

3,637,067

CONVEYOR SYSTEMS

Eric L. Wright, Oadby, England, assignor to Hytrac Conveyors Limited, Leicester, England

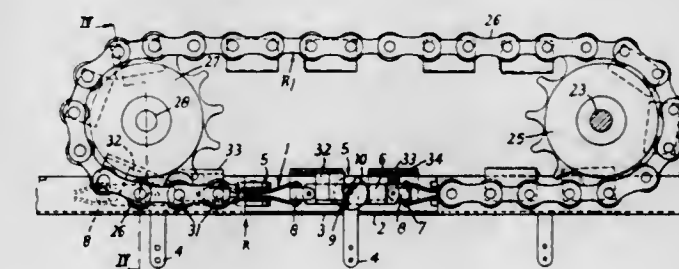
Filed Dec. 23, 1969, Ser. No. 887,622

Claims priority, application Great Britain, Dec. 31, 1968, 61,853/68

Int. Cl. B65g 23/00

U.S. Cl. 198-203

7 Claims



Drive unit for a conveyor system comprising a conveyor chain made up of wheeled links connected together end to end and having load carriers depending therefrom. A pair of endless driving chains, each of which extends around a pair of sprockets, are positioned in parallel planes, one on each side of the conveyor element. One sprocket of each pair is driven from a motor, via a self-adjusting pulley and an overload clutch. U-shaped carriers are secured between the driving chains and carry drive dogs arranged to engage from above and drive the conveyor chain when the driving chains are travelling parallel to the conveyor chain.

3,637,068

ROTARY CONVEYOR

Walter Eckstein, and Ferdinand Gah, both of Munich, Germany, assignors to Metzeler Aktiengesellschaft, Munich, Germany

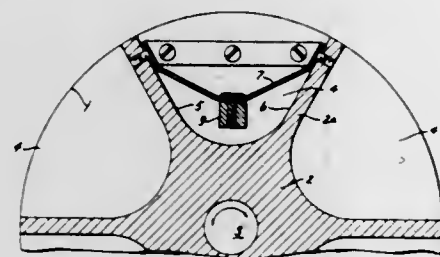
Filed Mar. 10, 1970, Ser. No. 22,741

Claims priority, application Germany, Mar. 13, 1969, P 19 12 858.6

Int. Cl. B65g 29/00

U.S. Cl. 198-211

6 Claims



A rotary wheel has a hub mounted for rotation about an axis and a plurality of circumferentially distributed wall portions which extend from the hub at least substantially radially of the axis and defining a plurality of cells each having a radially outwardly directed opening. A bag is mounted in each of the cells, consisting of elastomeric material, and has an open side facing the associated opening so that material which is introduced into the bag through the opening when the latter faces substantially upwardly with reference to the substantially horizontal axis of rotation, the material will issue from the open side and through the opening when the wheel has been displaced to a position where the opening faces downwardly.

3,637,069

SCREW CONVEYOR APPARATUS

Joseph D. Christian, deceased, late of San Francisco, Calif.; Marcella B. Christian, executrix, and Robert F. Christian, executor, both of San Francisco, Calif., assignors to Packaged Power Terminals Inc., San Francisco, Calif.

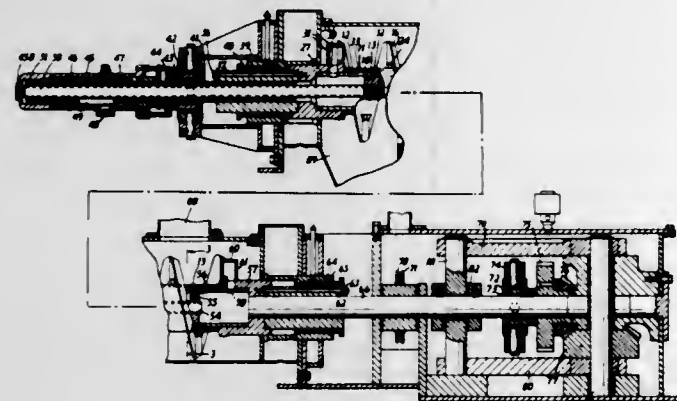
Filed May 12, 1969, Ser. No. 823,999

Claims priority, application Great Britain, May 21, 1968, 24,127/68

Int. Cl. B65g 33/00

U.S. Cl. 198-213

3 Claims



The invention relates to a screw conveyor apparatus having a support shaft and a screw disposed helically around the support shaft and attached to the shaft at its ends, said screw being spaced from the shaft by a series of lugs that are attached to the screw and are slidable on the shaft and are spaced apart from each other to leave spaces between the screw and the shaft.

3,637,070

COMBINATION CARRYING CASE AND STAND FOR TRUMPET

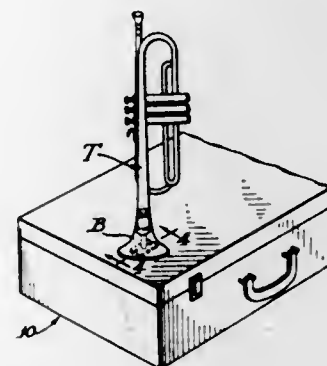
Perry L. Friedman, 307 Springfield, Park Forest, Ill.

Filed Jan. 26, 1970, Ser. No. 5,518

Int. Cl. A45c 11/00

U.S. Cl. 206-13

3 Claims



An improved carrying case and stand for a belled music instrument is provided by securing an attachment member to the lid of the case to which a studlike stand may be selectively secured to convert the case into a very stable base for the stand. A duplicate attachment on the opposite side of the lid provides for storage of the studlike stand within the case.

3,637,071

CABLE PACKAGE FOR ARMY TELEPHONE CABLE

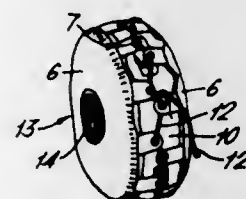
Arnulf Moe Jacobsen, Lillehammer, Norway, assignor to A/S Norsk Kabelfabrik, Holmen, Drammen, Norway

Filed Aug. 6, 1969, Ser. No. 847,838

Int. Cl. B65d 85/04, 85/675

U.S. Cl. 206-52 W

1 Claim



The specification discloses a cable package or dispenser for army telephone cable, comprising a cable coil with a hollow center, two annular side members of strong, flexible material and a belt of strong, flexible material overlying the outer periphery of the coil. Holes are provided at the outer periphery of the side members, which are kept tightly together by a lacing extending through the holes and overlying the belt.

3,637,072

DEVICE FOR PRESERVING DRUGS FOR INJECTION

Shozo Narusawa, and Noritoshi Iizuka, both of Tokyo, Japan, assignors to Yurin Tokushu Kogyo Co., Ltd., Tokyo, Japan

Filed Jan. 2, 1970, Ser. No. 191

Claims priority, application Japan, Jan. 9, 1969, 44/1840

Int. Cl. B65d 85/54; A611 5/32

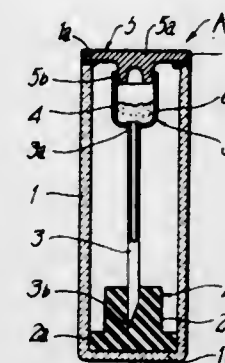
U.S. Cl. 206-63.2 R

8 Claims

A drug preservation container unit for use in connection with injection. It comprises a vertically elongated casing sealed with a cap and a needle assembly held in an upright position within said casing, said needle assembly containing a

freeze-drying processed drug for use in injection and arranged to be connected to a syringe. The unit contains such

past a reject station and to then deposit the containers on a second conveyor. A control valve mounted on each chuck normally supplies the chuck with vacuum, however the con-



drug in such a small quantity as to be conveniently dispensed to a small number of persons.

3,637,073

SEPARATOR FOR GLASS ARTICLES

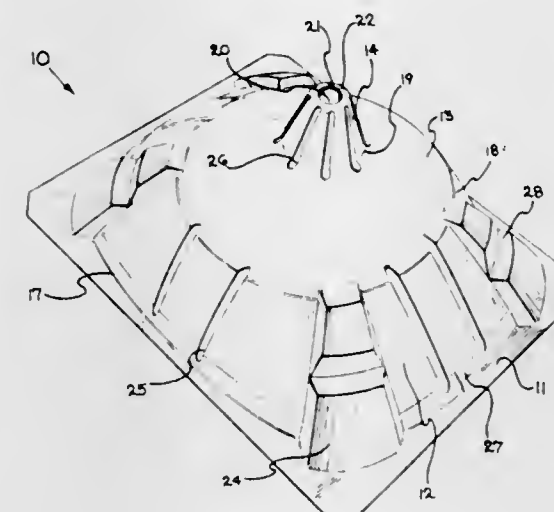
Charles H. Capuano, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed Oct. 6, 1969, Ser. No. 864,114

Int. Cl. B65d 71/00, 85/00, 21/00

U.S. Cl. 206-65 K

5 Claims



A plastic-shipping container and separator for an assortment of pieces of glassware of different shapes and sizes. The separator has a conical body for the various ranges of ware sizes. Diagonally spaced support ridges reinforce the body portion of the separator and hold the glassware in spaced relationship to the separator. An annular orifice at the top of the separator permits hot gases entrapped within the conical portion of the glass to escape.

3,637,074

CONTAINER HANDLING APPARATUS

John D. Banyas, Toledo, and Frederick L. Wallington, Perrysburg, both of Ohio, assignors to Owens-Illinois, Inc.

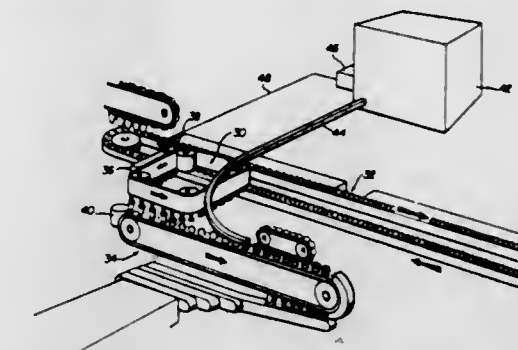
Filed Mar. 31, 1970, Ser. No. 24,173

Int. Cl. B07c 5/04

U.S. Cl. 209-74

7 Claims

Apparatus for handling and transferring bulb-shaped glass containers from one station in a container production line to another. A series of container handling vacuum chucks are linked together into an endless chain to pick glass containers in succession up from a first conveyor, to carry the containers through an inspection station, a coating tunnel and



control valve is actuated at the container discharge station, and may also be actuated at the reject station to supply air under pressure to the chuck to eject the container.

3,637,075

OBJECT SORTING WITH A SCANNING REEL

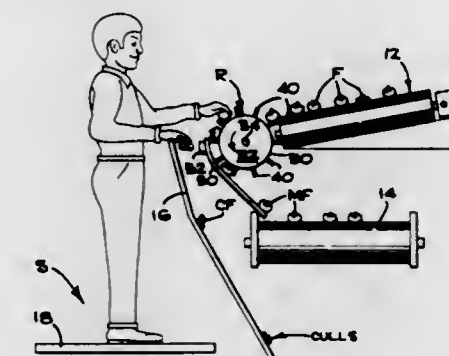
David W. Cayton, Cupertino, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed May 21, 1970, Ser. No. 39,199

Int. Cl. B07c 7/00

U.S. Cl. 209-122

29 Claims



Objects such as fruit, tomatoes or the like are manually sorted from a plurality of sorting stations disposed in front of a rotating, open-faced scanning reel. The reel has longitudinal, radially projecting flights that are fed from the top by a laterally inclined longitudinally running belt conveyor. Successive rows of the objects are inspected and selected objects are manually flicked out over the upper quadrant of the reel, whereas the remaining objects are confined by a curved guard and deposited into a separate collection station.

3,637,076

METHOD OF AND MEANS FOR PROCESSING MAIL

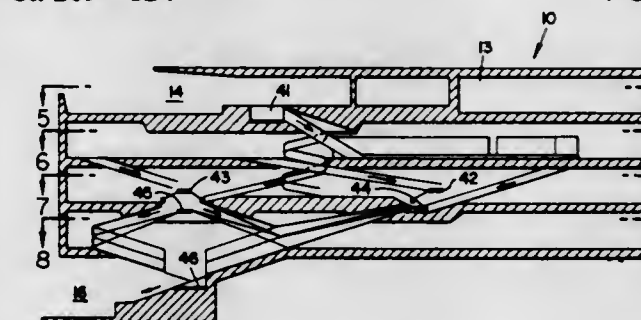
William E. Halopoff, 357 Los Pinos Way, San Jose, Calif., and Robert M. Wilson, Hayward, Calif., assignors to said Halopoff by said Wilson

Filed Jan. 8, 1970, Ser. No. 1,463

Int. Cl. B07c 7/00

U.S. Cl. 209-124

7 Claims



A method of processing mail is disclosed in which the mail is separated into categories by physical characteristics for

processing regardless of the class thereof. A facility particularly adapted for processing mail in categories by physical characteristics is described including means for transporting, sorting and storing mail in each of such categories and subsequently releasing mail of all categories for a given destination for pickup by a carrier.

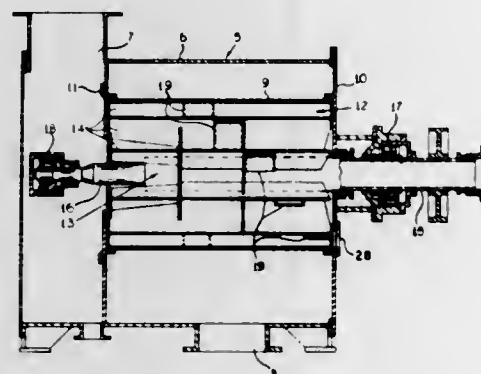
3,637,077 SCREEN IMPELLER

Ben Cowan, 5460 Connaught Ave., Montreal, 29 Quebec, Canada

Filed Oct. 27, 1969, Ser. No. 869,642
Claims priority, application Canada, Sept. 19, 1969, 62,526
Int. Cl. B07b 1/04

U.S. Cl. 209-273

7 Claims



An impeller for installation within a pulp screening machine in which each blade of the impeller is provided with a white water dilution channel communicating with the hollow shaft for the purpose of projecting streams of white water against the inner face of the screen. These dilution channels are located in the same axial position on each set of radially opposite blades and on adjacent blades the dilution channels are offset longitudinally by one width of channel so that each longitudinal strip of the screen plate is cleaned by two dilution channels.

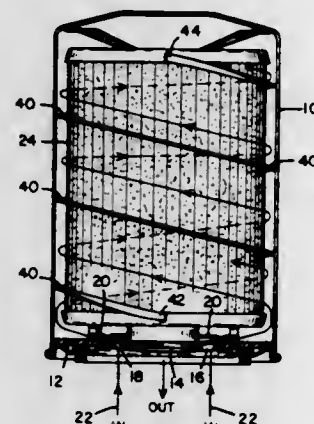
3,637,078 DIRECTIONAL FLOW FLUID FILTER

Bartley Douglass Hollar, Longmont, Colo., assignor to Gould Inc., Mendota Heights, Minn.

Filed June 22, 1970, Ser. No. 48,325
Int. Cl. B01d 27/06

U.S. Cl. 210-73

16 Claims



A fluid filter is disclosed incorporating a pleated filtering element disposed in a generally cylindrical housing. A helically shaped flow vane is disposed so as to spiral about the pleated element and to induce the flow of the fluid flowing through the filter to travel generally across the pleats rather than along the pleats, thus directing the flow over a larger percentage of the total area of the filtering medium.

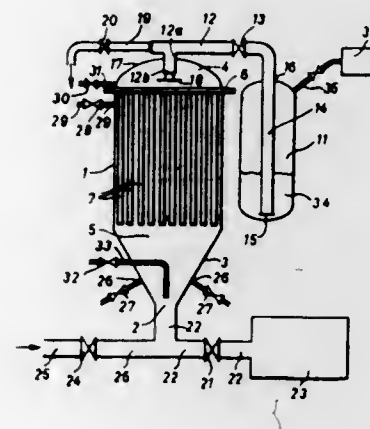
3,637,079 FILTER AND METHOD OF CLEANING THE FILTER

Fritz Strub, St. Gallen, Switzerland, assignor to Filtrox-Maschinenbau AG.

Filed July 2, 1968, Ser. No. 742,047
Claims priority, application Switzerland, July 12, 1967, 9964/67

Int. Cl. B01d 27/12, 29/32
U.S. Cl. 210-82

10 Claims



A filter apparatus and method for cleaning a filter having at least one filter element with a separate container connected by a feed pipe to the outlet side of the filter apparatus and a stop valve in the feed pipe and means for causing a gaseous medium under excess pressure to displace a cleaning fluid from the container into the filter apparatus.

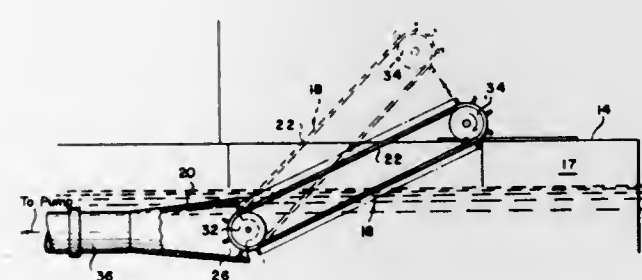
3,637,080 METHOD OF AND APPARATUS FOR SKIMMING FLOTSAM FROM THE SURFACE OF A BODY OF WATER

Arthur L. Markel, Miami, Fla., assignor to Reynolds International, Inc., Richmond, Va.

Filed Oct. 9, 1970, Ser. No. 79,487
Int. Cl. E02b 15/04

U.S. Cl. 210-83

15 Claims



A method of and apparatus for skimming flotsam from the surface of a body of water. Floating material, such as oil, is directed toward and into pockets on a continuously driven conveyor belt means which serves to submerge the floating material beneath the surface of the water. A transfer of the material is made to a suitable conduit means from which the floating material is pumped to a suitable reservoir or station where it is separated from the water. When the skimmer is used to harvest plants or the like, a cutting means is placed in the entrance of the conduit to shred the plants.

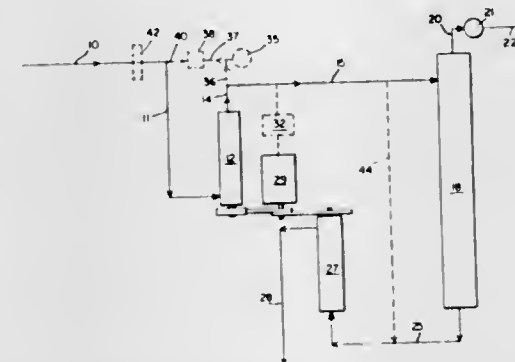
3,637,081 LIQUID TREATMENT SYSTEM

William E. Bradley, New Hope, Pa., assignor to Puredesal, Inc., Levittown, Pa.

Filed Apr. 9, 1970, Ser. No. 27,049
Int. Cl. B01d 31/00, 13/00

U.S. Cl. 210-110

11 Claims



A liquid treatment system, involving pressure exchange pumps for positive control of reverse osmosis liquid purification, which overcomes corrosion and supersaturation problems.

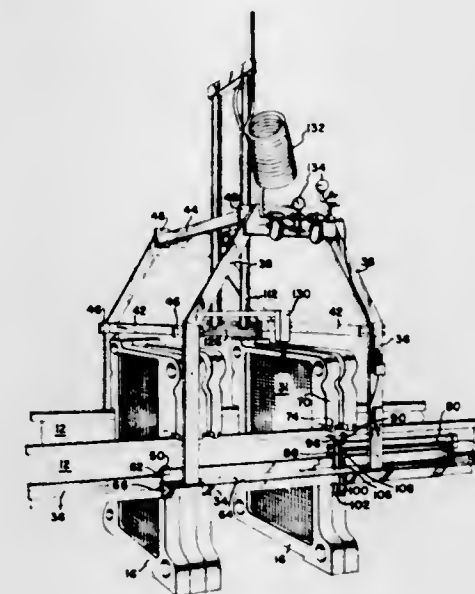
3,637,082 PLATE SHIFTER AND SCRAPER ASSEMBLY FOR FILTER PRESSES

Leonard T. Bentzien, Menomonee Falls, Wis., assignor to T. Shriver & Company, Inc., Harrison, N.J.

Filed June 20, 1969, Ser. No. 834,948
Int. Cl. B01d 25/32

U.S. Cl. 210-225

11 Claims



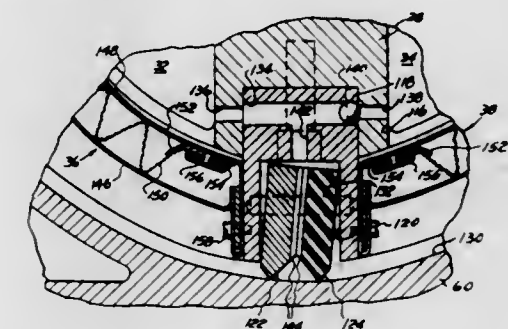
A system for mechanically shifting and cleaning the filter plates in a pressure-type filter press wherein the filter plates, which are supported on the side rails of the filter press and have supporting brackets extending over each of the rails, are shifted apart to allow a plate scraping mechanism to move downwardly against the plates and scrape the accumulated filter cake from the filter plates. The plate shifter and scraper are mounted on a carriage which slides along the rails of the filter press and the plate shifter includes pneumatically operated plate shifting devices to separate the filter plates. Once the plates are separated, a scraper mounted on the carriage in pendulum fashion above the plates is extended between the separated plates to scrape the accumulated filter cake from the exposed faces of the filter plates.

3,637,083 FLUID SYSTEM WITH SELF-CLEANING FILTER

Nils O. Rosen, 3774 Quanton Road, Bloomfield Hills, Mich. Original application Mar. 14, 1968, Ser. No. 713,018, now Patent No. 3,542,197, which is a continuation-in-part of application Ser. No. 539,863, Apr. 4, 1966, now Patent No. 3,425,557, and a continuation-in-part of 661,968, Aug. 21, 1967, now Patent No. 3,425,558. Divided and this application Apr. 1, 1970, Ser. No. 31,455
Int. Cl. B01d 35/02, 33/40

U.S. Cl. 210-497

5 Claims



A partially cylindrical filter element for use in two chambers, at different pressures, and separated by a partition having pressure-responsive vanes.

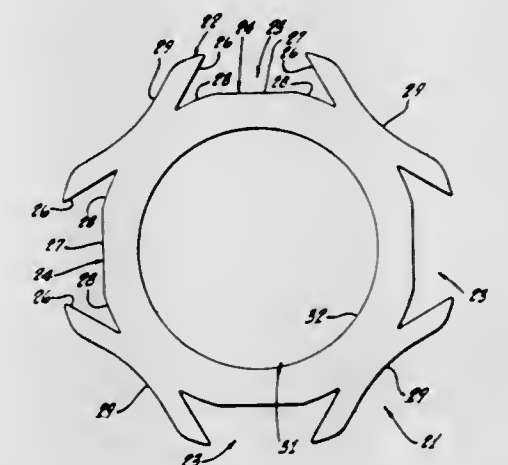
3,637,084 HANGER ROD CONSTRUCTION AND ASSEMBLY

Mark O. Uitz, Mountain View, Calif., assignor to F.J.L. Corporation, Palo Alto, Calif.

Filed May 8, 1969, Ser. No. 822,956
Int. Cl. A47f 5/08; A47h 1/02

U.S. Cl. 211-105.1

20 Claims



Hanger rod construction and assemblies including a cylindrical rod with longitudinally extending undercut slots formed in its outer surface and mounting brackets and hanger devices for mounting in said slots, together with an internal bore formed in the rod and end pieces and mounting brackets for mounting in said bore.

3,637,085 SHELF TRIM ASSEMBLY

Charles A. Ball, Suite 510, 80 The East Mall, Islington, Ontario, Canada

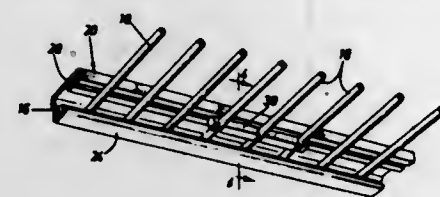
Original application Apr. 20, 1967, Ser. No. 632,355, now Patent No. 3,554,383, dated Jan. 12, 1971. Divided and this application Mar. 26, 1970, Ser. No. 22,824
Int. Cl. A47f 5/00

U.S. Cl. 211-153

2 Claims

Clip means for holding a trim plate on a metal shelf structure with a frame and spaced transverse bars thereon. One

type of clip means engages the trim plate and at least one of the transverse bars. The other type of clip means which is



made of a resilient strip of steel engages the trim plate and the frame.

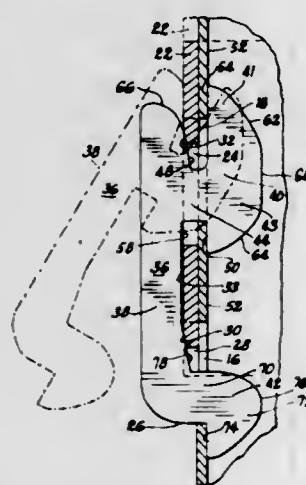
3,637,086 CONNECTING HOOK

Herbert H. Klein, Arlington Heights, Ill., assignor to Unarco Industries, Inc., Chicago, Ill.

Filed May 7, 1970, Ser. No. 35,419
Int. Cl. A47I 5/10

U.S. Cl. 211-176

5 Claims



A connecting hook for knockdown racks that have hollow upright posts to which horizontal supporting members are connected through a connecting plate. An opening in the connecting plate is aligned with an opening in the vertical post and the connecting hook is swung into the opening from the outside of the post to lock the connector plate in positional engagement with the upright post.

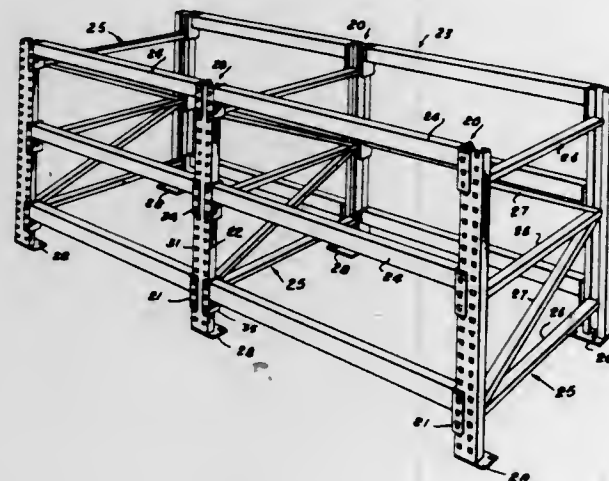
3,637,087 JOINT STRUCTURE

Denny A. Denny, Dallas, Tex., assignor to Midland Machine Corporation, Elizabeth, N.J.

Filed Oct. 30, 1967, Ser. No. 678,819
Int. Cl. A47I 5/10

U.S. Cl. 211-176

23 Claims



A joint structure between a supported member and a supporting member including a tongue on one of the members, a

tongue-receiving slot in the other of the members, lateral complementary mating load bearing surfaces on the tongue and along an edge of the slot, and a removable locking retainer engageable with the members for holding them against disengagement from each other.

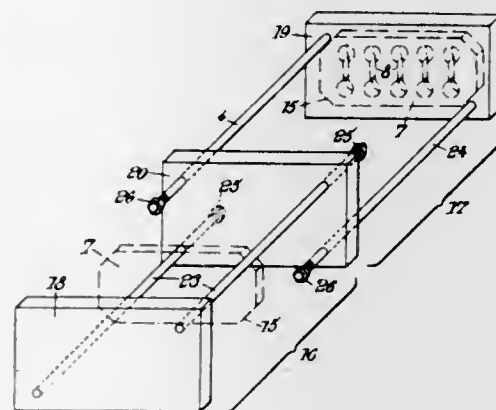
3,637,088 COUPLING SYSTEM FOR VEHICLES IN PARTICULAR RAILWAY VEHICLES

Genevieve Bremond, Paris, France, assignor to Paulstra, Levallois-Perret, France

Filed Apr. 8, 1969, Ser. No. 814,275
Claims priority, application France, Apr. 11, 1968, 147838
Int. Cl. B61g 9/06

U.S. Cl. 213-45

6 Claims



The coupling comprises two groups of rubber slabs which transmit the traction force and the buffering force to the chassis of the vehicle, both these forces compressing the slabs during their transmission. The slabs are generally rectangular and have their corners cut off to form cants. The slots are disposed parallel to the small sides of the rectangle. The two groups of slabs are precompressed by rods passing by the slabs adjacent to their cants.

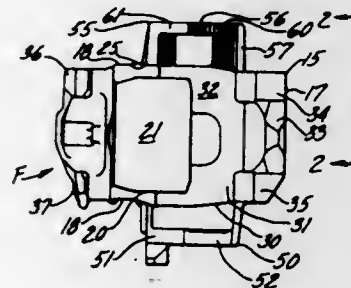
3,637,089 RAILWAY CAR COUPLER

Karl John Jwuc, North Royalton, and Donald Willison, Lyndhurst, both of Ohio, assignors to Midland Ross Corporation, Cleveland, Ohio

Filed Jan. 9, 1970, Ser. No. 1,696
Int. Cl. B61g 1/06, 7/14

U.S. Cl. 213-153

3 Claims



An interlocking type F railway car coupler recognized by the Association of American Railroads (A.A.R.) as alternate standard equipment and which is provided with a hood. The hood has a roof which overlies the knuckle-receiving recess of the F type coupler to afford vertical interlock between two opposed coupled car couplers when the F coupler is intercoupled with an automatic knuckle-type of car coupler known as an A.A.R. Standard E coupler.

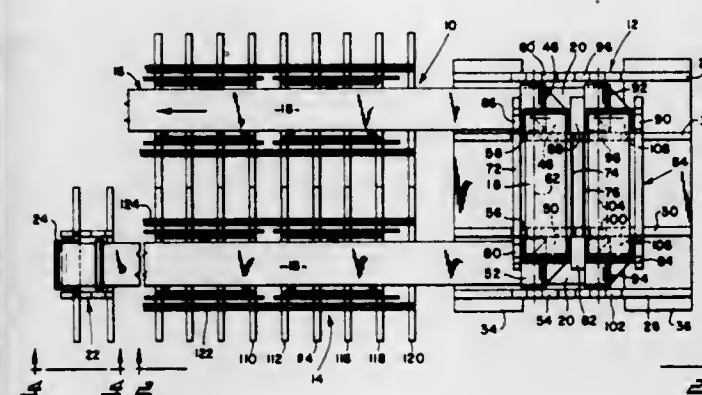
3,637,090 ENDLESS CONVEYOR-BELT SYSTEM AND BELT DIRECTION

George R. Murphy, Hudson; Glenn E. Rehn, Olmsted Township, and George L. Plum, Lyndhurst, all of Ohio, assignors to McDowell-Wellman Engineering Company, Cleveland, Ohio

Filed Aug. 25, 1970, Ser. No. 66,720
Int. Cl. B65g 15/00

U.S. Cl. 198-184

11 Claims



There is provided an improved belt-storage system and apparatus useful therewith, characterized by a belt direction changing and translating apparatus effective to change the direction of movement of the belt, e.g. reverse it entirely, and to translate the belt laterally, e.g. so that portions can be disposed alongside each other. One portion is then available for conveying action, and the other for belt storage. The lengths of each may be adjusted upwardly and downwardly, respectively, or vice versa. The apparatus includes supporting framework for pulley systems which coast with each reach of the belt as it enters or leaves the conveyor portion and as it leaves or enters the storage portion, respectively.

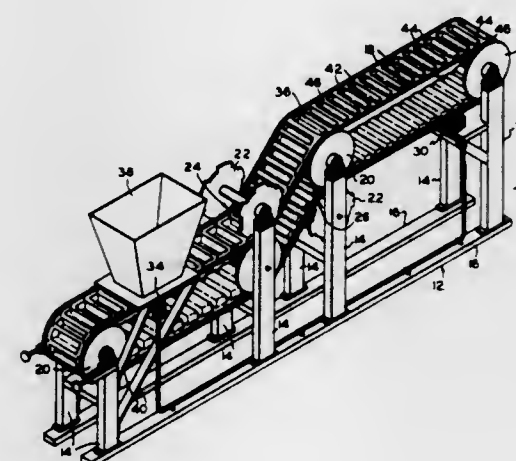
3,637,091 MOLDED PLASTIC BELT CONVEYOR

Raymond N. Mickelson, 12424 Guilford Drive, Milwaukie, Oreg.

Filed Apr. 7, 1970, Ser. No. 26,339
Int. Cl. B65g 15/00

U.S. Cl. 198-184

3 Claims



A conveyor utilizes a molded plastic belt having a plurality of longitudinally spaced, open top pocketlike receptacles formed integrally therein, the belt being supported by clips between a pair of cables.

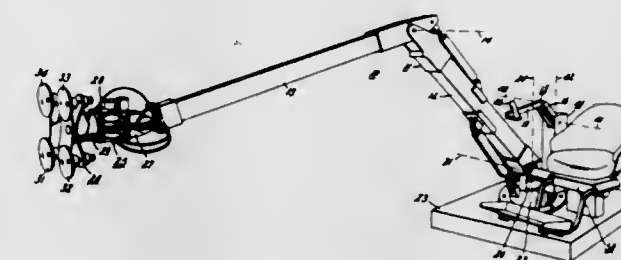
3,637,092 MATERIAL-HANDLING APPARATUS

Raymond L. George; Edward G. Kruszona, both of Schenectady; John P. Laniewski, Scotia, and Norman H. Wood, Schenectady, all of N.Y., assignors to General Electric Company

Filed Apr. 30, 1970, Ser. No. 33,442
Int. Cl. B25J 3/00

U.S. Cl. 214-1 CM

6 Claims



An articulated boom having a single joint intermediate the ends thereof is pivoted at one end about a horizontal axis of a support member. The support member is in turn connected to a mount member and pivoted about a vertical axis thereof. The other end of the boom has end effectors and end effector positioning elements located thereon. A control member smaller in size but similar in form to the articulated boom having a single joint intermediate the ends thereof is also pivoted at one end about another horizontal axis of another support member and a handle is provided at the other end thereof. The other support member is connected to the one support member and pivotal to a limited extent about another vertical axis. Hydraulic actuators, control valves and control linkages are interconnected with the boom and the control member so that movement of the handle causes the boom to mimic the movement of the control member and also so that forces encountered by the end effector on the boom are reflected back, reduced in magnitude, however, to the handle held by the operator.

3,637,093 PALLETING APPARATUS

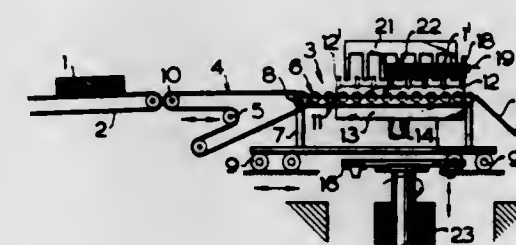
Friedrich Franz Brockmuller, Lengerich of Westphalia, and Karl Haupt, Wolbeck via Munster, both of Germany, assignors to Windmoller & Holcher, Lengerich of Westphalia, Germany

Filed Jan. 6, 1970, Ser. No. 922
Claims priority, application Germany, Jan. 7, 1969, P 19 00 615.6

Int. Cl. B65g 57/22

U.S. Cl. 214-6 P

9 Claims



A delivery conveyor, a supply conveyor of variable length, a roller track, a pronged rake movable between the rollers of the roller track for lifting an article from the top surface of the roller track, a sequentially rotatable and vertically movable pallet support next to the roller track, and a second pronged rake movable for sweeping the lifted article onto the pallet from the first-mentioned pronged rake.

3,637,094 BULKHEAD

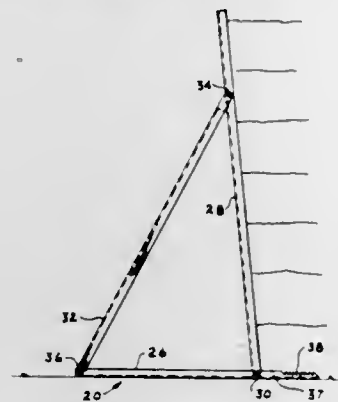
Donald M. Grey, Selma, Calif., assignor to Sperry Rand Corporation, New Holland, Pa.

Filed May 19, 1970, Ser. No. 38,815

Int. Cl. B65g 1/14

U.S. Cl. 214-10.5 R

3 Claims



A collapsible bulkhead frame for stacking bulk material against. The bulkhead frame includes a pair of like A-frames mounted on base runners and laterally spaced apart by detachable crossmembers extending between each A-frame. The base runners extend just beyond the A-frames on the stacking side in order that the first column of stacked material will rest thereon while leaning against the corresponding A-frame side.

3,637,095

CART-LOADING MACHINE

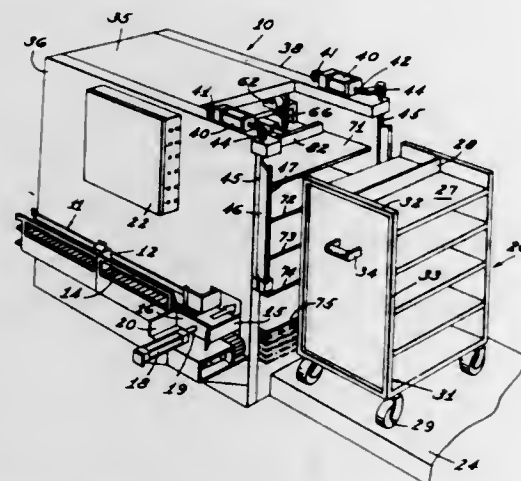
David H. Kampfer, St. Paul, Minn., assignor to Conveyor Specialties Company, St. Paul, Minn.

Filed July 8, 1969, Ser. No. 50,015

Int. Cl. B65g 67/00

U.S. Cl. 214-16.6

10 Claims



This invention relates to a cart-loading machine having outside, intermediate and inner frames where multiloading shelves are utilized to receive the containers at a single loading elevation. The loading shelves are positioned in a lowered position and raised as they are filled to elevated positions by telescoping pins. The filled multiloading shelves are then automatically moved into a roll away cart by movement of the intermediate and inner frames. When the containers are positioned over the cart storage shelves, the intermediate frame is then withdrawn, which includes the loading shelves. The inner frame, which includes push rods, is held stationary with respect to the outer frame and the cart butt is moved forward with respect to the intermediate frame causing the containers to be removed from the loading shelves and dropped on the storage shelves of the cart. When all the containers are removed, the inner shelf will move back to its original position to facilitate receiving other containers on the multiloading shelves.

ing shelves. An automatic cart-turning unit is provided which can be utilized to rotate the cart when half of the cart is filled, exposing the unfilled half. The loading shelves will be returned to their lowered position. In some applications uncasing heat will be utilized to load and accumulate the containers from filled cases.

3,637,096

NUCLEAR FUEL TRANSFER MACHINE

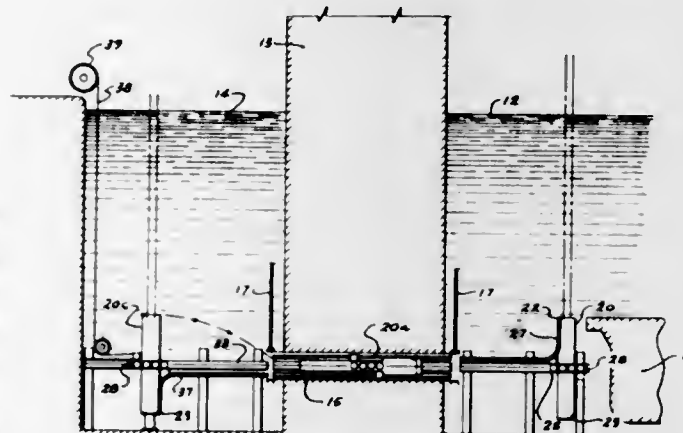
John J. Crate, Wethersfield, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Feb. 27, 1969, Ser. No. 802,942

Int. Cl. G21c 19/20

U.S. Cl. 214-18

10 Claims



A transfer machine for transferring fuel bundles from a reactor-handling pool to the spent fuel-handling pool through a transfer tube in the reactor containment wall. A load-supporting carriage including its own driving means operates to move horizontally along support rails from the reactor pool to the spent fuel pool. A fuel carrier adapted to receive the fuel elements is pivotally mounted on the load supporting carriage with its vertical orientation established by interaction between guide rollers mounted on the fuel carrier and guide rails. These guide rails are arranged so that the fuel carrier is in a vertical upright position in each of the pools while it is guided to a horizontal position for transfer through the transfer tube.

3,637,097

POWER-OPERATED TAILGATE WITH MAXIMUM REARWARD DISPLACEMENT BETWEEN FULLY ELEVATED AND FULLY LOWERED POSITIONS

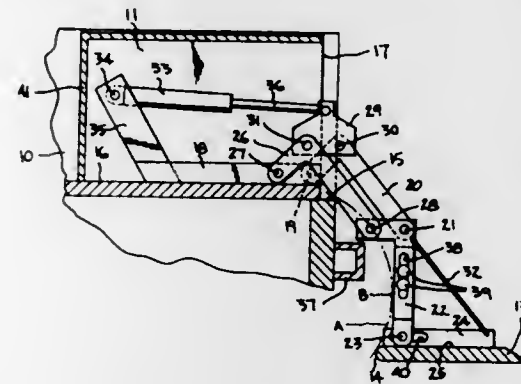
Robert R. Horowitz, Shaker Heights, Ohio, assignor to S&H Industries, Inc., Maple Heights, Ohio

Filed Feb. 19, 1970, Ser. No. 12,677

Int. Cl. B60p 1/44

U.S. Cl. 214-77 P

9 Claims



A power-operated tailgate mechanism having pairs of bell-crank lever arms pivotally mounted on the bed surface of a cargo body and having their outer ends pivotally connected

to a support arm which is attached to the tailgate. The relationship of the pivotal connections is such as to provide a parallelogram linkage for the purpose of maintaining the tailgate surface in a load-carrying attitude during elevating and lowering movement of the tailgate. Power means, such as an hydraulic cylinder, is connected to an actuating arm which interconnects the lever arms for simultaneous movement. Maximum rearward displacement of the tailgate occurs below the level of the bed of the cargo body.

3,637,098

AGRICULTURAL VEHICLE WITH LIFT-BODY CAPABILITY AND THE LIKE

Ernst Wagenblast, Slangen, and Heinz Hohlwegler, Gottmadingen, both of Germany, assignors to Maschinenfabrik Fahr Aktiengesellschaft, Gottmadingen, Germany

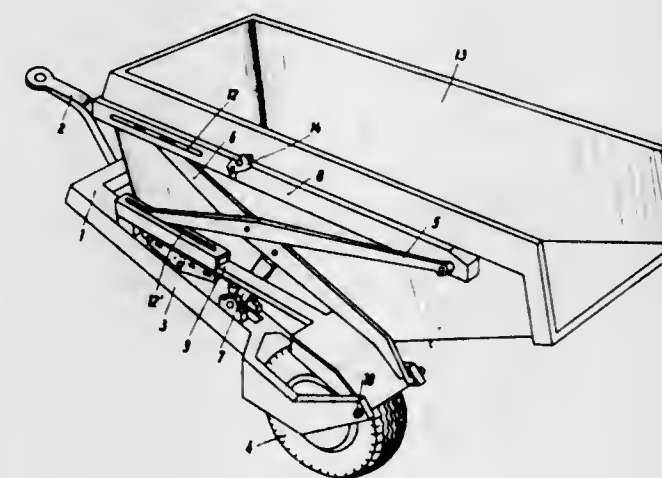
Filed Jan. 28, 1970, Ser. No. 6,448

Claims priority, application Germany, Feb. 3, 1969, P 19 05 164.0

Int. Cl. B65g 7/00

U.S. Cl. 214-314

11 Claims



An agricultural vehicle with a fork-shaped frame is provided with a lifting linkage and tilting beams carrying the linkage. The linkage may be used for raising a container from the ground and lowering it again. Hydraulic cylinders are provided which serve both to move the container upwards and, alternatively, to tilt the container. In order to make possible the one or the other of these functions, while preventing the other function catch means are provided between the linkage and the beams in order to prevent relative movement between them. The operation of the catch means depends upon the movement sequence performed by the hydraulic cylinders.

3,637,099

ELEVATING APPARATUS

Jean Georges Perrier, 84 Chemin de l'alga, Tassin-la-Demi-Lune, France

Filed Aug. 14, 1969, Ser. No. 850,030

Claims priority, application France, Aug. 11, 1968, 50306

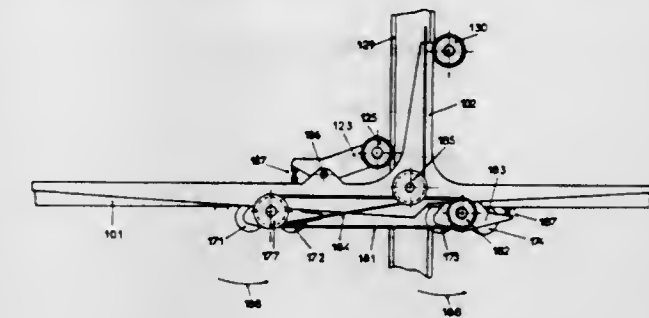
Int. Cl. B66f 9/16

U.S. Cl. 214-660

4 Claims

Elevating apparatus for motor vehicles comprising vehicle supporting platforms each inclined slightly to the horizontal and supported by a cradle which is movable up and down inclined or vertical guide rails; each cradle is connected by a power transmission mechanism to means for bodily moving the platform (and vehicle) along the rails. The power trans-

mission mechanism being operated at least partially by the vehicle engine through the intermediary of the driven wheels



3,637,100

SWING SHIFT LIFT TRUCK

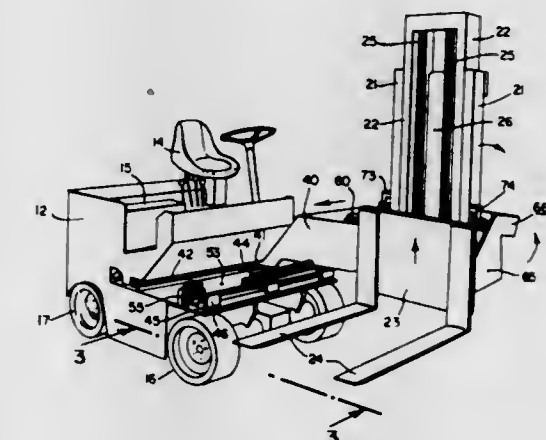
Harry C. McMillan, Cherry Hill, N.J., assignor to Drexel Dynamics Corporation, Horsham, Pa.

Original application Dec. 4, 1968, Ser. No. 781,149. Divided and this application Mar. 13, 1970, Ser. No. 19,158

Int. Cl. B66f 9/10, 9/20

U.S. Cl. 214-671

4 Claims



A swing shift forklift truck is disclosed having a lift assembly attached to the side of a single-swing arm. One end of the single-swing arm is pivotally mounted on the vehicle chassis on a side shift mechanism having a transverse travel across the front of the vehicle. The vehicle is capable of operating either as a front loader by positioning the lift assembly immediately in front of the drive axle, or as a side loader by rotating the swing arm to move the lift assembly to a position parallel to the direction of the vehicle travel. The side shift mechanism is then used to move the lift assembly transversely to enter or remove the forks from the load. The operator is seated on one side of the chassis in a fixed position facing forward. All operator controls are located in the operator's compartment.

3,637,101

CLOSURE CAP LINER

William E. Risch, and Daniel D. Acton, both of Lancaster, Ohio, assignors to Anchor Hocking Corporation, Lancaster, Ohio

Original application July 15, 1966, Ser. No. 565,622, now Patent No. 3,505,152. Divided and this application Jan. 9, 1970, Ser. No. 10,116

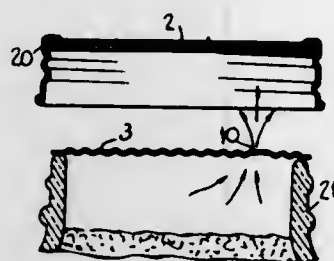
Int. Cl. B65d 23/00, 53/00, 51/16

U.S. Cl. 215-40

5 Claims

A safety seal liner for a closure cap includes a relatively thick inner liner for engaging the inside of the cap cover and a second relatively thin innerseal liner releasably adhered to

the outer surface of the inner liner and having a plurality of perforations extending through the inner liner only for venting the interior surface thereof and a polyethylene liner disposed therein and bonded to the primer coated interior surface by



ing a package when the closure cap is removed. The adhesive is spaced from the perforations.

3,637,102

CLOSURES FOR ASEPTIC FILLED CONTAINERS

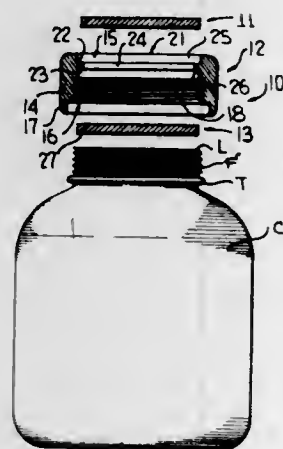
Fred B. Shaw, Hinsdale, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed May 25, 1970, Ser. No. 40,304

Int. Cl. B65d 23/00, 53/00

U.S. Cl. 215-40

11 Claims



This disclosure relates to closures for aseptic filled containers, and more particularly to a closure which includes a tubular body open at opposite ends, the tubular body being threadably or otherwise conventionally secured to a container finish with the container mouth being closed by a puncturable but self-sealable membrane. The hermetically closed but empty container is thereafter sterilized by retorting, irradiation, or by the injection of a small amount of a sterilizing gas into the container by a needle passed through the puncturable membrane. Thereafter the container is ready for subsequent filling by use of a conventional double-hollow needle technique after which the closure is completed by securing a disc to the closure body immediately above the puncturable membrane.

3,637,103

CLOSURE HAVING POLYETHYLENE LINER

Louis R. Ptak, Western Springs, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Original application Nov. 17, 1967, Ser. No. 683,986, now

Patent No. 3,522,126. Divided and this application June 1,

1970, Ser. No. 54,069

Int. Cl. B65d 41/02, 53/00

U.S. Cl. 215-40

8 Claims

A container closure is constructed of a metal shell having a primer coating of a mixture of a vinyl chloride copolymer, a thermosetting phenol-aldehyde resin, and an epoxy resin on



an adhesion promoting coating comprised of a blend of polyethylene and polyvinylbutyral.

3,637,104

POP TOP CLOSURE

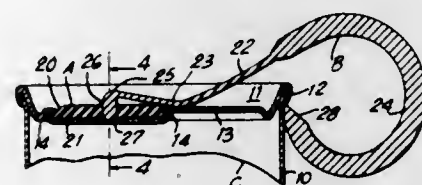
Richard C. Dutnell, 903 Shrider Road, Colorado Springs, Colo.

Filed May 18, 1970, Ser. No. 38,071

Int. Cl. B65d 45/00

U.S. Cl. 220-25

9 Claims



A removable stopper for sealing elongated openings in any container wall. It is particularly adapted for use in all of the several different beverage can and pull tab opener combinations now available on the market. Essentially the stopper consists of a lever, fulcrum and hook structure in combination with a sealing surface. The latter can be positioned within the can and forced up against the bottom surface of the top of the can by actuation of the lever until the seal is established and the hook is attached to the bulging rim around the top of the can. The advantages of this configuration are that one stopper can be used for all of the different pull-tab-type of elongated openings, that the use of the mechanical advantage of the lever creates a tighter seal than might otherwise be possible, and that any pressure buildup which may develop in the can contributes to, rather than detracts from, the sealing of the container.

3,637,105

PULL-STRIP OPENING MEANS

Michel Leblot, Quimper, France, assignor to Societe Metallurgique de Douarnenez, Douarnenez (Finistere), France

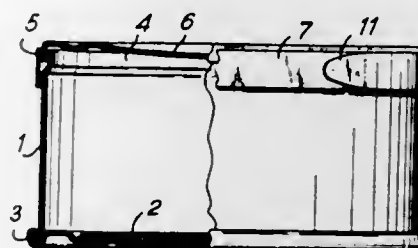
Filed Nov. 20, 1969, Ser. No. 878,515

Claims priority, application France, Nov. 29, 1968, 175905

Int. Cl. B65d 17/24

U.S. Cl. 220-53

6 Claims



A tinned-food can which can be opened manually by the consumer without the aid of a key or a tool, comprising a body and a spigoting lid, the joint being covered by a metal strip less than one-tenth of a millimeter thick welded or bonded to the edge of the lid and to the wall of the can body.

3,637,106

PULL-TAB SECURED BY RIVETED JOINT

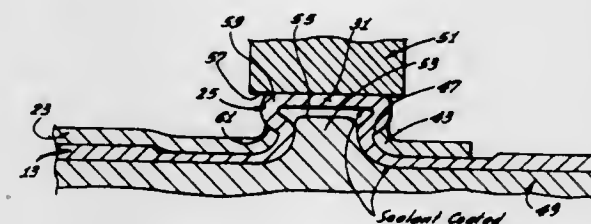
Omar L. Brown, Kettering, Ohio, and George F. Smyth, Los Angeles, Calif., assignors to Dayton Reliable Tool & Mfg. Company, Dayton, Ohio

Filed Dec. 2, 1969, Ser. No. 881,408

Int. Cl. B65d 17/24

U.S. Cl. 220-54

10 Claims



A container wall having a tear portion attached to a tab by a hollow rivet which is formed in the tear strip and which extends through an aperture in the tab. The sheet material around the aperture is deformed outwardly with a liberal radius of curvature to form a boss which terminates in an annular end face forming a conical seat. The end face slopes toward the can top as it extends radially inwardly. The hollow rivet is expanded in a manner to form the head of the rivet against the conical seat to permanently join the tab to the container wall.

3,637,107

SEQUENTIALLY OPERATIVE ITEM-RELEASING DISPLAY APPARATUS

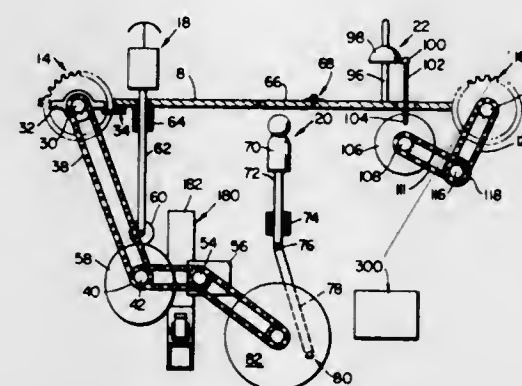
Charles A. Mueller, Kirkwood, Mo., assignor to Interco Incorporated, St. Louis, Mo.

Filed July 9, 1970, Ser. No. 53,458

Int. Cl. A63h 29/22

U.S. Cl. 221-3

9 Claims



There is disclosed a sequentially operative item-releasing display apparatus incorporating a coordinated series of moving elements which serve to effectively present a simulated path of movement for an item through the apparatus operating simultaneously with moving elements of an amusing nature and means producing an exciting sound, all for purposes of stimulating the imagination and amusing an individual, such as a child, viewing the device. Moreover, the device, at the end of its sequence of operation, releases a given item therefrom, thus creating the illusion that the item has followed the simulated path of movement through the device.

3,637,108

SEED PLANTER

Leo J. Loesch, and Claude E. Loesch, both of Kimball, Minn.

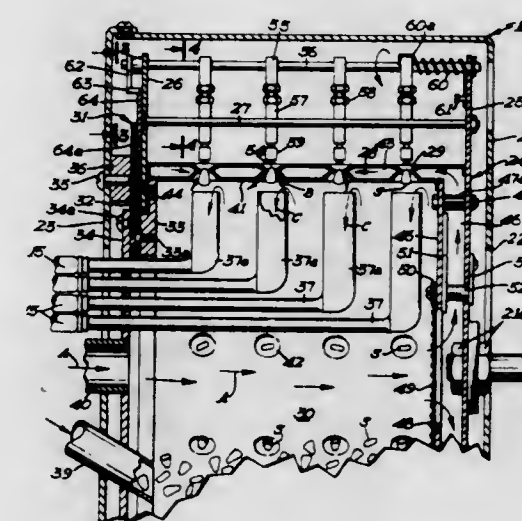
Continuation-in-part of application Ser. No. 684,357, Nov. 20, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 599,792, Dec. 7, 1966, now abandoned.

This application June 25, 1969, Ser. No. 836,480

Int. Cl. B65g 15/02

U.S. Cl. 221-211

40 Claims



A seed dispenser for a planter including a drum with a shell at the periphery with openings in which seeds are held by positive air pressure within the drum, while moving air within the drum sweeps away all excess seeds from the openings, and seed discharge tubes receiving seeds from said openings and carrying the seeds out of the drum by the air under pressure in the drum.

3,637,109

DISPENSING DEVICES

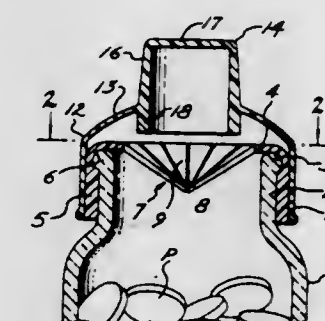
John J. Stifter, 33084 Lake Road, Avon Lake, Ohio

Filed Nov. 12, 1969, Ser. No. 875,660

Int. Cl. A471 1/00

U.S. Cl. 221-310

6 Claims



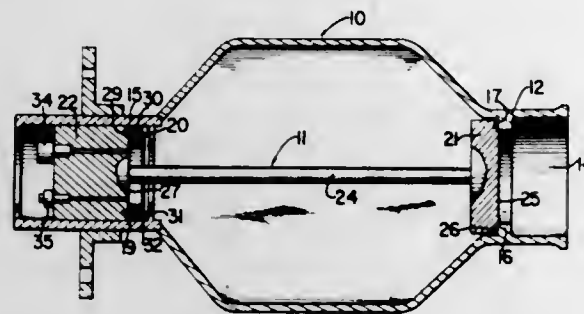
A pill or other particle container has a transverse diaphragm adjacent to its open end having a conical central portion radially slotted outwardly from the center to provide converging tongues which normally close the container and retain the pills or particles therein. A cap for the container has a flexible end wall and a downwardly open socket with an inwardly projecting annular wall whereby the container is inverted, the end wall is depressed to insert the annular wall through the tongues which flex outwardly, and pills or particles in a predetermined amount drop into the socket.

3,637,110 FRICTIONLESS INERTIA RESPONSIVE GAS DISPENSING APPARATUS

John Cirillo, Glen Ridge, and Gerald Durstewitz, Passaic, both of N.J., assignors to Walter Kidde & Company, Inc., Belleville, N.J.

Filed July 15, 1970, Ser. No. 54,914
Int. Cl. B67b 7/100

U.S. Cl. 222-3



Apparatus for dispensing pressurized gas in response to a change in velocity including a container having an outlet opening and a second opening aligned therewith, and a valve member for sealing both of the openings. The valve member has a large diameter piston at one end which engages an annular flange at the outlet and a smaller diameter piston at the other end which engages an annular member at the second opening. The pistons are provided with face seals and the pressure within the container holds the seals in contact with the annular flange and the annular member to seal the openings. The valve member is of sufficient mass to overcome the pressure forces and open the container in response to a predetermined change in velocity of the container. A tubular member at the second opening closely fits the smaller piston so that substantially all of the gas in the container is emptied through the outlet opening.

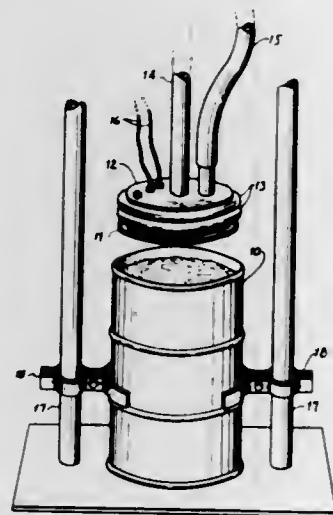
3,637,111 HEATING SYSTEM

Mabry L. McCreary, St. Louis, Mo., assignor to Inmont Corporation

Filed Aug. 29, 1967, Ser. No. 664,131
Int. Cl. B67d 5/62

U.S. Cl. 222-146 H

2 Claims



This invention relates to apparatus for substantially simultaneously heating and pumping out thermoplastic or other meltable materials from shipping drums or similar receptacles. The apparatus broadly comprises a movable head carrying a heating coil on the underside thereof. The head is formed so as to fit snugly in the interior of the receptacle to be emptied. The heating coil is attached to but spaced from

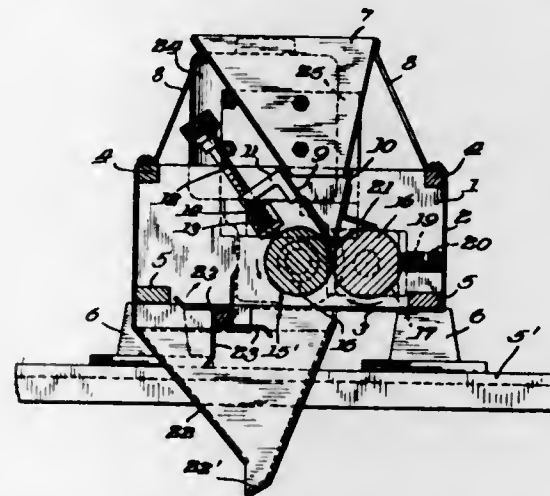
the underside of the head. Means are provided to advance the head into the receptacle and to pump the melted material therefrom.

3,637,112 MACHINE FOR DISPENSING AND DISTRIBUTING DRY FLOWABLE MATERIALS

Daniel Lamar Christy, R.F.D. 5, Fremont, Ohio
Filed Apr. 26, 1967, Ser. No. 641,725
Int. Cl. G01f 11/20

U.S. Cl. 222-317

8 Claims



A machine for dispensing and distributing dry flowable materials including a pair of horizontally disposed parallel rolls having one of their sides in contact with each other, and a hopper having a bottom outlet vertically above the contact sides of the rolls for discharge of material onto the rolls. The rolls are rotated in a direction causing the material to be carried upwardly by one of the rolls for discharge from the other side.

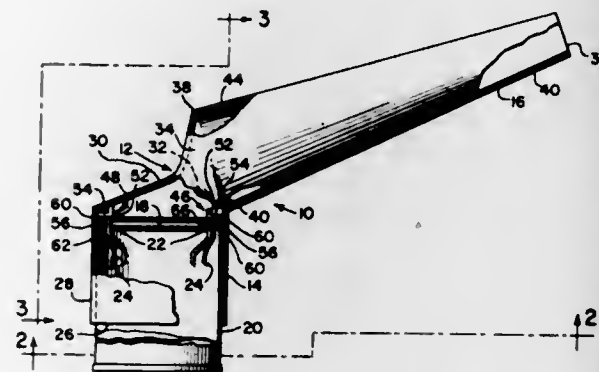
3,637,113 CAN-OPENING DISPENSING FUNNEL

George R. Stehl, Stony Brook, N.Y., assignor to Mobil Oil Corporation

Filed Aug. 22, 1969, Ser. No. 852,302
Int. Cl. B67b 7/26

U.S. Cl. 222-86

10 Claims



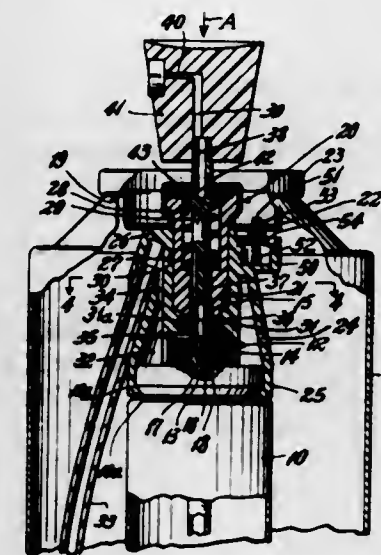
A container-opening, dispenser-type funnel has a hollow body open at the bottom to telescope over a sealed container and has a flattened closed-over top with an opening in it communicating into a tapered hollow dispensing spout, and cutter means are resiliently insertable into the body to form, aligned with the spout, spaced dispensing openings in the container by blades which pierce it and cut apertures through the container top and turn the tabs resulting therefrom downward and outward when the funnel is forced axially down over the container so that radially oppositely arranged gripping means provided in association with the cutter means can hold and seal the container to the funnel during use by tight radial engagement with the cutout tabs.

3,637,114 DEVICE FOR CODISPENSING TWO MATERIALS

Philip Meshberg, 15 Stoneleigh Road, Fairfield, Conn.
Filed Sept. 3, 1970, Ser. No. 69,314
Int. Cl. B65d 83/14

U.S. Cl. 222-135

8 Claims



A device for codispensing two materials including a self-contained inner container having a valve means provided with a reciprocating valve stem and an outer container having a valve means including a reciprocating valve stem, said valve stems being disposed in alignment by a novel connector connected to both containers and also said stems having discharge and dispensing ports thereon for controlling the discharge of material from each container and the dispensing of the two materials from the device in response to inward movement of the valve stem on the outer container cooperating with the valve stem on the inner container. The two containers can be filled with material and/or subsequently charged with a propellant simultaneously through the valve stem. Also, safety means are provided to prevent bursting of the outer container should the material become inadvertently mixed.

3,637,115 APPARATUS UTILIZING SONIC VIBRATIONS TO FACILITATE THE MOVEMENT OF PARTICULATE MATERIAL ALONG A SLOPING SURFACE

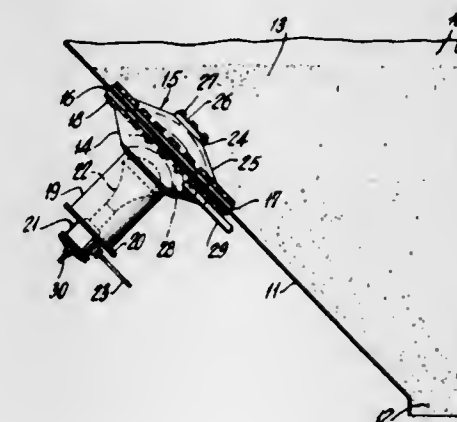
Bengt L. Holm, Malmo, Sweden, assignor to Kockums Mekaniska Verkstads Aktiebolag, Malmo, Sweden

Filed Feb. 2, 1970, Ser. No. 7,623

Claims priority, application Sweden, Feb. 3, 1969, 1383/69
Int. Cl. B65g 65/72

U.S. Cl. 222-195

7 Claims



An apparatus for initiating and facilitating sliding of material along a sloping bottom comprises upper and lower members secured on opposite sides of the bottom and covering an opening provided therein, the upper member being a

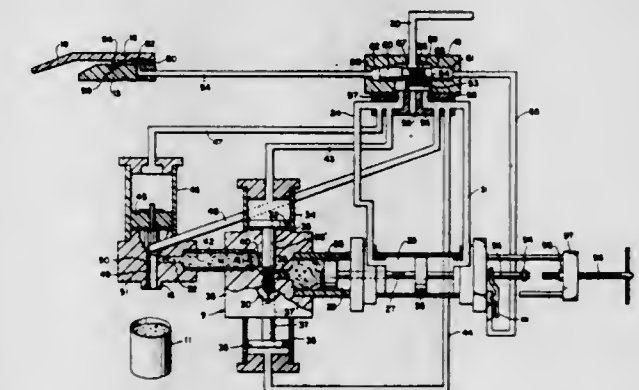
gas-permeable member. A sound transmitter carried by the lower member opens into a chamber formed by the two members and is directed towards the gas-permeable upper member. The bottom provides together with the elements thus supported thereby a vibrationable unit and forms a fixedly mounted diaphragm thereof in order to vibrate when material supported by the bottom is activated by sound oscillations produced by the sound transmitter.

3,637,116 FLUID-OPERATED PISTON FOR METERING GRAVITY FED MATERIAL

Russell G. Rutherford, 8045 Beach Drive, Rockford, Ill.
Filed Feb. 9, 1970, Ser. No. 9,553
Int. Cl. B67d 3/00

U.S. Cl. 222-309

7 Claims



A pump piston in one cylinder is connected with a power piston operated by compressed air in a second cylinder rigid with the first, and a common rod connecting the pistons extends from the second cylinder so an adjusting screw abutting its end serves to give fine adjustments to the stroke to give accurate measurement of the amount of slurry dispensed in each operation. The slurry is delivered by gravity to the pump cylinder; and air operated valves control the communication between the pump cylinder and the gravity supply conduit and also between said cylinder and a discharge nozzle, where an air operated plunger clears the nozzle of slurry at the end of each discharge. A servo valve cooperates with two trip valves to control the air flow for operating the power piston, as well as the air-operated valves and nozzle plunger, one trip valve being operated automatically at the end of the forward stroke of the pistons to start the return stroke and the other being either operated automatically by a can moving into filling position or at the end of the return stroke of the pistons. The servo valve is of novel plastic construction, as are also the two trip valves. In the servo valve, the reciprocable slide valve is of a plastic material having appreciable lubricity in relation to the plastic material of the seat for easy operation and long wear, while in the trip valves both the body part with the valve projection on it and the fulcrummed arm that carries a valve seat gasket are of extremely hard rigid plastic material to avoid any flexing of the arm in the opening of the trip valve against the resistance of its return band, close accuracy of movement of this arm both ways being important for close accuracy of measurement of the material dispensed.

3,637,117 KEG TAPPING DEVICE

Mack S. Johnston, Rolling Hills, Calif., assignor to Republic Corporation, Los Angeles, Calif.

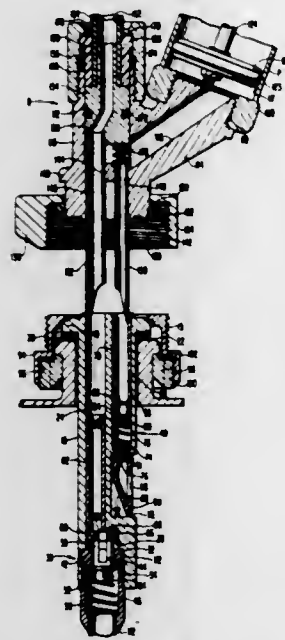
Continuation-in-part of application Ser. No. 773,389, Nov. 5, 1968, now Patent No. 3,550,818. This application Nov. 21, 1969, Ser. No. 878,708

U.S. Cl. 222-400.7

9 Claims

The device comprises a keg adapter mounted about a keg opening and a dispenser coupler releasably coupled to the

keg adapter having gas inlet and beer dispensing outlet passages terminating in two side-by-side probes depending from the coupler. The liquid probe is movably mounted in the coupler and biased in one direction. An inverted J-shaped tube is carried by the coupler in communication with



the liquid probe and displacement of the tube moves the liquid probe in the opposite direction to open the beer valve in the keg adapter. The gas passage is in communication with a hand operated portable plunger-type pump whereby gas is provided through the keg adapter into the keg.

3,637,118

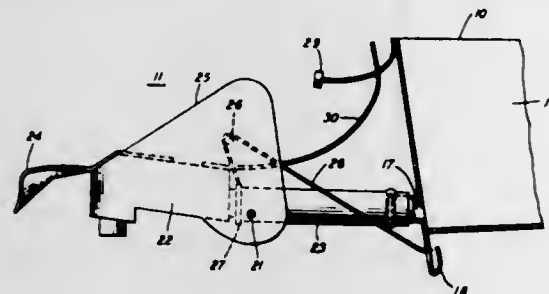
SELF-CLOSING LIQUID DISPENSER

John Petrocy, 2 Metuchen Ave., Woodbridge, N.J., and Alfred DeStefano, 48 Kenwood Drive, Woodcliff Lake, N.J.
Filed Feb. 9, 1970, Ser. No. 9,888

Int. Cl. B67d 3/00

U.S. Cl. 222-517

6 Claims



This invention relates to a dispenser for a liquid container wherein the dispenser includes a spout, and a container and a collapsible tube. The tube interconnects the container and the spout and includes spring means as an integral part thereof. The spring means automatically closes the spout which causes the tube to collapse and prevents the flow of liquid through the tube.

3,637,119

METHOD AND TOOL FOR EVERTING TUBULAR CLOTH MATERIAL

Thomas O. Blair, 8026 S.E. Powell Blvd., Portland, Oreg.
Filed Apr. 13, 1970, Ser. No. 27,771

Int. Cl. A41h 43/00

U.S. Cl. 223-39

8 Claims

An exerting tool for turning tubular cloth material inside out comprises an elongated rod provided adjacent at least one of its ends with an annular groove. One end of tubular cloth material to be exerted is placed over said groove and a

plurality of windings of thread is wrapped tightly about the material in the groove to secure the material to the tool. The tubular material then is pushed over said secured end whereupon it is turned inside out. A second groove adjacent



the first named groove also may be provided in which to secure one end of a filler cord, by a similar wrapping of thread. The cord is extended from its secured end away from the tubular material, whereupon it is enclosed in the tubular material automatically as the latter is exerted.

3,637,120

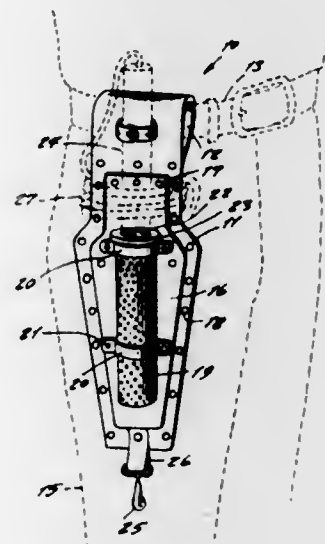
SOLDER IRON HOLSTER

William C. Clay, P.O. Box 931, Ridgecrest, Calif.
Filed Oct. 8, 1970, Ser. No. 79,041

Int. Cl. A45f 5/00

U.S. Cl. 224-5 A

4 Claims



A holster attachable to a belt worn by a person, the holster removably supporting a soldering iron, the holster including a cowhide leather strap backed by an asbestos paper, the leather strap supporting a galvanized pipe core with six turns of asbestos paper around the pipe core which receives the soldering iron, and a wire cage fitted therearound and secured by straps to the leather strap.

3,637,121

WEB GUIDING AND SPREADING APPARATUS

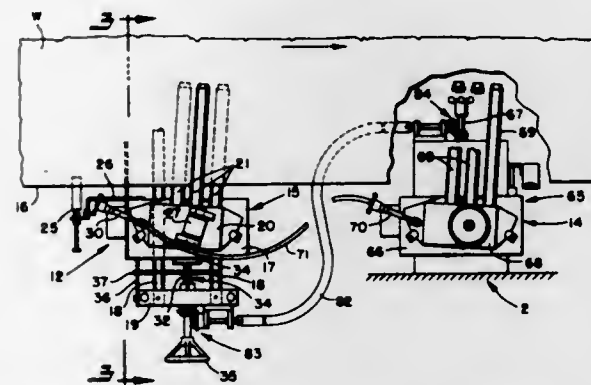
Alexander V. Alexeff, Cleveland, Ohio, assignor to Alexeff-Snyder Enterprises, Inc., Cleveland, Ohio

Filed June 26, 1969, Ser. No. 836,737

Int. Cl. B65h 25/26

U.S. Cl. 226-17

13 Claims



Apparatus includes plural expander or guide heads adjacent opposite edges of fabric web material to be guided,

with a drive between two or more expander heads for simultaneous adjustment of one by another for movement of the expander heads in and out of the fabric path or varying the cant angles. Remote controls may also be provided and operated either automatically or manually to effect such adjustments of the expander heads.

3,637,122

DEVICE FOR CONTROLLING FEEDING POSITION OF FABRIC

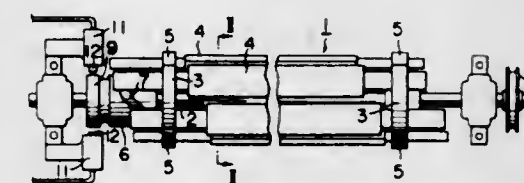
Yoshiyuki Tokunaga, Fukui, Japan, assignor to Fukui Seiren Kako Kabushiki Kaisha, Fukui-ken, Japan

Filed May 21, 1970, Ser. No. 39,212

Int. Cl. B65h 25/26

U.S. Cl. 226-20

3 Claims



A device for correcting transverse position of a fabric which is continuously fed in longitudinal direction into a treating machine, such as a dyeing machine, which comprises a correcting roll around a part of which said fabric is carried while it is fed to said machine, said correcting roll including a shaft, means for driving said shaft, flanges fixedly formed on said shaft adjacent its opposite ends, a plurality of slidable bars so supported by said flanges that the bar is fixed relative to the flanges in the peripheral direction but slidable relative to the latter in the axial direction, a cylindrical cam for imparting reciprocal sliding motion to the respective slidable bars and being freely rotatable on said shaft, a first stop means for stopping said cylindrical cam in first position where sliding motion is exerted to the slidable bars in one direction at said part of the correcting roll, a second stop means for stopping said cylindrical cam in second position where sliding motion is exerted to the slidable bars in the opposite direction at the same part of the correcting roll and selvedge-sensing means for sensing the selvedge of the fabric to produce correcting signal which is applied to one of the first and second stop means to stop the cylindrical cam in one of said first and second positions.

3,637,123

STRIP FEED CONTROL APPARATUS

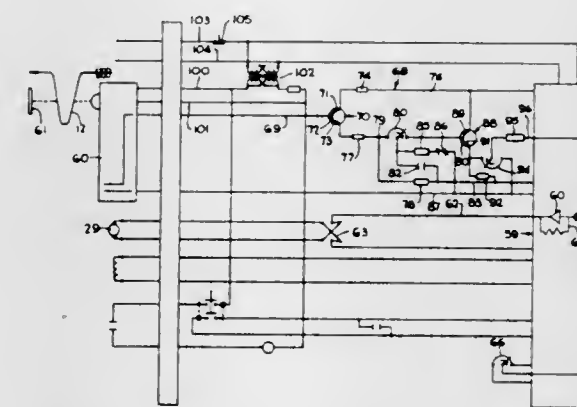
Clarence O. Jones, Jr., Eggertsville, N.Y., assignor to Niagara Machine & Tool Works, Buffalo, N.Y.

Filed May 14, 1970, Ser. No. 37,217

Int. Cl. B65h 23/22

U.S. Cl. 226-42

13 Claims



A strip feed control apparatus for controlling the size of a loop formed in a continuous strip of material extending between a strip issuing machine and a takeup or strip using

machine. The apparatus comprises a photoelectric control for producing an on-off output signal alternating between two levels dependent on whether or not the photoelectric light beam is interrupted by the loop. An electrical circuit means converts this alternating on-off signal into a smoothly variable DC signal proportional to the rate of the alternating on-off signal. The variable DC signal is effective to adjust the speed of a variable DC drive motor which, in turn, adjusts the speed of the strip feed to vary the size of the loop so as to approach a predetermined optimum loop size.

3,637,124

FILM INTERMITTENT FEED MECHANISM IN FILM PROJECTORS

Yasuo Ueno, Saitama-ken, Japan, assignor to Fuji Shashin Koki Kabushiki Kaisha, Saitama-ken, Japan

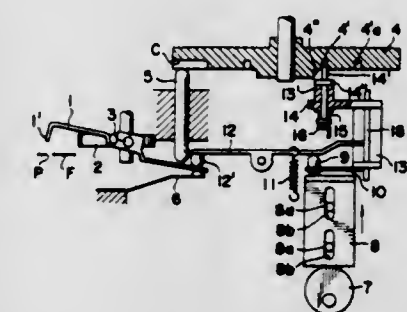
Filed July 30, 1969, Ser. No. 846,206

Claims priority, application Japan, Aug. 3, 1968, 43/55018

Int. Cl. G03b 1/22

U.S. Cl. 226-62

2 Claims



A film intermittent feed mechanism in a film projector, comprising claw means adapted to engage a row of perforations provided along a side edge of the film charged and cam means for operating said claw means to bring it in engagement with said film perforations and thereby to feed the film intermittently, said mechanism further comprising means for stopping feed of the film by holding said claw means out of engagement with the film perforations so as to obtain a still picture and means for advancing the film one frame during the still picture projecting operation so as to obtain a still picture of another frame.

3,637,125

INTERMITTENT DRIVE MECHANISM FOR A CINEMATOGRAPHIC APPARATUS

Otto Freudenschuss, Vienna, Austria, assignor to Karl Vockenhuber and Raimund Hauser, Vienna, Austria

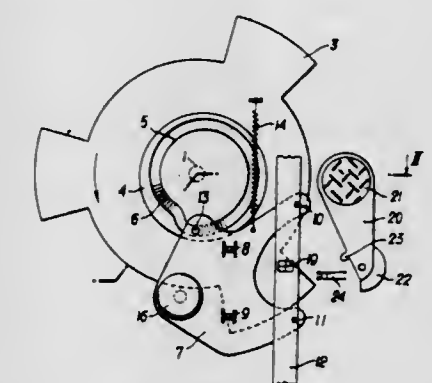
Filed Oct. 24, 1969, Ser. No. 869,291

Claims priority, application Austria, Oct. 30, 1968, A 10601/68

Int. Cl. G03b 1/22

U.S. Cl. 226-62

15 Claims



An intermittent drive means in a cinematographic apparatus adapted to be used with perforated film, wherein the

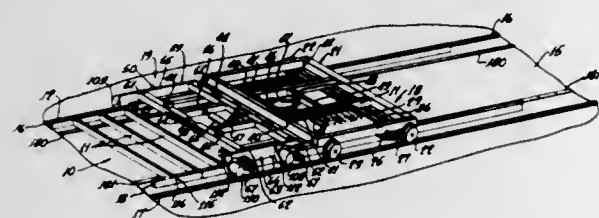
intermittent drive means includes cam means. Claw means are controlled by the cam means and are adapted to transport the film. The claw means are further displaceable perpendicularly to the plane of the film to engage and disengage the perforation holes of the film in synchronism with the film-transporting movement. Biasing means urge the claw means in perforation engaging direction. Electromagnetic means have an energized and a deenergized condition. In the energized condition the electromagnetic means are adapted to hold the claw means in perforation disengaged position against the force of the biasing means. In the perforation engaged position of the claw means the attractive force of the electromagnetic means are smaller than the force of the biasing means. In the perforation disengaged position of the claw means the attractive force of the electromagnetic means are larger than the force of the biasing means.

3,637,126 NAILING MACHINE

Clarence R. Heterick, Jr., Orange, Calif., assignor to Boise Cascade Corporation, Boise, Idaho
Filed Nov. 24, 1969, Ser. No. 879,152
Int. Cl. B27I 7/02

U.S. Cl. 227—3

9 Claims



A device for nailing together a framework including a first support for elements of the framework, and a second support movable relative to the first support, the second support having opposed nailing gun means thereon which are operable by trigger arrangements activated upon engagement by members of the framework to be nailed, there being means biasing the framework members inwardly to impose a compressive force on them, together with pulley means for properly aligning the framework members at the time nails are driven. A traction unit may be used to pull the nailing unit over the first support in the nailing operation, while being capable of lifting the nailing unit above the first support during return movement in which the nailing unit is inoperative. The nails are driven while the device is in motion.

3,637,127

SUPPORT ASSEMBLY FOR A REMOTELY FIRED POWDER-CHARGE-OPERATED BOLT SETTER

Elmar Maler, Feldkirch-Tisis, and Herbert Rangger, Frastanz, both of Austria, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed July 13, 1970, Ser. No. 54,364

Claims priority, application Germany, July 18, 1969, P 19 36 739.6

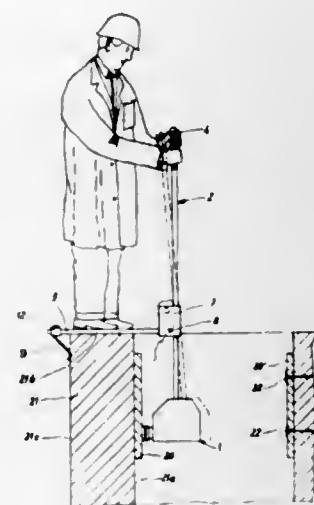
Int. Cl. B25c 1/08

U.S. Cl. 227—9

4 Claims

An assembly, for supporting a remotely operated bolt setter on a structure into which anchoring elements are to be inserted, is formed of a contact arm which extends laterally from an elongated extension member secured to and extending from the bolt setter. An abutment member is movably attached to the contact arm at a position spaced laterally from the extension member for holding the bolt setter on the structure so that by pivoting the extension member relative

to the contact arm the bolt setter can be urged in the direction in which the anchoring elements are to be inserted



for affording a compressing safety action against the barrel of the bolt setter before it can be fired.

3,637,128

AUTOMATED APPARATUS FOR TOPPING TROUSERS AND METHOD OF OPERATING THE SAME

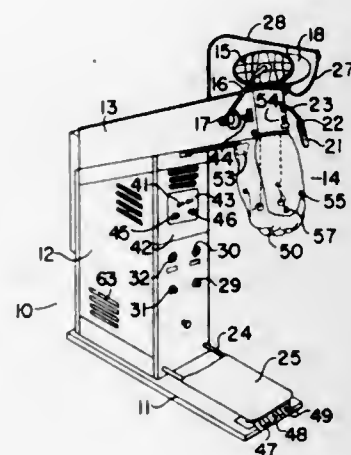
Bertram G. Blevens, and Frank H. Richterkessing, both of Louisville, Ky., assignors to The Cissell, W. M. Manufacturing Company, Louisville, Ky.

Filed Mar. 2, 1970, Ser. No. 15,499

Int. Cl. D06c 5/00, 15/00; A41h 5/02

U.S. Cl. 223—73

23 Claims



An automated apparatus for shaping the tops of various types of trousers includes a buck, a rapidly collapsible bag mounted on the buck, and an electrical circuit equipped with switches operable to control selected movements of a waistband support within the bag, a fly-pressing plate and a pair of pleat-pressing plates exteriorly of the bag, a source of steam and a source of heated air for introduction into the bag.

A method for selectively shaping trousers which have a fly but no pleats, or which have a fly together with pleats, or which comprise slacks with neither fly nor pleats, is disclosed with sequences of treatment commensurate with the nature of the fabric material or construction of such trousers.

3,637,129

DESOLDERING TOOL

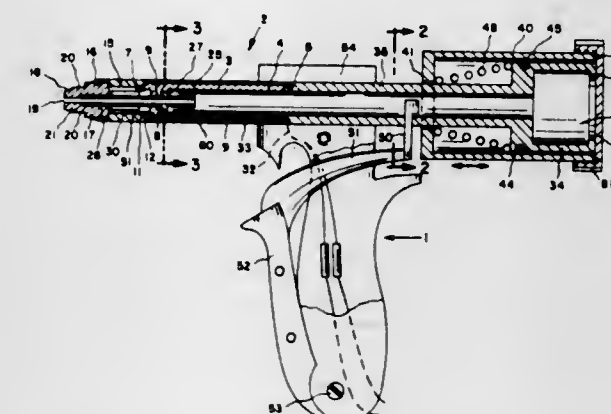
Harry Kaufman, New Rochelle, N.Y.

Filed Apr. 16, 1970, Ser. No. 29,067

Int. Cl. B23k 1/00

U.S. Cl. 228—20

13 Claims



The disclosure describes a desoldering tool of simple construction whose active tip, which is heated by a coil, is mounted on a solder-conducting tube in turn mounted on a heat-insulating tube which leads to a suction-creating assembly of the dashpot-type having a wide bore and an outer displaceable housing sealed by gaskets to the tool interior. When a pistol gain is squeezed, the housing is displaced increasing the interior volume and creating a suction at the heated tip capable of sucking in molten solder. A modification uses air pressure to actuate the displaceable housing.

3,637,130

CONTAINER AND BLANKS FOR MAKING SAME

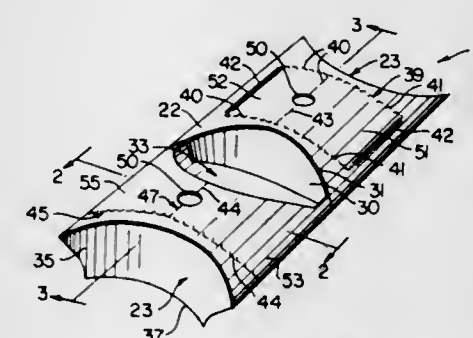
Melville T. Farquhar, Chesterfield County, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Aug. 10, 1970, Ser. No. 62,263

Int. Cl. B65d 5/48, 3/00, 1/34

U.S. Cl. 229—28

22 Claims



A food container is provided having a bottom wall, a top wall, and a pair of end walls arranged at opposite ends of the top and bottom walls. Each of the end walls is comprised of an inner flap having a substantially lenticular configuration which defines a lenticular cross-sectional configuration for the container. A divider flap is foldably connected to and made from material initially comprising a part of the top wall, with the divider flap extending between the bottom wall and top wall and defining a compartment on each side thereof. The container has weakening means provided in its top wall enabling severing of material comprising the top wall to define a comparatively large access opening on each side of the divider flap for easy access into each compartment; and, upon severing such material the lenticular extension flaps and bottom wall enable the container to be used as a deep substantially leak-proof serving dish.

3,637,131

CARTON WITH LOCKING MEANS FOR RECLOSABLE COVER

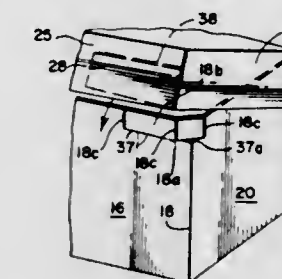
Richard F. Gulliver, Waco, Tex., assignor to Gulf States Paper Corporation, Tuscaloosa, Ala.

Filed Sept. 8, 1970, Ser. No. 70,272

Int. Cl. B65d 5/22, 5/26

U.S. Cl. 229—36

10 Claims



A carton formed from a single blank of foldable paper-board or the like having a reclosable cover which is hinged to the upper edge of the rear wall panel of the carton proper or tray portion and provided with front and end apron panels, which, when the cover is closed, respectively overlap the front and end wall panels of the carton. A relatively short horizontal cut, parallel with the upper edges of the front and end walls of the carton, is provided at each upper end corner formed by the front and end walls of the carton. This cut bisects the vertical crease or fold line at each corner, extending into adjacent portions of the front and end walls. That portion of the fold line above the vertical crease which extends to the upper edge of the corner is parallel with but offset towards the body of the front panel from the fold line below the cut. When the end flaps are folded at right angles along these creases, the portions above the horizontal cut are shifted outwardly from the face of the panel and present a detentlike projection, designed to coact with aligned keeper cutouts formed in the cover glue flaps to releasably lock the cover in closed position. The lock is released by applying a firm upward force on the front portion of the cover, causing an upward and inward pressure on the detents, whereby they snap out of their keeper cutouts. Reclosing the cover automatically relocks the same.

3,637,132

PRESSURE RELEASE PACKAGE OR CONTAINER

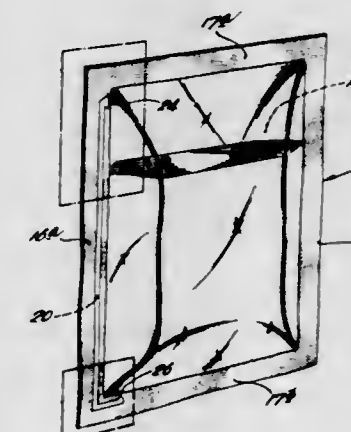
Oscar S. Gray, c/o Gray Industries, Inc., P. O. Box 23518, Fort Lauderdale, Fla.

Filed Jan. 9, 1970, Ser. No. 1,741

Int. Cl. B65d 33/00

U.S. Cl. 229—53

8 Claims



A container having a sealed compartment, means defining a pressure release channel communicating with said compartment and at least one rupturable dam in said channel to vent said compartment when the pressure in said compartment reaches a predetermined level.

3,637,133

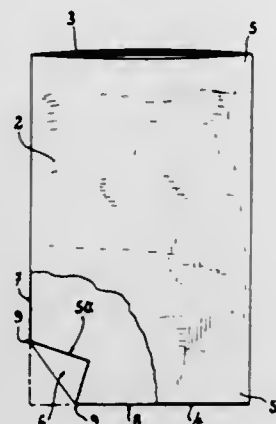
PACKAGE FOR LIQUIDS AND FOOD PRODUCTS

Leon Doyen, Avenue Pasteur, St. Didier on Mt. d'Or, and Louis Doyen, 95 Rue Joliot Curie, Lyon 5e, both of France
Filed Apr. 22, 1970, Ser. No. 30,644

Claims priority, application France, June 2, 1969, 6916826

Int. Cl. B65d 33/00

U.S. Cl. 229—53



A package for liquids or food products, of the kind comprising a tubular sheath of plastic or the like material, each end of which is closed by a transverse weld, so as to form a bag adapted to be opened by cutting off one of the corners thereof, characterized in that at least one of said corners is inserted inside said bag to form a tightly closed concave cavity, while it is possible to open the package by any known means.

3,637,134

APPARATUS FOR INDICATING THE SLUDGE LEVEL IN CENTRIFUGES

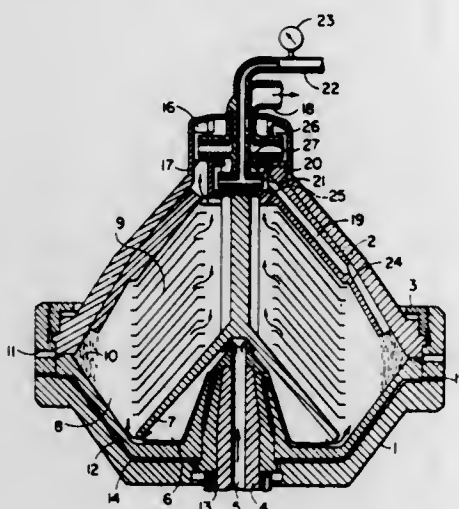
Kurt Nelson, Wappingers Falls, N.Y., assignor to The DeLaval Separator Company, Poughkeepsie, N.Y.

Filed Jan. 21, 1970, Ser. No. 4,600

Int. Cl. B04b 11/00

U.S. Cl. 233—19 A

8 Claims



The rotor of a sludge centrifuge has an indicating channel extending inwardly from the sludge space to the rotor axis and provided with a throttled passage opening into the separating chamber. When the outer end of this channel is not clogged by accumulated sludge, liquid discharging through the throttled passage from the channel is replaced by liquid entering its outer end, so as to maintain a certain liquid level or pressure at the inner part of the channel; but when the above-mentioned replacement of liquid is arrested by the occurrence of such clogging, the resulting change in this liquid level or pressure is sensed by a suitable device communicating with the channel.

3,637,135

METHOD OF AND APPARATUS FOR SPRAY COATING COMPONENTS

Manfred H. Luderer, Weller Zum Stein, and Anton Ettenhofer, Winnenden, both of Germany, assignors to Atlas Copco Aktiebolag, Nacka, Sweden

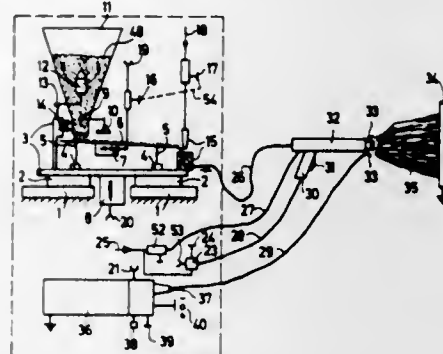
Filed Apr. 25, 1969, Ser. No. 819,216

Claims priority, application Germany, Apr. 26, 1968, P 17 71 263.9; Jan. 14, 1969, G 69 01 158.1; Mar. 27, 1969, P 19 15 657.1

Int. Cl. B05b 5/08

U.S. Cl. 239—3

16 Claims



An arrangement for spray coating components with a dry material, such as powder, or a wet material, such as paint, includes a removable and replaceable supply container for the material in which the material is circulated and is supplied to a feeding trough through a regulatable discharge opening. Within the container and the feeding trough the material is selectively vibrated and then delivered to an injector where compressed air is added and the mixture of compressed air and material is conveyed through a closed passageway to a spray gun equipped with high-voltage electrodes at its outlet. The arrangement includes a control panel for selecting the voltage and polarity at the spray gun outlet and for regulating the vibration effect and the supply of air provided to the apparatus.

3,637,136

SPRAY GUN SYSTEM FOR SLURRY

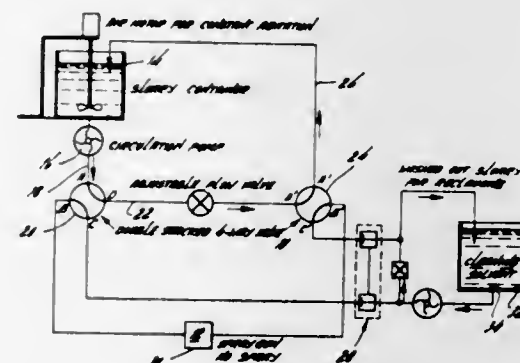
Hendrik F. Bok, 52 Thompson Street, Fairhaven, Mass., assignor to EPEC Systems Corporation, New Bedford, Mass.

Filed Mar. 11, 1970, Ser. No. 18,458

Int. Cl. B05b 9/00

U.S. Cl. 239—125

9 Claims



A spray gun for liquid slurry of the type using atomized air as the propellant medium, particularly a four-way valve system for said gun enabling selective spray of solvent or slurry while continuously flowing solvent and slurry through closed circulation systems. The continuous flowing of solvent through the gun and absent the slurry enables a clean flushing of the gun and eliminates slurry buildup in the gun inner chambers and nozzle.

3,637,137

CENTRIFUGAL ADHESIVE APPLICATOR

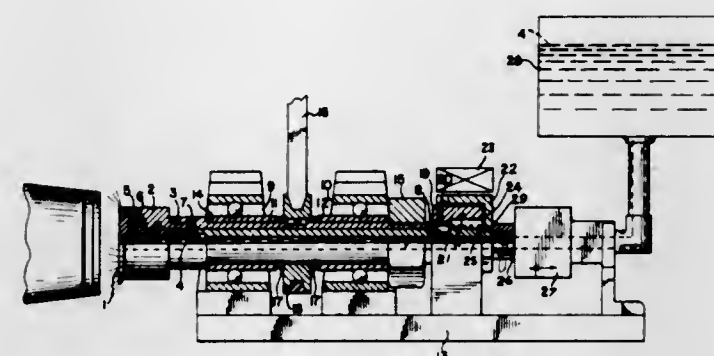
Charles J. Chebuhar, Chicago, and Russell C. Buhle, Clarendon Hills, both of Ill., assignors to Continental Can Company Inc., New York, N.Y.

Filed Oct. 17, 1969, Ser. No. 867,294

Int. Cl. B05b 3/10

U.S. Cl. 239—223

8 Claims



An adhesive applicator having a sleeve with a valve seat at one end and a tube within the sleeve. A poppet valve is mounted at one end of the tube. The poppet valve coacts with the valve seat for controlled flow of adhesive through the tube. The tube, sleeve and valve are rotated at a rapid rate in bearings. The opening of the poppet closure is varied by solenoid actuation. As the adhesive applicator rotates, adhesive is thrown in a radial direction from the valve.

3,637,138

TANK CLEANING MACHINE

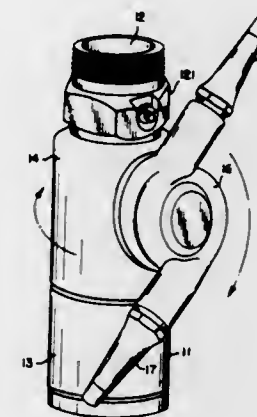
James H. Rucker, San Ramon, Calif., assignor to Sybron Corporation, Rochester, N.Y. and Cloud Company, Alameda, Calif.

Filed May 18, 1970, Ser. No. 38,256

Int. Cl. B05b 3/00

U.S. Cl. 239—227

6 Claims



Hydraulic tank-cleaning apparatus having a stationary housing, a second rotatable housing for rotation about the stationary housing axis and a third rotatable nozzle housing for rotation about an axis normal to the stationary housing axis. Apparatus is driven by means of an impeller and a compact reduction gear train comprising a first and second set of spur and pinion gear assemblies coaxially arranged along a first and second shaft respectively for driving both housings at a speed substantially reduced from that of the impeller.

3,637,139

IRRIGATING DEVICES HAVING A PRESSURE ACTUATED POP-UP SPRINKLER HEAD

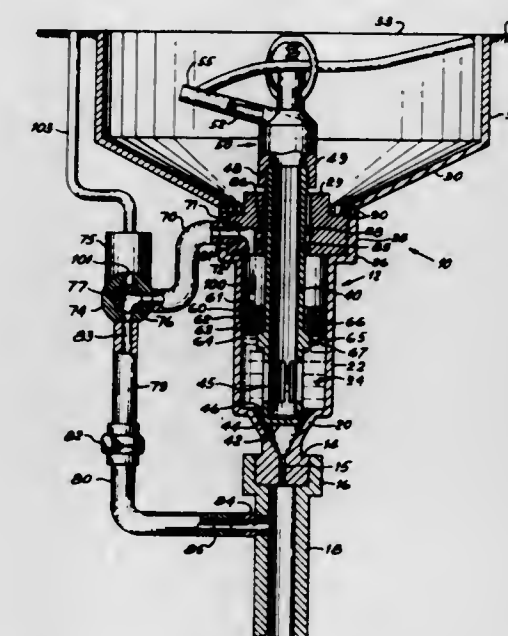
Webster Felix, Central Islip, N.Y., assignor to Teleco Industries, Garland, Tex.

Continuation-in-part of application Ser. No. 881,737, Dec. 3, 1969, now abandoned. This application May 3, 1971, Ser. No. 139,396

Int. Cl. B05b 3/04

U.S. Cl. 239—206

10 Claims



An irrigating device having a housing which can be set in the ground. A sprinkler head is mounted on a rotatable and axially slidable tube in the housing. A ring is fixed on the tube in the housing whereby the tube is lowered to seal a passage in the housing and close off the supply of water to the sprinkler head when water pressure is applied via a valve to the top of the ring. When water pressure on the ring is removed, the pressure will raise the tube so that the sprinkler head discharges water therefrom.

3,637,140

PNEUMATICALLY ACTUATED VARIABLE AREA INLET OR EXHAUST NOZZLE

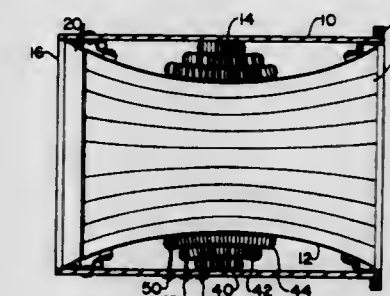
Stephen T. Palovchik, Hartsville, Ohio, assignor to Goodyear Aerospace Corporation, Summit, Ohio

Filed Sept. 3, 1970, Ser. No. 69,196

Int. Cl. B64c 15/06

U.S. Cl. 239—265.43

9 Claims



A nozzle for the inlet or exhaust of a jet engine which reduces the inlet or exhaust area to reduce noise and to change inlet and exhaust flow conditions. The nozzle consists of an open ended cylindrical tube axially aligned with the engine. The inner circumference of the tube is lined with overlapping leaves extending the length of the tube and hinged to rings at the front and rear ends of the tube. A number of inflatable rings or tori are provided between the leaves and the tube midway between its ends. Inflation of the rings forces the centers of the leaves inwardly, reducing the cross-sectional area of the nozzle.

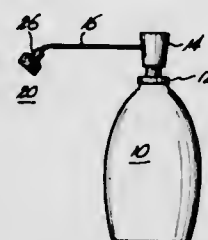
3,637,141

CUSHION TIP FOR ATOMIZER NOZZLES

Kenneth W. Gores, 1026 112th Ave. N.E., Bellevue, Wash.
Filed Apr. 3, 1970, Ser. No. 26,182
Int. Cl. B05b 9/00

U.S. Cl. 239—326

1 Claim



A tip is provided for atomizer nozzles of fluid medicament dispensers to cushion contact of the nozzle with tissue to be medicinally treated and to confine the applied medicament to a restricted area of tissue.

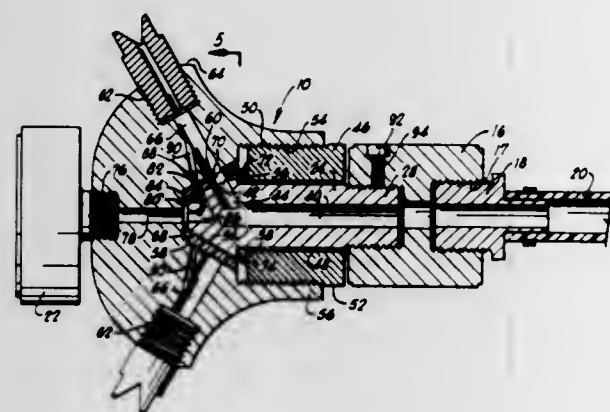
3,637,142

MULTINOZZLE SPRAYING APPARATUS

James E. Gassaway, Route 2, Chickasha, Okla.
Filed Dec. 4, 1969, Ser. No. 881,987
Int. Cl. A62c 31/02

U.S. Cl. 239—394

5 Claims



The present invention relates to multinozzle spraying apparatus for spraying insecticides and the like. A plurality of spray nozzles having differing spray characteristics are provided attached to a multiport turret member. The turret member is rotatably secured to a hollow spindle having a hose connection on the rearward end and a seating surface on the forward end thereof for continuously engaging a seating surface formed in the turret member during the rotation of the turret member. The seating surface of the hollow spindle includes a flow port therein, and ports are provided in the seating surface of the turret member each communicated with a separate spray nozzle and positioned with respect to the spindle flow port so that rotation of the turret member brings the ports therein into selective registration with the spindle flow port. Means for indicating the pressure of fluid passing through the apparatus to a selected spray nozzle are provided as well as means for adding selected quantities of dye or other separate ingredient to the fluid.

A trash receptacle for domestic or other use is equipped with a series of elongated bars of abrasive material. The bars, which may preferably be square in cross section, are mounted horizontally in side-by-side parallel relation, with opposite corner edges of each bar in the vertical plane of its center axis. The bars are driven in reciprocating manner in their lengthwise directions, with adjacent bars moving in opposite directions. Dry trash of all kinds, including bottles, cans, plastic containers, cardboard containers, paper products, and food remnants, are deposited in the receptacle. The trash contacts the continuously moving reciprocating abrasive bars and is gradually reduced to a pulverized state by the attrition or wearing-away action. The pulverized particles of trash are scooped up and carried by a continuously moving bucket conveyor to a collection bag which is removed from time to time, as by the housewife.

3,637,143

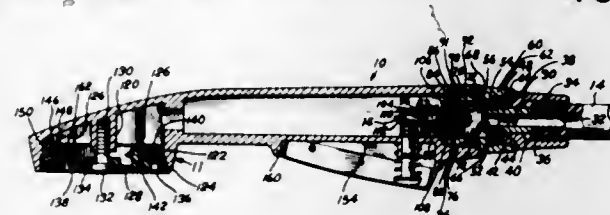
HANDLE-CONTROLLED SPRAY

Harold Shames, Ardsley; Sidney J. Shames, Briarcliff Manor, both of N.Y., and John F. Logan, Pequannock, N.J., assignors to Melard Manufacturing Corp., Bronx, N.Y., by said Logan

Filed May 28, 1969, Ser. No. 830,216
Int. Cl. B05b 15/06

U.S. Cl. 239—283

4 Claims



A handle-controlled spray is provided for bathroom use with faucets or as a shower, wherein controlled flow therefrom is initiated by squeeze-type pressure. The handle-controlled spray has a safety flow valve that is self-closing with the pressure and a drip-preventing head.

3,637,144

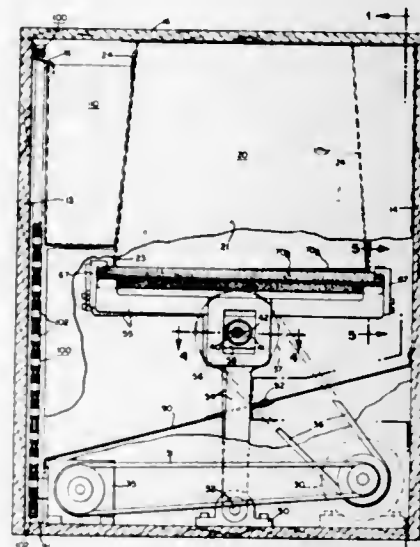
TRASH PULVERIZER

Dale R. Smith, York, Pa., assignor to York Research & Development Corp., Red Lion, Pa.

Filed June 24, 1970, Ser. No. 49,213
Int. Cl. B02c 1/00

U.S. Cl. 241—100

9 Claims



3,637,145

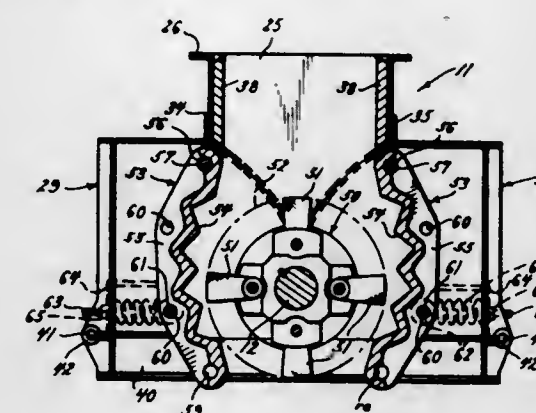
REVERSIBLE MATERIAL REDUCING MILL

Robert M. Williams, Ladue, Mo., assignor to Crusher & Pulverizer Co., Inc., St. Louis, Mo.

Filed Sept. 24, 1968, Ser. No. 761,909
Int. Cl. B02c 13/04

U.S. Cl. 241—189

4 Claims



A reversible hammer mill for reducing material, such as metallic objects, in a recycling process, wherein the mill rotor cooperates with impact sections which are adjustably supported to initially obtain a desirable close fitting and to compensate for wear, as well as respond to the momentary presence of uncrushables to open the rotor clearance and relieve the rotor of possible damage.

3,637,146

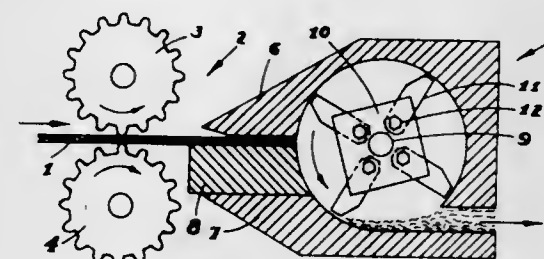
HAMMERMILL CONSTRUCTION

Charles T. Banks, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 27, 1969, Ser. No. 869,597
Int. Cl. B02c 13/04, 13/28

U.S. Cl. 241—194

5 Claims



A hammermill for wood pulp fiberizing has rotary blades, the front faces of which are bevelled so that pulp impacted by the rotors tends to slide from the rotors, avoiding repeated impacts of pulp on pulp, thereby minimizing pulp clots.

3,637,147

LIFTING MEMBERS IN WEAR LINING FOR ROTARY DRUMS

Robert Gerhard Franz Josef Naredi, Malmo, Sweden, assignor to AB Cementa, Malmo, Czechoslovakia and Skega AB, Ersmark, Czechoslovakia

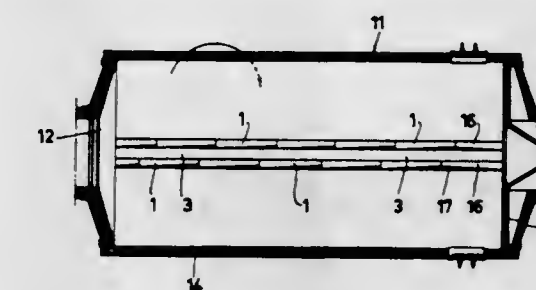
Filed Oct. 10, 1969, Ser. No. 865,390
Claims priority, application Sweden, Oct. 11, 1968, 13730/68
Int. Cl. B02c 17/22

U.S. Cl. 241—299

3 Claims

This invention relates to lifting members for the wear lining of rotary drums employed in particle comminuting and sorting apparatus, such as mills, the members being placed in spaced relationship alongside of each other. Separate wear protecting elements are supported between each pair of lift-

ing members, and the lifting members and the associated wear protecting elements are mounted along generatrices of



the drum, i.e., the center line of each lifting member coincides with a drum generatrix.

3,637,148

DEVICE FOR PNEUMATICALLY REMOVING THE TIP OR FOOT BUNCH FROM SUPPLY COILS

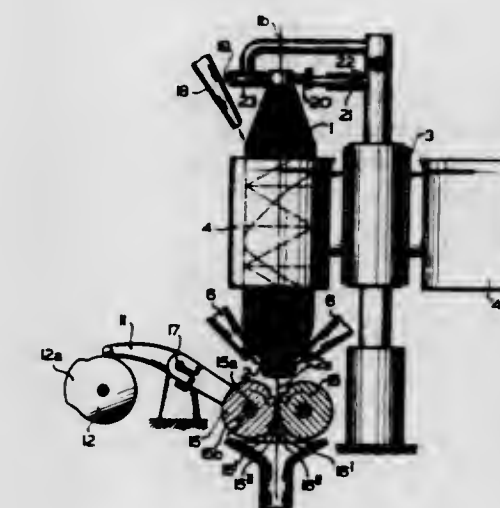
Wilhelm Kupper, Rickelrath, Kreis Erkelenz, Germany, assignor to Walter Reiners, Monchengladbach, Germany

Original application Nov. 30, 1966, Ser. No. 598,062, now Patent No. 3,464,640. Divided and this application June 6, 1969, Ser. No. 870,888

Int. Cl. B65h 54/86

U.S. Cl. 242—35.6 E

11 Claims



Device for pneumatically removing the tip or foot bunch from supply coils comprising means for placing the end of a supply coil wound with a bunch, that is to be removed, within an air current so that a thread end in the bunch is exposed, and mechanical removing mechanism for slidingly seizing the thread end and drawing it off in the flow direction of the air current. The mechanical removing mechanism comprises two rotary members having peripheral surfaces at least nearly in engagement with one another.

3,637,149

THREAD-STORING DEVICE FOR TEMPORARILY STORING A THREAD

Karl Frel, Morickstrasse 9, 7477 Onstmettingen, Germany

Filed Sept. 11, 1970, Ser. No. 71,520
Claims priority, application Germany, Sept. 20, 1969, P 19 47 727.1

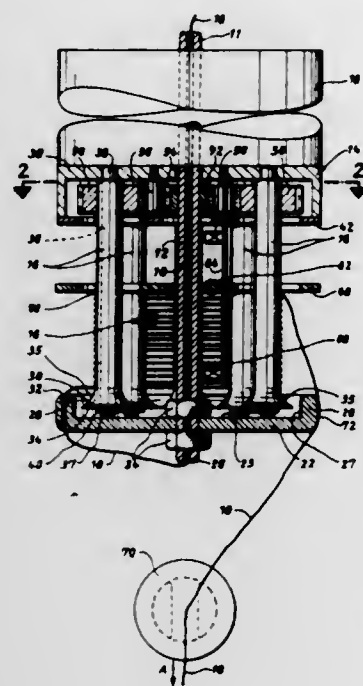
Int. Cl. B65h 51/22

U.S. Cl. 242—47.09

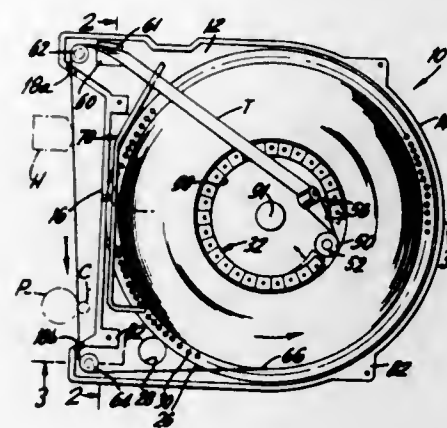
18 Claims

A thread is wound in successive loops at the same end of a stationary holder having an even number of rollers arranged in a circle. Alternate rollers rotate in opposite directions to reduce friction. A rotary thread guide builds up a coil on the rollers from which the leading loop is taken off and supplied to a textile machine, while new trailing loops are laid by the

rotary thread guide. When the number of loops of the wound coil is sufficient, the motor driving the thread guide is



volution through the hub's gap, past suitable guides and a transducer head to return as the outer coil convolution. The yieldability of the hub minimizes friction between the coil turns. One end of a spring-biased brake lever normally en-

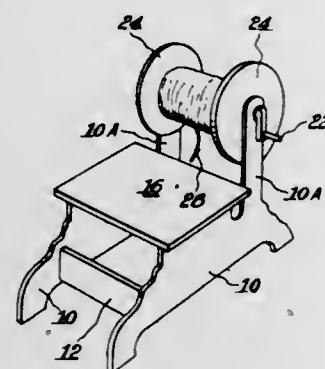


stopped, and then started again when a minimum number of loops remains on the rollers.

gages one of a series of small holes provided on the turntable to lock the turntable against undesired rotation except when the tape is being used at which time tension in the tape acts on the opposite end of the lever to pivot the lever clear of the turntable.

3,637,150 YARN WINDER

Darrell G. Butz, 303 N. Locust St., Genoa, Ill.
Filed July 27, 1970, Ser. No. 58,261
Int. Cl. B65h 75/00; A41h 31/00
U.S. Cl. 242—54



A frame supports a horizontally elongated member upon which yarn can be wound and thereafter unwound, the member being rotatable about a horizontal axis by a crank. The frame supports a compartment below the member for storing work and/or needles.

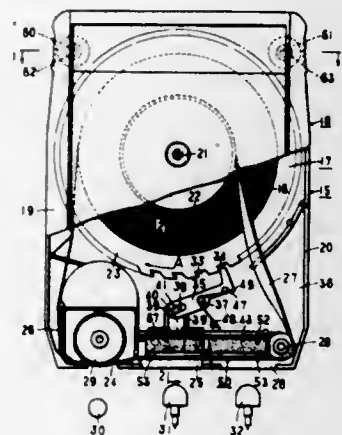
3,637,151 CONTINUOUS LOOP CARTRIDGE

Frank J. Skwarek, 9 Beacon Hill Road, Port Washington, and John E. Erickson, Glenwood Landing, both of N.Y., assignors to Frank J. Skwarek, Port Washington, N.Y.
Filed Dec. 19, 1970, Ser. No. 3,595
Int. Cl. B65h 75/02
U.S. Cl. 242—55.19 A

13 Claims

A continuous tape loop is coiled in a cartridge on a rotatable turntable having a hub made of a V-shaped spring member anchored at its midportion to define semicircular yieldable arms with a gap between their free ends. The spring member also includes pairs of radially directed fingers, each pair supporting a roller to reduce friction between the hub and coil of tape. Tape is unwound from the inner coil con-

An endless magnetic tape cartridge has a rotatable reel supporting the tape coil and provided with a releasable brake to prevent slackness in the tape during handling and storage. The brake includes serrations inclined to the radii of the reel and a spring-biased locking lever pivoted intermediate a hooked locking end and a slotted end coupled to a T-shaped actuating slide. The actuating slide has an arm slidably mounted and a crossarm adjacent a front opening of the cartridge so that insertion of the cartridge into a player results in the player head engaging the crossarm of the actuating slide to shift it rearwardly to thereby pivot the hooked locking end of the brake from the serrated periphery of the reel to permit rotation of the endless tape.



3,637,152 ENDLESS TAPE CARTRIDGE CONTAINING A BRAKE TO PREVENT ROTATION OF THE REEL

Shinobu Okamoto, No. 4, 180, Oaza-Koga, Koga-shi, Ibaragi-ken, Japan

Filed Nov. 4, 1968, Ser. No. 773,257
Claims priority, application Japan, Nov. 18, 1967, 42/97196
Int. Cl. B65h 17/48
U.S. Cl. 242—55.19 A

3 Claims

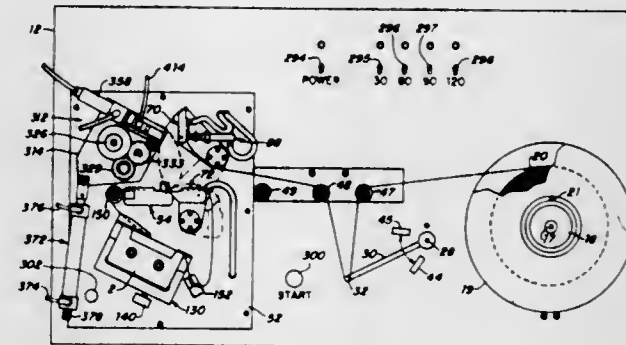
3,637,153 MACHINE FOR SPLICING AND WINDING TAPE INTO A CASSETTE

James L. King, Sudbury, Mass., assignor to King Instruments, Corp., Waltham, Mass.

Filed Feb. 9, 1970, Ser. No. 9,552
Int. Cl. B65h 19/26, 37/02, 59/06

U.S. Cl. 242—56

16 Claims



Apparatus for splicing and winding magnetic tape specifically designed for winding tape into cassettes in which the apparatus includes means for splicing magnetic tape to a leader on a first spool, winding a selected amount of tape on said first spool, and splicing the end of said tape to a leader on a second spool. One embodiment is designed to wind predetermined amounts of tape; in another embodiment the amount of magnetic tape that is wound is determined by detection of an information signal recorded on the magnetic tape.

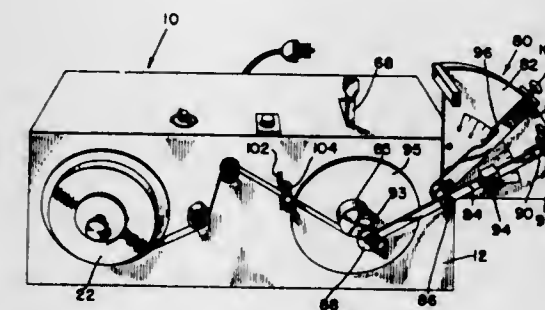
3,637,154 WINDING MACHINE

Francis B. Northup, 725 West End Blvd., Winston-Salem, N.C.

Filed July 31, 1969, Ser. No. 846,547
Int. Cl. B65h 19/26, 17/02

U.S. Cl. 242—56 R

5 Claims



A winding machine for preparing reels of web material having a minimized center opening from conventional wound web material reels in which a frame supports rotatable means for the conventional wound reel of web material and a driving unit for rewinding the web material into a reel having a minimized center aperture. A tension control for the web material is provided, a pair of parallel pins associated with a rotatable supporting member receive the end of the web material for winding thereabout. A rewind reel diameter-regulating apparatus terminates the rewinding operation when the diameter of the rewind reel reaches a predetermined dimension.

3,637,155 ROLL-UNWINDING DEVICE FOR AUTOMATICALLY CHANGING ROLLS AT FULL RUNNING SPEED

Tibor Georges Pato, Chailly, Switzerland, assignor to Maschinenfabrik Winkler, Fallert & Co., AG, Berne, Switzerland

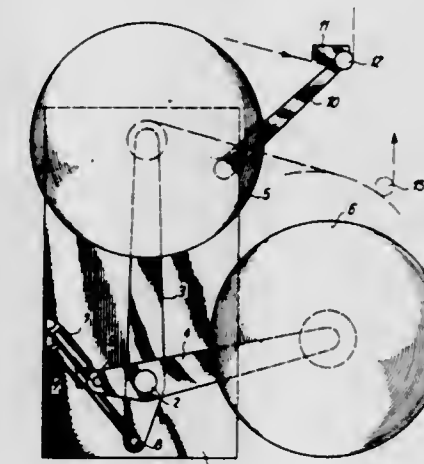
Filed Mar. 3, 1970, Ser. No. 15,973

Claims priority, application Sweden, Mar. 5, 1969, 3055/1969

Int. Cl. B65h 19/18

U.S. Cl. 242—58.1

7 Claims



In a roll-unwinding device two pair of support arms are mounted on a support frame for automatically changing rolls of a web-type material for the continuous delivery of the material as it is unwound from successive rolls. The support arms are disposed between laterally arranged support elements of the frame and the support arms of one pair are laterally spaced from the support arms of the other pair. The support arms are pivotally mounted on the frame for movement between a plurality of positions. To afford the movement of two different rolls between the unwinding and replacement positions the length of one pair of support arms between its pivot axis and its roll support axis is different from the length of the other pair of support arms between its pivot axis and roll support axis. Hydraulic piston assemblies or mechanical devices are mounted on the support frame and connected to the support arms for pivoting the support arms through limited pivot angles between the various positions assumed by the rolls in the operation of the device.

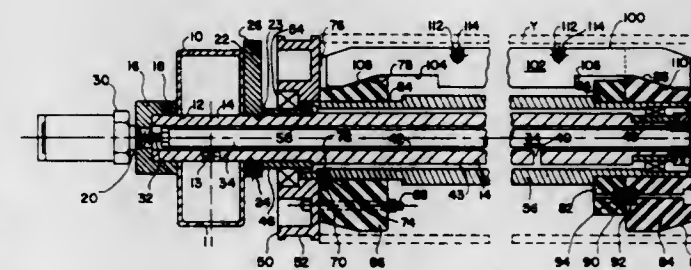
3,637,156 EXPANSIBLE MANDREL

Donald O. Shepherd, Route #2, Clover, S.C.

Filed June 1, 1970, Ser. No. 41,819
Int. Cl. B65h 75/24

U.S. Cl. 242—72.1

8 Claims



A stationary spindle having rotatably attached to the periphery thereof a plurality of ribs extending longitudinally of the spindle, and an axially movable central shaft therethrough connected to an external power source. The ribs are adapted to expand radially with respect to the spindle between a first position spaced from a workpiece

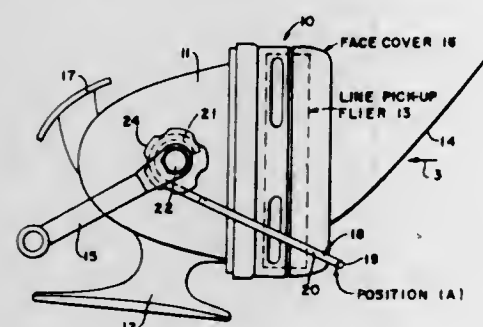
mounted therearound and a second position in gripping relationship with the interior wall of the workpiece in response to an axial movement of said central shaft. A cam arrangement, including an axially slidable cam member and an axially stationary cam member, connects the central shaft with the ribs and adapts the ribs to properly align themselves as a result of the tension exerted by axial movement of the central shaft. An end plate attached to the nonrotating spindle bears against the rotating rib assembly in the contracted position, yet is spaced therefrom in the expanded position to selectively prevent and allow rotation thereof. The workpiece may be cylindrical, tapered, or conical shaped, requiring only a change in the ribs to adapt the spindle to receive such members.

3,637,157 SPINNING REEL

Lacy A. Rowe, 1851 Skycoe Drive, Salem, Va.
Continuation-in-part of application Ser. No. 790,112, Jan. 9, 1969, now Patent No. 3,534,919. This application July 15, 1970, Ser. No. 54,928
Int. Cl. A01k 89/00

U.S. Cl. 242—84.2 R

7 Claims



A spinning reel for fishing lines, having a housing with a rotatable line pickup flier from the periphery of which the line extends generally in the direction of axis of rotation. An external yoke is pivoted to the housing for swinging movement from an inoperative position in which the bight portion of the yoke is outside the periphery of the flier and not engaged by the line, to an operative position wherein the yoke bight portion crosses the face of the flier and engages the line at an adjustable diametric distance from the inoperative position, so that oscillations of a selected amplitude are imparted to the line when the line is reeled in.

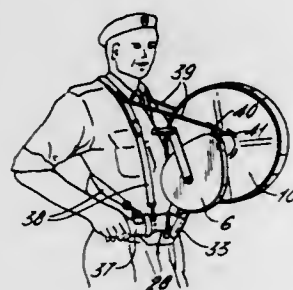
3,637,158

REELING APPARATUS FOR ARMY CABLE

Anrulf Moe Jacobsen, Lillehammer, Norway, assignor to A/S Norsk Kabelfabrik, Drammen, Norway
Filed Sept. 15, 1969, Ser. No. 857,704
Claims priority, application Norway, Sept. 19, 1968, 3701/68
Int. Cl. B65h 75/40

U.S. Cl. 242—96

3 Claims



The specification discloses a reeling apparatus for army cable, comprising a reel rotatably mounted in a U-shaped frame, the yoke or bend of which carries a depending jour-

nal. The apparatus also comprises a supporting bracket rigidly carrying a sleeve and a supporting plate pivotally carrying a similar sleeve. The journal can be inserted into either sleeve, whereby the frame can be fastened alternatively to said bracket comprises fastening means for attachment to a vehicle, whereas the supporting plate is adapted to be fastened on the front of a person. Straps secured on the person are provided for suspending the frame when supported by the pivotally mounted sleeve on the supporting plate fastened on the front of the person.

3,637,159

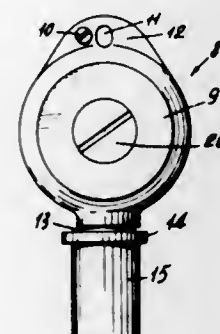
AUTOMATIC CARRIER BOX LATCH OF REDUCED DIMENSIONS

Luigi Caramella, Zona Industriale Roccapetra, Varallo (Vercelli), Italy

Filed Sept. 23, 1969, Ser. No. 860,308
Claims priority, application Italy, Dec. 12, 1968, 24968 A/68
Int. Cl. B65h 75/48

U.S. Cl. 242—107.3

5 Claims



An automatic latch device for suspended bodies, such as electric light pendants and the like, comprising: a spherical segment-shaped box symmetrical about a plane passing through the center, the two shells comprising said box meeting on said plane and, in addition to being effective as containers, said shells being internally shaped so as to form a seating for members comprising the mechanism and forming part of said members as well. Inside the shell is a cylindrical cup drum, the carrying cable being externally wound thereon, for internally containing a coil spring, a disc having a central pin adhering to said spring, and a clutch plate wherein suitable seatings are formed for the clamping members with said drum. A pin fast with the rear shell has a diametrical slit for coupling the inner end of the spring about which said drum idling rotates, as well as a transverse pin for deviating said carrying cable. Outside the front shell a screw with a resilient washer is arranged and screws down in the pin of the disc adjacent said clutch plate; and a suitably shaped element is also provided for anchoring at the bottom both said carrying cable and the helical driving cable.

3,637,160

APPARATUS FOR WITHDRAWING YARN FROM BOBBIN

Kikuo Hori, 2750-1, Minamiyoshida-machi, and Masakazu Fujita, 2901, Minamiyoshida-machi, both of Matsuyama-shi, Ehime-ken, Japan

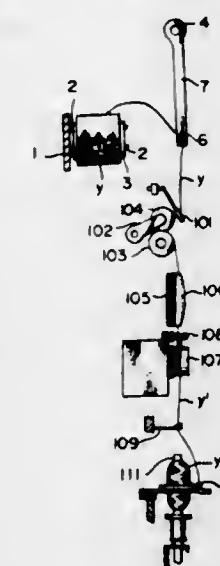
Filed May 12, 1970, Ser. No. 36,517
Claims priority, application Japan, May 17, 1969, 44/38220
Int. Cl. B65h 49/02; D02h 1/00; D03j 5/08

U.S. Cl. 242—131

6 Claims

An apparatus for unwinding yarn from a bobbin supported in an outwardly projecting manner on a reel has a rotatable shaft disposed above the bobbin and spaced forwardly of the frame or backplate comprising the reel. An arm is provided having on one end an arm root rotatably mounted on the shaft and a yarn-guiding member on the other end substantially coaxial with and forwardly spaced from the bobbin. A

pair of flange plates is secured to the shaft closely adjacent to the sides of the arm root so as to resiliently and yieldably en-



gage the arm root whereby the arm is rotatable with the shaft and is also rotatable independently on the shaft.

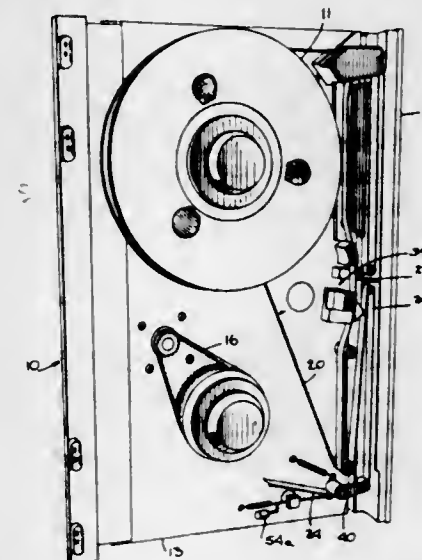
3,637,161

MAGNETIC TAPE TRANSPORT SYSTEM

Kenneth R. Baur, Halesite, and Robert W. Melhofer, Brookhaven, both of N.Y., assignors to Magnetic Recording Systems, Inc., Westbury, N.Y. and Infotec, Inc., Plainview, N.Y.

Filed May 12, 1970, Ser. No. 36,625
Int. Cl. B65h 59/38; G03b 1/04; G11b 15/32
U.S. Cl. 242—186

40 Claims



A tape transport system having a freely slidable carriage assembly to isolate the movement of a loop of tape under capstan control from the movement of the remainder of the tape under control of the reel motors. Sensing means are disposed adjacent the carriage assembly to continuously generate a signal in accordance with the position thereof. In normal forward mode or normal reverse mode, a capstan motor drives the tape within the loop past a magnetic head assembly in accordance with read or write speed requirements. A servocontrol system responsive to the carriage position signal regulates the speed of the reel motors so that the carriage tends to recenter. A fast rewind mode is also provided wherein the tape is rewound by the reel motors at a very high speed. In this mode a servocontrol system responsive to the carriage position signal regulates the speed of the capstan motor so that the carriage again tends to recenter. Additionally, means are provided to sense variations in the length of tape between the tape reels and the tape loop with the generated signal controlling the reel motor torques.

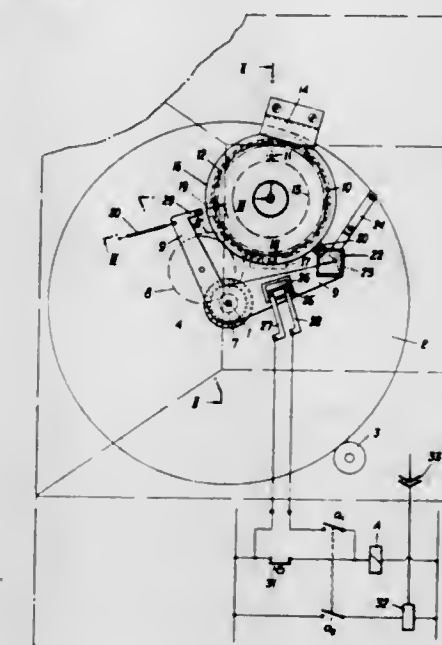
3,637,162 CINEMATOGRAPHIC TAKING OR REPRODUCING APPARATUS

Michael Drahonovsky, Vienna, Austria, assignor to Karl Vockenhuber and Raimund Hauser, Vienna, Austria

Filed Sept. 25, 1969, Ser. No. 860,984
Claims priority, application Austria, Sept. 27, 1968, A 9472/68

Int. Cl. B65h 59/38; G11b 1/52, 15/06
U.S. Cl. 242—188

10 Claims



A reproducing apparatus for a striplike information carrier member drive means which is adapted to transport the carrier member alternatively in forward and reversed transporting direction. Metering means have an operating condition and a resting condition, in operating condition metering alternatively forwards and backwards according to the transporting direction. Connecting means are adapted to connect the drive means with the metering means to bring the latter in operating condition. Means are controlled by the metering means upon reaching a metering value to be predetermined and which comprise stop means adapted to stop the drive means.

3,637,163

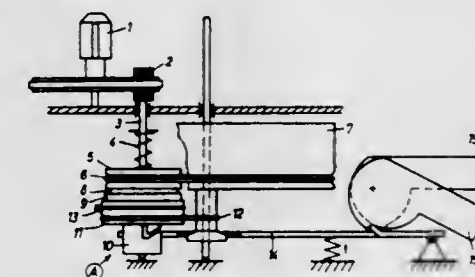
ARRANGEMENT FOR THE TAPE-END SWITCH-OFF FOR MAGNETIC TAPE RECORDERS, IN PARTICULAR CASSETTE RECORDERS

Siegfried Aplitz, Pforzheim, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Mar. 31, 1970, Ser. No. 24,290
Claims priority, application Germany, Apr. 9, 1969, P 19 18 097.3

Int. Cl. B65h 59/38; G03b 1/02; G11b 15/13
U.S. Cl. 242—191

3 Claims



An arrangement is provided for the automatic tape-end switch-off for cassette recorders. Two rotary movements are developed in the recorder via the takeup spindle, pulleys and a flywheel mass. End of tape results in a change of direction of the first rotary movement with respect to the second. The change in direction is converted into either an axial or radial movement which effects switch-off.

3,637,164

CASSETTE FOR RECORDING MEDIUM

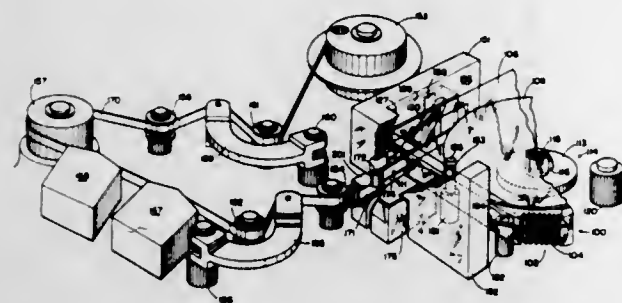
Edwin W. Trefzger, Illion; Bruce Crimmins, Little Falls; Raymond A. Plunkett, Herkimer; Richard J. Petkovsek, and Leslie Phillip Finster, both of Illion, all of N.Y., assignors to The Slinger Company

Filed Mar. 23, 1970, Ser. No. 21,564

Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242-195

9 Claims



A cassette for storing a recording medium which may be selectively extracted from and returned to the cassette. An eyelet is attached to a leader of the recording medium for providing a means to grasp the recording medium and extract it from the cassette. A spring-biased latch arm clutches the eyelet and retains it in its home position when the cassette is not in position on an associated tape deck. When tape is extracted from the cassette, the latch arm pivots and an extension of the latch arm enters an aperture in the frame of the tape deck to inhibit removal of the cassette from the deck. The tape deck includes first and second sensors for sensing the presence or absence of first or second apertures in the cassette. One or more of the cassette apertures may be selectively blocked to provide information to the associated equipment indicative of selected characteristics of the cassette and/or of the recording medium contained therein. In addition to providing a latching function, the latch arm, in the pivoted position, may operate a switch indicative of the fact that recording medium has been extracted from the cassette.

3,637,165
TAPE DECK

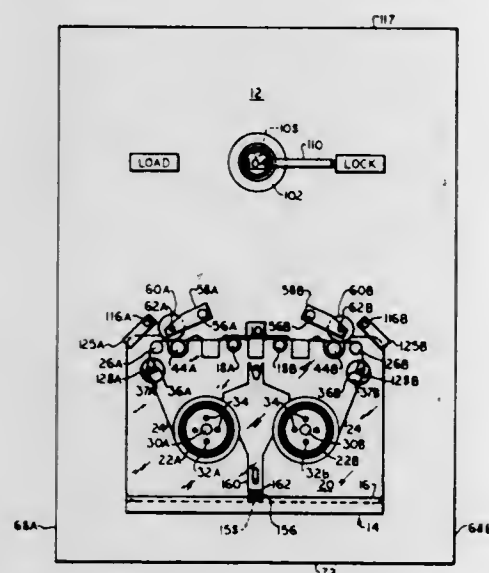
William F. Rethwish, Bonita, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Dec. 12, 1969, Ser. No. 884,634

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-199

10 Claims



Tape deck for use with two-reel magnetic tape cartridge includes torque motors for tensioning tape extended between

the reels of the cartridge and two capstans situated on opposite sides of a magnetic head and rotated by a stepping motor. In an operative mode of the apparatus, pinch rollers hold the tape against the capstans and control means operate synchronously with the stepping motor to cause one roller to exert increased pressure on its associated capstan and the tape therebetween when the capstans are rotated in one direction, and to cause the other roller to exert increased pressure on its associated capstan and the tape therebetween when the capstans are rotated in the opposite direction. The control means can mechanically be adjusted to vary the pressure which the pinch rollers exert against the tape. When the tape cartridge is to be removed from the tape deck, a manually operated positioning member moves the rollers and other components away from the tape and also electrically disconnects all power to the tape deck and releases the cartridge.

3,637,166

RAIN EROSION PROTECTIVE DEVICE

James E. Nicholson, Sudbury, and Richard H. Adams, Bedford, both of Mass., assignors to Sanders Associates, Inc., Nashua, N.H.

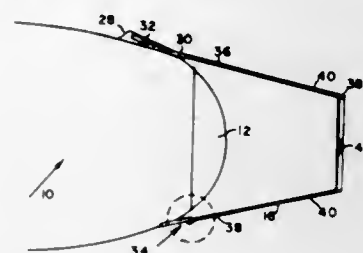
Division of Ser. No. 699,465, Jan. 22, 1968, Pat. No. 3,524,608

Filed Aug. 17, 1970, Ser. No. 30,728

Int. Cl. B64d 45/00

U.S. Cl. 244-1 R

3 Claims



Apparatus for the protection of aerodynamic surfaces from rain erosion whereby a region of high-impact pressure air is trapped ahead of the surface being protected which is operative to disintegrate raindrops prior to their impact upon the surface and including a rupturable static protective means for said device.

3,637,167

MISSILE STEERING SYSTEM

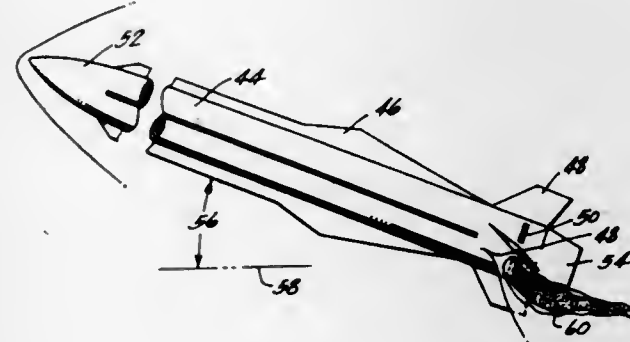
Herman D. Froning, Jr., Santa Monica; Dean F. Hopkins, Los Angeles, and Paul L. Klevatt, Woodland Hills, all of Calif., assignors to McDonnell Douglas Corporation

Filed Nov. 5, 1969, Ser. No. 874,218

Int. Cl. F42b 15/16

U.S. Cl. 244-3.21

4 Claims



A missile steering system wherein high maneuverability of a missile is achieved by combined interaction of jet exhaust and movable fins on fluid flow past the missile surface. Jet exit ports are located between movable fins and selected ones are used in various steering maneuvers.

3,637,168

FLEXIBLE BLADE RETRACTABLE ROTOR AIRCRAFT

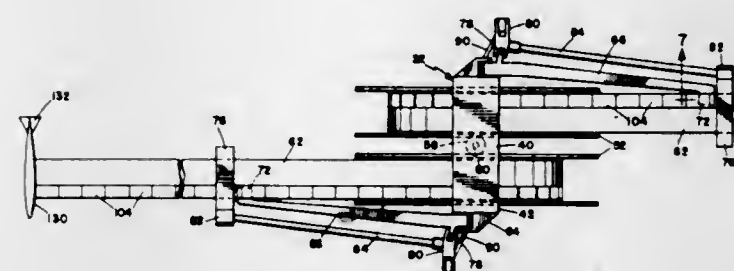
T. Claude Ryan, San Diego, and Peter F. Girard, La Mesa, both of Calif., assignors to Ryan Aeronautical Company, San Diego, Calif.

Filed Feb. 11, 1970, Ser. No. 10,388

Int. Cl. B64c 27/26

U.S. Cl. 244-7 A

9 Claims



A compound helicopter-type aircraft with a fixed wing and forward propulsion means, and incorporating a rotor having flexible blades which are wound up on reels and enclosed in the aircraft when not in use. The blades are composed of flexible straps with segmented leading edge portions of airfoil shape, and flexible rear filler portions to complete the airfoil, the segmented portions being designed to prevent the strap from being stretched beyond its elastic limit. The rotor blades are synchronized in extension and retraction and controlled in accordance with rotational speed by an automatic brake means, which also causes retraction of the blades when power is shut off, unless intentionally overridden.

3,637,169

VARIABLE PARAMETER NUTATION DAMPER

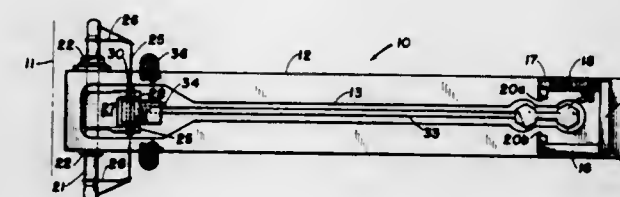
Barry E. Tossman; Frederick F. Mobley, and Robert E. Fischell, all of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Aug. 8, 1969, Ser. No. 848,503

Int. Cl. B64g 1/00

U.S. Cl. 244-1 SA

5 Claims



An end-weighted pendulum is suspended on a torsion wire which extends parallel to the spin axis of a spacecraft and restrains the pendulum to swing in a plane normal to the spin axis, if the spacecraft is nutating. The end of the pendulum is a vane member formed of electrically conductive, nonmagnetic material which swings between the pole faces of a magnetic structure and creates eddy-current losses within the vane member to dissipate the nutation energy. Means are provided for changing both the eddy-current damping coefficient and the mechanical resonance of the nutation damper structure so that the damper is effective in dissipating nutations at more than one spacecraft spin rate.

3,637,170

SPACECRAFT ATTITUDE CONTROL METHOD AND APPARATUS

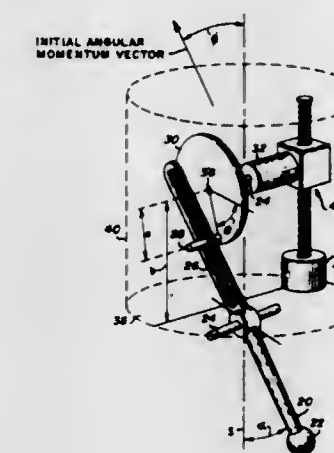
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Thomas R. Kane, Stanford University, and Mark P. Scher, Palos Verdes Peninsula, both of Calif.

Filed Dec. 31, 1969, Ser. No. 889,551

Int. Cl. B64g 1/00

U.S. Cl. 244-1 SA

10 Claims



A method and apparatus are described for controlling the attitude motions of a spacecraft or other artificial body moving in space by causing certain components thereof to perform prescribed motions relative to one another so as to convert the initial motion of the spacecraft into one of simple rotation. The system includes a means for sensing the instantaneous motion of the body, means for computing the necessary relative motion between components to achieve the desired attitude motions, and means for physically implementing the required relative motion. The computing means may either be carried in the moving body or be remote and communicatively linked to the sensing and controlling apparatus.

3,637,171

APPARATUS FOR MOUNTING A VIBRATOR IN A FURNACE

Dietrich Kroeger, Wiesbaden, Germany, assignor to Jean Netter

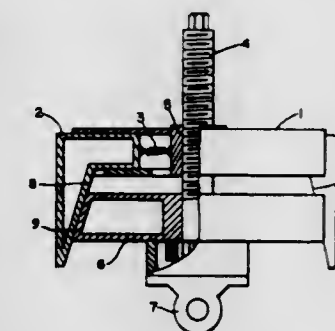
Filed Oct. 24, 1969, Ser. No. 869,310

Claims priority, application Germany, Dec. 14, 1968, P 18 14 743.8

Int. Cl. F16m 13/00

U.S. Cl. 248-14

10 Claims



Apparatus for mounting a vibrator within the shell of an electric induction or arc furnace and radially expansible within the shell to grip opposed interior portions of the shell and thereby to transmit vibratory forces to the shell for compacting particulate refractory material in the annular space between the shell and the surrounding refractory wall of the furnace.

3,637,172 MUSIC STAND

Frederick B. Diesbach, Hamilton, Ohio, assignor to Krauth & Benninghofen, Inc., Hamilton, Ohio
Original application Jan. 6, 1968, Ser. No. 789,180, now abandoned. Divided and this application Jan. 29, 1970, Ser. No. 6,917
Int. Cl. A47b 97/04

U.S. Cl. 248—460

3 Claims



A music stand having quick release lock for engaging a tubular support member to a plate base member where the plate base member is disposed substantially perpendicular to the tubular support member comprising, in preferred form, (a) a circular hole in the plate member in which the tubular member is received, the hole being sized to provide slip fit when the plate member and tubular member are assembled and the hole having a first center that establishes a center axis perpendicular to the plate member, (b) at least two pins mounted to the plate on opposite sides of the hole, the pins being disposed on a circle having a second center with that second center being offset a small distance relative to the first center, (c) a lock ring rotatable relative to the plate member having a pair of opposed arcuate slots engaged with the pins, the arcuate slots having a common third center which lies on the same center axis as the second center, and (d) a hole in the lock ring that establishes a fourth center, the fourth center being offset the same small distance relative to the third center as the second center is offset from the first center so that as the lock ring is rotated relative to the plate member the fourth center can move from a release position where the fourth center also lies on the same center axis as the first center to a lock position where the fourth center is offset relative to the center axis of the first center.

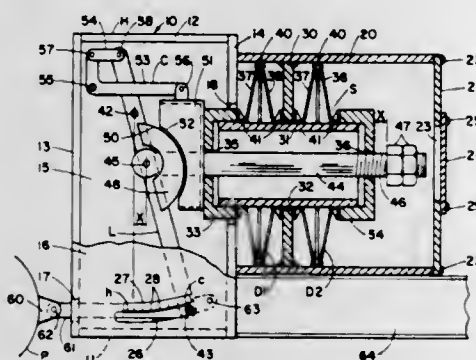
3,637,173

SPRING-TYPE MECHANICAL SHOCK AND SWAY ARRESTOR

Leonard S. Suozzo, 366 Maple Hill Drive, Hackensack, N.J.
Filed Oct. 9, 1970, Ser. No. 79,559
Int. Cl. F16l 3/20

U.S. Cl. 248—54 CS

10 Claims



A device for use with equipment, such as piping, that is subject to changes in position due to variations in its thermal

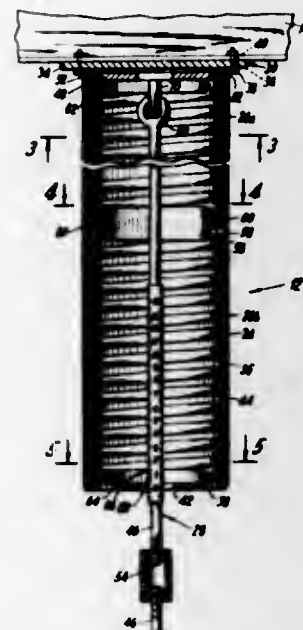
condition. The device includes a housing that is anchored to a stationary structure, a spring unit positioned within and engaging the housing, a rod extending through and engageable with the spring unit, a lever pivotally connected at spaced locations to the housing and to the rod, coupling means pivotally connecting the lever to the piping, and camming means including a first cam member affixed to the lever and a second cam member interposed between the first cam member and the spring unit and coupled to the lever by a linkage. The parts are so constructed and arranged that the device permits normal movement of the piping due to said variations in thermal condition. In the event the piping is subjected to an objectionable sudden force, such as a seismic force of predetermined magnitude, the device automatically operates as an arrestor whereby to effectively restrain the piping against movement relative to the stationary structure.

3,637,174 SPRING HANGER

Chi Sheng Kuo, Scituate, Mass., assignor to Stone & Webster Engineering Corporation, Boston, Mass.
Filed Sept. 2, 1969, Ser. No. 854,709
Int. Cl. F16l 3/20

U.S. Cl. 248—54

17 Claims



Apparatus for suspending vertically disposed furnace tubes. A compression spring provided with spacers is arranged within a tubular casing having interior walls coated with a low-friction material to facilitate aligned compression of the spring. Calibrated load indicating means are also arranged to accurately display the load imposed thereon.

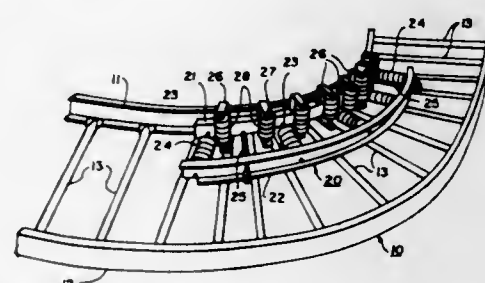
3,637,175

CABLE DRAW MECHANISM

James A. McElroy, Box 232, Babcock Blvd., Route #4, Gibsonia, Pa.
Filed Jan. 27, 1970, Ser. No. 6,200
Int. Cl. F16l 3/18

U.S. Cl. 248—55

4 Claims



A cable draw mechanism for use in bends in cable trays comprising a pair of spaced apart arcuate members, said

members being connected by spaced radial members at least a part of which carry rotatable thereon a plurality of independent rollers, a plurality of vertical standards on the radially innermost arcuate member, said standards carrying a plurality of rollers lying on an axis transverse to the spaced radial members.

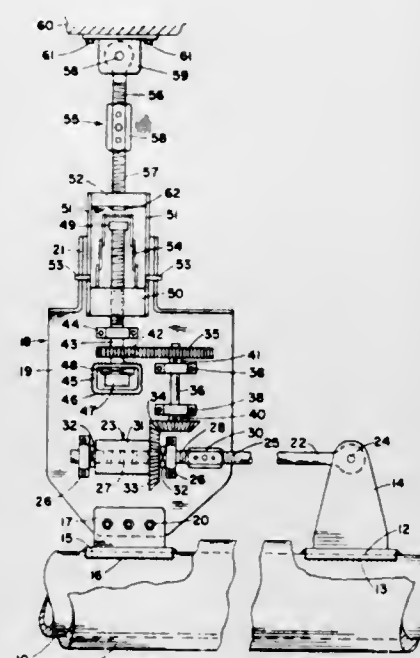
3,637,176

THERMOMECHANICAL MULTIFUNCTION SUPPORT DEVICE

Leonard S. Suozzo, 366 Maple Hill Drive, Hackensack, N.J.
Continuation-in-part of application Ser. No. 807,048, Mar. 13, 1969. This application Aug. 17, 1970, Ser. No. 64,321
Int. Cl. F16l 3/20

U.S. Cl. 248—59

16 Claims



A device for use with piping or other equipment that is subject to changes in position due to variations in its thermal condition. The device comprises actuating means, which is secured to the piping at spaced first and second locations and is movable relative to the piping in response and in direct proportion to expansion or contraction resulting from said variations in thermal condition, and coupling means. The actuating means includes a rigid member connected at one end to the piping at the first location and a ball screw and nut unit connected to the piping at the second location and connected to the other end of the rigid member. The coupling means is variable in effective length and is connected at one end to the ball screw and nut unit and at its other end to a stationary support. The coupling means includes gearing which is cooperatively associated with the ball screw and nut unit. The parts are so constructed and arranged that increments of movement of the actuating means cause corresponding variations in the effective length of the coupling means.

3,637,177

SUPPORT STRUCTURE

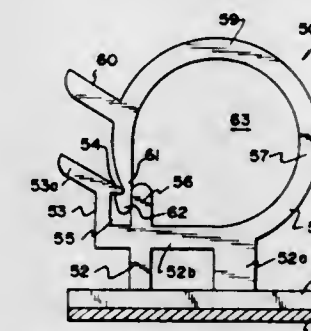
Kenneth E. Santucci, 9 N. Circle Ave., Boonville, Ill.
Continuation-in-part of application Ser. No. 748,004, July 26, 1968, now abandoned. This application Jan. 19, 1970, Ser. No. 3,817
Int. Cl. F16l 3/08

U.S. Cl. 248—74 PB

9 Claims

A unitary device designed to be secured to a substructure and to support and retain an object, such as a cable or the replaceable spindle for converting a standard record player spindle to accommodate records with odd-sized openings, for example, 45 r.p.m. record spindle openings. The supporting

structure or device is designed to utilize a contact adhesive to bond or secure the device to a substructure and to utilize the structural features of the device to minimize the effects of deflection or jarring of the object retaining portion of the



unit. Deflection forces would normally have a tendency to lift a formerly bonded edge of the device from the substructure with the ultimate result of a gradual but total dislodgement of the device from the substructure.

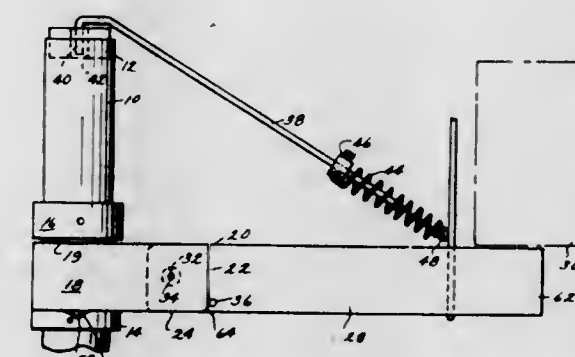
3,637,178

MAILBOX SUPPORT

John C. Golden, 437 Hudson St., Eau Claire, Wis.
Filed Nov. 5, 1969, Ser. No. 874,119
Int. Cl. A47g 29/12

U.S. Cl. 248—145

5 Claims



A mailbox support having a generally upright post anchored in the ground and a mailbox support arm movably affixed to the post for movement in a lateral plane as well as in a vertical plane between a locked normal position and a locked servicing position. The mailbox support arm is freely movable in the lateral plane so that the support will not be damaged if the support arm is struck by a passing vehicle.

3,637,179

BASE PORTION OF A STAND OR THE LIKE

Howard J. Marschak, 865 W. North Ave., Chicago, Ill.
Filed Dec. 4, 1969, Ser. No. 882,227
Int. Cl. A47b 91/00

U.S. Cl. 248—188.7

9 Claims



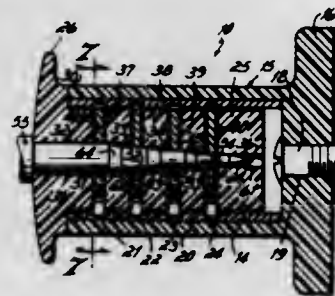
A base portion for a stand or the like comprising a plurality of leg sections, each section having a central portion with

a leg radiating from the central portion and with the central portion formed of a pair of walls which taper so that the width of the walls increases progressively from the top towards the bottom, said central walls when assembled with their counterparts forming a hub to support an upright therein and with the hub portion raised upwardly of the outer ends of the legs.

3,637,180

WALL MOUNT DEVICE FOR GUNS

Robert D. Parry, deceased, late of 7240 Algonquin, Cincinnati, Ohio (by Margaret G. Parry, executrix)
Continuation of application Ser. No. 817,630, Apr. 18, 1969.
This application Aug. 19, 1970, Ser. No. 65,265
Int. Cl. A47b 96/06; A47f 7/00; E05b 73/00
U.S. Cl. 248—203 11 Claims

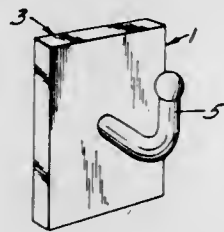


A device for mounting and locking a gun in place upon a wall. The device consists essentially of two parts, a cylindrical member having a base and means associated with the base for affixing the cylindrical member to the wall, plus a latch member adapted to be received within the cylindrical member. In place, the device projects through the trigger guard of the gun such that the gun rests upon the cylindrical member. A head at the outer end of the latch member, larger than the trigger guard, prevents removal of the gun. One of the features of the device is the manner in which it is locked and unlocked. For these purposes a key of simple design is provided. Mere straight in insertion of the key unlocks the device, whereas mere straight out withdrawal of the key locks the device.

3,637,181

ADHESIVE FIXTURE

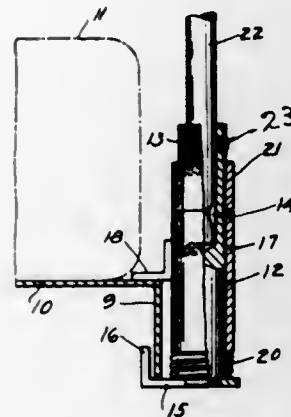
Edward W. Janssen, Roseville, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 1,637, Jan. 9, 1970, now abandoned. This application Mar. 16, 1970, Ser. No. 19,768
Int. Cl. A47g 1/20
U.S. Cl. 248—205 A 3 Claims



A fixture suitable for convenient and rapid attachment to structural surfaces, especially masonry-type surfaces, which has a thermoplastic resin mounting portion which can be softened and pressed against the structural surface and bonded thereto without further means of attachment. The fixture may have a fuel adhered to the mounting portion which upon ignition by a flame will burn to soften the thermoplastic resin to a bonding state.

3,637,182 CLAMP FOR ATTACHMENT TO SIDE OF HOSPITAL BED

Ivan C. Bohlman, 208 North 2nd Ave., Box 1208, Walla Walla, Wash.
Filed May 25, 1970, Ser. No. 40,083
Int. Cl. A47g 9/00
U.S. Cl. 248—226 B 1 Claim

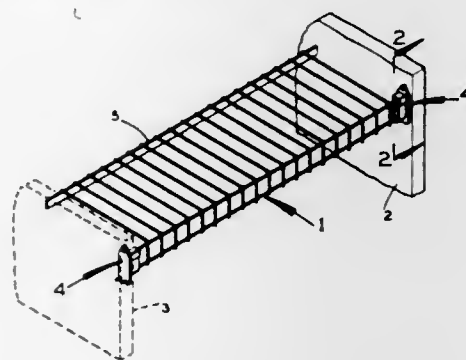


This clamp comprises a cylindrical shank on which is a slidable and rotatable sleeve. A lower clamp foot is secured to one end of the shank and an upper clamp foot is secured to the sleeve. The two clamp feet can be clamped onto a support which forms part of the side of the bed by a nut which is threaded onto the shank. A socket in the upper end of the shank is adapted to support a removable upright member used in connection with the bed.

3,637,183

SUPPORTS FOR DETACHABLE SHELVING

Stanley M. Sagers, Hialeah, Fla., assignor to Advance Metal Products, Inc., Miami, Fla.
Filed Nov. 17, 1970, Ser. No. 90,367
Int. Cl. A47g 29/02
U.S. Cl. 248—235 5 Claims



A support assembly secured to opposite parallel sidewalls for detachably securing a pair of each opposite end portions of horizontal end rods in vertical spaced relation for a detachable shelf.

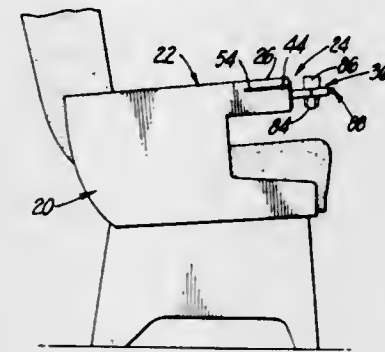
3,637,184

EXTENSIBLE AND RETRACTABLE SUPPORT

Edward M. O'Brien, 1717 East Saint Louis Ave., Las Vegas, Nev.
Filed Mar. 10, 1970, Ser. No. 18,189
Int. Cl. A47c 7/70
U.S. Cl. 248—279 6 Claims

A shelflike supporting structure extensible into a generally horizontal operating position and retractable into a generally vertical position within a vertically oriented storage space within a housing, through a vertically oriented opening in the housing. The supporting structure is rotatable about a fore-

and-aft axis into its operating position after extension from the housing, and may remain free to rotate about this fore-and-aft axis, or it may be locked against such rotation. The supporting structure includes a supporting member having an element mounted thereon for pivotal movement about a pivot axis which is perpendicular to the fore-and-aft axis and which is generally horizontal when the supporting structure is

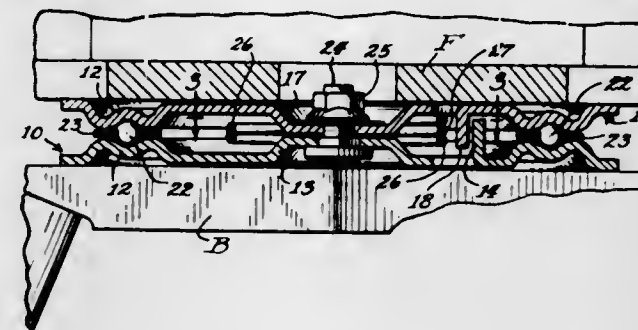


in its operating position. This element may be a gimbal ring which maintains a glass substantially vertical, despite attitude changes of an airplane, for example, if the supporting structure is free to rotate about the fore-and-aft axis. The element mentioned may also be a stirrup on which a glass may be seated, an ashtray cover, a brace for the supporting structure, and the like. Also disclosed is an insulating collar for supporting a glass in a ring.

3,637,185

SELF-ORIENTING REVOLVING FIXTURE

Aloysius J. Mikos, Skokie, and Jerzy K. Kubacki, Chicago, both of Ill., assignors to The Seng Company
Filed May 21, 1969, Ser. No. 826,426
Int. Cl. A47c 3/00
U.S. Cl. 248—425 9 Claims



A self-orienting revolving fixture for furniture which is of the type having parallel plates relatively rotatable about a central axis with antifriction means between the plates, a coil spring that has at least one convolution surrounding said axis with means on the plates to stress the spring by pulling circumferentially in opposite directions on the ends of the spring, there being a guide finger positioned radially inwardly from the spring and substantially in contact with the spring convolution in oriented position, the guide finger restricting bodily shifting movement and preventing differential stressing of the spring during relative rotation of the plates.

3,637,186

DETENT SWIVEL FOR TRUCK MIRRORS AND THE LIKE

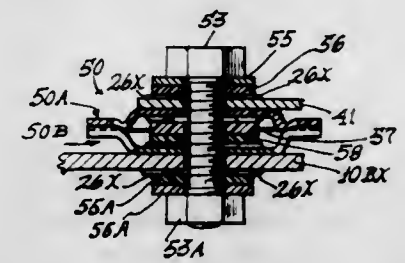
Alec Greenfield, deceased, late of Chicago, Ill. (by Dorothy M. Greenfield, executrix), assignor to Avnet, Inc., New York, N.Y.
Filed Oct. 16, 1969, Ser. No. 867,105
Int. Cl. B60r 1/06

U.S. Cl. 248—478

12 Claims

Relatively pivotable detent members for holding positions of adjustment in rearview truck mirrors and the like. The de-

tent members may take the form of circular stamped plates having a central depression forming a well surrounded by a flange in which are troughlike detent formations adapted to nest in assembly and to snap into and out of interfit when the



members are pivoted one relative to the other. Metal is removed in critical locations on the flange, as by formations of slots and perforations to impart a limited springiness to each flange portion or the detent formations or both.

3,637,187

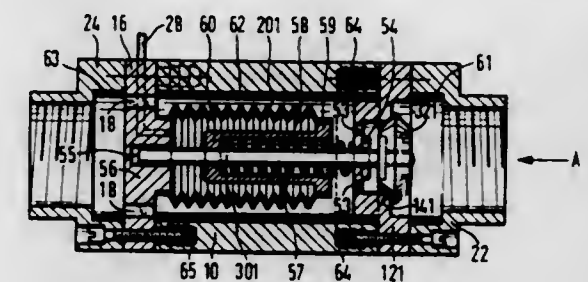
VALVE WITH AXIALLY SPACED GUIDES AND BELLOWS OPERATOR

Manfred Burger, Munich, Germany, assignor to Daniel Stephen Delany, London, England, a part interest.
Filed Nov. 12, 1969, Ser. No. 876,018
Claims priority, application Germany, May 5, 1969, P 19 22 886.5

Int. Cl. F16k 31/145, 41/10

U.S. Cl. 251—61.3

12 Claims

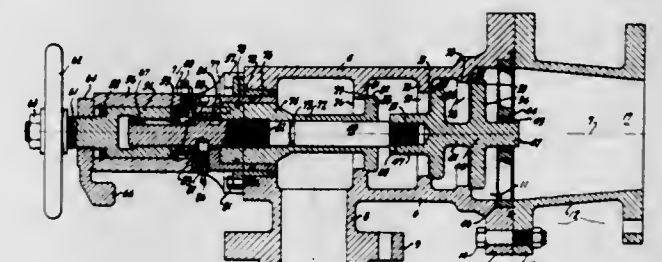


A valve having a straight tubular housing is provided with a transverse valve seat and a valve disc mounted on a stem having two axially spaced portions which are guided by elements fixed on the valve housing for precisely axial movement of the valve disc toward and away from the valve seat. The valve stem is moved by pressure fluid in bellows in one direction, and by a return spring and/or pressure of the controlled fluid in the other direction.

3,637,188

MULTISTAGE THROTTLE VALVE

Harry L. Ung, South San Francisco, Calif., assignor to Baldwin-Lima-Hamilton Corporation
Filed Jan. 13, 1970, Ser. No. 2,554
Int. Cl. F16k 1/06, 31/50, 11/20
U.S. Cl. 251—120 10 Claims



A multistage throttle valve has a generally cylindrical housing with an inlet adjacent one end and an outlet at the other end. The interior of the housing is spanned by several, axially

spaced valve seat plates having coaxial apertures therethrough of progressively larger sizes toward the outlet. An axially movable operating rod passes axially through the apertures and carries at least one of several valve discs thereon. An operating tube is disposed around the operating rod and carries the valve discs not carried by the rod. The tube is movable axially along the rod and can be fastened thereto.

3,637,189

OIL PRESSURE JACK FOR LIFTING OPERATION

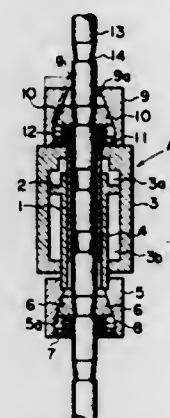
Hidekichi Murashige, Ichikawa, and Masao Simakura, Tokyo, both of Japan, assignors to Kawatetsu Kizai Kogyo Co. Ltd., Minato-ku, Tokyo, Japan

Filed May 26, 1970, Ser. No. 40,521

Int. Cl. B66f 7/12

U.S. Cl. 254—89 H

4 Claims



An oil pressure jack assembly including a multiplicity of piston assemblies with guide rods therethrough and a support structure with interconnected dump valves for said guide rods. Each of the piston assemblies include upper and lower clamp holders having downwardly inclined inner peripheries, said guide rods each having a series of step shoulders mateable with said clamp holders, both clamps including spring biasing means whereby the lower clamp supports the piston on a step of a guide rod during hydraulic action raising the upper clamp and vice versa.

3,637,190

VIBRATORY APPARATUS

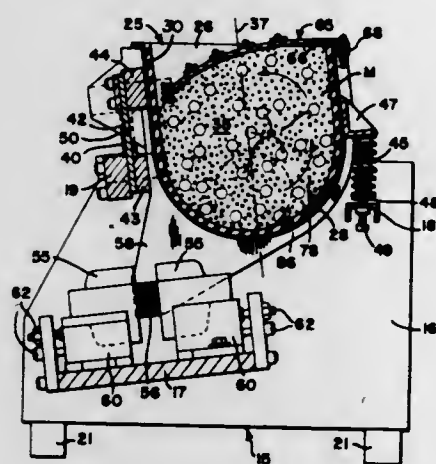
Max Isaacson, Dayton, Ohio, assignor to Vibrodyne, Inc., Dayton, Ohio

Filed Aug. 15, 1969, Ser. No. 850,496

Int. Cl. B01f 11/00

U.S. Cl. 259—72

17 Claims



A container is supported by a plurality of spring beams for oscillatory movement on an effective pivot axis offset laterally from a vertical center plane of the container, and a plurality of generally vertical coil springs cooperate with the spring beams to provide the container and the load therein with a resonant frequency of oscillation corresponding substantially to a predetermined excitation frequency. The coil springs are offset laterally from the vertical center plane of the container in spaced relation to the spring beams and are

adjustable to provide for substantially maintaining the resonant frequency of oscillation with changes in the load. A cover member is positioned for exerting pressure on the load within the container and in one form is flexible with attached weights, and in another form is substantially rigid and hinged to the container.

3,637,191

FOUNDRY MOLD AND CORE BLOWING MACHINE

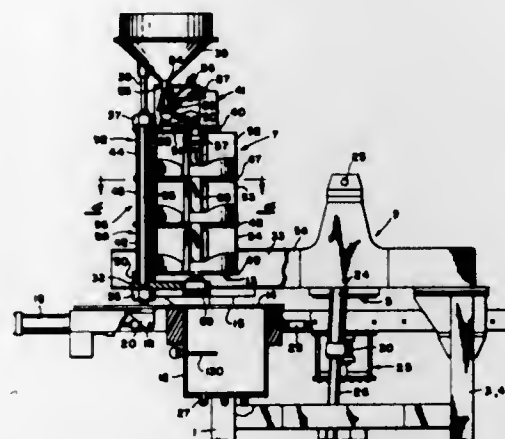
Edward D. Abraham, Cleveland, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio

Continuation-in-part of application Ser. No. 626,782, Mar. 29, 1967, now Patent No. 3,494,412. This application Dec. 2, 1969, Ser. No. 881,459

Int. Cl. B28c 7/04

U.S. Cl. 259—153

28 Claims



A foundry mold or core blowing machine having an in situ sand-resin mixer operating in the cycle of the machine and positioned between the sand supply and the blow reservoir which mixer comprises a plurality of rotating mixing blades arranged in sand flow series, each blade rotating within its own chamber, with dry sand and a catalyst or accelerator being added to the initial chamber and resin to the second chamber.

3,637,192

GAS SCRUBBER APPARATUS AND METHOD FOR USE THEREOF

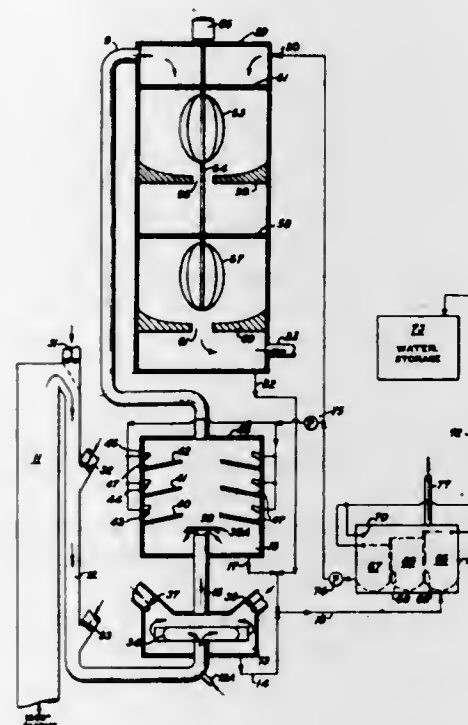
Renell A. Giconi, 12 Park Drive, La Vale, Md.

Filed Aug. 13, 1970, Ser. No. 63,414

Int. Cl. B01d 47/06

U.S. Cl. 261—17

14 Claims



A gas scrubber for the effluent from smokestacks is widely distributed and intermixed with a water vapor mist followed

by agitation through ingenious watery beaters so that the water captures the solid particle constituents and captures the materials soluble in the water. The water after settling the particles therefrom may be recycled.

3,637,193

VENTILATOR-COOLING TOWER FOR COOLING GASES AND LIQUIDS

Manfred Kugler, Graz; Gerd Muller, Salzburg, and Gunter Schwarz, Dornbirn, all of Austria, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

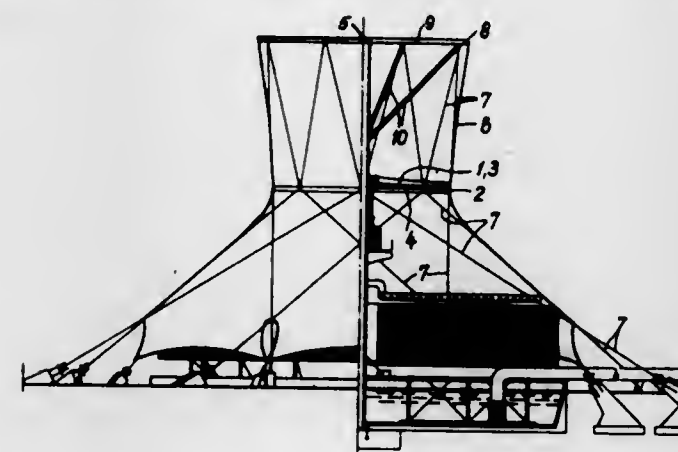
Filed July 2, 1970, Ser. No. 52,044

Claims priority, application Austria, July 2, 1969, A 6311/69

Int. Cl. B01f 3/04

U.S. Cl. 261—24

9 Claims



A ventilator-cooling tower of the round type for cooling gases and liquids in which the supporting framework comprises a cable construction and in which the bearing means for the ventilator as well as a spacer ring within the region of the ventilator blades are firmly connected to a common shaft forming a supporting element of the cooling tower construction, the airtight envelope means for the cooling tower consisting of a material, such as reinforced synthetic material, impregnated canvas, wood, metal or asbestos cement, supported and anchored by the cable means.

3,637,194

HUMIDIFIER

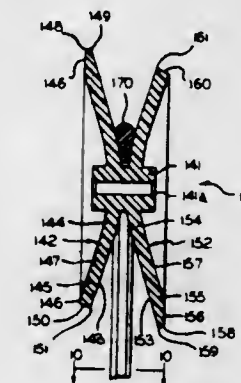
James A. Swimmer, Highland Park, and Martin Harris, Chicago, both of Ill., assignors to Berns Air King Corporation, Chicago, Ill.

Filed Dec. 22, 1969, Ser. No. 887,236

Int. Cl. B01f 3/04

U.S. Cl. 261—29

5 Claims



A humidifier comprises a housing formed from prefinished metal sheets in such a manner as to provide a water reservoir, an inclined filter pad carried by a water trough, an impeller disposed below the high point of the filter pad and consisting of a hub carrying a pair of axially spaced platelike bodies, each of the bodies having two semicircular water-

throwing edges of different radii, a ring carried by the impeller and disposed partly in the water reservoir, a two-speed motor for rotating the impeller, and a combined shutoff and indicator apparatus which functions to show the amount of water left in the reservoir and to turn off the motor when the water level drops below a predetermined value.

3,637,195

COOLING TOWER APPARATUS

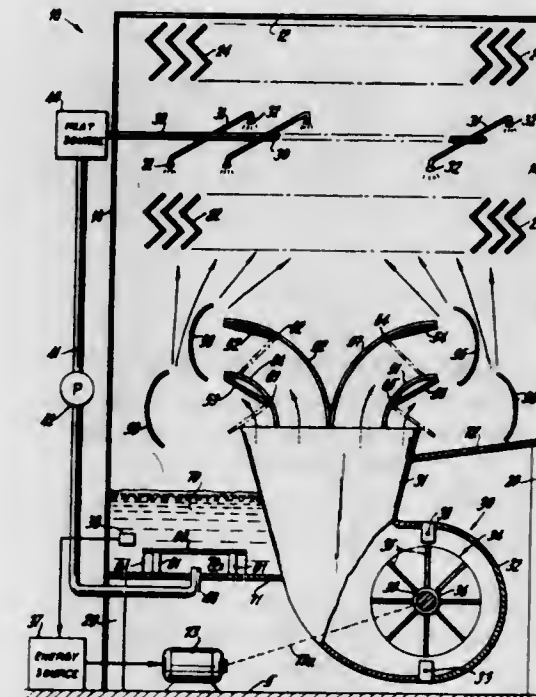
Benjamin V. Blazer, Paterson, and Mahmoud S. El-Tahry, Passaic, both of N.J., assignors to Blazer Corporation, East Rutherford, N.J.

Continuation-in-part of application Ser. No. 742,567, July 5, 1968, now Patent No. 3,494,109. This application Feb. 9, 1970, Ser. No. 9,794

Int. Cl. B01d 47/00

U.S. Cl. 261—30

12 Claims



An improved modular cooling tower includes an air fan centrally located at the bottom of the tower, and a baffle vane and pivoted shutter arrangement disposed above the fan. The fan generates an airflow which passes through the baffles and vanes to react with a heated liquid flowing downward through the tower via a plurality of evaporating surfaces. The shutter structure is adapted to pass the fan generated airflow for cooling purposes while preventing the escape of fluid or vapor laden air from the tower fan orifice, thus obviating a potentially hazardous condensation condition.

In accordance with other aspects of the present invention, improved sump, fan and drive apparatus is provided to accommodate plural module installations.

3,637,196

SPINNING TOP FOR THE VENTILATION OF LIQUIDS

Joseph Richard Kaelin, Villa Seeburg, Buochs, Nidwalden, Switzerland

Filed Nov. 28, 1969, Ser. No. 880,595

Claims priority, application Switzerland, Nov. 28, 1968, 17781/68

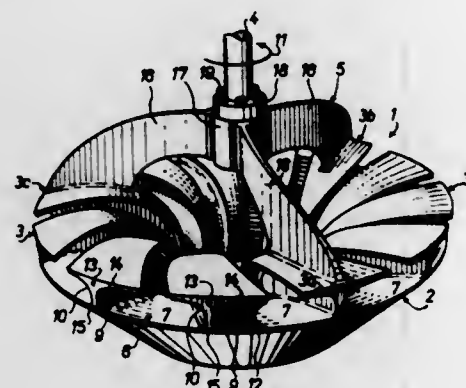
Int. Cl. B01f 3/04

U.S. Cl. 261—91

8 Claims

An aerating impeller apparatus for liquids, particularly for purifying sewage, is formed of a rotor member or blade ring dependently secured from a rotatable vertically extending shaft. The rotor member extends upwardly from an inlet to an outlet and has an inner wall shaped arcuately in the radial direction joined along its upper and lower edges to an outer

frustoconically shaped wall so that an annular hollow space is formed between the two walls. A floatable material can be placed in the hollow space. A plurality of angularly spaced blade members are secured to and extend inwardly from the inner surface of the inner wall-forming conveyor ducts for



directing liquids from the inlet to the outlet of the rotor member. The blade members have a T-shaped cross section of generally increasing size from the inlet to the outlet. The edges of the crossrail or head of the T-shaped cross section are spaced apart approximately distance constant distance from the inlet to the outlet.

3,637,197

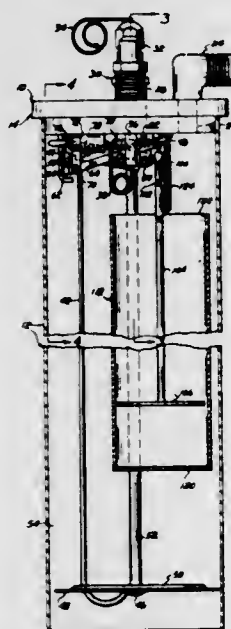
GAS CHARGER FOR LIQUIDS

James L. Hudson, 5950 Yorkshire Road, Detroit, Mich.
Filed Jan. 12, 1968, Ser. No. 697,388

Int. Cl. B01f 3/04

U.S. Cl. 261-122

4 Claims



This device charges a liquid, such as water, with a gas, such as carbon dioxide, at low pressure, and consists of a gastight tank to the cover of which is attached a snap-action vent valve, a water inlet fixture, a charged-water outlet fixture, a gas inlet fixture, and a gas supply valve operated in one direction by vertical springs anchored to the cover and in the opposite direction by the varying weight of a cup of lightweight material located below the water inlet. The gas supply valve is connected to a porous gas diffuser located near the bottom of the tank. When a liquid, such as water, to be charged with gas is caused to flow into the tank, it first drops into the cup so as to cause its weight to lower the cup

and overcome the force of the vertical springs. As the tank fills with water, the cup loses sufficient weight by Archimedes' principle to permit the vertical springs to simultaneously raise it and swing a yoke, which in turn causes a vent valve lever to snap over "dead center" to close the vent valve while opening the gas supply valve to permit gas to flow downward to the porous gas diffuser and thence to flow upward through the liquid so as to charge it with gas.

3,637,198

FURNACE FOR HEAT TREATING OF METALLIC WORKPIECES

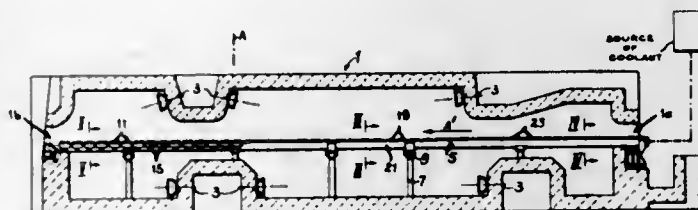
Rudiger Knaak, Neuss, Germany, assignor to Koppers-Wistra-Ofenbau Gesellschaft mit beschränkter Haftung, Düsseldorf-Heerdt, Germany

Filed Jan. 12, 1970, Ser. No. 2,084

Int. Cl. F27b 9/14

U.S. Cl. 263-6 B

7 Claims



Wall means defines a chamber having an inlet and an outlet and including a first chamber section and a second chamber section which are respectively nearer to the inlet and to the outlet. Elongated tubular guide members extend through the chamber from the inlet towards the outlet for supporting metallic workpieces which are advanced from the former to the latter, each of these guide members having a longitudinally extending upwardly directed wall portion. Cooling means supplies internal cooling for the tubular guide members. Rows of wear-resistant first workpiece engaging elements are arranged in the first chamber section supported on and projecting upwardly from the respective wall portions by a predetermined height. Rows of second workpiece engaging elements are provided in the second member section supported on the respective wall portion and each comprises a holding portion straddling the respective wall portion, a thermally insulating portion supported on the holding portion and a heat-resistant portion supported on the associated thermally insulating portion and having a workpiece-contacting upper surface.

3,637,199

MUFFLE KILN FOR THE FIRING OF GLAZED CERAMIC TILES

Mauro Poppi, Via Pretorio 51, Sassuolo, Italy

Filed Mar. 27, 1970, Ser. No. 23,225

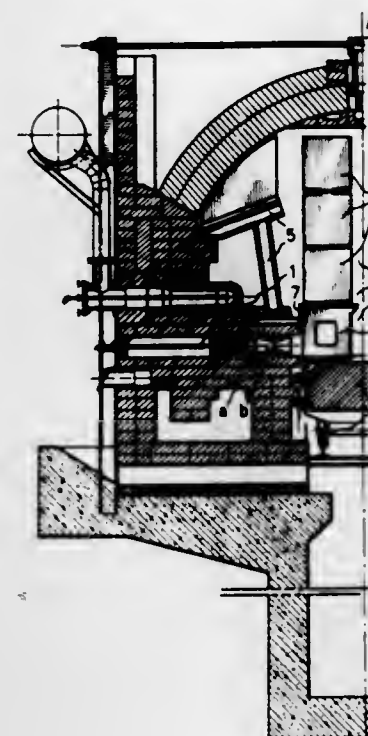
Int. Cl. F27b 9/00

U.S. Cl. 263-28

2 Claims

A muffle tunnel kiln for the firing of glazed ceramic tiles. It is furnished with lateral burners ranged in opposed pairs blow the muffled combustion chambers in such a way that the flames and combustion gases of said burners develop and are dispersed along honeycombed blocks of refractory material placed on the specially lowered decks of kiln cars under a stack of tile trays. The tunnel is thus heated not only by the

usual muffled combustion chambers but also by the combustion gases of the lateral burners. The combustion gases



circulate inside the tunnel, unlike those of the burners which heat the muffle combustion chambers.

3,637,200

APPARATUS FOR GAS-SOLIDS REACTION IN PRODUCTION OF SULFUR, IRON AND RELATED PRODUCTS

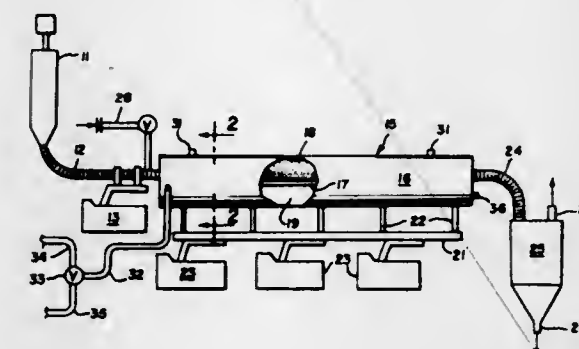
Adolph Q. Landquist, Golden, Colo., assignor to Hy-Met Engineering, Ltd., Denver, Colo.

Original application Jan. 16, 1968, Ser. No. 698,270, now Patent No. 3,549,351, dated Dec. 22, 1970. Divided and this application May 27, 1970, Ser. No. 40,762

Int. Cl. F27b 9/14

U.S. Cl. 266-16

4 Claims



Apparatus for promoting controlled gas-solids reaction in elongated treatment zone utilizing means for producing vibratory action for impelling progressive movement of charge and separating discrete particles of charge in each increment of applied forces with reactive gas introduced in starvation amount at spaced points along course of movement entering spaced between separated particles. Impervious support surface of reaction zone provides controlled heat transfer during reaction and movement rate induced by vibratory action determines solids retention time in treatment zone. Treatment suitable for chlorination, sulfation, oxidation and reduction. Iron pyrites treatment for iron and elemental sulfur recovery at low cost.

3,637,201

SHEET SEPARATION AND PREFEED APPARATUS

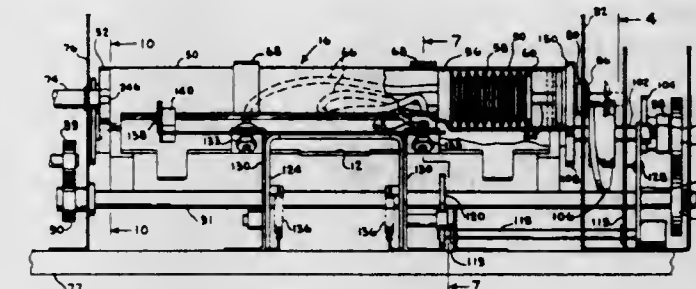
Ernst Schrempp, Norwalk, and Christian A. Beck, Ridgefield, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Sept. 22, 1970, Ser. No. 74,364

Int. Cl. B65h 3/10

U.S. Cl. 271-27

25 Claims



A bellows, incorporated within a sheet feed roller, is actuated by external actuating apparatus to create a partial vacuum at suction ports in the feed roller periphery. A pivotal pressure pad assembly momentarily presses a sheet stack against the ports, leaving the top sheet adhered to the feed roller which is then rotated to advance the separated top sheet to a prefeed position. Additional actuating apparatus, operating on command, rotates the feed roller through the remainder of a complete revolution to feed the prefeed sheet from the apparatus and to reorient the feed roller for the next sheet separation and prefeed cycle.

3,637,202

SHEET-GRIPPING DEVICE

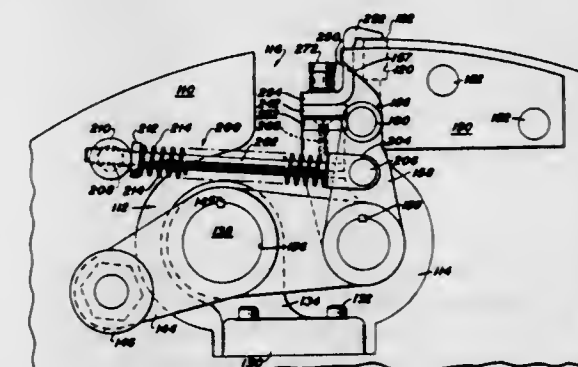
Harry E. Mowry, Louis A. Ricardo, and Guy V. Carricato, all of Pittsburgh, Pa., assignors to Miller Printing Machinery Co., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 835,062, June 20, 1969. This application May 14, 1970, Ser. No. 37,130

Int. Cl. B65h 5/14

U.S. Cl. 271-51

8 Claims



A sheet-gripping device includes a gripper assembly non-rotatably mounted on a gripper shaft. A link member rotatably supports the gripper shaft adjacent one end and is nonrotatably secured to an intermediate shaft adjacent the other end. A first cam follower lever is connected to the intermediate shaft and is arranged to oscillate the end of the link member supporting the gripper shaft. A second cam follower lever is nonrotatably connected to the gripper shaft and has a cam roller urged into abutting relation with a cam surface fixed on the cylinder. Movement of the link member by the first cam follower moves the gripper along a path similar to the cam surface against which the cam roller on the second cam follower is urged. The configuration of the cam members determines the path followed by the gripper assembly. The gripper assembly includes a lever with one end

secured to the gripper shaft and a recessed portion in the other end. A gripper member has a gripper finger at one end and an oppositely extending connecting portion at the other end. A connecting member connects the connecting portion to the lever and a resilient member urges the gripper finger toward the lever member.

3,637,203

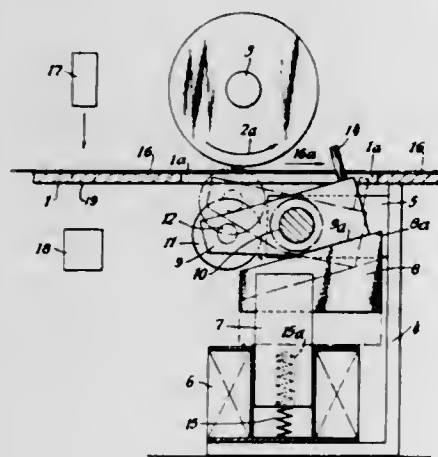
APPARATUS FOR FEEDING SHEET MATERIAL

Lionel John Bryant Rushent French, London, England, assignor to The Sulby Engineering Development Company Limited, Worcester Park, Surrey, England
Filed Feb. 16, 1970, Ser. No. 11,445
Claims priority, application Great Britain, Feb. 19, 1969, 9,027/69

Int. Cl. B65h 9/06

U.S. Cl. 271-53

3 Claims



Apparatus for intermittently feeding sheet material over a table which is automatically arrested by a stop projecting through the table in the path of the sheet material, and at the moment of freeing the sheet material the stop is retracted, and the feeding mechanism automatically brought into operation to advance the sheet material over the stop, and means for resetting the apparatus to quiescent condition immediately the feed has taken place.

The operator merely sets the sheet material against the stop and awaits the signal to make the feeding apparatus automatically operative.

3,637,204

POLE VAULT CROSSBAR APPARATUS

Theodore R. Dawson, 3794 Blossom Lane, Odessa, Tex.
Continuation-in-part of application Ser. No. 738,952, June 21, 1968, now abandoned. This application Oct. 28, 1970, Ser. No. 84,820

Int. Cl. A63b 5/02, 5/16

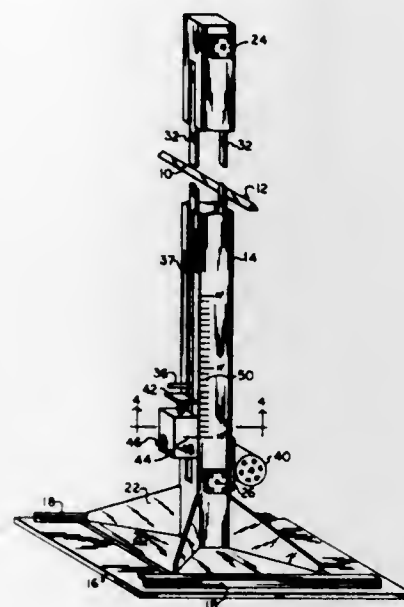
U.S. Cl. 272-59 C

16 Claims

A crossbar for pole vaulting is placed on pegs mounted for vertical travel on two standards. The pegs are moved upward by halyards attached to the pegs and run over wheels at the top of the standards or downward by downhauls attached to the pegs. Therefore, the crossbar may be replaced when the pegs are at a height which is conveniently reached by attendants. The pegs and the crossbar are then raised to the desired height and stopped when protuberances on the halyards engage adjustable stops on the standards.

For automatic operation, an electrically conductive crossbar for pole vaulting is set upon pegs which are mounted for vertical travel on the two standards. If the bar is knocked off, the change in electrical resistance between the pegs is noted and the pegs run down the standards so the crossbar is

manually replaced on the pegs at which time the change in electrical resistance between pegs cause the pegs to be run



up the standards. The height the pegs reach on the standard is adjusted by a limit switch on the standard.

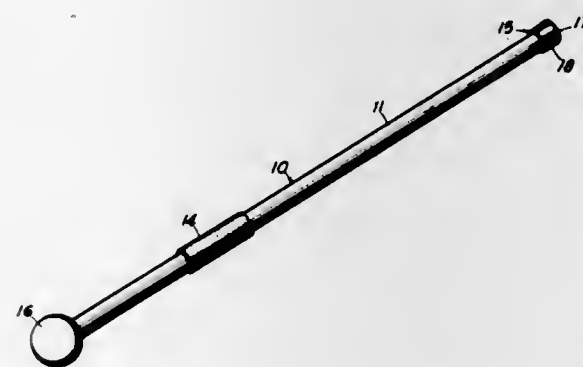
3,637,205

HAND EXERCISING AND FRICTIONAL RESISTANT-TYPE EXERCISING DEVICE

Parker J. Bankston, 2490A Skyland Drive N.E., Atlanta, Ga.
Filed July 9, 1970, Ser. No. 53,597
Int. Cl. A63b 21/30, 21/00

U.S. Cl. 272-68

12 Claims



An exercise device comprising an elongated cylindrical bar member having a slideable sleeve moveable along the elongated member, the sleeve being flexible will engage the member, and the member will resist such movement when pressure is exerted to the sleeve. The member has a resilient spherical gripping element secured to one end, and a ferrule at the other. By various manipulations with the bar member, the user is able to exercise various body muscles.

3,637,206

ENDLESS BELT EXERCISER WITH ACCELERATING AND DECELERATING TREAD SURFACES

Kenton Chickerling, III, 5513 Lincrest Ln., Houston, Tex.
Filed Mar. 16, 1970, Ser. No. 19,792

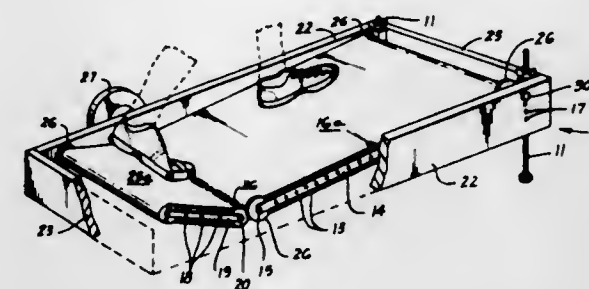
Int. Cl. A63b 23/06

U.S. Cl. 272-69

7 Claims

This disclosure relates to a new type of treadmill exercising device having a base, rollers carried by the base, and an endless belt disposed about the rollers to provide a tread sur-

face. The tread surface inclines upward toward each end to provide a forward accelerating area and a rear decelerating remote controls; thus, a batter does not know the elevation



area. This abstract is not to be construed in any way to define or limit the invention set forth below.

3,637,207

EXERCISING BELT WITH MUSCLE STIMULATING PRONGS

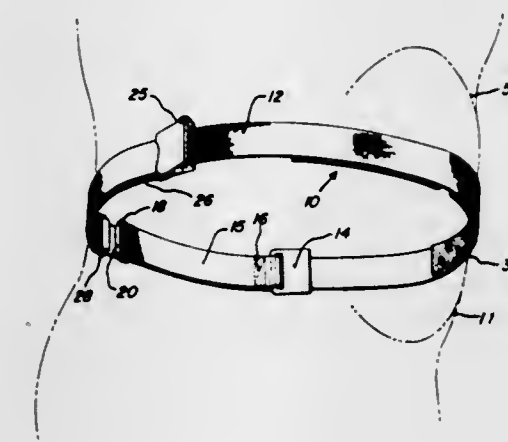
Chester W. Christensen, Jr., 1770 Bryant Ave. S., Minneapolis, Minn.

Filed July 28, 1970, Ser. No. 58,926

Int. Cl. A63b 21/26, 23/02

U.S. Cl. 272-80

10 Claims



A posture belt having a pronged inner surface with a compressible covering position over the pronged surface. The pronged surface will be located over the abdomen when the belt is worn and expansion of the stomach muscles will compress the covering allowing the prongs to irritate and signal the wearer to contract his abdominal muscles to exercise the same and improve posture.

3,637,208

BASEBALL BATTING PRACTICE DEVICE

Aubrey M. Allred, 7320 Oakland Ln., Fort Worth, Tex.

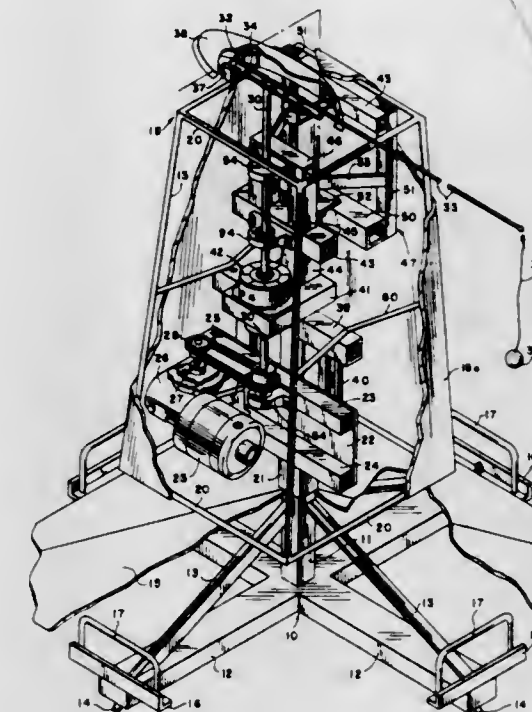
Filed May 1, 1970, Ser. No. 33,810

Int. Cl. A63b 69/40

U.S. Cl. 273-26 E

6 Claims

A baseball practice device including vertical shafts, one above the other, and a friction clutch therebetween. A lateral arm on the upper shaft supports a ball on a cord on the extending end of the arm and the lower shaft is driven by a variable speed reversible electric motor. All of the named parts are mounted in a vertically movable frame. The frame does not turn, but there is a reversible motor and screw mechanism, also carried by the frame, which selectively adjusts the height of the latter and consequently the height of the arm. Preferably, the arm supporting the cord and ball is flexible; thus, the speed of the first-mentioned motor, by centrifugal force, determines the height of the ball from the



3,637,209

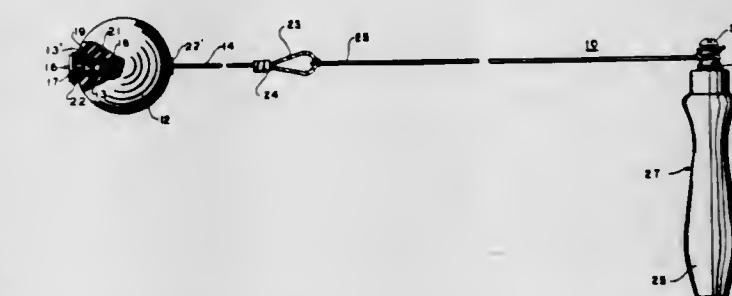
TETHERED BALL BASEBALL PRACTICE DEVICE

Earle J. Raut, Park Hills, Covington, Ky.
Continuation-in-part of application Ser. No. 793,698, Jan. 24, 1969, now abandoned. This application Aug. 14, 1969, Ser. No. 849,965

Int. Cl. A63d 15/10

U.S. Cl. 273-26 E

6 Claims



A baseball practice device which includes a ball of rubber-like material having a transverse bore, a metal cable length having an end portion extending into said bore, and an anchor mounted on the end portion. A flange of the anchor is engaged by the ball. A rigid tube is mounted in the bore. A cord is attached at one end of the cable remote from the anchor, and the cord, cable, and ball are swingable around an operator to give orbital motion to the ball.

3,637,210

CONVEYOR FOR FOOTBALL TACKLING DUMMIES

Ellard H. Brantley, 2301 Racine, Monroe, La.

Filed Feb. 6, 1970, Ser. No. 9,170

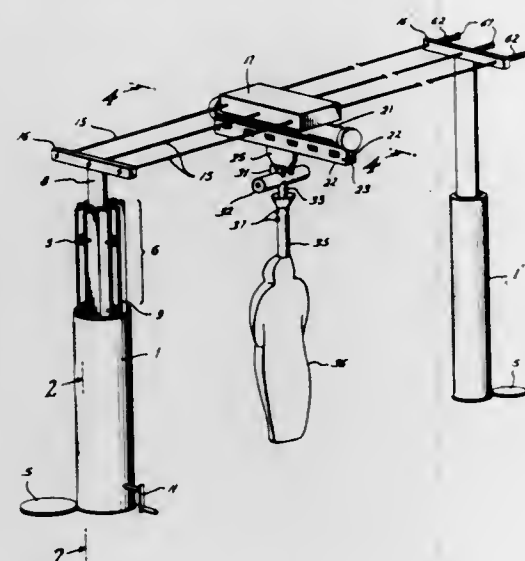
Int. Cl. A63d 1/00

U.S. Cl. 273-55 R

5 Claims

A device for conveying objects from one point to another, such as for conveying football practice dummies, may be yieldably suspended from a track or cable, and may yieldably, movable target, as the carriage carries the dummy longitudinally on the cables, one end of the cables may be selectively altered, as well as yieldably maintained at a preselected plane. A modification of the device providing means for

transporting a carriage over an extended area, providing posts intermediate of the vertical adjustable post and the



fixed post, having cable connectors permitting passage of the carriage on the cables over the post.

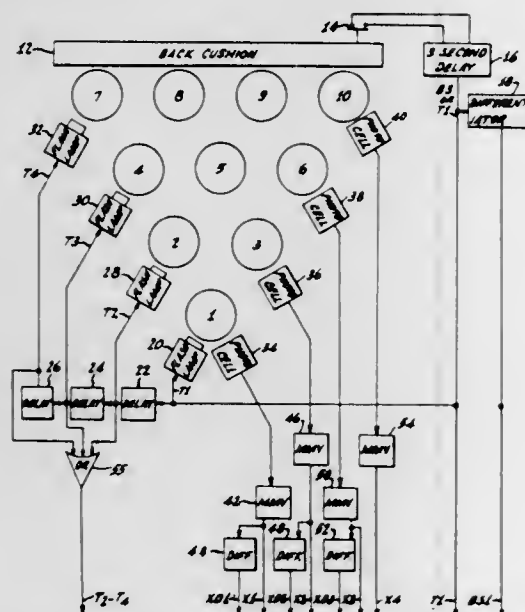
3,637,211

BOWLING SPLIT DETECTOR

Walter A. Helbig, Woodland Hills, Calif., and William E. Woods, Natick, Mass., assignors to RCA Corporation
Filed Oct. 19, 1965, Ser. No. 497,880
Int. Cl. A63d 5/04

U.S. Cl. 273—54 C

7 Claims



3,637,212

BIRD SHOOT GAME AND THE LIKE

Frederick A. Hurley, Miami, Fla., assignor to Funtronics, Inc., Miami, Fla.

Filed Mar. 24, 1969, Ser. No. 809,607

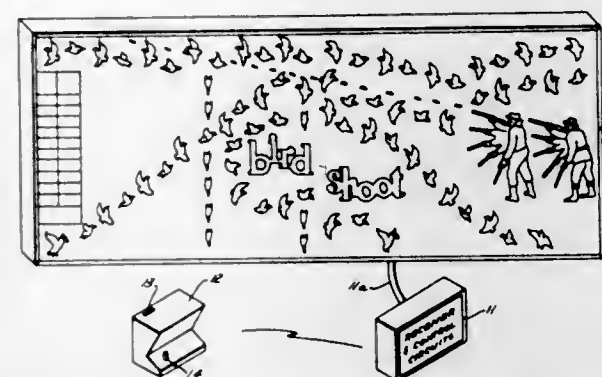
Int. Cl. A63f 9/02

U.S. Cl. 273—85 R

4 Claims

An electric amusement game is provided having a panel with a plurality of rows of lights which when illuminated in sequence simulate the flight path of a bird. A different

stepping switch is connected to the lights in each row to cause sequential illumination to indicate the flight of a bird and to simulate the path of a bullet in response to actuation of the stepping switches by players of the amusement game.



When the bullet intercepts the path of a bird, the panel provides indication of a falling bird and scores the number of birds which are brought down by each player of the amusement game.

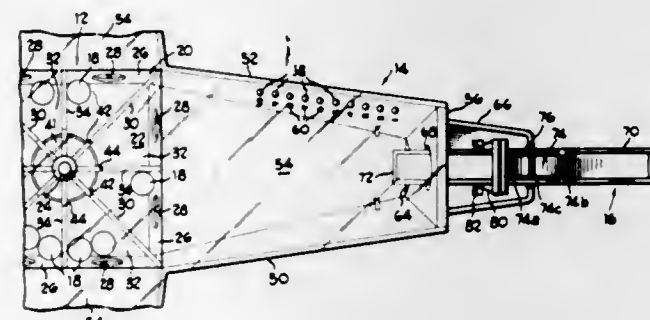
3,637,213

SHOOTING GALLERY HAVING SEPARATE TARGETS HOUSED IN A CENTRAL SECTION

Jeffrey D. Breslow, and Marvin I. Glass, both of Chicago, Ill., assignors to Marvin Glass & Associates
Filed Oct. 16, 1969, Ser. No. 866,932
Int. Cl. F41j 5/06

U.S. Cl. 273—101

4 Claims



A shooting gallery-type toy characterized by the provision of a plurality of firing lanes radiating from the central target area with the target area constructed to automatically return projectiles to the respective firing lanes from which the projectiles emanated upon release of a restraining member following discharge of the projectiles from all of the simulated weapons.

3,637,214

DISK GAME HAVING MOVEABLE GATE MEANS TO BLOCK TARGET OPENINGS

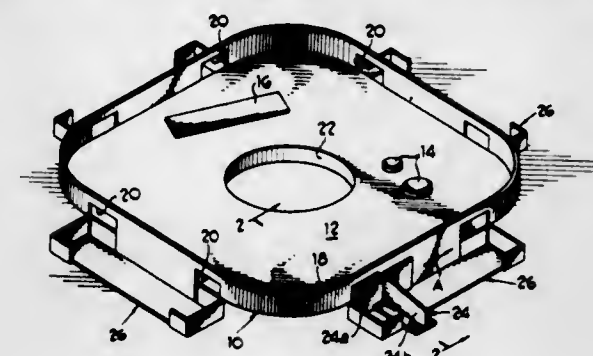
Marvin I. Glass, and Jeffrey D. Breslow, both of Chicago, Ill., assignors to Marvin Glass & Associates
Filed Nov. 17, 1969, Ser. No. 877,374
Int. Cl. A63b 63/00

U.S. Cl. 273—126 R

3 Claims

A skill-type game having a generally flat, horizontal playing surface over which an object is propelled by one player toward a pair of spaced-apart "home" or receiving positions on the base support along one edge of the playing surface. A manually held and movable gate member is operable by a second player for blocking the receiving positions but permitting only one position to be blocked at any one time. The first player propels the object toward the receiving positions in an attempt to cause the object to enter one or the other of

the receiving positions while the second player moves the gate member to block one or the other of the receiving posi-



3,637,217

PUZZLE WITH PIECES IN THE FORM OF SUBDIVIDED RHOMBUSES

Sherman Kent, 2824 Chain Bridge Road N.W., Washington, D.C.

Filed Feb. 13, 1970, Ser. No. 11,143

Int. Cl. A63f 9/06

U.S. Cl. 273—157 R

20 Claims

tions in an attempt to prevent the object from entering either of the receiving positions.

3,637,215

LOCKING DISC PUZZLE

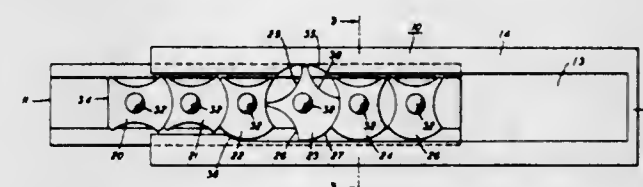
William Keister, 66 Baltusrol Way, Short Hills, N.J.

Filed Dec. 22, 1970, Ser. No. 100,559

Int. Cl. A63f 9/08

U.S. Cl. 273—155

9 Claims



A locking disc puzzle is disclosed in which a slide is to be removed from a frame member, the slide carrying a plurality of discs thereon and the frame being restricted at its one end so that the slide cannot be removed unless all the discs are in the horizontal position. Each disc is so shaped, however, that an adjacent disc can prevent it from moving unless the adjacent discs have the cutout portions facing the disc it is desired to pivot. Further, the frame is so formed that a disc can only pivot, provided its adjacent discs permit, if that disc is positioned at a cutout portion in the frame upper side rail. The slide is removed by following an iterative pattern of disc rotations or moves which allows all the discs to be placed in the horizontal position.

3,637,216

PATTERN-MATCHING PUZZLE

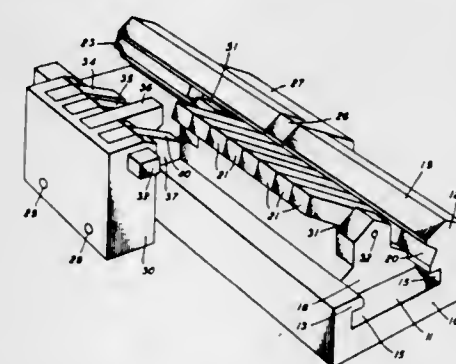
William Keister, 66 Baltusrol Way, Short Hills, N.J.

Filed Dec. 11, 1970, Ser. No. 97,099

Int. Cl. A63f 9/08

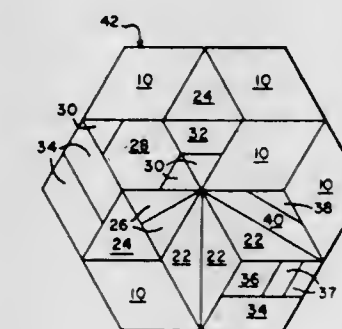
U.S. Cl. 273—156

14 Claims



A pattern matching game is disclosed in which a slide-carrying teeter bars has to be removed from a frame by selectively pivoting individual ones of the teeter bars through a gate element in one rail of the frame. A series of pattern bars

carried by a support or rack adjacent the frame member prevent opening of the gate element unless the position of the teeter bar adjacent each pattern bar matches the pattern bars. The pattern bars may be removed and rearranged in different patterns creating a number of different puzzles, each requiring a different series of moves for its solution.



3,637,218

SPHERICAL GOLF CLUB HEAD

Anthony L. Carlino, 138 Woodland Ave., New Rochelle, N.Y.

Continuation-in-part of application Ser. No. 825,093, Apr. 14, 1969, now abandoned, which is a continuation-in-part of

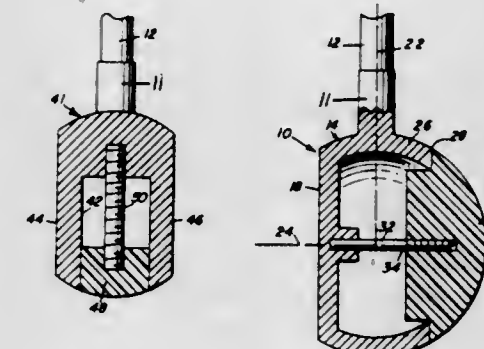
application Ser. No. 761,256, Sept. 20, 1968, now abandoned.

This application Sept. 11, 1969, Ser. No. 864,930

Int. Cl. A63b 53/04

U.S. Cl. 273—168

7 Claims



An instrument to accurately propel a golf ball comprising a shaft and a generally spherical body having at least one flat striking surface wherein the loci of the radii of said spherical body is at its center of gravity.

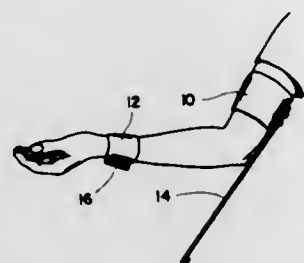
3,637,219

QUICK RELEASE ARM STRAIGHTENER DEVICE

George E. Lemon, 286 Lora Ave, Youngstown, Ohio
Filed Aug. 13, 1970, Ser. No. 63,402
Int. Cl. A63b 69/36

U.S. Cl. 273-189 A

8 Claims

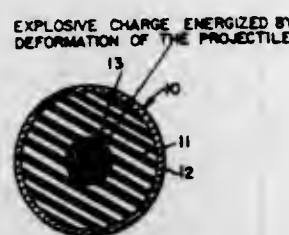


A device for preventing or restraining the bending of an elbow. It is designed to be used by a golfer as an aid in improving his swing. A first elastic band encircles the arm immediately above the elbow and a second elastic band encircles the arm at the wrist. A resilient plate is attached to the first band and extends in the direction of the wrist. In one embodiment the plate has a hooklike end which engages a complimentary hook attached to the wrist band. Rotation of the wrist releases the end of the plate to permit free movement of the elbow. In another embodiment the wrist band is provided with a steel plate which overlaps and retains the end of the resilient plate until the elbow is bent a predetermined amount.

3,637,220
GOLF BALL

Thomas E. Fraley, 1040 Cathcart St., Jacksonville, Fla.
Filed Oct. 30, 1968, Ser. No. 771,912
Int. Cl. A63b 67/02, 67/06
U.S. Cl. 273-214

6 Claims



A game ball such as a baseball, tennis ball or golf ball containing an impact-responsive explosive charge. Upon being struck by a bat, racket or club, the ball is somewhat deformed and the impact energizes the explosive charge which instantaneously generates internal pressure within the ball. The internal pressure causes the deformed ball to instantly resume its initial shape against the impacting club, thus assisting in imparting a propelling force to the ball. The ball remains internally pressurized after the first impact and the benefits of its pressurization are thus available for subsequent uses.

3,637,221

AUDIOVISUAL EDUCATIONAL APPARATUS

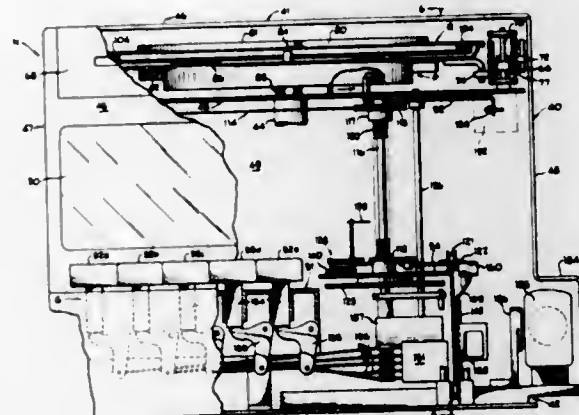
Alfred E. Geils, Prospect Heights; William J. Raymond, Des Plaines; Richard W. Roberts, Lombard, and Peter K. Shreck, Mt. Prospect, all of Ill., assignors to Bay-Warner Corporation, Chicago, Ill.
Original application Feb. 13, 1967, Ser. No. 615,547, now Pat. No. 3,483,633. Divided and this application Oct. 8, 1969, Ser. No. 871,153
Int. Cl. G11b 17/00

U.S. Cl. 274-9 R

3 Claims

An audiovisual educational apparatus employing a disc record having audio messages recorded in spaced relation-

ship and film strips mounted on an image carrier. The movement of a tone arm is synchronized with the position of the image carrier so that the images are positively correlated with the audio messages. A response mechanism for register-



ing choices to the questions and/or instructions presented includes a series of pins which are adapted to be selectively inserted through holes or slots in coded sections on the control card to either hold or allow controlled advancement of the card relative to a display station.

3,637,222
SEALS

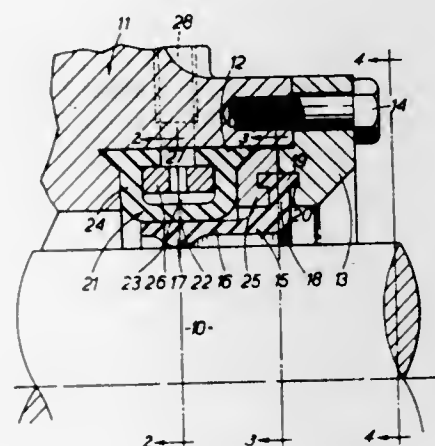
Samuel Clifford Walter Wilkinson, Cookham, England, assignor to Crane Packing Limited, Slough, Buckinghamshire, England

Filed Jan. 27, 1970, Ser. No. 6,141
Claims priority, application Great Britain, Feb. 5, 1969, 6,116/69

Int. Cl. F16j 15/46

U.S. Cl. 277-34

5 Claims



In a seal assembly comprising a lip seal which is mounted in a housing so that the lip portion of the seal for contacting a rotatable member is free to flex, the lip portion is urged into contact with the rotating member by a force applied through an annular inflatable member filled with a fluid under a pressure that may be varied to alter the applied force.

3,637,223

METAL-TO-METAL SEAL

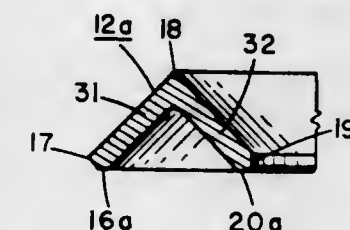
Ronald A. Weber, Ojai, Calif., assignor to Esso Production Research Company

Filed June 12, 1970, Ser. No. 49,212

Int. Cl. F16j 15/08

U.S. Cl. 277-205

10 Claims



A V-shaped deformable metallic seal is retained in a groove formed in a flat face on one metallic joining section and effects a seal against a flat face on an opposing metallic joining section when these sections are brought together by suitable means.

3,637,224

ANNULAR SEALING RING

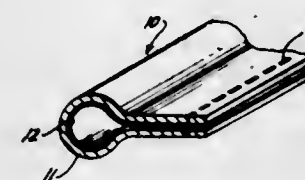
Robert D. Triplett, and Terry J. Laue, both of Effingham, Ill., assignors to Fedders Corporation, Edison, N.J.

Filed Feb. 27, 1969, Ser. No. 802,847

Int. Cl. F26b 25/08

U.S. Cl. 277-229

6 Claims



An annular sealing ring which is adapted to provide an airtight seal between relatively rotatable opposed concentric surfaces. The ring comprises a strip of laminated material which is folded longitudinally upon itself to provide a substantially "teardrop" cross-sectional configuration. The tubular portion of the ring at the forward end of the "teardrop" is adapted to resiliently engage one of the concentric surfaces, while the rear portion of the "teardrop" is adapted to be permanently secured to the other concentric surface. The laminated material from which the ring is constructed comprises a substrate of felt forming the outer bearing surface of the ring, and a coating of an elastomeric material bonded to the inner surface of the felt substrate.

3,637,225

ARRANGEMENT OF TOOL SHANK FOR ENGAGEMENT WITHIN TOOL HOLDER

Peter Schmuck, Mauren, Liechtenstein, assignor to Hilti Aktiengesellschaft, Furstentum, Liechtenstein

Filed Apr. 3, 1969, Ser. No. 813,256

Claims priority, application Germany, Apr. 10, 1968, P 17 52 155.0

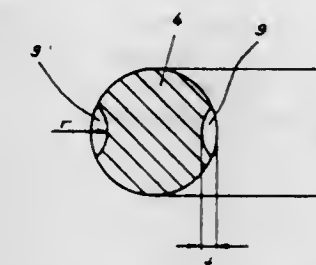
Int. Cl. B23b 31/10

U.S. Cl. 279-81

3 Claims

In a tool to be secured within a toolholder by means of cylindrical locking elements engaged within a groove in the

shank of the tool, the optimum dimensions of the groove are based on the correlation of the size of the groove with the



dimensions of the locking elements and the diameter of the shank.

3,637,226

SKI

Peter Simon, Schramberg, Germany, assignor to Karl Simon, Schramberg, Germany

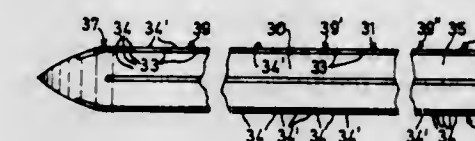
Filed Feb. 10, 1970, Ser. No. 10,203

Claims priority, application Germany, Feb. 10, 1969, P 19 06 576.0

Int. Cl. A63c 5/04

U.S. Cl. 280-11.13 V

9 Claims



A ski structure wherein the longitudinal edge strips are formed, at least in part, of a plurality of short-length elements made of a hard material.

3,637,227

REAR STOP FOR SKI BINDING

Rene Ramillon, 3, rue Emile Zola, Grenoble, Isere, France

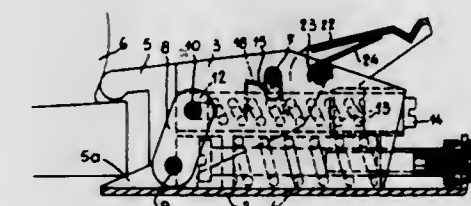
Filed Jan. 27, 1970, Ser. No. 6,218

Claims priority, application France, Feb. 28, 1969, 6905513

Int. Cl. A63c 9/00

U.S. Cl. 280-11.35

4 Claims



A rear stop for a ski binding comprising a stop body, a jaw, a link pivotally connected to the jaw, a pin hingedly interconnecting said body and said link, said pin passing through an elongated slot in the body, a spring urging the pin toward the front of the slot, a second pin carried by the jaw and passing through a slot in the body that has an upper end and a lower end, a retractable member holding the second pin in the upper end, and means to retract the retractable member thereby to open the rear stop.

3,637,228

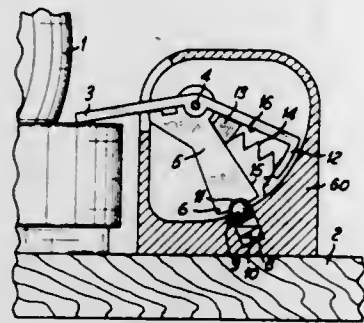
SAFETY BINDING DEVICE FOR A BOOT ON A SKI
 Georges Pierre Joseph Salomon, Avenue de Loverchy, 34 Annecy, France

Filed Nov. 4, 1969, Ser. No. 873,992
 Claims priority, application Switzerland, Dec. 10, 1968, 18463/68

Int. Cl. A63c 9/00

U.S. Cl. 280—11.35 T

9 Claims



A safety binding device for a boot on a ski has a jaw to hold the sole of the boot against the ski elastically. A latch controlled by an elastic element limits the maximum force supportable by the jaw before it is unlatched to release the boot. The device has at least one ramp against which a friction member is elastically supported to absorb a certain energy whose level increases simultaneously with the increase in the displacement of the jaw before the force exerted by the boot reaches the unlatching value of the elastically controlled latch. A roller or ball is arranged to come into action at the unlatching value of the force, thereby eliminating the action of the friction member. The ramps may be straight or curved. The friction member can be a ball, roller or sliding wedge. Manual release and resetting levers may be incorporated.

3,637,229
SKI POLE

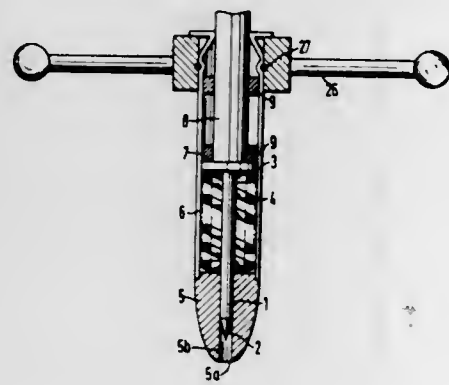
Ernst Klemm, 16-18, Lautenbacher Strasse, 7562 Gernsbach, Germany

Filed July 27, 1970, Ser. No. 58,596
 Claims priority, application Germany, Aug. 5, 1969, P 19 39 802.8

Int. Cl. A63c 11/22

U.S. Cl. 280—11.37 P

7 Claims



A spike assembly for attachment to a ski pole or walking stick adapted to provide secure support on hard or icy ground surfaces is presented. The assembly includes a profiled sleeve member longitudinally movably connected to the lower end of the shaft of a ski pole or the lower end of a walking stick in resilient engagement therewith. At least one guiding ring is positioned in the interior of the sleeve member and surrounds said shaft adjacent its lower end and a nail-shaped spike member is movable relative to the said sleeve member and is adapted to be shifted from a position wherein it is completely covered by the terminal portion of said sleeve

member to a position wherein it protrudes beyond the terminal portion so that said sleeve member normally covers said spike until said shaft is under a downward load, at which time said sleeve retracts, allowing said spike to protrude from said sleeve member to provide support for the ski pole or walking stick.

3,637,230

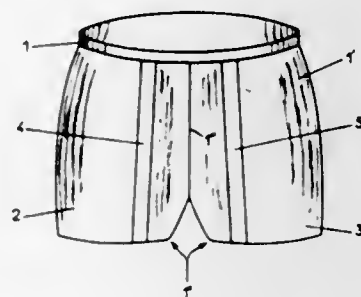
SPORTING GOODS ITEM FOR WINTER SPORTS USE
 Franz Polk, Frauenfelderstrasse 20a, 8370 Sirmach, Thurgau, Switzerland

Filed Aug. 28, 1970, Ser. No. 67,852
 Claims priority, application Switzerland, Sept. 3, 1969, 13446/69

Int. Cl. B62b 13/04

U.S. Cl. 280—12

17 Claims



A pair of pants, either short or long legged, is made of synthetic plastic material and provided on its seat with one or two guide ribs extending lengthwise of the legs so that a wearer may sit with these pants on snow and slide over the snow, influencing his direction of movement by means of the guide ribs.

3,637,231

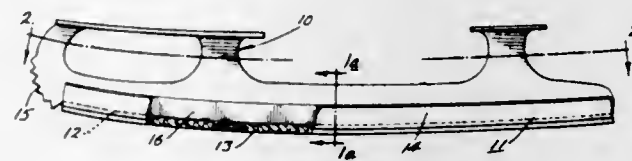
ICE SKATE EDGE GUARD

Russell A. Weldenbacker, 32 South Wyoming Ave., Box 153, Haverford, Pa.

Filed Aug. 4, 1970, Ser. No. 60,863
 Int. Cl. A63c 3/12

U.S. Cl. 280—11.38

3 Claims



A removable guard for protecting the edge of an ice skate runner during periods of nonskating is adapted to be mounted on the skate by means of friction, magnetism or a combination of these forces. The guard has a narrow longitudinal slot for receiving the runner with a bottom wall which extends along substantially the entire length of the runner-edge and closely spaced upstanding sidewalls which may be biased toward one another to frictionally engage the sides of the runner for mounting the guard or which may carry magnetic elements to magnetically engage the sides of the skate-runner. In one embodiment, the bottom and sidewalls carry a U-shaped spring member embedded therein to effect the required biasing action for mounting the guard; in another embodiment the sidewalls incorporate magnetic elements for mounting the guard; and in a further embodiment the guard is a resilient slit tubular element which may be bowed upwardly a slight amount to cause the sidewalls of the guard to frictionally engage the sides of the runner when the bottom wall is deflected into mating engagement with the edge of the runner.

3,637,232

CART HAVING COLLAPSIBLE LEGS

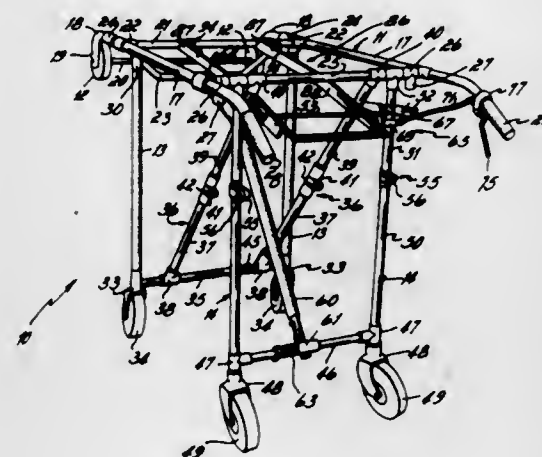
Elroy E. Bourgraf, Greenfield, and Robert E. Dunn, Bloomington, both of Ohio, assignors to Burt Well, Cincinnati, Ohio

Filed Oct. 2, 1969, Ser. No. 863,270

Int. Cl. B62b 3/02

U.S. Cl. 280—41

7 Claims



A cart having a frame, auxiliary wheels on the forward end of said frame, four depending legs adapted to swing rearwardly to a collapsed position, releasable means bracing said legs, and an operator for actuating said releasable means, and a safety lock normally maintaining said operator inoperative.

3,637,233

TRANSPORT MECHANISM FOR A SURGICAL MICROSCOPE

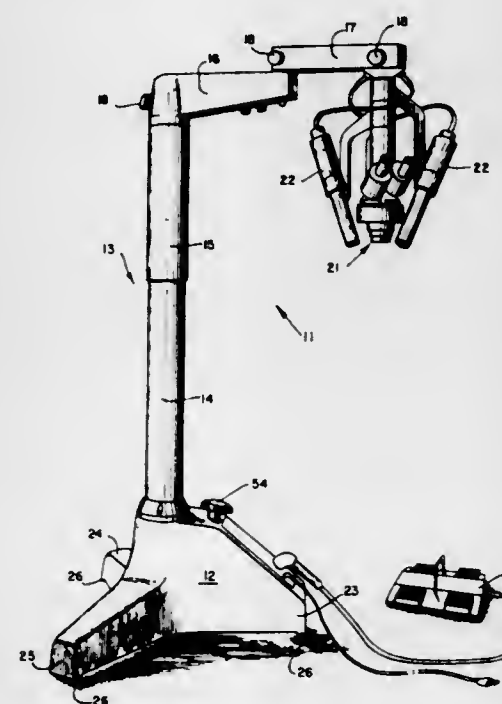
Josef K. Hoppl, and Helmut A. Golda, both of Lindenhurst, N.Y., assignors to J. K. Hoppl Corporation, Lindenhurst, N.Y.

Filed Oct. 13, 1969, Ser. No. 865,755

Int. Cl. B62d 21/18

U.S. Cl. 280—43.14

5 Claims



An improved microscope for ophthalmic surgery of the type comprising a base member, an adjustable support member extending upwardly therefrom and means projecting from the support member to suspend the optical components of a microscope and related auxiliary equipment above the operating area. The improvement resides in a novel arrangement of structural elements providing a base member

adapted to facilitate movement of the microscope from place to place within the general area of the operating room, which base member is advantageously integrated with other structural components of the microscope.

3,637,234

EDGE PROTECTOR

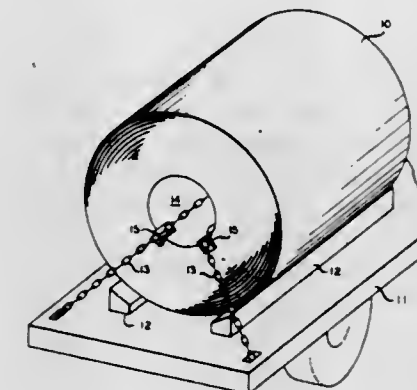
William E. Thomas, and Gale S. Roush, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Sept. 10, 1969, Ser. No. 856,740

Int. Cl. B60p 7/00

U.S. Cl. 280—179 A

3 Claims



The inner edge of a roll of sheet steel or similar element, which is secured by a tiedown chain, is protected by an edge protector positioned between the element and the chain. The edge protector comprises two plates joined at a right angle and having a contour at the junction conforming to the edge of the element being protected. The plates have ribs to hold the chain on the edge protector.

3,637,235

LOAD CARRIER OF CLAMPING TYPE FOR TREES AND LOGS

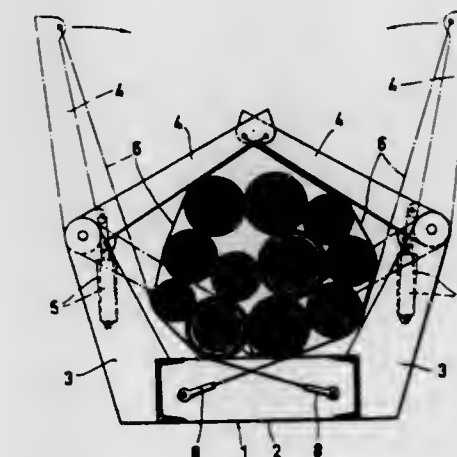
Bengt Haldö Karlén, Alfta, and Bengt Lars Larsson, Söderhamn, both of Sweden, assignors to Ostbergs Fabrika AB, Alfta, Sweden

Filed Oct. 13, 1969, Ser. No. 865,718

Int. Cl. B60p 7/00

U.S. Cl. 280—179 A

1 Claim



A clamping load carrier having two arms at respective ends of a supporting beam, said arms being swingable to embrace or relieve a bunch of tree trunks. The improvement consists in that a rope is fixed at the free end of each arm, and in that the supporting beam contains means for pulling the lower extensions of the ropes against the middle portion of the beam to safely clamp the trunks placed on the load carrier when the arms are folded.

3,637,236

COUPLING DEVICE OF TRAILERS

Shusuke Shimoji, 6-4, 5-chome, Mama, Ichikawa, Chiba, and Yasuyuki Takeshita, 22-6 Araki-cho, Shinjuku-ku, Tokyo, both of Japan

Filed June 3, 1970, Ser. No. 43,148

Claims priority, application Japan, Mar. 9, 1970, 45/19622

Int. Cl. B62d 53/00

U.S. Cl. 280-419

6 Claims



A carriage having a pair of wheels, each pair being rollingly mounted to associated axles which, in turn, are mounted by pivot assemblies to the carriage. Towing and steering levers are coupled to each of the pivot assemblies for respectively towing the carriage and steering its associated axle. The axles are mechanically coupled to transmit rotational movement therebetween. The towing and steering levers of either end of the carriage may be selectively joined at their free ends when being used to pull the carriage thereby increasing the flexibility of use of the carriage by permitting either end of the carriage to be employed as the end to be pulled. Connection between levers of a carriage and trailer or a carriage and another trailer is provided for by a suitable coupling assembly. The towing levers may be adjusted to appropriate lengths to suit particular needs.

3,637,237

TIRE BUMPER FOR TRAILER TONGUE

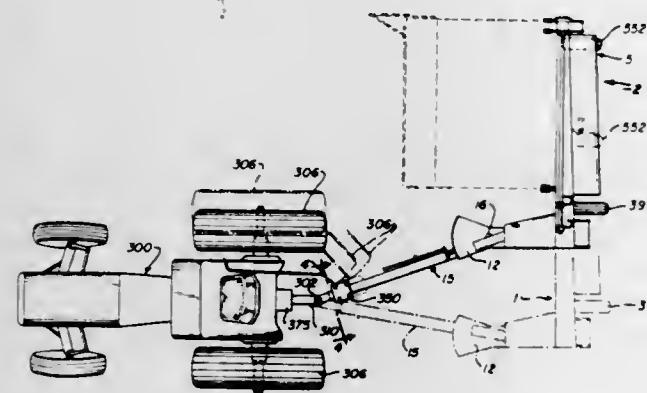
Thomas J. Scarnato, Barrington; James R. Adams, Downers Grove; Arthur H. Keller, Western Springs, and Peter J. Peacock, Western Springs, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Feb. 5, 1970, Ser. No. 9,024

Int. Cl. B60d 1/00

U.S. Cl. 280-462

8 Claims



A tire bumper for mounting on a tongue member of a pull-type harvester or implement to prevent the rear wheel tires from engaging the power shaft structure carried on the tongue. The bumper is one piece in one embodiment with a rectangular center section fitting on a complementary tongue and removably clamped thereto for longitudinal adjustment thereon in alignment with the arc of travel of the wheel. In another embodiment reversely arranged identical pieces are bolted about the tongue. Each piece or end of the one piece construction is of apical form to provide diagonal surface areas to the tire so that it will slide against the bumper without tearing up the parts.

3,637,238
DRILL PIPE COUPLINGS

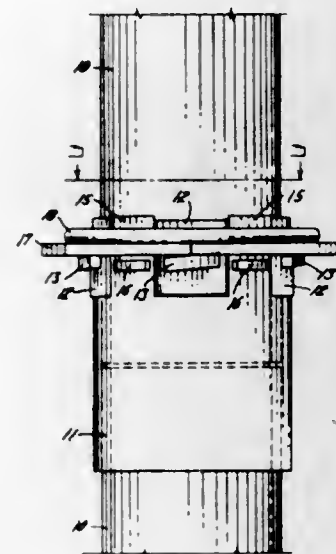
Gottlieb W. Grosch, Silver Creek, Nebr.

Filed Jan. 15, 1970, Ser. No. 3,056

Int. Cl. F16l 21/00

U.S. Cl. 285-39

6 Claims



A coupling for safely and detachably connecting lengths of drill pipe into a rotary well drilling string including a cylindrical sleeve mounted on and surrounding the upper extremity of each length to telescopically receive the lower extremity of the next above length. Diametrically spaced pads externally mounted on and adjacent the lower extremity of each length and spaced-apart tenons formed on each sleeve so as to pass between the pads of the next above length to prevent relative rotation between the lengths. A rotatable clamping ring surrounding said tenons and provided with internal segments adapted to be brought into engagement with inclined cam bosses on said tenons to lock the latter in place between said pads.

3,637,239

THRUST-RESISTANT PIPE JOINT

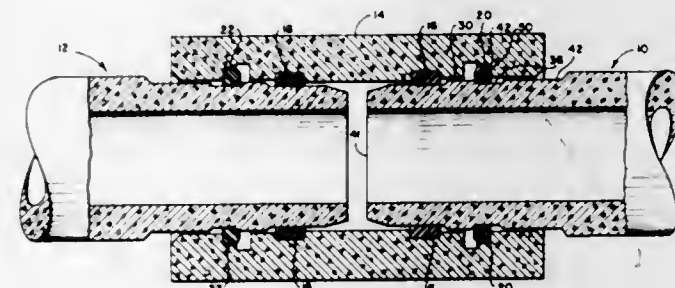
Leonard Irving Daniel, Flagtown, N.J., assignor to Johns Manville Corporation, New York, N.Y.

Filed Oct. 30, 1969, Ser. No. 872,581

Int. Cl. F16l 35/00

U.S. Cl. 285-93

12 Claims



A thrust-resistant joint for pipe which is assembled by inserting an inner pipe section into a sleeve includes a gasket seated in a groove for providing a fluidtight seal. A shoulder on the inner pipe section cooperates with the gasket and groove to indicate the proper relative assembled position of the pipe section and the sleeve. Thrust loads across the pipe joint are transferred between the pipe section and the sleeve by a split locking ring located within a dual diameter annular channel in the sleeve. Assembly of the joint can be accomplished without resorting to a wedging action to seat the locking ring, because the split locking ring can be positioned in a large diameter portion of the annular channel during the

assembly procedure and in a smaller diameter portion of the channel that is at least equal in size to the effective diameter of the locking ring after the pipe joint is assembled.

3,637,240

DETACHABLE CONNECTION FOR A FLUID MEDIUM-PRESSURE HOSE WITH A CONNECTING FITTING

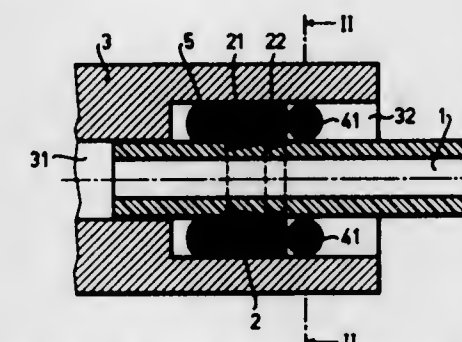
Erwin Meler, Zug, Switzerland, assignor to Contraves AG, Zurich, Switzerland

Filed Mar. 3, 1970, Ser. No. 16,132

Int. Cl. F16l 33/00

U.S. Cl. 285-238

5 Claims



There is disclosed a detachable connection for a fluid medium-pressure hose formed of thermoplastic material with a connecting fitting, wherein a metallic ring member is anchored at a predetermined distance from the end of the pressure hose in the wall thereof, and a sealing O-ring formed of elastomeric material is inserted in a bore of the connecting fitting. The connecting fitting is provided additionally with a pair of tangentially extending substantially parallel bores at the wall means thereof, and a retaining clamp means having leg portions passing through said parallel tangentially extending bores of the connecting fitting serves to hold the metallic ring member in place through the action of the leg portions and engages behind this metallic ring member. The invention is also concerned with an improved method for the fabrication of the detachable connection discussed above.

3,637,241

FABRICATION TECHNIQUE FOR ELECTRICAL DEVICES

Robert I. Dinlocker, Lansdale, Pa., assignor to Electro-Mechanical Instrument Company, Inc.

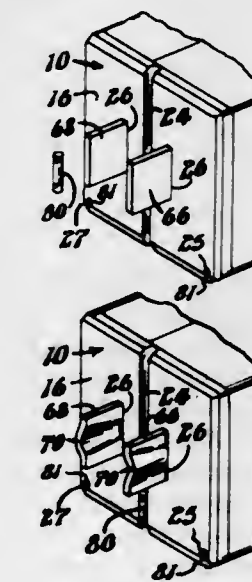
Division of Ser. No. 563,001, June 15, 1966, Pat. No. 3,510,773, which is a continuation-in-part of Ser. No. 322,476, Nov. 8, 1963.

Filed Feb. 6, 1970, Ser. No. 9,215

Int. Cl. F16b 9/00

U.S. Cl. 287-20.3

6 Claims



In the fabrication of sheet metal devices, particularly electrical components, a bracket has a main body portion from

3,637,242

TABLE LEG ASSEMBLY

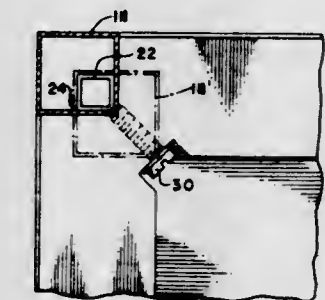
Rafael D. Salazar, 3113 75th Ave., Landover, Md.

Filed June 30, 1970, Ser. No. 51,296

Int. Cl. F16b 12/50

U.S. Cl. 287-23

4 Claims



A table leg assembly for tubular legs in which a dowel member of noncircular cross section is secured against the inside wall surfaces of the leg and projects from the end of the leg to be received in a complementary aperture or recess formed in the undersurface of a tabletop, for example. The dowel member is smaller in cross-sectional dimension than the inside of the tubular leg so that when so secured, it is eccentric to the axis of the leg, thereby enabling variation in leg position relative to the top.

3,637,243

FREEWHEEL LOCK MECHANISM

Shin Kitano, and Yutaka Momose, both of Kariya, Japan, assignors to Aisin Seiki Company Limited, Kariya-shi, Aichi-ken, Japan

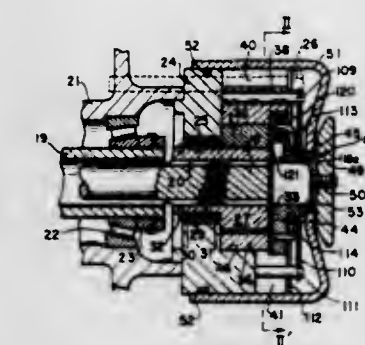
Filed Apr. 20, 1970, Ser. No. 29,971

Claims priority, application Japan, Apr. 19, 1969, 44/30560

Int. Cl. F16d 1/06

U.S. Cl. 287-53

3 Claims



In the freewheel lock mechanism a split locking ring is provided intermediate a hub on the drive shaft and a flange on the wheel hub. A pawl is slidably mounted in a radial direction in a slot in the flange and is arranged to be moved into a first position intermediate the ends of the split locking ring to couple the locking ring to the flange and a second position wherein the pawl is completely withdrawn from the locking ring to thereby disconnect the drive between the locking ring and the flange. A spring member is connected to the pawl and a manually operated handle is provided for controlling the spring member which in turn will control the position of the pawl relative to the locking ring.

3,637,244

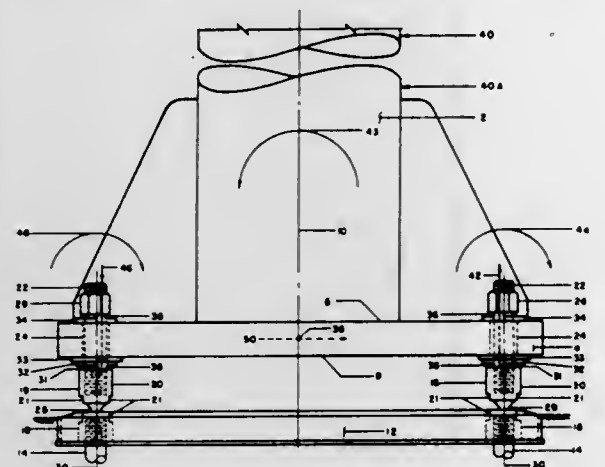
LOAD CONCENTRATED BREAKAWAY COUPLING

Richard A. Strizki, R.D. #1, Ringoes, N.J.
Continuation-in-part of application Ser. No. 799,626, Feb. 17, 1969, now abandoned. This application Mar. 27, 1970, Ser. No. 23,207

Int. Cl. F16d 9/00

U.S. Cl. 287-129

11 Claims



Damage to vehicles and posts in traffic accidents is reduced by providing the posts with circumferentially spaced breakaway couplings spaced radially from the axis of the post and located between the base of the post and a stationary support. Fastening means connected to the couplings secure the base of the post to the support and in preferred embodiments of the invention load concentrating elements eccentric to the axis of the fastening means oppose bending of the couplings under normal loads while presenting little or no resistance to bending of the coupling under impact or other forces applied near the base of the post. The couplings have high tensile strength but relatively little resistance to bending and therefore break readily upon impact of a vehicle with the post.

3,637,245

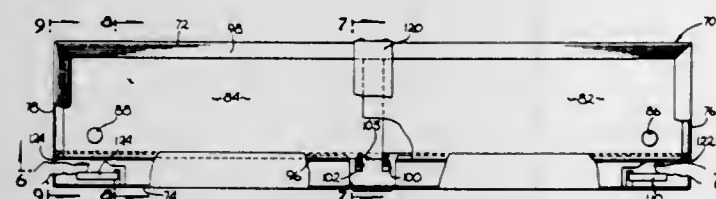
SAFETY MEDICINE CABINET

Walter R. Levack, 7900 Chase Ave., Los Angeles, Calif.
Filed Feb. 4, 1970, Ser. No. 8,490

Int. Cl. E05c 3/28, 7/00, 9/10

U.S. Cl. 292-45

8 Claims



A cabinet which is extremely difficult for a child to open comprising a substantially rectangular box having a downwardly opening hinged front, or a sliding door front, the longest dimension of said box being substantially transverse and designed to be greater than the normal arm length of a five year old child, the front being latched in place by first and second gravity latches, the first latch being moved to the nonlatching position through the use of a first pivotal bar with operation of the first pivotal bar being through an opening in the left side of the cabinet, the second latch being moved to the nonlatching position through the use of a second pivotal bar being with operation of the second pivotal bar being through an opening in the right side of the cabinet, each of the first and second latches being interiorly spaced from their respective sides a distance to prevent actuation by a child, both the first and second latches must be in the non-latched position to permit opening of the cabinet.

3,637,246

LATCHING MECHANISM

Earl P. Leiter, Youngstown, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio

Filed Apr. 8, 1970, Ser. No. 26,699

Int. Cl. E05c 19/06

U.S. Cl. 292-87

12 Claims



A locker latching assembly includes a rigid frame hook having a catch member mounted upon one component of an enclosure and cooperating with a latch element having a resilient finger mounted upon another component of the enclosure. Integral means are provided on the latch element to permit ready attachment thereof to a lock bar without the use of separate fastening elements.

3,637,247

LOCKING BAR FOR HORIZONTALLY SLIDING BUILDING CLOSURE ASSEMBLIES

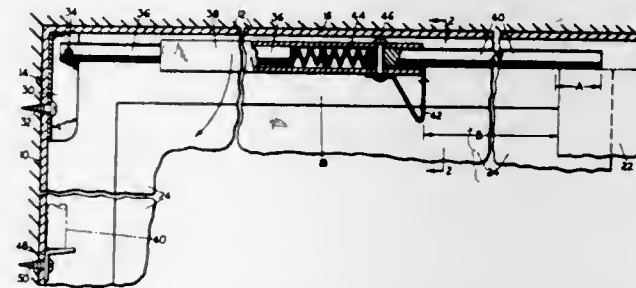
Peter M. Manion, 5130 N.E. Almsworth Court, Portland, Oreg.

Filed July 10, 1970, Ser. No. 53,831

Int. Cl. E05c 17/04, 19/16

U.S. Cl. 292-262

3 Claims



A locking bar is provided for locking the sliding member of horizontally sliding windows and doors comprising sliding and fixed closure members arranged in lapped relation in parallel planes. The locking bar comprises a base and securing means for securing it adjacent the inner, upper end of the fixed closure member. A bar is pivotally connected to the base. Connecting means connect the inner end of the locking bar to the base while support means support the outer end of the bar parallel and adjacent the sliding closure member. A stop is mounted on the bar in a location predetermined to intercept the sliding closure member in a predetermined location, thereby determining the extent of opening of the sliding closure member.

3,637,248

HOLDER FOR CHOPSTICKS

Miyochi Arita, 1427 Dillingham Blvd., Honolulu, Hawaii

Filed Dec. 9, 1969, Ser. No. 883,504

Int. Cl. A47g 21/00

U.S. Cl. 294-16

1 Claim



A pair of spaced upstanding downwardly tapering sleeve portions interconnected by an integral inverted U-shaped bow spring portion including a pair of depending legs whose lower ends are joined to adjacent side portions of the upper ends of the sleeve portions. The sleeve portions are adapted to have all but the upper end portions of a pair of chopsticks downwardly inserted therethrough with the upper end portions of the chopsticks wedgingly received in the sleeve portions. Further, the bow spring serves to yieldingly bias the lower ends of the sleeve portions upwardly and away from each other, whereby the chopsticks supported from the holder may be readily supported by inexperienced persons merely by finger contact with the remote surfaces of the chopsticks below their points of support from the tapered sleeve portions of the holder.

3,637,249

AUTOMATIC LOADER HEADS

Henry Y. Kuhl, and Paul R. Kuhl, both of P.O. Box 26, Flemington, N.J.

Filed June 29, 1970, Ser. No. 50,639

Int. Cl. B66c 1/02

U.S. Cl. 294-64

5 Claims



A vacuum egg-lifting device is provided with a vacuum head carrying a plurality of holding members within which tubular stems are slidably movable within predetermined limits against the action of a spring while being accurately guided by the holding members. The stems have flexible egg-engaging cups at the lower ends thereof to which a vacuum

and air pressure may be applied from the vacuum head for lifting and discharging eggs from the device.

3,637,250

GRAPPLE

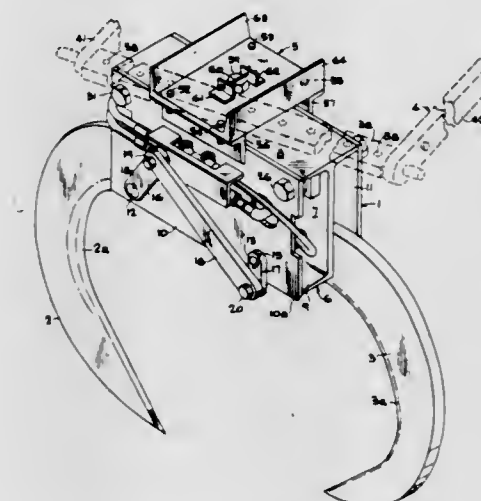
Joseph E. Blonsky, Atlanta, Ga., assignor to American Pulpwood Association, New York, N.Y.

Filed Dec. 7, 1970, Ser. No. 95,514

Int. Cl. B66c 3/16

U.S. Cl. 294-88

9 Claims



A grapple adapted for mounting on vehicles such as farm tractors includes an open-ended housing structure having top, bottom and spaced sidewalls together with a main medial supporting plate interconnected integrally with the top and bottom walls. The web plate and the top and bottom walls are formed of a section of a conventional I-beam. A pair of tines are pivotally mounted one on each side of the web plate on stub shafts near the open ends of the housing structure and motive means within the housing imparts operating movement to the tines. The tines are interconnected with each other by means of a system of coupling cranks affixed to the stub shafts and an interconnecting coupling link and the entire structure is supported by the tractor on a transverse swivel bar supported by the tractor which is received within a swivel cavity formed atop the housing structure and rigidly secured thereto. The swivel cavity is arranged so as to accommodate angular movement or yaw of the grapple relative to the vehicle and its associated swivel bar.

3,637,251

OVERCAB BED FOR MOBILE CAMPERS

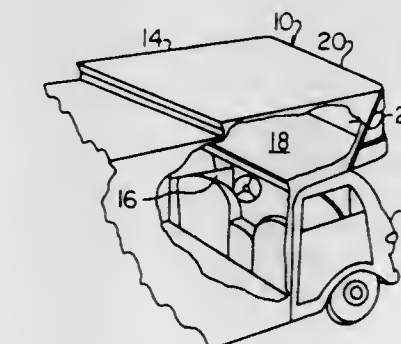
John D. Plant, Jr., Branford, Conn.

Filed Aug. 17, 1970, Ser. No. 64,489

Int. Cl. B60p 3/34

U.S. Cl. 296-23 R

4 Claims



An overcab bed in a camper vehicle of the type comprising a camper body combined with a panel truck, wherein the bed includes a platform having a slidable portion to provide access to the cab portion during nonsleeping hours.

3,637,252

VEHICLE BODY CONSTRUCTION

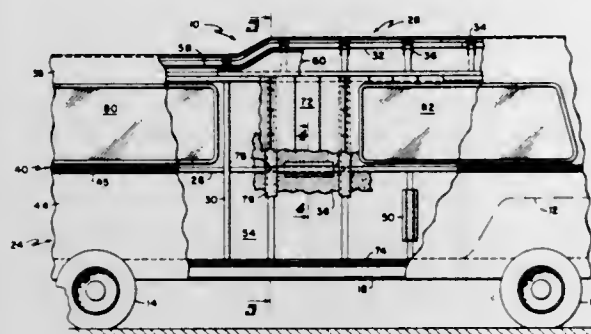
William E. Metsker, Tulsa, Okla., assignor to Avco Corporation, Tulsa, Okla.

Filed Mar. 27, 1970, Ser. No. 23,369

Int. Cl. B62d 29/04

U.S. Cl. 296—31 P

9 Claims



The disclosure illustrates a vehicle body comprising a tubular cage-type frame over which a reinforced glass fiber outer shell is secured by means of a polyester adhesive. Rigid urethane foam material fills the recesses formed on the inside of the reinforced glass fiber shell by the tubular frames to structurally interconnect and reinforce the frame and the outer shell. A pair of unitary ceiling panels and a series of vertical sidewall panels are secured to the frame members. The vehicle body is used for a self-propelled vehicle by securing the tubular frame to the vehicle chassis.

3,637,253

LATERALLY SLIDABLE SEAT

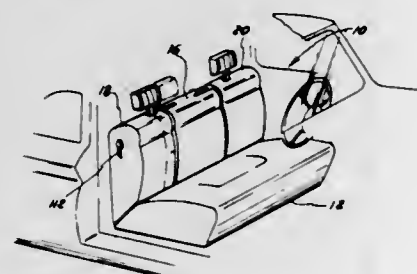
Warren E. Maule, 345 Ford Ave., Highland Park, Mich., and Charles S. Seidel, Royal Oak, Mich., assignors to said Maule, by said Seidel

Filed Oct. 3, 1969, Ser. No. 863,512

Int. Cl. B60n 1/04

U.S. Cl. 296—65 R

18 Claims



A passenger seat having a fixed bottom section and a fixed central backrest section with telescoping end sections. Each of the two ends of the back section are slidably mounted on a pair of rails that are secured to the central back section for lateral motion into an opening formed on the end of the central backrest section, allowing a passenger entrance into the back seat of the automobile. An armrest telescoping from the bottom section may also be provided.

3,637,254

WINDSHIELD CONSTRUCTION

Yves Anselme Lapointe; Guy Simard; Henri Emond, and Pierre A. Delisle, all of Quebec, Canada, assignors to Bombardier, Limited, Valcourt, Quebec, Canada

Filed Apr. 8, 1969, Ser. No. 814,284

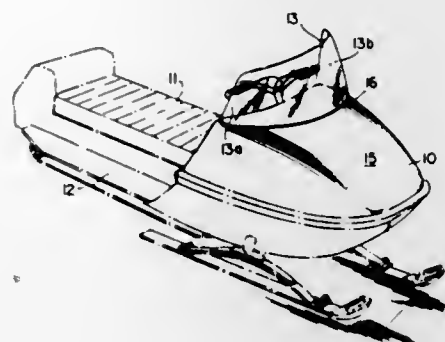
Int. Cl. B60j 1/02

U.S. Cl. 296—84

15 Claims

A windshield made of a screen member normally of plastic material, mounting means formed of a rubber moulding strip disposed between the lower edge of the screen member and

the body of the vehicle, and a series of fasteners mechanically interconnecting the screen member to the receiving sur-



face of the body at spaced-apart locations along the lower edge of the screen member.

3,637,255

MECHANISM FOR ROCKER/RECLINING CHAIR AND FOR RECLINING CHAIR

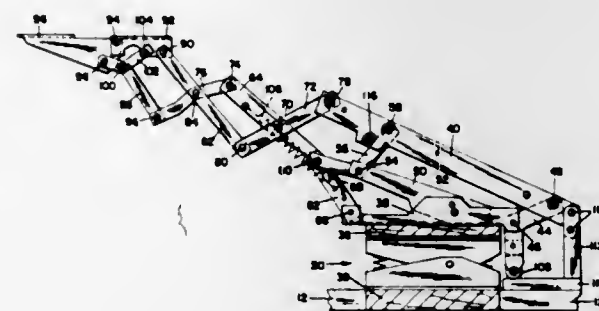
Frank M. Re, Holyoke, Mass., assignor to Dual Manufacturing and Engineering, Incorporated, Holyoke, Mass.

Filed Jan. 2, 1968, Ser. No. 694,985

Int. Cl. A47c 3/03

U.S. Cl. 297—85

4 Claims



A multipurpose rocker recliner including a base and a chassis and a rocker-spring mechanism and a body-supporting unit and hardware means incorporating first stop means for restraining the body-supporting unit against rocking in positions between intermediate reclined and fully reclined positions and second stop means for restraining the body-supporting unit against tipping in the fully reclined position and third stop means for maintaining the foot stool in retracted position when in the fully upright position and for precluding assumption of a reclined position of the body-supporting unit without a concomitant projection of the foot stool into extended position.

3,637,256

CHAIR CONSTRUCTION

M. Fillmore Harty, Bloomfield Hills, Mich., assignor to The Shaw-Walker Company, Muskegon, Mich.

Filed June 16, 1969, Ser. No. 833,471

Int. Cl. A47c 15/00, 3/04

U.S. Cl. 297—248

10 Claims

A molded one-piece chair having a back, a seat and sides with the back extending upwardly and rearwardly from the seat and the sides depending from the back and the seat and being inclined outwardly from the seat. An outwardly and rearwardly extending concave convolution is formed in each side of the chair for strength and to assist in stacking one

chair on top of another. A trough is located between the seat and the back of the chair and blends into the convolutions of a shaft whose other end comprises a locking device



for strengthening the chair. Connecting means are provided for joining similar chairs side by side in a row.

3,637,257

LOCKING BAND ASSEMBLY

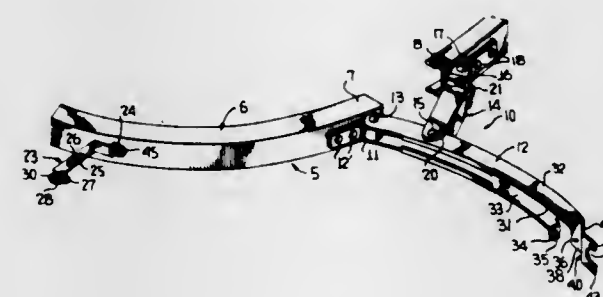
Charles A. Uncapher, Worth, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed May 22, 1970, Ser. No. 39,768

Int. Cl. B65d 45/34

U.S. Cl. 292—256.69

4 Claims



This disclosure relates to a locking band assembly for securing covers on drums and other similar applications. Such a locking band assembly includes a handle which, together with a link, functions as a lever to draw end portions of the locking band together. After the handle is in the band tightening position thereof, it is latched in place. This disclosure particularly relates to the provision of an extension on the handle engageable with a lock member of the latch mechanism to hold the handle in place during the actuation of the latch mechanism.

3,637,258

SAFETY BELTS INCORPORATED IN A VEHICLE'S SEAT
Patrice Marie Bayon, Le Prieure, Avrille, (Maine-et-Loire), France

Filed Sept. 26, 1969, Ser. No. 861,335

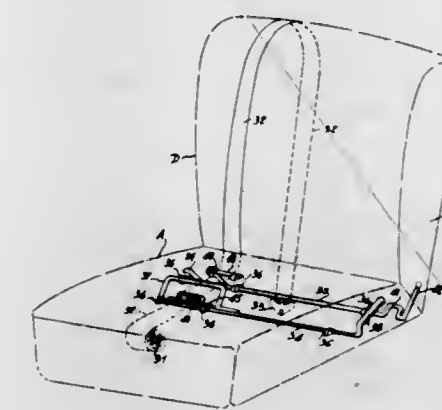
Claims priority, application France, Sept. 27, 1968, 167944

Int. Cl. B60r 21/10; A47d 15/00

U.S. Cl. 297—389

8 Claims

The belt consists of a strap on which one end passes round the back, the between said back and the seat, to be wound



cooperating with a pivoting member forming the third fixing point of the belt.

3,637,259

AUTOMATIC SAFETY SEAT BELT

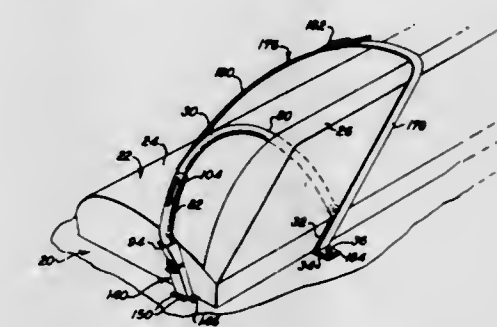
Barbara G. Rothschild, 2134 Springdale Drive, Columbus, Ga.

Filed July 29, 1970, Ser. No. 59,298

Int. Cl. A62b 35/60

U.S. Cl. 297—385

16 Claims



An automatic safety seat belt for use in a vehicle and including an arcuate tubular body support member which is biased to an operative position obstructing seat occupancy and thus necessitating its use, and a latch assembly which is selectively operated in response to actuation of the vehicle power switch to positively retain the arcuate support member in such operative position about the body of a vehicle passenger.

3,637,260

INTEGRAL SEAT AND LEG SUPPORT

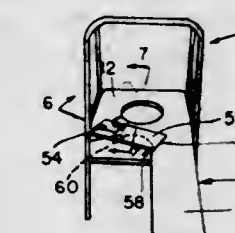
Leigh E. Eisenhauer, 3 Warren Road, Van Wert, Ohio

Continuation-in-part of application Ser. No. 776,917, Nov. 19, 1968. This application Aug. 10, 1970, Ser. No. 62,337

Int. Cl. A47c 1/037, 4/52

U.S. Cl. 297—433

4 Claims



A combination seat and leg support which is preferably in the form of an elongated substantially flat board having a seat portion and a leg supporting portion extending outward

from one side of the front edge of the seat portion to support one leg of a person sitting on the seat portion without interfering with the person's other leg. The combination seat and leg support may for example be used by a person having an injured knee or following knee injury. A flexing bar is mounted on the seat portion so that the knee ligaments and muscles may be exercised and the knee joint gradually returned to a normal range of activity.

3,637,261

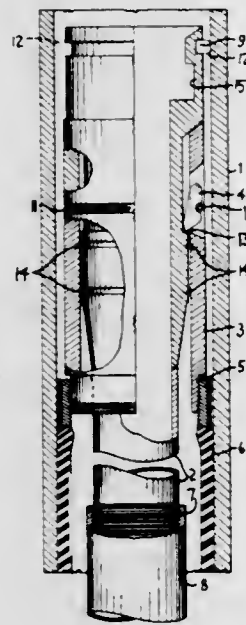
TOP LATCH SELECT LINER WITH TAILPIPE AND METHOD OF INSTALLING

Selby W. Porter, Calgary, Alberta, Canada, assignor to Kalium Chemicals Limited, Saskatchewan, Canada
Filed Dec. 8, 1969, Ser. No. 883,001

Int. Cl. E21b 43/28

U.S. Cl. 299-5

3 Claims



A top latch select liner is shown which provides for the attachment at the top of a select liner of large pipe assemblies for use in solution mining operations. A method of lowering tailpipes of heavy construction safely into a solution mining cavity is also shown which involves the use of casing fluid and hydraulic pressures so that the pipes can be lowered on wire lines.

3,637,262

PNEUMATIC DISCHARGE ARRANGEMENT

Franklin P. Adler, Michigan City, Ind., assignor to Pullman Transport Leasing Company, Chicago, Ill.

Filed Dec. 31, 1969, Ser. No. 889,497

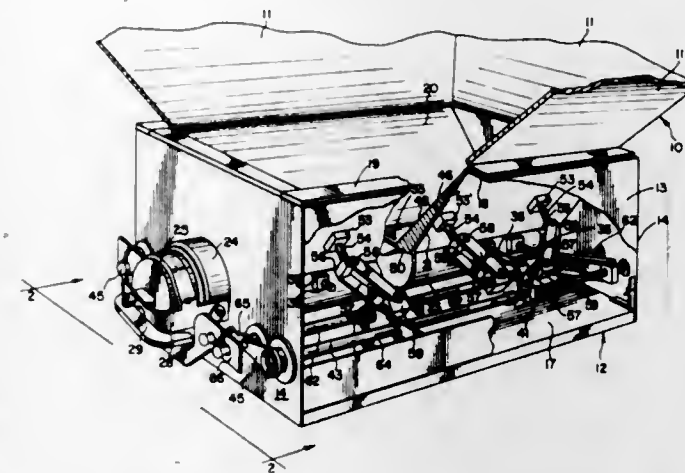
Int. Cl. B65g 53/40

U.S. Cl. 302-52

17 Claims

A discharge arrangement comprises a hopper having sloping sidewalls provided with a discharge opening communicating with a tube adapted to be connected to a pneumatic conveying system. The discharge opening is provided with a valve member which cooperates with a movable valve element to regulate the discharge of material. The valve is movable horizontally and includes opposed cutting edges which cooperate with the valve element in cutting through

the material during closing of the valve. The valve element is movable upwardly free of the valve so that all the edges of



the valve and valve element are free and clear and can be cleaned during a cleanout operation.

3,637,263

TRANSPORTATION OF COAL BY PIPELINE

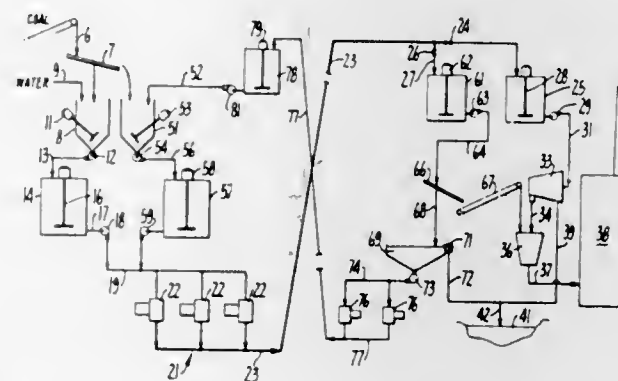
Edward J. Wasp, San Rafael, Calif., assignor to Bechtel International Corporation

Filed Mar. 3, 1970, Ser. No. 16,160

Int. Cl. B65g 53/04

U.S. Cl. 302-66

4 Claims



This invention relates to the art of transporting coal with water through pipelines. More particularly, it relates to a method of preparing at one point an aqueous slurry made up of a mixture of particulate coal and an inorganic finely divided water insoluble solid carrier having a specific gravity of at least 1.6. The slurry is then pumped through a pipeline to a location many miles away where, after being separated from the carrier, the coal is utilized and the coal-free carrier is returned to the point of beginning. By using a material heavier than coal, the settling rate of the coarse coal can be reduced nearly to zero while maintaining turbulent flow conditions.

3,637,264

ANTILOCKING CONTROL FOR PRESSURE ACTUATED BRAKES

Heinz Leiber, Leimen, and Anton Rodi, Karlsruhe, both of Germany, assignors to Teldix G.m.b.H., Heidelberg-Wieblingen, Germany

Filed Mar. 18, 1970, Ser. No. 20,511

Claims priority, application Germany, Mar. 22, 1969, P 19 14 765.0

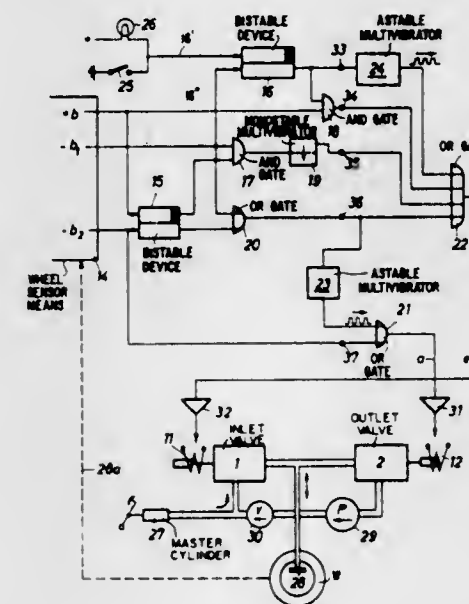
Int. Cl. B60t 8/12

U.S. Cl. 303-21 BE

14 Claims

The pressure of the brake-actuating fluid in an antilocking brake control system is varied by pulsing the control valve or

valves for durations which are varied to be greater or lesser than the period of that limiting frequency above which the brake system can not respond. In the former case, a rapid increase in fluid pressure or a rapid decrease in fluid pressure occurs, whereas in the latter case, a less rapid average or net increase or decrease in fluid pressure to which the brake system responds occurs. These conditions are controlled in dependence on the rotational behavior of the vehicles wheel or wheels and more especially in dependence on predeter-



mined changes in angular velocity of the wheel. Moreover, either variation in pulse duration at fixed frequency or variation in frequency at fixed pulse duration may be effected during high-frequency pulsing so as further to alter the net increase or decrease in fluid pressure. This further alteration is effected as a function of time from the beginning of the high-frequency pulsing.

3,637,265

TRACK SLIDE ASSEMBLY FOR SNOWMOBILES

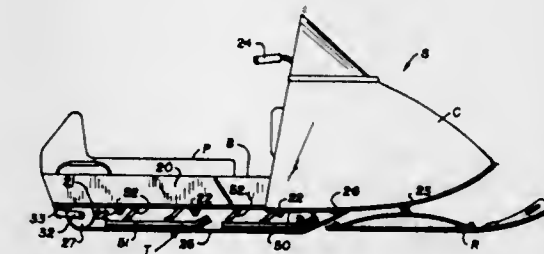
Louis A. Valentine, 11444 East 4th Way, Aurora, Colo., and Henry L. Valentine, 1100 Toedtl Drive, Boulder, Colo., assignors to Louis A. Valentine, Aurora and Henry L. Valentine, Boulder, Colo.

Filed Feb. 2, 1970, Ser. No. 7,540

Int. Cl. B62m 27/02

U.S. Cl. 305-24

11 Claims



A track slide suspension for a snowmobile mounted between the forward drive wheels and the rearward idler wheels of the snowmobile drive track. This suspension includes longitudinally extended frame bars separated by transverse pivot bars. The frame bars are secured to any selected type of snowmobile by a proper arrangement of lugs fitted to mounting points on the snowmobile. The slide suspension includes forward and rearward pairs of skids carried on biased rocker arms so each pair of skids being independent of the other, will yield as the snowmobile travels over a rough snow surface.

3,637,266

ENDLESS TREAD FOR OFF-HIGHWAY VEHICLES, HAVING NONRIGID ELEMENTS

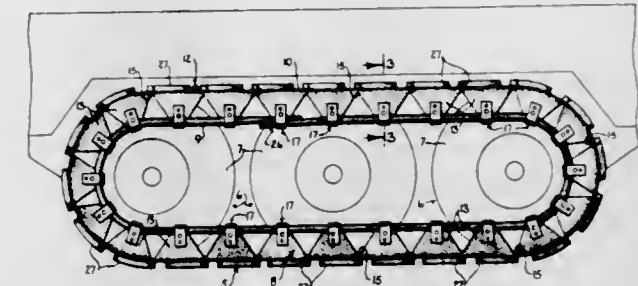
Curtis T. Busse, Busse Bros. Inc., Randolph, Wis.

Filed Feb. 2, 1970, Ser. No. 7,646

Int. Cl. B62d 55/24

U.S. Cl. 305-35 EB

7 Claims



A band of supple material—the endless tread proper—is looped around a set of wheels. A looped tensioning cord overlies each face of the wheels, and supple connectors extend from each edge of the band to its adjacent tensioning cord, connectors being anchored to each cord at spaced intervals along it. Elasticity of the cord accommodates changes in anchorage spacing in different parts of the orbit. The cords tension the connectors inwardly of the band loop, over the wheel faces, to keep the tread on the wheels.

3,637,267

CLEAT ELEMENT FOR TRACKED VEHICLES

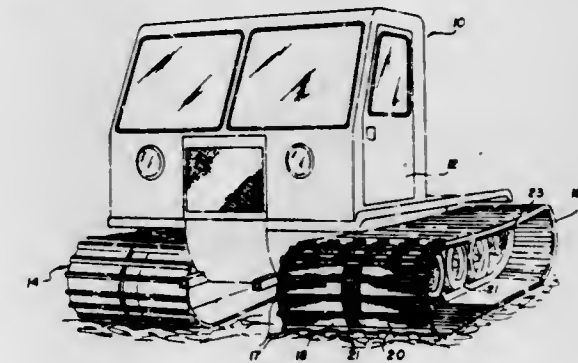
Jacques Bombardier, and Rejean Leclerc, both of Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada

Filed June 8, 1970, Ser. No. 44,443

Int. Cl. B62d 55/26

U.S. Cl. 305-35 EB

15 Claims



A cleat element for fixing to the outer surface of an endless flexible track, and particularly to that type of track found on snow-compacting vehicles, is provided having a triangular shape and constructed of an angle iron filled with rubber contained within its sidewalls. An antiskidding device, the vehicle is provided with a plurality of rubber pads integrally mounted on the rubber face and disposed at spaced-apart locations along the length of the surface.

3,637,268

TABLE SLIDE

Thomas G. Walter, Wabash, Ind., assignor to B. Walter & Company, Wabash, Ind.

Filed May 8, 1970, Ser. No. 35,749

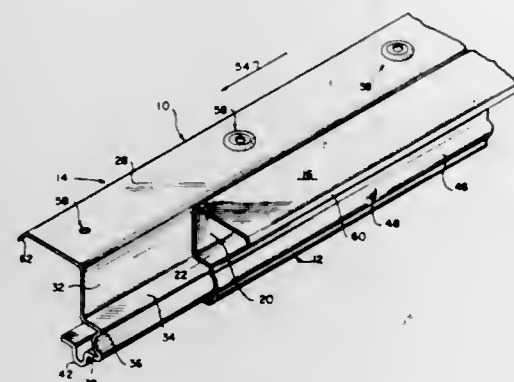
Int. Cl. F16c 21/00, 29/00

U.S. Cl. 308-3.6

5 Claims

A table slide comprising first and second extensibly related slide members, each of which is formed from sheet stock to provide longitudinally extending web sections and/or web portions which slidably contact similar web sections and/or

web portions of the other member. The first member serves as an outer member and is provided with an outwardly extending channel section, the lower horizontally extending leg of which is provided with a longitudinally extending trough



intermediate its lateral edges. The second member is provided with a portion which conformingly fits into the said channel section, including a longitudinally extending ridge portion which conformingly slidably engages the trough.

3,637,269

JOURNAL SLEEVE FOR RELATIVE ROTATION IN A BEARING

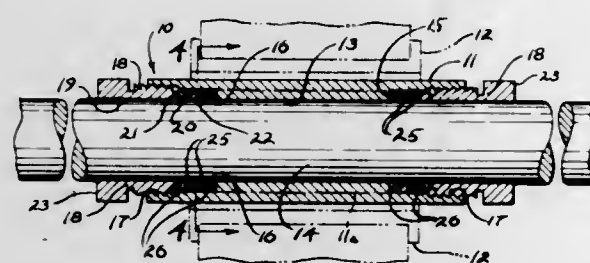
Burrell J. Lantry, Cuyahoga Falls, Ohio, assignor to Lucian Q. Moffitt, Inc., Akron, Ohio

Filed Nov. 26, 1969, Ser. No. 880,089

Int. Cl. F16c 33/78

U.S. Cl. 308—237 A

9 Claims



Journal sleeve for a shaft, as for relative rotation of the shaft with the sleeve thereon, within a shaft bearing. Sleeve has annular chambers containing elastic rings, and means for axially compressing the rings, to expand the same radially into tight locking engagement between the shaft and opposing wall portions of the sleeve.

3,637,270

BEARING GREASING SYSTEM

Wesley R. Johnson, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 16, 1970, Ser. No. 89,723

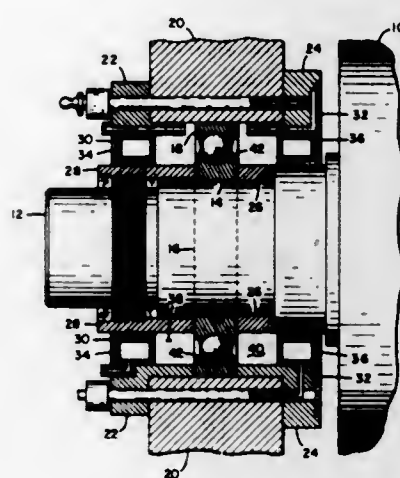
Int. Cl. F16c 33/66

U.S. Cl. 308—187

4 Claims

A method of regreasing bearings on a high-speed rotating magnetic memory drum is disclosed. The method includes the use of two inflatable, rubber inner tube rings on both sides of the bearing that is to be greased. With the drum stopped, grease is forced between the two low-pressure inflated rings; one ring is then high-pressure inflated forcing the grease

through the bearing into the low-pressure inflated ring side of the bearing; the low-pressure inflated ring is then high-pres-



3,637,271

BEARING INTENDED TO SUPPORT A SHAFT CAPABLE OF ROTATING AT HIGH SPEEDS

Gaston Bayard, 6, Place Wilson, Toulouse (Haute Garonne), France

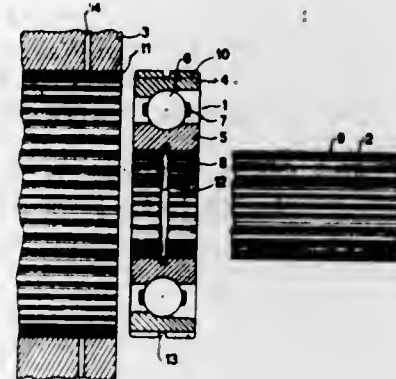
Filed Apr. 21, 1970, Ser. No. 30,371

Claims priority, application France, May 30, 1969, 6917772

Int. Cl. F16c 1/24

U.S. Cl. 308—187

3 Claims



A bearing, especially of the ball, roller or needle type, for carrying a shaft adapted to rotate at high speeds of rotation, said bearing comprising an inner ring in contact with the shaft, an outer ring in contact with the bearing surface of a supporting member and at least one row of balls, rollers, needles or the like imprisoned in a cage, the bore of said inner ring and the diameter of said shaft being dimensioned in such manner as to maintain between said elements a radial clearance at least equal to the distance between the axis of inertia of the assembly of rotating parts and the geometric axis of said inner ring, while the diameter of said outer ring and the bore of the bearing surface of the supporting member are so dimensioned as to maintain between said elements a small radial clearance of the order of a few microns. The facing surfaces of the inner ring and the shaft and the outer ring and the bore of the supporting member are rendered fast for rotation with each other and the radial clearances may be filled with fluid under pressure.

3,637,272 BUSHING INSERT FOR ANTI-FRICTION BEARING ASSEMBLIES

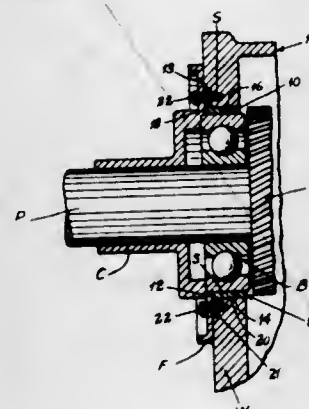
Michael G. Christiansen, 2524 Telegraph Road, St. Louis, Mo.

Filed Apr. 9, 1970, Ser. No. 26,983

Int. Cl. F16c 33/08

U.S. Cl. 308—189

1 Claim



A flanged sleeve or bushing, fabricated of steel, adapted for insertion into a larger circular opening and a countersunk recess formed about and concentric with a somewhat smaller but deformed opening in the forward wall of an automotive transmission housing. Particularly adapted for use in the repair of transmission housings made of aluminum or cast iron. The bushing is fabricated of steel and designed for mounting therein the same anti-friction bearing assembly that had been originally mounted in said smaller opening prior to its deformation.

3,637,273

ELASTOMERIC BEARING

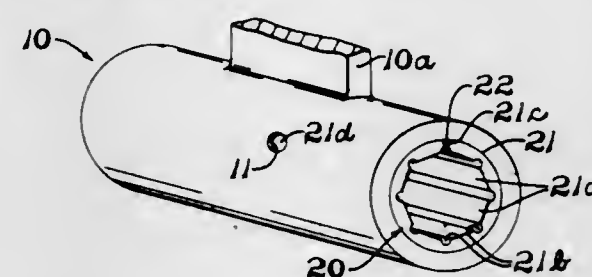
Roy L. Orndorff, Jr., Kent, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,780

Int. Cl. F16c 33/20, 43/00

U.S. Cl. 308—238

10 Claims



A tubular bearing insert of elastomeric material for a bearing of the type used for free-flooded marine propeller shafts. The insert has a compressible spring strip of sponge material disposed in a radial slit extending the length of the insert for circumferentially expanding the insert into contact with the bore of the bearing housing. A portion of the tubular wall of the insert is radially deformable with a lug extending outwardly therefrom for releasable engagement with a corresponding recess provided in the bore of the bearing housing in which the insert is to be assembled.

3,637,274

ADAPTER ASSEMBLY FOR TOWEL CABINETS

Malcolm O. Manuel, Stanton, Minn., assignor to Universal Dispensers, Ltd., Minneapolis, Minn.

Filed Mar. 6, 1970, Ser. No. 17,262

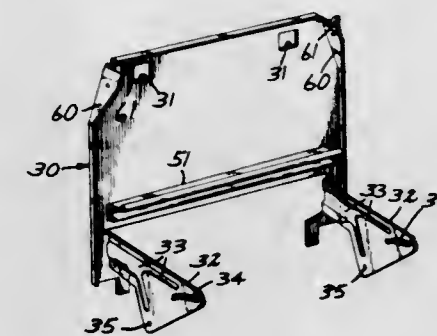
Int. Cl. B65h 19/00

U.S. Cl. 312—38

5 Claims

A universal adapter plate having openings therein for engaging mounting brackets on the rear wall of a towel

dispenser cabinet and projections designed to engage a variety of standard towel metering and rewinding mechanisms, a cradle pivotally affixed to the adapter plate for receiving therein a roll of clean towels and a plurality of cooperating ridgeline projections at the back of the cradle



and the front of the adapter plate positioned to form a tortuous towel rewind path to produce a desired amount of tension on the towel and to smooth out wrinkles and creases so that it will rewind properly after use.

3,637,275

TOWEL DISPENSER WITH COVERED CLEAN TOWEL RECEPTACLE

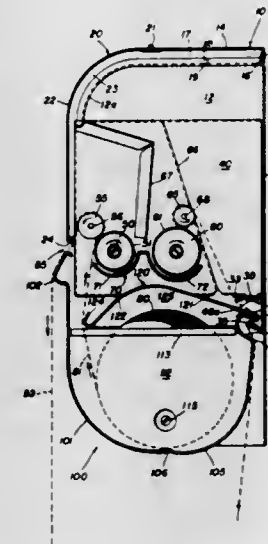
Erwin B. Bahnsen, Oakbrook, Ill., assignor to Steiner American Corporation, Salt Lake City, Utah

Filed Jan. 15, 1970, Ser. No. 8,125

Int. Cl. B65h 19/00

U.S. Cl. 312—38

9 Claims



A continuous towel dispensing cabinet includes an open-bottom housing having associated therewith a loop of towel that extends along an exit path to an exposed position accessible to a user and thence along a return path into the housing, an open-top clean towel receptacle mounted in the bottom of the housing for pivotal movement between dispensing and loading positions, dispensing apparatus and soiled towel take-up means mounted in the housing overlying the receptacle for respectively feeding clean towel to the exit path and retracting soiled towel from the return path, and a cover hingedly mounted on the rear wall of the receptacle for pivotal movement between a closed configuration substantially closing the open top of the receptacle and an open configuration to facilitate loading the receptacle.

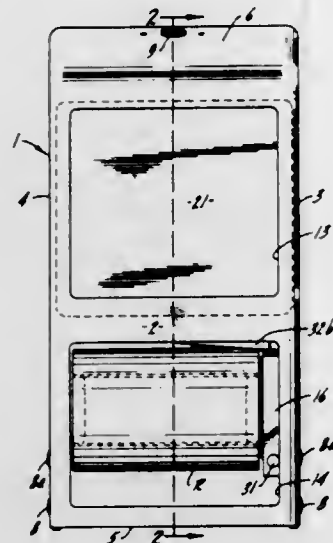
3,637,276 DISPENSER

Edward L. Bump, Oak Park, Ill., assignor to Vaughan Mfg. Co., Chicago, Ill.

Filed June 15, 1970, Ser. No. 46,307
Int. Cl. B65h 19/00

U.S. Cl. 312-39

15 Claims



A dispenser for rolls of paper having a door covering one roll and a control arm responsive to depletion of the paper on another roll to release said door for movement into a position exposing said one roll.

3,637,277

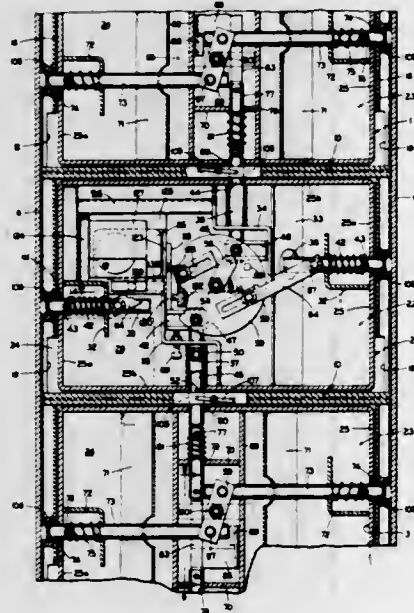
ENTRY RESISTANT SECURITY FILE CONSTRUCTION
Newton J. Krug, Cincinnati; Richard B. McClain, Massillon, and James D. Shoop, Canton, all of Ohio, assignors to Diebold, Incorporated, Canton, Ohio

Filed Jan. 12, 1970, Ser. No. 2,240

Int. Cl. E05b 65/46; E05c 15/04; E05b 15/16

U.S. Cl. 312-217

14 Claims



A security file which has a gang-lock bolt mechanism that extends vertically along and generally centrally of the drawer fronts of a plurality of drawers operated by a handle in a main drawer. The operating handle also operates horizontal bolts in the main drawer. There are mullions between the drawer fronts through which the gang-lock mechanism extends. When actuated to lock the drawers, the gang-lock bolts move a substantially greater distance vertically than the movement of the horizontal bolts in the main drawer. The

other drawer heads of the plurality of drawers also have individually actuated horizontal bolts which lock their drawers automatically when the drawers are fully closed. Detents are provided which prevent horizontal bolt locking of any drawer unless such drawer is fully closed. Gang-lock stop devices also are provided which prevent actuation of the gang-lock mechanism unless all drawers are fully closed. Backup pins and relocking devices also are provided in various areas of the mechanism to impede access to or actuation of the mechanism if attacked by externally applied force. Protective devices also are provided to impede drilling of the ends of the lock bolts.

3,637,278

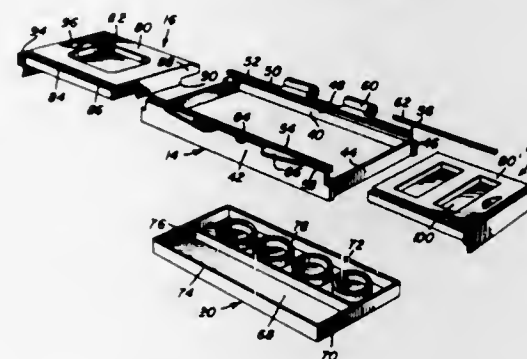
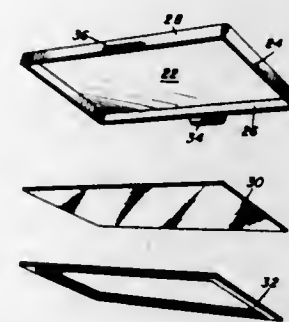
EYE MAKEUP COMPACT WITH SLIDE TRAYS
David S. Easterbrooks, Los Angeles, Calif., assignor to Anc Maria, Inc.

Filed Nov. 13, 1969, Ser. No. 876,529

Int. Cl. A47b 67/00; A45d 33/00; A47g 1/00

U.S. Cl. 312-227

5 Claims



A compact constructed for carrying in a woman's purse having a pivotal lid with a mirror on the interior thereof together with longitudinally slidable trays overlying a stationary bottom tray with both the slide trays and the bottom tray having a plurality of compartments therein for receiving eye makeup.

3,637,279

DUAL COMPARTMENT PAPER SAFE
Kenneth G. Brooks, Route 1, Box 379, Vashon, Wash.

Filed Apr. 22, 1970, Ser. No. 30,884

Int. Cl. A47b 88/00

U.S. Cl. 312-303

15 Claims

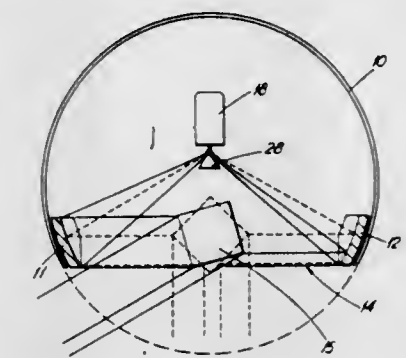
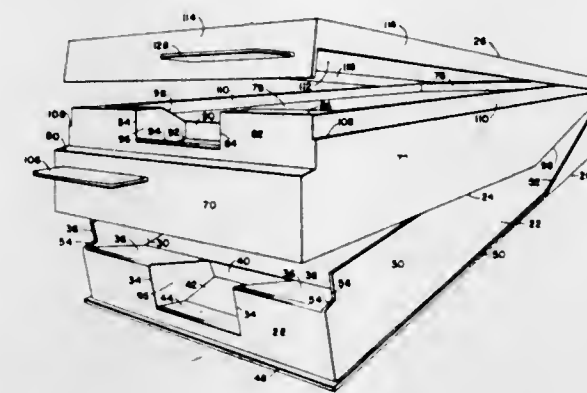
This invention is directed to a paper safe for use in a darkroom for exposing and developing photographic paper, i.e., a photosensitive sheet material.

This paper safe comprises a first storage compartment, a second storage compartment and a cover. The first and second storage compartments are in a nesting or interlocking relationship with respect to each other so as to minimize the amount of light which can enter into the first storage compartment. The second storage compartment and the cover are in a nesting or interlocking relationship with respect to each other so as to minimize the amount of light which may enter into the second storage compartment.

The first and second storage compartments are so arranged with respect to each other that it is easy to remove the

photosensitive sheet material from the first storage compartment. The second storage compartment and the cover are so

rotor, which modulated beam is reflected out radially from the rotor optical systems within the rotor so as to traverse re-



arranged with respect to each other that it is easy to place an exposed photosensitive sheet material in the second storage compartment.

3,637,280

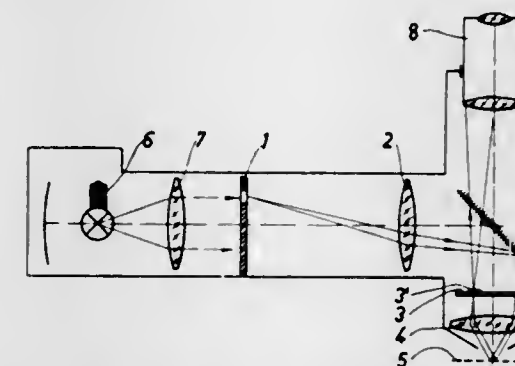
DEVICES FOR HIGH-CONTRAST IMAGING OF PHASE OBJECTS IN INCIDENT-LIGHT MICROSCOPY
Hermann Beyer, and Gunter Schoppe, both of Jena, Germany, assignors to Jenoptik Jena G.m.b.H., Jena, Germany

Filed May 12, 1970, Ser. No. 43,273

Int. Cl. G02b 21/14

U.S. Cl. 350-13

5 Claims



A device for high-contrast imaging of phase objects in incident-light microscopy operates on Kohler's principle of illumination and enables phase contrast images to be obtained with sufficient brightness and without reflexes. The device includes a phase contrast objective, a phase plate with a phase layer, and an aperture diaphragm that corresponds to the phase plate. The phase plate is so located in the rear focal plane of the phase contrast objective that the diaphragm image produced in the focal plane of the objective after reflection on the specimen surface is covered by the phase layer and that the diaphragm image produced directly by an illumination lens appears in a portion of the objective focal plane which is not covered by the phase layer.

3,637,281

OPTICAL SCANNING EQUIPMENT

Frank Arthur Gull, 28 Oaklands Lane, Smallford, Hertfordshire, England

Filed Mar. 27, 1969, Ser. No. 811,698

Claims priority, application Great Britain, Apr. 1, 1968, 5,299/68

Int. Cl. G02b 17/00

U.S. Cl. 350-7

8 Claims

Aerial photographic-equipment of the line-scanning type in which two parabolic mirrors lie on either side of a square-section rotor with four mirror faces that reflect the scanning beam on to a ridge mirror above the rotor and by which it is directed to an infrared detector cell. The signal from the IR cell is employed to modulate a light beam at one end of the

peatedly a photographic film which is transported above the rotor in a direction parallel to its axis.

3,637,282

ELONGATED VARIABLE MAGNIFICATION OPTICAL SYSTEM HAVING SELECTIVELY INTERCHANGEABLE LENSES

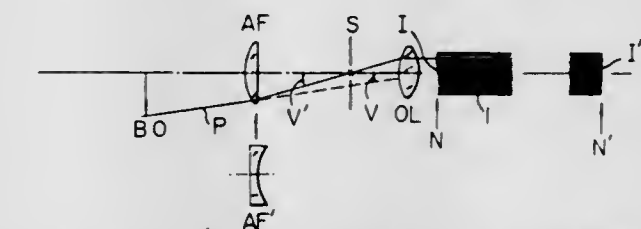
Yoshisada Hayamizu; Toshiyuki Mori, and Rikizo Murata, all of Tokyo, Japan, assignors to Olympus Optical Co., Inc., Tokyo, Japan

Continuation-in-part of application Ser. No. 634,931, May 1, 1967, now abandoned. This application Feb. 21, 1970, Ser. No. 4,728

Int. Cl. G02b 5/16, 15/06

U.S. Cl. 350-39

10 Claims



An elongated variable magnification optical system comprising an objective lens located in front of an image transmitting optical system, the objective lens being adapted to focus the image of an object on the front end surface of the image transmitting optical system, an aperture diaphragm located at a position adjacent to the front focal point of the objective lens, selectively interchangeable lens systems each selectively located in front of the aperture diaphragm thereby permitting the magnification of the entire optical system to be varied by interchanging the interchangeable lens system. A further additional lens system may be located at a position adjacent to the aperture diaphragm in such a manner that the rear principal plane of the further additional lens system is positioned adjacent to the front focal point of the objective lens, thereby permitting the rear focal plane of the combined optical system located in front of the image transmitting optical system to be shifted within an appropriate range without varying the focal length of the combined optical system.

3,637,283

STEREOMICROSCOPE WITH ILLUMINATION BY SPECULARLY REFLECTED LIGHT

Toshio Tasaki, and Keiji Fukao, both of Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed July 6, 1970, Ser. No. 52,364

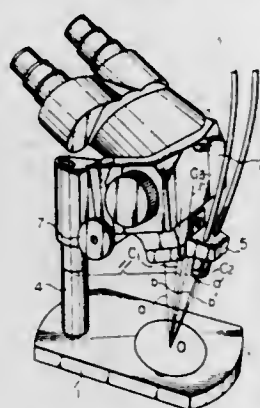
Int. Cl. G02b 21/06

U.S. Cl. 350-91

2 Claims

Illuminating system for a stereoscopic microscope which directs a pair of illuminating light beams toward the viewed object. The angle formed between the beams is equal to the parallax angle formed between the optical axes of the two objective lenses of the microscope while the plane defined by the bisectors of the parallax angle and of the angle between

the illuminating beams is perpendicular to the planes respectively defined by the optical axes of the objective lenses and the illuminating beams, the optical axes and the illuminating beams converging in a common point on the surface of the object, thereby permitting the light from the respective illu-



minating beams to be directly reflected by the surface of the object to a respective objective lens so that the object is observed in a bright field of view while the stereoscopic observation of the object is carried out.

3,637,284

MALE CONNECTOR TERMINAL FOR FIBER-OPTIC BUNDLES

Robert G. Plyler, Niles, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 22, 1969, Ser. No. 886,879

Int. Cl. H01r 15/04; G02b 5/14

U.S. Cl. 350-96 B

9 Claims



In a preferred form, this disclosure relates to an end connector for a fiber-optic bundle and to a fiber-optic assembly for transmitting light from a light source to a location remote from the light source. The fiber-optic assembly comprises a lens, a fiber-optic bundle having a surrounding sheath along its longitudinal extent and an end connector which is crimped onto one end portion of the fiber-optic bundle and connected to the lens. The connector is in the form of an axially slit, substantially cylindrical, metal sleeve having a plurality of circumferentially spaced circumferentially elongated slots and with the sleeve along the periphery of the slots having sharp radially inwardly extending burrs which cut into the surrounding sheath of the fiber-optic bundle when the sleeve is crimped thereon.

3,637,285

REFLEX LIGHT REFLECTOR

Marshall E. Stewart, Redondo Beach, Calif., assignor to Stewart Filmscreen Corp., Torrance, Calif.

Filed June 23, 1970, Ser. No. 49,029

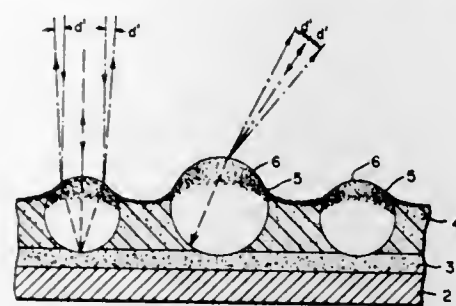
Int. Cl. G02b 5/12

U.S. Cl. 350-105

9 Claims

A reflex light reflector comprising a reflective screen for

reflecting both paraxial and normal rays and having a diffu-



sion coating applied to the surface thereof for dispersing light rays reflected by said screen.

3,637,286

INDICATING INSTRUMENT FOR VISUAL READING

Willy Kisselmann, Grunwald near Munich; Fritz Rumpelstein, Munich, and Paul Kopf, Unterhaching near Munich, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 20, 1970, Ser. No. 21,416

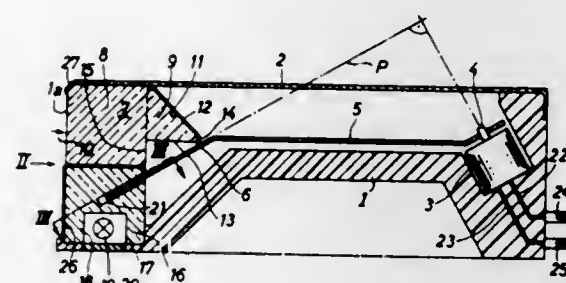
Claims priority, application Germany, Mar. 24, 1969, P 19

14 947.4

Int. Cl. G02b 27/02

U.S. Cl. 350-112

26 Claims



An indicating instrument for visual reading includes a flat housing and at least one elongated straight scale extending along a narrow front side of the housing. A moving-coil instrument in the housing has a pointer whose tip is located in a plane making a right angle with the pointer axis and an acute angle with the front side of the housing. The tip is movable along the front side behind an elongated light-transmitting prism which permits direct observation of a portion of the tip and is provided with a mirrored surface which reflects the image of the tip toward the front side of the housing. An opaque edge face of the prism separates the reflected image from the directly observable portion of the tip.

3,637,287

METHOD AND APPARATUS FOR CONTROLLING AN OPTICAL GATE UTILIZING OPTICALLY INDUCED BIREFRINGENCE

John Wilfred Hansen, North Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Aug. 19, 1970, Ser. No. 65,055

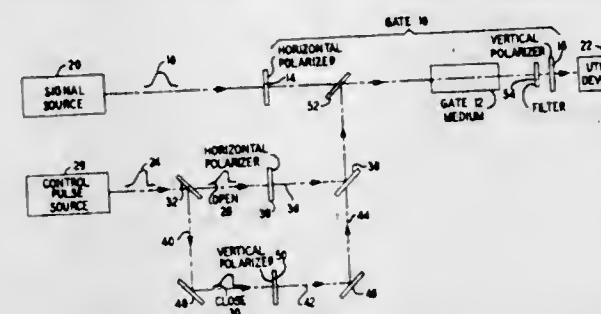
Int. Cl. G02f 1/24

U.S. Cl. 350-147

14 Claims

The opening time or framing time of an optical gate, which comprises a pair of crossed polarizers and disposed therebetween a medium in which birefringence can be optically induced, is reduced by applying sequentially to the medium first and second high intensity, fast rise time, orthogonally polarized optical control pulses delayed with respect to one another by a time Δt corresponding to the desired opening time of the gate. The first pulse opens the gate, i.e., induces birefringence in the gate medium and

thereby permits an optical signal to be gated to pass through both polarizers. At a time Δt later the second pulse closes the



gate, i.e., cancels the birefringence induced by the first pulse thereby causing the optical signal to be absorbed by one of the polarizers.

3,637,288

SINGLE ACOUSTIC FREQUENCY OPTICAL DEFLECTOR

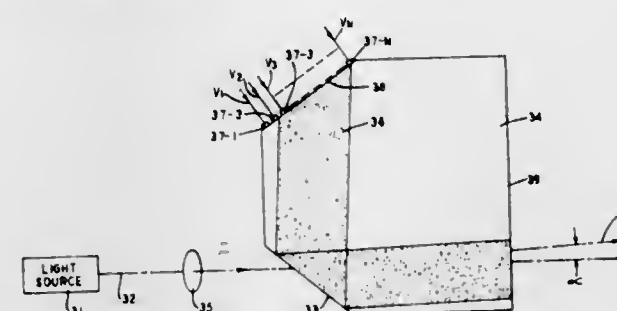
Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Feb. 5, 1970, Ser. No. 8,951

Int. Cl. G02f 1/24

U.S. Cl. 350-149

8 Claims



An optical beam deflector is described in which a portion of the incident beam is deflected through a variable angle whose magnitude is determined by the direction of propagation of a substantially constant frequency acoustic beam.

3,637,289

DEVICES BASED ON INDUCED DICHOISM

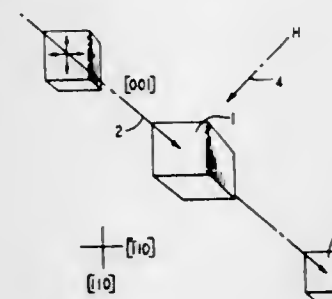
Joseph F. Dillon, Jr., Morris Township, Morris County; Ernst M. Gyorgy, Madison, and Joseph P. Remelka, Somerset, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Mar. 7, 1969, Ser. No. 805,230

Int. Cl. G02f 1/18

U.S. Cl. 350-151

6 Claims



Dichroism for light as well as magnetic anisotropy may be optically induced in a crystalline material manifesting spontaneous magnetic polarization within which a magnet cation of a valence state other than the nominal value is permitted and within which such an ion may occupy either of at least two crystallographically equivalent but magnetically inequivalent sites. An example of such a material is silicon-doped YIG in which Fe^{2+} may occupy any of four octahedral sites. Devices based on this phenomenon are described.

3,637,290

OPTICAL DATA PROCESSOR PROVIDING ALL RANGE TRACKING AND ALL RANGE FOCUSING

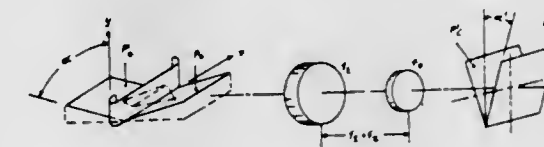
Adam Kozma, Ann Arbor; Emmett N. Leith, Plymouth, and Norman G. Massey, Ypsilanti, all of Mich., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Dec. 1, 1965, Ser. No. 510,992

Int. Cl. G02b 5/18

U.S. Cl. 350-162 SF

2 Claims



An optical data processor for Doppler radar information stored on a film uses a four-lens telescopic optical system to cause the azimuth target histories to come to focus on a plane surface where they can be recorded. To provide all range focus with this system, two of the lenses are cylindrical lenses to provide a two-lens telescopic system in the range dimension with different magnifications in the two dimensions. The input and output films are tilted with respect to the optical axis to provide all range focusing and all range tracking in the same output plane.

3,637,291

DISPLAY DEVICE WITH INHERENT MEMORY

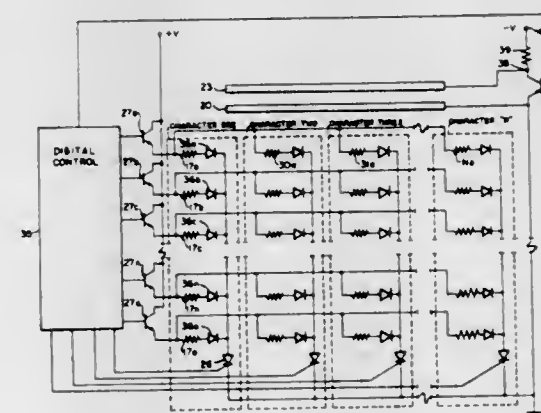
Clarence W. Kessler, and Theodore T. Trzaska, both of Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Feb. 11, 1970, Ser. No. 10,522

Int. Cl. G02f 1/28; G09f 1/10

U.S. Cl. 350-160

5 Claims



A visual display device utilizing encapsulated liquid crystals as the image-containing medium, the encapsulated liquid crystals evidencing two chromatic states; i.e., a first translucent state and a second opaque state.

The encapsulated liquid crystals serve as the image-containing medium (display screen) of the display device, and writing is accomplished by first rendering the encapsulated liquid crystals translucent by the application of a momentary electrostatic field and the erasing of selected areas of translucency by raising the temperature of selected areas of the encapsulated liquid crystals by the selective application of heat and allowing the subsequent cooling thereof, thereby transposing the selected translucent areas into opaque areas. The temperature must be sufficient to cause the transition of the encapsulated liquid crystals into an isotropic liquid. The point at which this transition occurs is known as the clear point. The images manifest themselves in the eyes of a viewer as a color, the color being determined by the wavelength of the incident light reflected by the opaque areas.

3,637,292

ACOUSTO-OPTICAL DISPLAY DEVICE

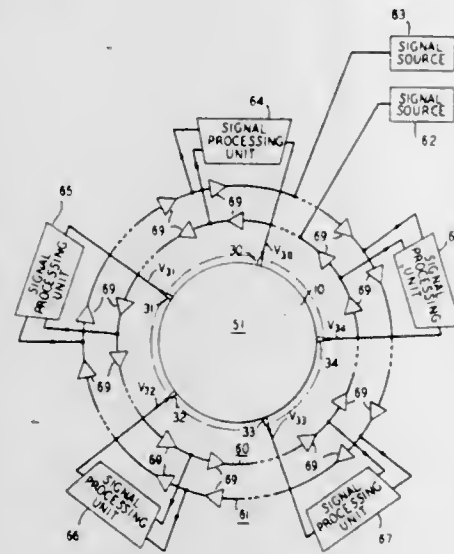
Harold Seidel, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed July 25, 1969, Ser. No. 844,960

Int. Cl. G02f 1/28; G09f 1/10

U.S. Cl. 350-161

9 Claims



A display is formed by directing an optical beam onto an acousto-optical medium having a single small region of substantial strain which is caused to traverse the medium controllably.

3,637,293

KINOFORM MATCHED FILTER METHOD

Adolf W. Lohmann, La Jolla, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 26, 1969, Ser. No. 880,258

Int. Cl. G06g 9/00; G02b 27/38

U.S. Cl. 350-162 SF

5 Claims



A method of optical filtering in which a phase object is constructed in accordance with the desired matched filter operator and during the filtering operation incoherent light is used. This type of incoherent filtering method is applicable to any filter operator having only nonnegative portions.

3,637,294

INTERFERENCE FILTER WITH ALTERNATELY DESIGNED PAIRS OF DIELECTRIC LAYERS

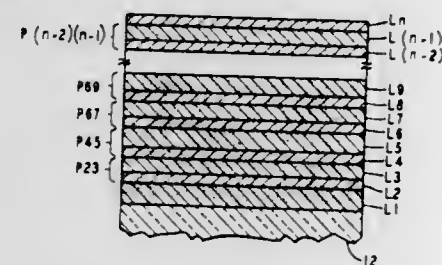
John W. Berthold, III, Tucson, Ariz., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 19, 1969, Ser. No. 886,721

Int. Cl. G02b 5/28

U.S. Cl. 350-166

10 Claims



This filter comprises a plurality of superimposed layers in which layers of a first material having a first index of refraction alternate with layers of a second material having a

second index of refraction, thereby defining a plurality of high-index-low-index pairs of layers, and at least some high-index-low-index pairs of layers having a first optical thickness alternate with at least some high-index-low-index pairs of layers having a second optical thickness. Also described is an optimized design derived from this filter. Such filters can be formed by deposition of the layers on a substrate by calculating in advance the slope of the reflectance versus thickness curve that should be observed when each layer has its desired thickness and then, when forming the layers, by terminating the deposition of each layer when the slope of the reflectance versus thickness curve for the layer being deposited equals the calculated slope.

3,637,295

ACHROMATIC LENS SYSTEM

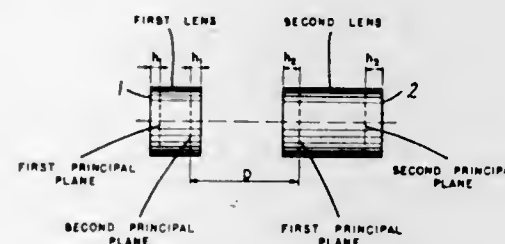
Hiroyoshi Matsumura, Osaka-shi; Shogo Yoshikawa, and Ryuji Tatsumi, both of Tokyo-to, all of Japan, assignors to Nippon Selfoc Kabushiki Kaisha (aka Nippon Selfoc Co. Ltd.), Tokyo-to, Japan

Filed Dec. 29, 1969, Ser. No. 888,947

Int. Cl. G02b 1/00, 9/10

U.S. Cl. 350-230

2 Claims



An achromatic lens system comprising a lens system which includes at least one lens whose refractive index changes substantially proportional to the square of the distance from a central axis of the lens toward the surface thereof and whose both end planes are perpendicular to said central axis, lenses constituting said lens system being disposed in coaxial relation so as to substantially eliminate the chromatic aberration of the lens system.

3,637,296

COOLING MEANS FOR REFLECTING DEVICE

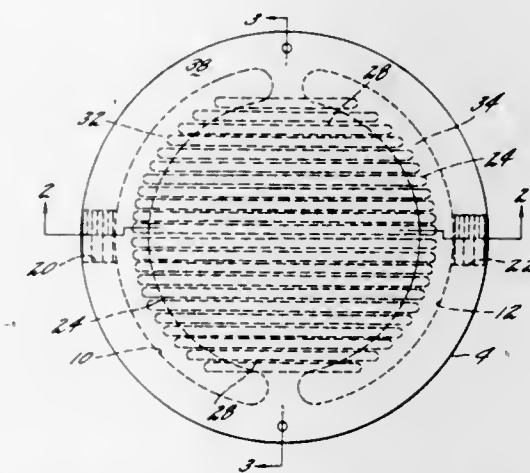
George H. McLafferty, Manchester, and George R. Wisner, Deep River, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed June 4, 1970, Ser. No. 43,493

Int. Cl. G02b 5/08

U.S. Cl. 350-310

10 Claims



This reflecting device is for use wherein the reflecting surface is subjected to heat and includes a thick backing member with channels on one surface thereof with one surface of a cover member fixed to said channeled surface forming passages. A reflecting surface is formed on the other sur-

face of the cover member and a manifold system directs a coolant through the passages formed by the channels of the backing member and the mating surface of the cover member. The manifold system includes an inlet and an outlet which can be connected to any desired control means to achieve the proper flow. This cooling arrangement not only provides the cooling necessary to maintain the reflecting device in an operating condition but also maintains the high quality of the reflecting surface.

3,637,297

REDUCED-SIZE MOTION PICTURE FILMS AND THE PHOTOGRAPHING AND PROJECTION THEREOF

Shigeo Yoshida, No. 406, Chyohuunoki-machi, Ota-ku, Tokyo, Japan

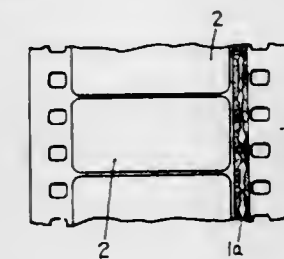
Continuation of application Ser. No. 515,092, Dec. 20, 1965, now abandoned. This application Jan. 21, 1970, Ser. No. 4,438

Claims priority, application Japan, Dec. 21, 1964, 39/71799; June 10, 1965, 40/34258; Oct. 30, 1965, 40/66388

Int. Cl. G03b 37/06

U.S. Cl. 352-38

14 Claims



Photographic methods are disclosed whereby raw film is exposed, developed and projected to obtain a quantity of motion picture film which is only a fraction of that normally used to view the same photographed field. One method comprises producing successive, anamorphic images on a raw film which are compressed in only one direction with substantially no spacing existing between successive images and then developing and printing the raw film to obtain positive film having similarly sized images. Another method comprises producing successive, anamorphic images on a raw film which are compressed equally in two perpendicular directions with substantially no spacing existing between successive images and then developing and printing the raw film to obtain a positive film having similarly dimensioned images.

3,637,298

MOTION-PICTURE CAMERA AND THE LIKE

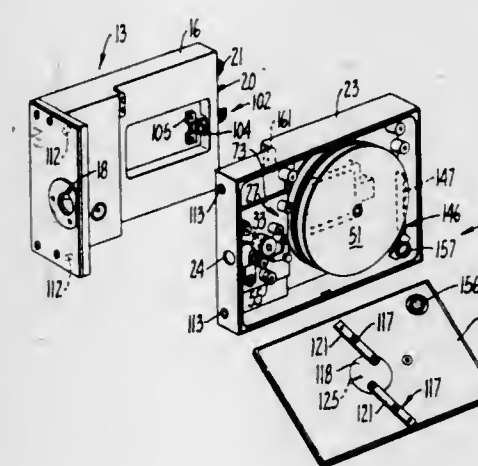
Ernest M. Whitley, Palo Alto, Calif., assignor to Red Lake Laboratories, Santa Clara, Calif.

Filed Aug. 11, 1969, Ser. No. 848,961

Int. Cl. G03b 1/50, 23/02, 39/00

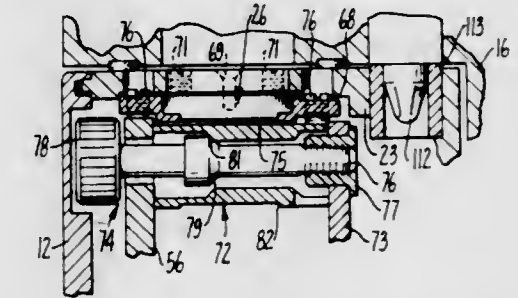
U.S. Cl. 352-72

15 Claims



A motion-picture camera adapted for use on aircraft or the like where extreme forces are likely to occur, and in which a

rapid exchange mechanism is effected by a two-piece construction with the film gate and associated film drive



mechanism decouplable from the main body of the camera, and in which the film drive mechanism operates with an eccentric drive for providing stop and go motion through a zero clearance gate, the improvements consisting of an improved adjustable zero clearance gate, guides for handling the film through the film gate, and improvements in the two-piece construction including a novel latch mechanism capable of providing a rapid exchange, yet which also positively provides for accurate placement of the film gate in exact focus position.

3,637,299

OPTICAL PRINTER

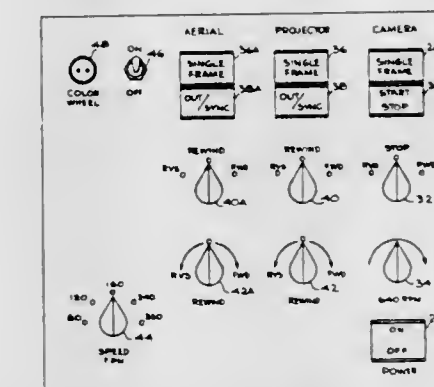
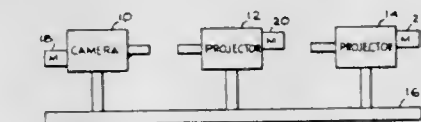
Lawrence W. Butler, 6180 Lumple Hill Road, Los Angeles, Calif., and Roger Banks, Hollywood, Calif., assignors to said Butler, by said Banks

Filed Aug. 17, 1970, Ser. No. 64,547

Int. Cl. G03b 21/32

U.S. Cl. 352-85

10 Claims



An optical printer has a camera and several projectors driven by stepping motors. Provision is made to control these motors so that they may be driven in synchronization or the projector motors may be driven out of synchronization and independently of the camera drive. Provision is also made to insure that the motors always stop in a predetermined home position, get up to full speed after rotating through a predetermined arc and begin to slow down with a predetermined arc of the home position.

3,637,300

SECURITY CAMERA WITH TAPE INDICATOR

William H. Eacho, Richmond, Va., assignor to Schulmerich Manufacturing Co., Sellersville, Pa.

Filed June 29, 1970, Ser. No. 50,666

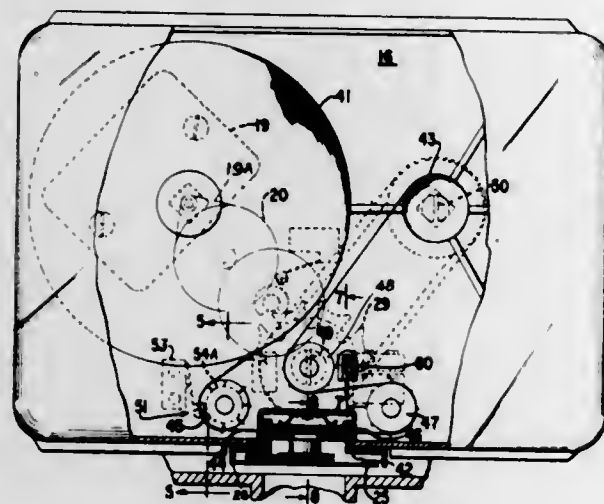
Int. Cl. G03b 17/46

U.S. Cl. 352-121

11 Claims

A magazine-type camera has a drive mechanism including a clutch assembly interposed between the takeup reel in the

magazine and the drive motor. The film is guided past a lens opening in the magazine by means of three sprockets with a



film counter being actuated by one sprocket and a film exhaustion indicator being actuated by an edge of the film passing between the other two sprockets.

3,637,301

MOTION PICTURE CAMERA FADEOUT FADE-IN MECHANISM

Yasuhiko Nakayama, Suwa, Japan, assignor to Kabushiki Kaisha Yashica, Tokyo-to, Japan

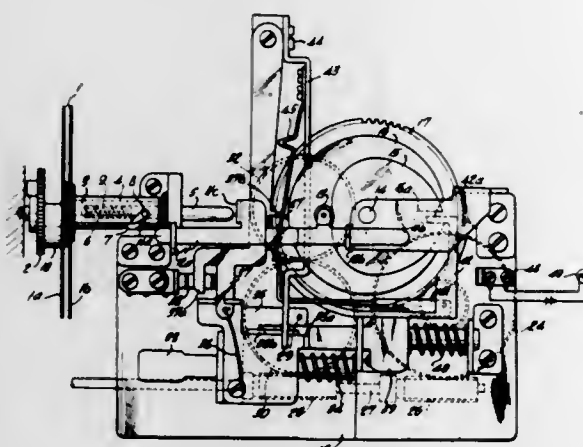
Filed Feb. 18, 1970, Ser. No. 12,212

Claims priority, application Japan, July 1, 1969, 44/51493

Int. Cl. G03b 9/10

U.S. Cl. 352-217

9 Claims



A motion picture camera automatic fade-in/fadeout mechanism includes a variable-exposure aperture shutter and selectively operable means for closing the aperture with the advance feed of a predetermined length of film while disabling the film takeup. Upon closure of the aperture the drive motor is automatically stopped and then selectively energized in a reverse direction to retract the advanced predetermined length of film and thereafter the motor is energized in an advance direction and the mechanism actuated to open the aperture during the advance of said predetermined length of film an normal photography is then effected. The shutter includes a pair of blades having overlapping openings and being angularly adjustable to vary the area of opening overlap. The aperture-varying mechanism includes a heart-shaped cam advanced 180° to close the aperture, stop during film retraction and rotated 180° to open the aperture. A drive motor shorting and reversing switch responds to the position of the aperture control mechanism.

3,637,302 COMPACT COPYING MACHINE WITH MULTIPLE-FUNCTION RECIPROCATING CARRIAGE

Robert A. Hunt, Silver Creek, and Joseph M. Rak, Buffalo, both of N.Y., assignors to Pelorex Corp., Buffalo, N.Y.

Filed July 19, 1968, Ser. No. 746,127

Int. Cl. G03g 15/22

U.S. Cl. 355-8

8 Claims



A copying machine of the Electrofax type having a stationary horizontal transparent support for receiving manuscript to be copied and a carriage mounted for horizontal movement beneath the transparency to effect optical scanning of the manuscript. The carriage supports means for feeding copy paper vertically past an image-receiving zone, a mirror which projects an image from the manuscript horizontally toward the image-receiving zone, lens means between the mirror and the image-receiving zone for focusing the image on the surface of the copy paper, a toner receptacle and means for feeding the copy paper therethrough after exposure thereof. Means are provided for moving the carriage horizontally in exact synchronism with vertical movements of the copy paper whereby a panoramic image from the manuscript is applied to the copy paper. The carriage-moving means includes a pulley mounted upon and rotated jointly with a paper feed roll and a traction cable wrapped about the pulley and adapted to be connected to opposite ends of the machine. Means are provided for tightening the cable whereby rotation of the pulley causes the pulley to rotate along the cable and thus move the carriage in synchronism with the paper feed roller.

3,637,303

ELECTROPHOTOGRAPHIC COPYING MACHINE HAVING MOVABLE SLIT-EXPOSURE STATION

Shigehiro Komori, Yokohama-shi, Kanagawa-ken, and Jiro Sato, Kawasaki-shi, Kanagawa-ken, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

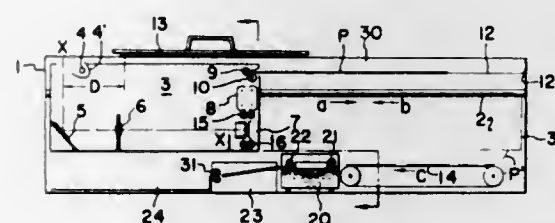
Filed June 17, 1969, Ser. No. 834,095

Claims priority, application Japan, June 21, 1968, 43/43319; Aug. 22, 1968, 43/60163

Int. Cl. G03g 15/04

U.S. Cl. 355-8

13 Claims



In a copying machine of the stationary original slit exposure type, a housing is provided with an original holder and a carriage which reciprocates with respect to the original holder. The carriage incorporates a slit exposure means and an optical system which directs a light image from the original to the slit exposure means. A photosensitive member is advanced during movement of the carriage and progressively slit exposed to the original light image and then developed successively.

3,637,304 DRYING OF LIQUID DEVELOPED COPY SHEETS IN A COPYING MACHINE

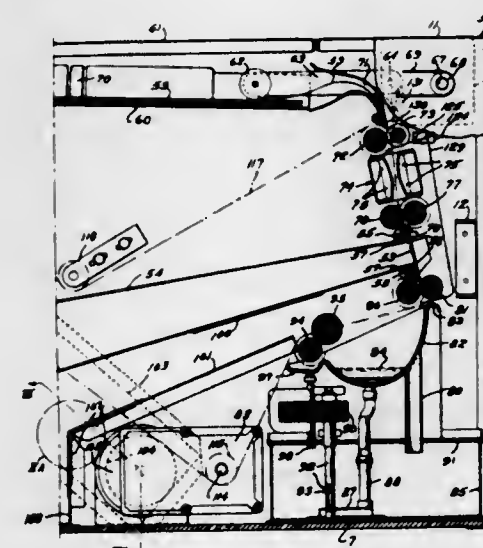
Emil Tiger, Highland Park; Erskine G. Corman, Forest Park, and Kenneth R. Reick, Downers Grove, all of Ill., assignors to Sunbeam Business Equipment Co., Addison, Ill.

Original application Sept. 5, 1967, Ser. No. 665,447, now Patent No. 3,476,479, dated Nov. 21, 1969, which is a division of application Ser. No. 410,549, Nov. 12, 1964, now Patent No. 3,345,926, dated Oct. 10, 1967. Divided and this application July 24, 1969, Ser. No. 844,373

Int. Cl. G03g 13/10, 15/10

U.S. Cl. 355-10

12 Claims



A flow of drying air in the direction of movement of and under successive individual sheets is provided as they leave development means after exposure in a copymaking machine and from which the exposed sheets are received and free liquid removed before the sheets are engaged by the air. The arrangement is such that the sheets are floated to a copy sheet receptacle.

3,637,305

ELECTRONIC COPYING MACHINE

Toyoki Tanaka, Osaka, and Yutaka Irie, Toyokawa City, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

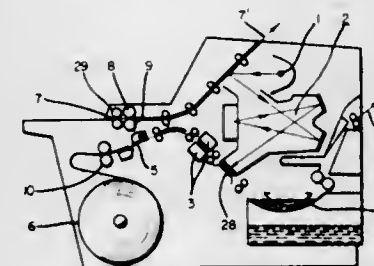
Filed Oct. 6, 1969, Ser. No. 864,057

Claims priority, application Japan, Oct. 11, 1968, 43/89107; 43/89108

Int. Cl. G03b 29/00

U.S. Cl. 355-13

12 Claims



An electronic copying machine having a cutter for photosensitive paper and a sensor for detecting front and rear edges of an original so as to ensure smooth movement of the original while eliminating the risk of erroneous operation. The photosensitive paper is fed continuously, and the cutting means cuts the photosensitive paper at a certain minimum length L when the original is not longer than L, while cutting the photosensitive paper at a length corresponding to the length of the original when the original is longer than L.

3,637,306 COPYING SYSTEM FEATURING ALTERNATE DEVELOPING AND CLEANING OF SUCCESSIVE IMAGE AREAS ON PHOTOCONDUCTOR

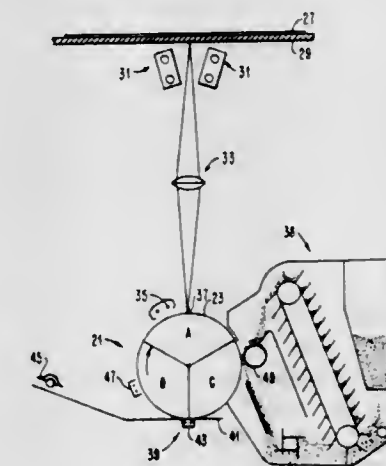
Leon M. Cooper, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 2, 1970, Ser. No. 94,262

Int. Cl. G03g 15/00

U.S. Cl. 355-15

6 Claims



Electrophotographic copying apparatus has charging, imaging, transferring, precleaning, and erasing facilities in a conventional sense but incorporates a combined developing-cleaning unit that is operable to perform either function at the proper time during the copying sequence. A first version incorporates a photoconductor drum structure surrounded with the necessary electrophotographic elements including a single magnetic brush developer-cleaner unit, the drum structure preferably having an odd number of image areas, such as three. Another version incorporates a photoconductor belt also having provision for an odd number of image areas and movable past the stations. For single copy operation, alternate image positions are used for copying with cleaning occurring on the positions between. With the operator changing masters, this delay is not noticeable. With an automatic document feeder, the throughput rate is half of the continuous copy rate. For continuous copy, every image position is used and cleaning is suspended until the end of the run at which time a full cycle cleaning operation is initiated. If the run is long and the copy degrades, intermediate cleanup cycles can be included as often as necessary. Conveniently, a magnetic brush element forms a contacting surface for conveying toner onto the photoconductor surface during developing and away from the photoconductor surface during cleaning. Appropriate changes in biasing of the brush are made during operation.

3,637,307

OPTICAL SYSTEM FOR THE READING OUT STORED INFORMATION

Erich Spitz, Paris, France, assignor to Thomson-CSF

Filed June 18, 1969, Ser. No. 834,406

Claims priority, application France, June 25, 1968, 156457

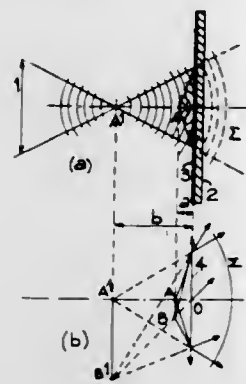
Int. Cl. G03b 27/32

U.S. Cl. 355-40

12 Claims

The invention relates to optical systems for reading out stored information items carried on a variable transparency support. The information items are juxtaposed on the support and are selectively projected within an aperture by means of holographic imaging means arranged in front of the items; each item can be illuminated by means of a monochromatic

beam supplied by a source of light positioned behind said item. The projected images can be either received by



photoelectric means or by a photographic film on which they are printed.

3,637,308

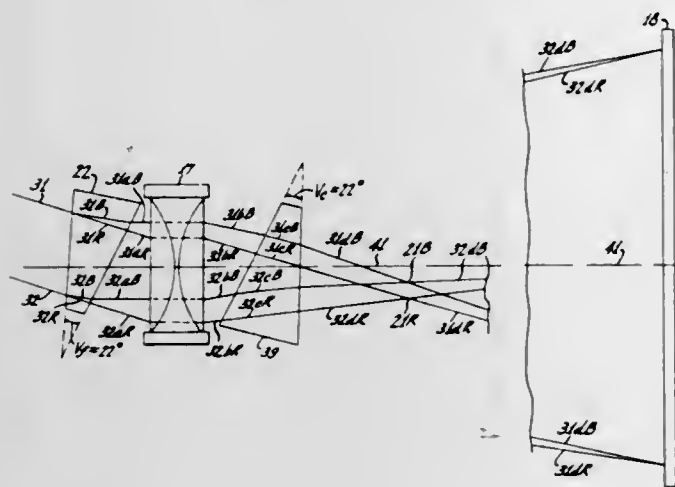
COLOR CORRECTION OF PRISMATIC OFF-AXIS OPTICAL SYSTEM

John A. Van Raalte, Princeton, N.J., and Walter Joseph Gorkiewicz, New York, N.Y., assignors to RCA Corporation
Filed June 11, 1970, Ser. No. 45,311

Int. Cl. G03b 21/14

U.S. Cl. 353-69

5 Claims



Unmodulated, collimated white light is angularly directed to a target reflecting surface which is deformable to represent a subject, and the subject-modulated light reflected from the target surface is directed to a viewing screen by a Schlieren optical system including a projection lens and a stop at the focal point of the lens. A first prism is located between the subject-bearing target surface and the lens to render the light reflected from the target surface orthogonal to the principal plane of the lens and the screen. A second prism is located between the lens and its focal point to effect a color correction of the subject-modulated light reflected from the target surface.

3,637,309

NONCONTACT APPARATUS TO DETERMINE REFERENCE INFORMATION

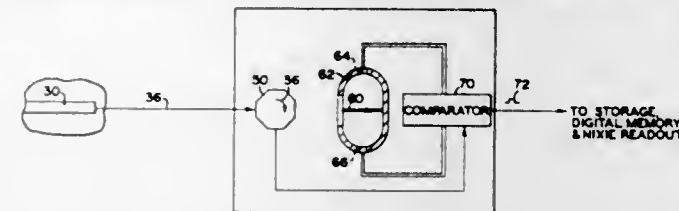
Harry L. Hosterman, 1146 Meadow Spur, Akron, Ohio
Filed Mar. 25, 1969, Ser. No. 810,252
Int. Cl. G01b 11/27; G01j 1/04

U.S. Cl. 356-172

3 Claims

This apparatus utilizes a fixed laser beam as a reference to determine offset error on a movable platform of a layout machine with reference to a fixed frame carrying the movable platform.

Essentially, the invention provides at least two photocells mounted on the movable platform with appropriate optical equipment to receive the laser beam and give equal signal readout when the movable platform is in predetermined offset relationship with the laser beam, indicating a zero position with respect to the reference established by the laser beam. When the movable platform because of inherent mechanical defects in the stationary plat-



form upon the movement thereof relative to the stationary platform actually moves out of alignment with respect to the laser beam, the photocells detect varying amounts of light proportional to the offset relationship of the movable platform, and this is converted to displacement in terms of measurement for use in correcting measurements or other position information taken by apparatus located on the movable platform.

3,637,310

LIQUID CHROMATOGRAPH FOR IDENTIFYING CHEMICAL COMPONENTS BY MEANS OF SPECTROMETER

Toyohiko Naono, Tokyo, Japan, assignor to Nihon Denshi Kabushiki Kaisha, Tokyo, Japan

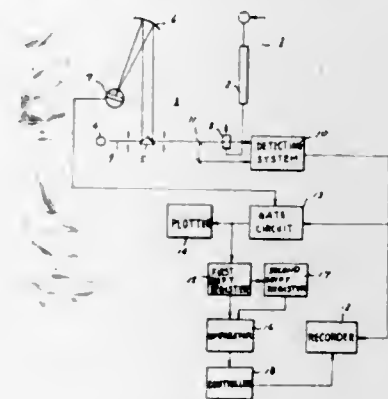
Filed Mar. 26, 1970, Ser. No. 22,949

Claims priority, application Japan, Apr. 1, 1969, 44/25120

Int. Cl. G01j 3/42

U.S. Cl. 356-83

5 Claims



A liquid chromatograph and a method of chromatography for identifying sample components eluted from a chromatographic column. The sample components are passed through a sample cell which is pervious to a pencil of rays whose wavelength is scanned repeatedly by means of a dispersing element forming part of a spectrometer. The sample components are precisely identified by reading an absorption spectrum formed by scanning the wavelength of the pencil of rays, and by plotting a chromatogram in accordance with the signals corresponding to a certain specified wavelength of the scanning range.

3,637,311

OPTICAL DICHROISM MEASURING APPARATUS AND METHOD

Donald G. Tipotsch, Sunnyvale, Calif., assignor to Durrum Instrument Corporation, Palo Alto, Calif.

Filed Oct. 30, 1967, Ser. No. 679,064

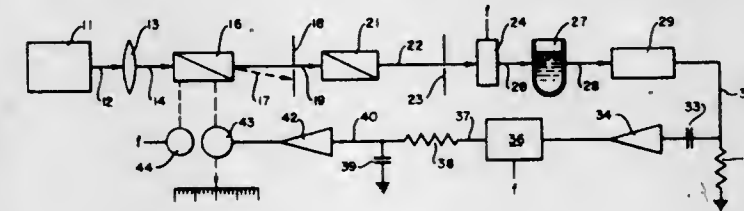
Int. Cl. G01n 21/40

U.S. Cl. 356-114

2 Claims

An apparatus and method in which a periodic right and left circularly polarized light beam is projected through a sample

in which there are included means for occluding the intensity of said right and left circularly polarized light to form a trans-



mitted light beam having right and left circularly polarized light of equal intensity, and means for indicating the amount of occlusion.

3,637,312

ROLL ALIGNMENT DETECTOR

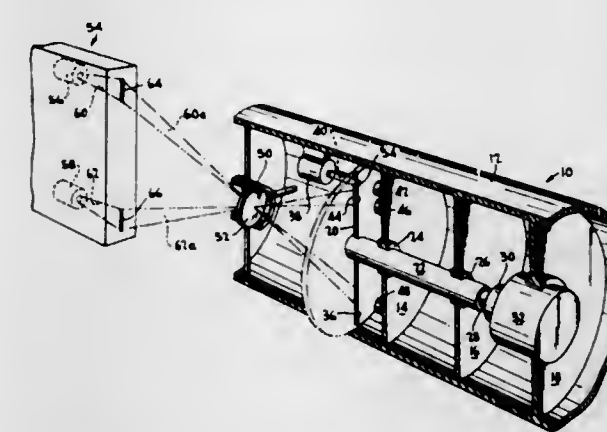
Clarence Cantor, Alexandria, Va., and Irving B. Lowen, Bowie, Md., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 31, 1969, Ser. No. 873,045

Int. Cl. G01b 11/26

U.S. Cl. 356-152

12 Claims



A method and apparatus for precisely measuring roll misalignment of a test body with respect to a reference body is presented. Two light sources are provided on the test body. The light sources are focused upon a rotating disc. The light images are intercepted by an aperture on the rotating disc to illuminate detectors behind the disc. Measurement of the angular displacements at the times of detector illumination gives a precise indication of roll misalignment of the body under test. Accurate roll misalignment is measured even in the event that the body under test is displaced laterally in addition to angularly about the light of sight. The unique geometry that enables this apparatus to be insensitive to lateral displacements is presented.

3,637,313

METHOD OF IMAGING TRANSPARENT OBJECTS WITH COHERENT LIGHT

Juris Upatnieks, Ann Arbor, Mich., assignor to Holotron Corporation, Wilmington, Del.

Original application May 12, 1967, Ser. No. 638,031, now Patent No. 3,539,241, dated Nov. 10, 1970. Divided and this application June 26, 1970, Ser. No. 59,862

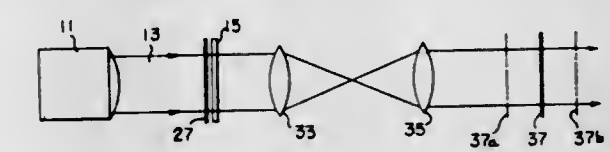
Int. Cl. G02b 27/22

U.S. Cl. 356-125

3 Claims

A method of improving the quality of images formed by illuminating nondiffuse transparent objects with coherent light, such as in microholography, wherein undesirable noise and grain is appreciably reduced by illuminating the object with coherent light that is characterized in having constant

amplitude and random phase. This type of coherent light may be obtained by inserting a phase modulator in the path of the



illuminating light in close proximity to the object, the phase modulator acting to scatter the light at very small angles.

3,637,314

TUBING REFLECTOMETER

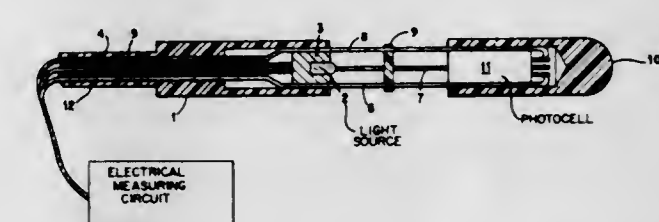
Cornelius Groot, Schenectady, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Jan. 13, 1970, Ser. No. 2,616

Int. Cl. G01n 21/48

U.S. Cl. 356-209

1 Claim



A device for testing the quality of interior walls of tubes, utilizing reflected light inside the tube. The quantity of reflected light in a given section of the tube is measured by means of a photocell and displayed externally of the tubing. The device is movable within the tubing so that all sections of the tubing can be tested.

3,637,315

DIRECT REFLECTING SIGHT

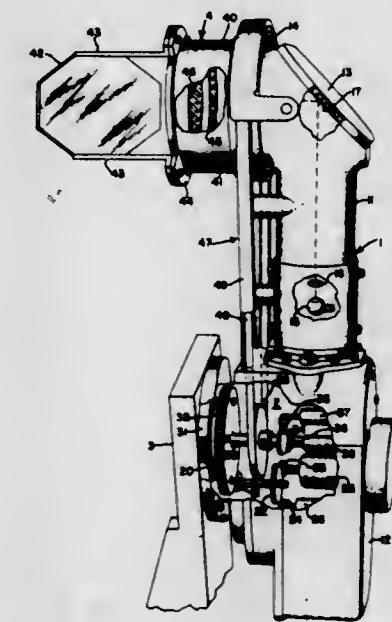
Kennard W. Harper, Endwell, N.Y., assignor to General Electric Company

Filed Sept. 10, 1969, Ser. No. 856,705

Int. Cl. G02b 23/10

U.S. Cl. 356-251

7 Claims



A direct sight instrument permitting wide angle viewing of a target area with a minimal movement by the operator.

Coordination of sight and weapon is provided by means of a combining glass to collimate an illuminated reticle with the direct observation of a target. The combining glass is supported for arcuate movement about a remote axis and simultaneously for rotation about the line of projection of the reticle to cause the combining glass and its axes and the reticle reflection to be at controlled angles with the operator's line of sight to the target. The sight provides for coordination of movement of the line of sight and an associated weapon.

3,637,316

WRITING TOOL

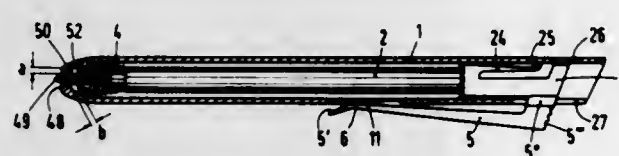
Helmut Bros, Biberthalstrasse 24, Altenberg near Nuremberg, Germany

Continuation of application Ser. No. 758,829, Sept. 10, 1968, now abandoned. This application May 21, 1970, Ser. No. 41,666

Int. Cl. B43k 5/16

U.S. Cl. 401-104

12 Claims



A writing instrument having a mechanism for advancing and retracting the writing member, e.g. a cartridge disposed in the housing of the writing instrument, and a clip provided laterally on the housing to secure the writing instrument to a pocket. The mechanism is so constructed that the retraction of the writing member can be effected optionally by actuating a pushbutton provided on the rear end of the housing or by lifting the clip in relation to the longitudinal axis of the housing.

3,637,317

METHOD AND APPARATUS FOR DRILLING MULTIPLE HOLES

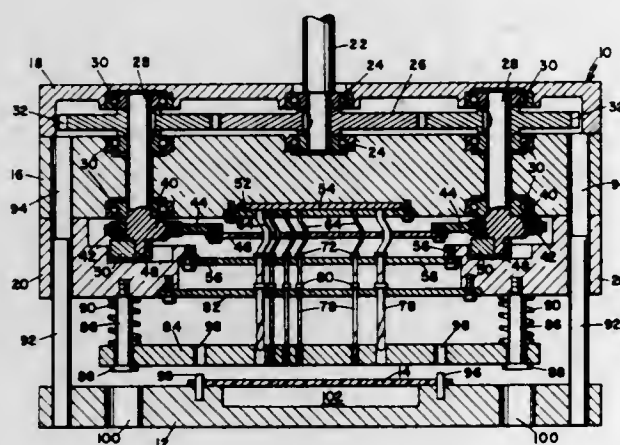
Paul E. Pomeroy, 5424 Diane Ave., San Diego, Calif., and Lucia B. Dixon, 8515 Sandstone Drive, Santee, Calif.

Filed Sept. 2, 1969, Ser. No. 854,508

Int. Cl. B23b 35/00, 39/16

U.S. Cl. 408-1

13 Claims



A drilling unit and method of drilling a large number of holes of various sizes in a preset pattern in a single movement of the drilling head. A plurality of drills, each having a crank portion, are driven simultaneously by a common eccentric mechanism. The drills can be very closely spaced and are individually removable and replaceable without disturbing the overall arrangement.

3,637,318

DRILLING APPARATUS

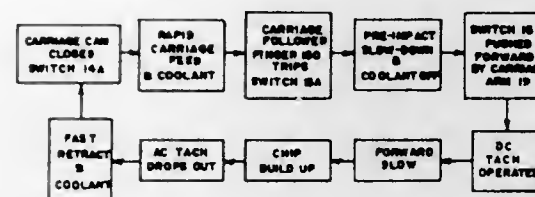
Richard H. Hayes, Tallmadge, Ohio, assignor to Eagle-Picher Industries, Inc., Cincinnati, Ohio

Filed July 22, 1969, Ser. No. 843,673

Int. Cl. B23b 47/24

U.S. Cl. 408-11

25 Claims



A drilling apparatus for drilling holes of predetermined depth in a workpiece including a drill head assembly disposed for angular orientation with respect to the workpiece. The assembly comprises a drill mechanism including a powered drill bit with controls for automatically controlling rotational speed of the bit. The drill mechanism is moved axially into and out of engagement with the workpiece by a drill control mechanism including a fluid motor unit with controls for automatically controlling the feed rate of the bit, such as rapid forward feed, intermediate forward feed, reduced constant cutting feed and rapid retraction feed, in each cycle, and with the cycle length and duration automatically determined in accordance with load forces, such as chip load or the like, on the bit.

3,637,319

METHOD FOR DUAL MODE CONTROL CHANGEOVER IN A STEAM TURBINE

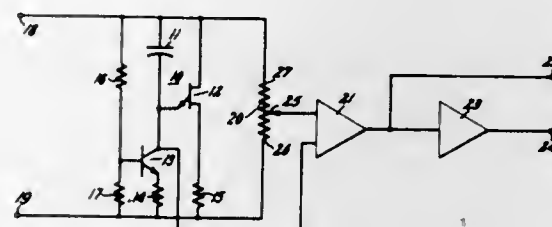
Jerry L. Stratton, Canon City, Colo., and George W. Kessler, Schenectady, N.Y., assignors to General Electric Company

Filed Dec. 8, 1969, Ser. No. 883,221

Int. Cl. F01d 7/00

U.S. Cl. 415-1

3 Claims



A dual mode control system is disclosed wherein the changeover from one mode to the other is made by the use of time ratio switching. A pulse generator produces a series of pulses whose duty cycle varies from zero to 100 percent and controls a switching element to accomplish the changeover in accordance with the percent duty cycle.

3,637,320

COATING FOR ASSEMBLY OF PARTS

Gene F. Wakefield; Carl D. Reedy, Jr., both of Richardson, and John A. Bloom, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 31, 1968, Ser. No. 788,326

Int. Cl. B23k 31/02; B23p 3/00; C23c 11/08

U.S. Cl. 415-200

34 Claims

Metal carbonitride coatings are deposited on assemblies, the parts of which are connected by an adherent material by first heating a selected assembly, including the adherent material, and subsequently contacting the assembly with a gaseous stream which will yield reactive hydrogen, nitrogen, carbon, and a selected metal, upon contact with the heated assembly. The gaseous stream may, for example, contain

hydrogen, nitrogen, titanium tetrachloride, and a carbon-containing compound such as methane, or the hydrogen may be present in compound form, as in the system dimethylhydrazine, nitrogen, and titanium tetrachloride. Alternatively, the necessary reactive constituents for forming the metal carbonitride coating may be contained in a single compound, such as tetrakis (dimethylamino) titanium.

3,637,321

TAIL ROTOR OF A HELICOPTER

Andrei Vladimirovich Nekrasov, ulitsa Stromynka 23, kv. 136a, and Lev Naumovich Grodtko, Pokrovsky bulvar, 14/6, kv. 14, both of Moscow, U.S.S.R.

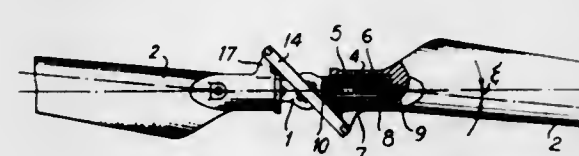
Filed Oct. 2, 1969, Ser. No. 863,156

Claims priority, application U.S.S.R., Dec. 4, 1968, 1286831

Int. Cl. B64c 27/76

U.S. Cl. 416-123

3 Claims



A tail rotor of a helicopter comprising a hub with at least two blades hinged to it, each blade having a sweep angle selected in combination with transverse displacement, and a rod controlling the collective pitch of the rotor, said rod carrying an articulated blade-pitch control means.

3,637,322

ROTOR HEAD FOR A HELICOPTER

Gerhard Kannamuller, Markdorf; Karl-Heinz Koezle, Friedrichshafen; Werner Goller, Bermatingen; Walter Kugler, and Yorck Muller, both of Friedrichshafen, all of Germany, assignors to Dornier A.G., Friedrichshafen am Bodensee, Germany

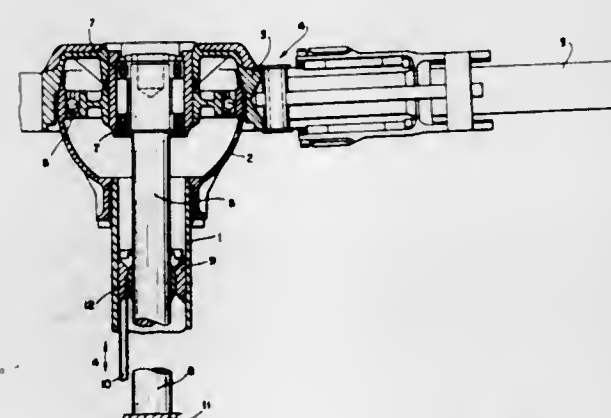
Filed Feb. 12, 1970, Ser. No. 10,744

Claims priority, application Germany, Feb. 26, 1969, P 19 09 501.3

Int. Cl. B64c 27/52

U.S. Cl. 416-138

3 Claims



This invention relates to a rotor head for a helicopter comprising a hollow rotor mast, ball end means mounted on the mast, spring rod means mounted in the mast, ball socket means having rotor blades secured thereto on one end of said spring rod means and the other end thereof being secured

against rotation, and a longitudinally displaceable supporting means between the hollow mast and the spring rod means.

3,637,323

VARIABLE-PITCH BLADED ROTORS

John Alfred Chilman, Painswick; Alfred Herbert Walter Loynes, Tewkesbury, and Peter Spence, Cheltenham, all of England, assignors to Dowty Rotor Limited, Gloucester, England

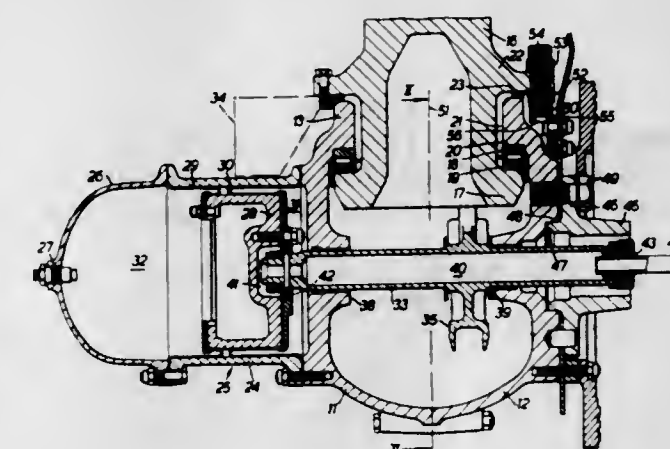
Filed June 18, 1969, Ser. No. 834,297

Claims priority, application Great Britain, July 8, 1968, 32,404/68

Int. Cl. B64c 11/40

U.S. Cl. 416-139

3 Claims



A variable-pitch bladed rotor having a pitch-change motor which includes a casing and a diaphragm device which together define on one side of the device a closed chamber for fluid under pressure, and on the other side of the device an actuator chamber. Means are provided for varying the pressure of fluid in the actuator chamber, and means are connected to the diaphragm device for transferring movement thereof, consequent upon such variation in pressure, to the blades to vary their pitch.

3,637,324

VEHICLE PROPULSION-ASSISTING SYSTEMS

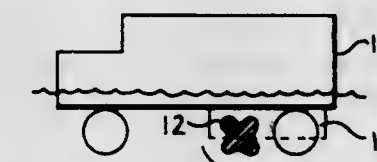
Anatole J. Sipin, 386 Park Avenue S., New York, N.Y.

Filed Nov. 12, 1969, Ser. No. 870,177

Int. Cl. B63h 1/04

U.S. Cl. 416-146

13 Claims



A system for increasing propulsive effectiveness of wheeled vehicles in fluid or soft solid media by pneumatically varying the characteristics of one or more driving wheels. The contour of the outer surface of the wheel is varied between a circular shape and a shape which includes one or more pairs of alternately indented and raised segments by adjustment of fluid pressure within the wheel.

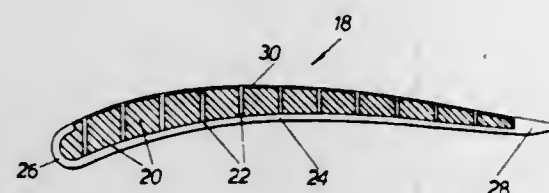
3,637,325

BLADE STRUCTURE

John Godfrey Morley, Little Eaton, England, assignor to Secretary of State for Defense, London, England
Filed Dec. 2, 1969, Ser. No. 881,551
Int. Cl. F01d 5/14

U.S. Cl. 416-230

3 Claims



A composite blade for use in gas turbine engines has a core formed by spanwise fiber reinforced members separated by metallic strips, the core being at least partially covered by a metallic sheet.

3,637,326

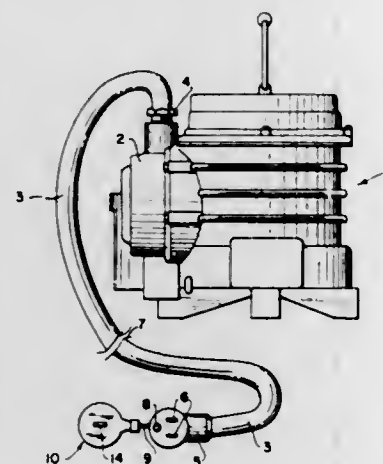
MANUAL CONTROL FOR PRESSURE-RESPONSIVE SWITCH OF A SUBMERSIBLE MOTOR AND PUMP

Winston C. Dowell, Box 313 Mullen Lane, Highland Springs, Va.

Filed Jan. 22, 1970, Ser. No. 4,814
Int. Cl. F04b 49/06

U.S. Cl. 417-44

3 Claims



Device for manual control of a pressure-responsive switch of a motor driving a submerged pump, irrespective of hydraulic pressure effective upon the switch. A sealed flexible bellows is pneumatically connected at ground level, into the tubular conduit including current-conducting cables extending to the submerged pressure-responsive switch of the motor, and enables reduction of pressure effective upon the switch to energize the motor when desired. The sealed bellows, while effective and efficient for its intended purpose, avoids the possibility of flooding of the switch, water damage to the motor, and the entrance of dirt and moisture into the switch mechanism.

3,637,327
PUMP

Emil A. Kubiak, Novelty, Ohio, assignor to Borg-Warner Corporation, Chicago, Ill.

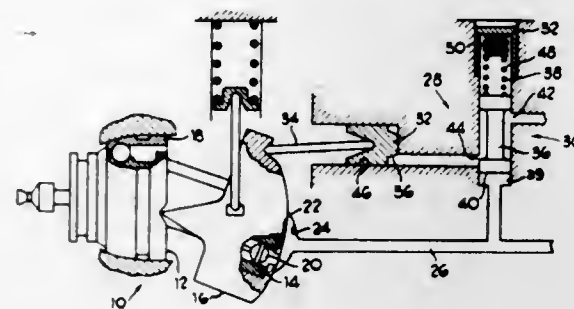
Filed Nov. 24, 1969, Ser. No. 879,067
Int. Cl. F04b 49/00, 1/26

U.S. Cl. 417-222

1 Claim

A variable displacement pump is provided with a temperature compensated displacement compensator valve adjusted to obtain a desired constant pressure output under variable

fluid medium temperature conditions. The valve incorporates, in addition to spring biasing means, temperature



responsive means which vary the force applied to the spring in response to temperature changes in the environment.

3,637,328

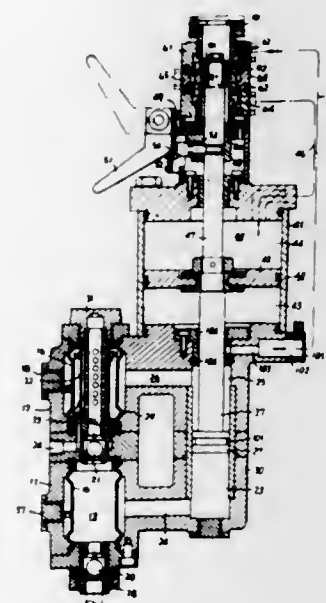
SLURRY-PUMPING MEANS

Akitsu Kurokawa, and Shigeru, both of Yokohama
Maezawa, JA, assignors to Kabushiki Kaisha Inouye Shokai (Inouye & Co., Ltd.), Yokohama, Japan

Filed June 24, 1970, Ser. No. 49,384
Claims priority, application Japan, Feb. 26, 1970, 45/16119
Int. Cl. F04b 3/00, 43/06, 15/02

U.S. Cl. 417-246

7 Claims



A slurry-pumping means which comprises a driving pump, an intake diaphragm pump, an exhaust diaphragm pump connected therewith in series and an intermediate check valve, and driven by a fluid medium in such a manner that, while two unit volumes of the slurry are taken in by the intake diaphragm pump, one unit volume of the slurry contained in the exhaust diaphragm pump is exhausted out thereof, and, while the intake diaphragm pump does not take in the slurry, one unit volume previously taken in by the intake pump is exhausted from the exhaust pump and the other one unit volume previously taken in by the intake pump is accumulated in the exhaust pump and becomes the first-named one unit volume. By virtue of the above operating manner and a construction adapted thereto, the output becomes continuous with a uniform pressure. Various means for operation and maintenance thereof are also disclosed.

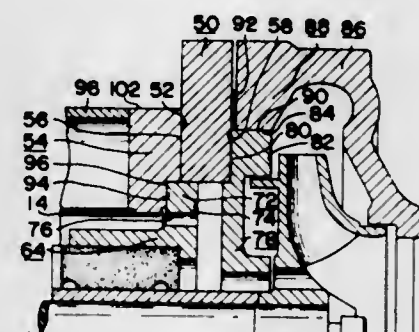
3,637,329
PUMP

Ryuichi Sato; Seizi Harimaya; Akiko Agata; Kunito Morishima; Toshiaki Ioutai, and Yasuhiro Kame, all of Tokyo, Japan, assignors to Nikkiso Co., Ltd., Tokyo, Japan
Filed June 1, 1970, Ser. No. 42,250

Claims priority, application Japan, May 29, 1969, 44/41940
Int. Cl. F04b 17/00, 35/00

U.S. Cl. 417-360

3 Claims



A canned motor pump has a stator sealed from a rotor, the rotor driving a shaft that carries an impeller. The shaft rotates in front and rear bearings while the thrust of the impeller is balanced by fluid passing through an orifice plate behind the impeller. A front bearing housing is separate from but interconnected with the orifice plate by an adapter. The stator may be externally heat exchange jacketed, while a guide disc may be carried by the front bearing housing to direct fluid radially inwardly toward the intake of an auxiliary impeller.

3,637,330

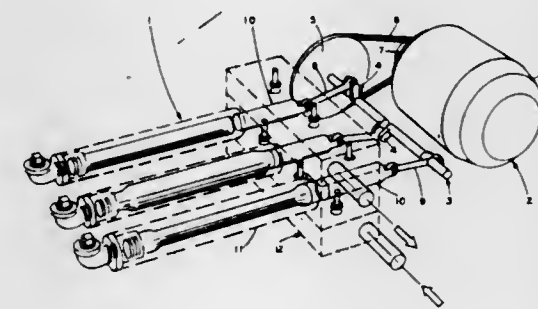
MULTICHAMBER TUBULAR DIAPHRAGM PUMP

Richard W. Goeldner, New Berlin, Wis., assignor to Aqua-Chem, Inc.

Filed Nov. 21, 1969, Ser. No. 878,715
Int. Cl. F04b 9/08, 35/02, 45/02, 43/06

U.S. Cl. 417-389

16 Claims



A tubular diaphragm pump, particularly useful for pumping corrosive fluids at relatively high-uniform pressures, such as in reverse osmosis systems. A work fluid is driven in phased sequence inside a plurality of sealed tubular diaphragm pump chambers arranged in parallel flow paths. The respective diaphragms expand into their associated pump chambers to force the fluid being pumped through the system. Pressure-responsive check valves at the inlet and outlet of each pump chamber open and close in phased sequence to control flow. A drive mechanism which is sealed off from the fluid being pumped is provided to drive the work fluid which flexes the diaphragms.

The flexible tubular diaphragms are disposed on cylindrical members having wider end portions and perforated intermediate wall portions of lesser diameter than the adjacent end portions. The cylindrical members each have a central chamber which communicates with the internal surface of

the associated tubular diaphragm through the perforations in the intermediate wall portion. Each central chamber is also in communication with a piston chamber containing a reciprocating drive piston. The pistons are connected to reciprocate in phased sequence. The central chambers and the piston chambers are filled with a hydraulic work fluid which flexes the tubular diaphragms when the pistons reciprocate. In at least one embodiment, the cylindrical members supporting the tubular diaphragms each include an integral end extension defining the piston chamber. The cylindrical members also serve as tie rods for the pump assembly.

3,637,331

SELF-CONTAINED PUMPING UNIT

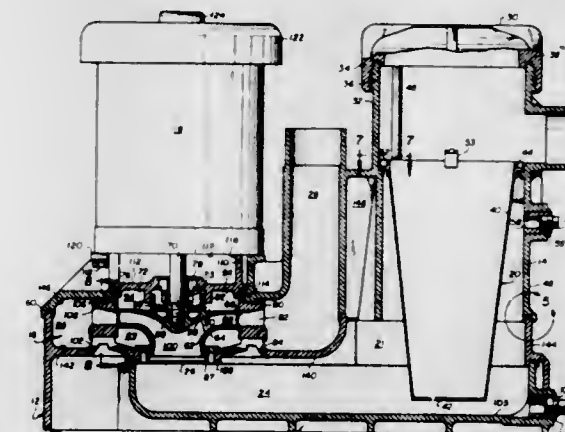
Wilbur C. Smith, N. Caldwell, and Philip Joseph Nagengast, Plainfield, both of N.J., assignors to Worthington Corporation, Harrison, N.J.

Filed June 1, 1970, Ser. No. 42,128

Int. Cl. F04b 17/00, 35/04; F01d 15/00

U.S. Cl. 417-424

29 Claims



A self-contained pumping unit, fabricated primarily from plastic materials, has pump apparatus and filter apparatus formed as integral parts of a single structure. The self-contained pumping unit includes a base member which communicates the pump apparatus to the filter apparatus. Additionally, the base member incorporates a mount for the pump drive motor and a pump discharge conduit. The relative positioning of the filter apparatus to the pump base member and other structural features of the unit provide the unit with self-venting, self-draining, and self-priming characteristics. The design of the pumping unit allows for the fabrication of the structure by modern plastic molding techniques, thereby allowing the use of noncorroding and chemically inactive materials in all the surfaces of the structure which are to be exposed to the liquid to be pumped. A special design is used to mate the individually molded parts of the pumping unit to form a single structure having high strength and rigidity.

3,637,332

VARIABLE COMPRESSION MEANS FOR A ROTARY ENGINE

William J. McAnally, III, Lake Park, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed July 30, 1970, Ser. No. 58,937

Int. Cl. F04c 15/04, 29/10

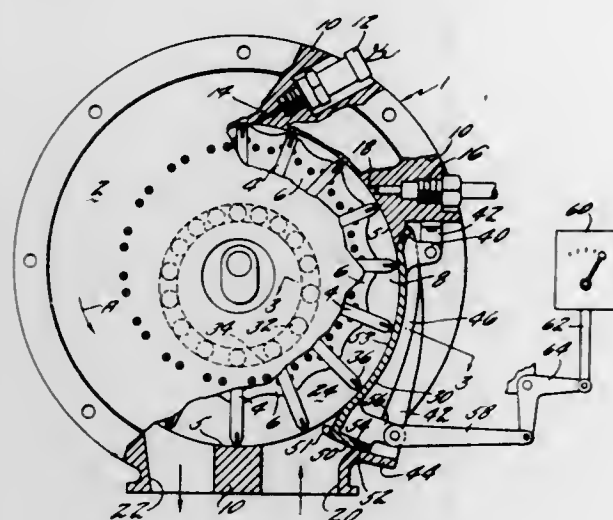
U.S. Cl. 418-159

2 Claims

A vane rotary-type engine having a rotor assembly mounted for rotation within a cylindrical surface, said rotor assembly being eccentrically mounted with vanes forming chambers therebetween. The rotation of the vanes continuously varies the size of the chambers around the cylindrical surface between a maximum size at an air inlet to a minimum size at a point approximately 180° therefrom where a com-

oustible mixture which has been formed is ignited. The size of the chamber then increases to the exhaust outlet approximately 180° therefrom. To control the compression ratio and the amount of air being compressed a section of the cylindrical surface on the compression side is made movable so that

drivably engages with the main gear and is drivably engageable with a rotatable member which is driven or driving according to whether the unit is used as a motor or pump. The coupling means is such that the respective rotational axes of the main gear and the driven or driving member may be misaligned during use.



it can be hinged outwardly allowing air to bleed from the variable chambers as they advance to their smallest volume. This section is movable for predetermined positioning by a control such as a fuel control or throttle lever to provide increased compression leakage as power requirements decrease.

3,637,333

GEAR-TYPE FLUID MOTOR OR PUMP

Kenneth Raymond Dixon, and David Burnett Sugden, both of Kingston Beach, Australia, assignors to Improved Mechanical Products Pty. Ltd., Tasmania, Australia

Filed Oct. 18, 1968, Ser. No. 768,820

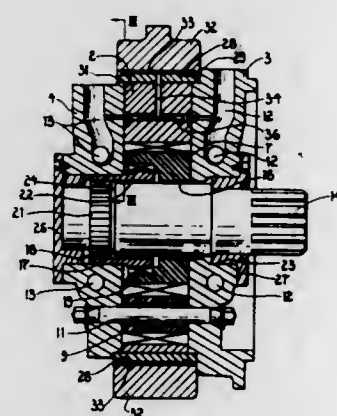
Claims priority, application Australia, Oct. 23, 1967,

28809/67

Int. Cl. F01c 17/00, 1/08

U.S. Cl. 418-182

38 Claims



This invention relates to a motor or pump of the gear-type including a housing containing a main gear and at least one pinion gear meshing with the main gear. A coupling means

3,637,334
COMBINED FLAME HEIGHT ADJUSTING AND
GAUGING MECHANISM

Herman Schlamp, Cologne, Germany, assignor to Ronson Corporation, Woodbridge, N.J.

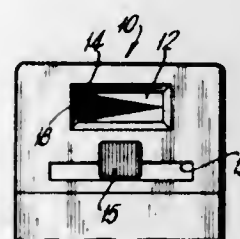
Filed June 2, 1970, Ser. No. 42,626

Claims priority, application Germany, July 8, 1969, P 19 35 163.4

Int. Cl. F23d

U.S. Cl. 431-17

14 Claims



A burner valve adjustment mechanism, wherein the valve adjustment is combined with an indicator enabling the user to gauge the height of the flame by observing the indicator through a window.

3,637,335

SOLID FUEL BLOCK HAVING A SELF-CONTAINED WICK

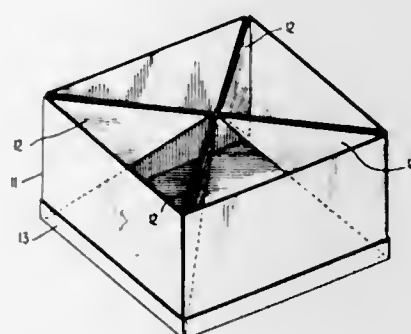
George A. Uhl, Markham, Ill., assignor to Atlantic Richfield Company

Filed Sept. 4, 1969, Ser. No. 855,279

Int. Cl. F23d 3/16

U.S. Cl. 431-291

3 Claims



A solid fuel block for use as a heat source in, for example, a fruit orchard, is disclosed. The solid fuel block is composed of a single, folded container enclosing a solid hydrocarbon fuel on the bottom and four sides. The folded-in corners of the container extend into the fuel and act as a wick.

3,637,336

OPPOSED VORTEX COMBUSTION CHAMBER

Wallace W. Velle, Woodland Hills, and Robert D. Scherer, North Hollywood, both of Calif., assignors to North American Rockwell Corporation

Filed Dec. 29, 1969, Ser. No. 888,243

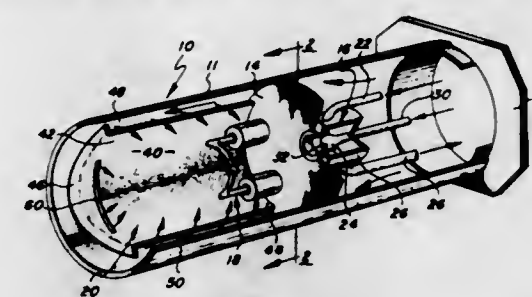
Int. Cl. F23d 15/00

U.S. Cl. 431-351

6 Claims

A combustion chamber for burning fuel oil or the like consists of a tubular housing wherein a source of air is introduced axially along the interior walls of the chamber, the air being directed by baffles inwardly in two streams which flow in opposite circumferential directions. The counter

rotating vortices intersect each other within the chamber. Fuel is introduced at some point along or near the dividing



line of the vortices for uniform fuel-air mixing thereby enhancing the combustion properties of the mixture.

CHEMICAL

3,637,337

IMPROVING THE DYE LIGHTFASTNESS OF ACRYLIC SUBSTRATES WITH TRIAZINE COMPOUNDS

Brian Pilling, 1309 Elizabeth Ave. S.E., Decatur, Ala.

Filed Aug. 3, 1966, Ser. No. 569,796

Int. Cl. D06p 3/00, 5/00, 5/02

U.S. Cl. 8-4

7 Claims

A method of improving the dye lightfastness of acrylic polymer substrates by the incorporation of amino or hydroxy-substituted triazine compounds. Preferred Polymers comprise polyacrylonitrile and copolymers containing at least 80 percent acrylonitrile. Preferred lightfastness agents are triamino triazine and trihydroxy triazine in amounts from about 0.2 percent to about 5 percent, based on polymer weight.

3,637,338

POLYAMIDE FIBER DYED WITH DISAZO-DYESTUFFS

Hans Alfred Stengl, Brookside Heights, Toms River, N.J., assignor to Toms River Chemical Corporation, Toms River, N.J.

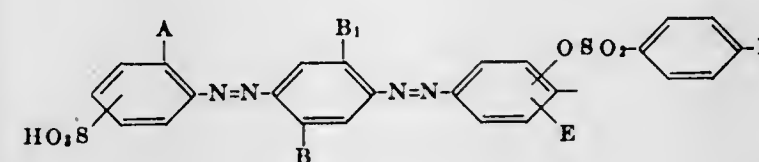
Original application July 10, 1968, Ser. No. 743,630. Divided and this application July 17, 1970, Ser. No. 62,785

Int. Cl. C09b 35/04; D06p 1/06

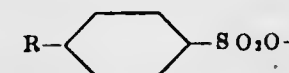
U.S. Cl. 8-41

1 Claim

Compounds of the formula



wherein A is hydrogen, lower alkyl such as methyl, ethyl or propyl, lower alkoxy such as methoxy, ethoxy or butoxy, or chlorine; B and B' are hydrogen, lower alkyl such as methyl, ethyl or butyl, or lower alkoxy such as methoxy, ethoxy, or butoxy; E is hydrogen, lower alkyl such as methyl, ethyl or butyl, or lower alkoxy such as methoxy, ethoxy or butoxy; R is hydrogen, methyl or chlorine and



is either ortho or para to the azo linkage; and SO₂H is either meta or para to the azo linkage, provide yellow to scarlet shades of good fastness and dyeing properties and excellent leveling characteristics on natural and synthetic polyamide fibers.

3,637,339

STAIN REMOVAL

Frederick William Gray, 14 Stockton Road, Summit, N.J.

Continuation-in-part of application Ser. No. 711,203, Mar. 7, 1968. This application May 3, 1968, Ser. No. 726,571

Int. Cl. D06l 3/02

U.S. Cl. 8-111

21 Claims

Composition for removing stains from fabrics, including, an enzyme, a per-compound, and an activator for the perborate.

3,637,340

PROCESS FOR THE DYEING AND PRINTING OF TEXTILE MATERIAL MADE OF HYDROPHOBIC POLYESTERS

Hans Mollet, 18, Spitzackerstrasse, Bottmingen; Helmut Hohenegger, 11, Im Gehracher, 4000 Basle; Karlheinz Keller, 22, Im Esterli, and Rudolf Keller, 32, Kilchgrundstrasse, all of Riehen, all of Switzerland, assignors to Ciba-Geigy A G, Basel, Switzerland

Filed Jan. 28, 1969, Ser. No. 794,771

Claims priority, application Switzerland, Feb. 2, 1968, 1622/68; Nov. 6, 1968, 16521/68

Int. Cl. D06p 5/04

U.S. Cl. 8-166

6 Claims

Process for dyeing or printing textile materials made from hydrophobic polyester fibers with dye liquors or inks containing water-dispersible dyestuff and a liquid auxiliary mixture comprising a fiber-swelling agent such as o-phenylphenol, a protective colloid such as polyvinylalcohol, a water-miscible organic solvent, water and optionally for use in dye liquors containing nonionogenic additives a sulfosuccinate or the like anion-active agent whereby foam formation during dyeing or printing is eliminated or at least greatly reduced.

3,637,341

METHOD AND MEANS FOR CORROSION PROTECTION OF CABLES EXPOSED TO UNDERGROUND ENVIRONMENTS

James B. Horton, Bethlehem, and Herbert E. Townsend, Jr., Hellertown, both of Pa., assignors to Bethlehem Steel Corporation

Filed Dec. 29, 1969, Ser. No. 888,551

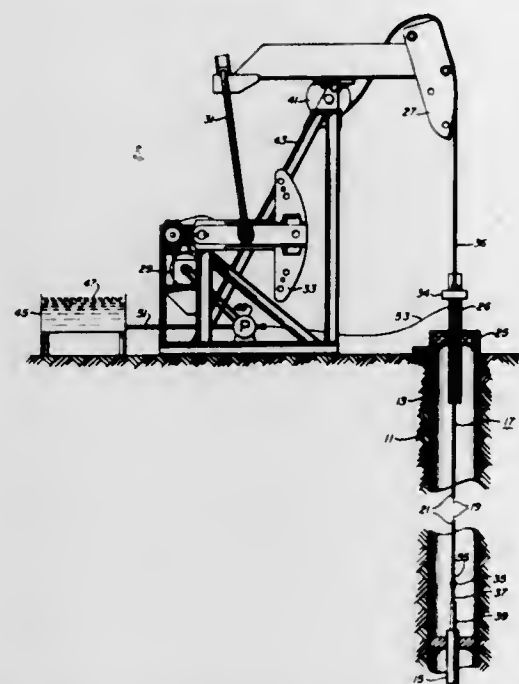
Int. Cl. C23M 11/00, 11/08

U.S. Cl. 21-2.5

18 Claims

Stranded cable such as flexible pumping strand used for oil wells is protected from deterioration in corrosive underground and underwater environments by jacketing the cable with a plastic sheath and pumping a corrosion-inhibit-

ing liquid having a specific gravity similar to that of the immediate underground environment from the surface through



the strand and out the lower end of the strand while maintaining a slight positive pressure within the strand or cable.

3,637,342

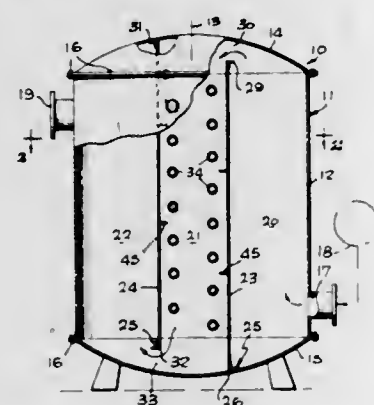
STERILIZATION OF FLUIDS BY ULTRAVIOLET RADIATION

Louis P. Veloz, 500 South Madison St., Pasadena, Calif.
Filed May 7, 1969, Ser. No. 822,474

Int. Cl. A611 3/00

U.S. Cl. 21—102 R

7 Claims



A fluid sterilizer including a pressure vessel through which fluid to be sterilized is directed, and containing at least one partition formed of a material adapted to pass ultraviolet radiation, with a source of such radiation being positioned to emit ultraviolet radiation first through fluid within a compartment at one side of the partition, and then through the partition and into fluid contained within a second compartment at the opposite side of the partition, in a manner assuring maximum utilization of the available radiation.

3,637,343

METHOD FOR INCINERATION OF COMBUSTIBLE MATERIAL IN A CONTINUOUS FLOW OF A GASEOUS MEDIUM

John H. Hirt, Monterey Park, Calif., assignor to Hirt Combustion Engineers, Montebello, Calif.

Filed Apr. 26, 1968, Ser. No. 724,348

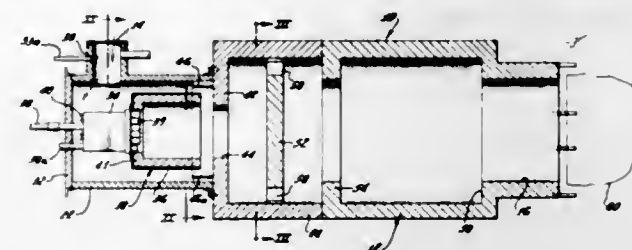
Int. Cl. F27b 9/00

U.S. Cl. 23—2 C

6 Claims

A method and a fume incinerator apparatus for purifying a continuous flow of waste gas that contains combustible

material by incinerating such material. The exemplary incinerator includes a chamber, a fuel-operated burner in the chamber, and flow control means for rapidly and thoroughly



mixing waste gas and the hot gaseous products from the burner for highly effective and efficient incineration of the combustible material.

3,637,344

METHOD OF TREATING EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

Charles E. Thompson, Warren, N.J., assignor to Esso Research and Engineering Company

Filed Oct. 23, 1968, Ser. No. 770,080

Int. Cl. B01d 53/34

U.S. Cl. 23—2 E

9 Claims

Exhaust gases of internal combustion engines are contacted with a ruthenium-iridium catalyst to provide less objectional products suitable for discharge to the atmosphere. The ruthenium-iridium catalyst has been found to be extremely effective in promoting the removal of nitrogen oxides, carbon monoxide and unburned hydrocarbons from automobile exhaust gases. The catalyst is more effective than catalysts containing either the ruthenium component or the iridium component alone.

3,637,345

PROCESS FOR REMOVING ACID GASES FROM GASEOUS METHOD

Frederic Leder, Elizabeth, N.J., assignor to Esso Research and Engineering Company

Filed May 16, 1969, Ser. No. 825,444

Int. Cl. B01d 53/16, 53/34

U.S. Cl. 23—2 R

12 Claims

When using potash or other alkali metal salts such as carbonates, hydroxides, hydrosulfides, sulfides, or bicarbonates to absorb acid gases such as H_2S and CO_2 from gaseous mixtures, unexpectedly high absorption rates are obtained by adding amines which when present in critical amounts exhibit regions of liquid-liquid-gas immiscibility in the separation system.

3,637,346

PROCESS FOR THE TRANSFORMATION INTO USEFUL PRODUCTS OF SLUDGES OBTAINED BY NEUTRALIZATION OF CRUDE PHOSPHORIC ACIDS

Klaus-Peter Ehlers, Hermulheim near Cologne; Heinz Harnisch, Lovenich near Cologne, and Siegfried Lischka, Bruhl-Vochem, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei Koln, Germany

Filed Apr. 22, 1969, Ser. No. 818,400

Claims priority, application Germany, May 30, 1968, P 17 67 631.2

Int. Cl. C01b 25/20

U.S. Cl. 23—107

10 Claims

Utilization of sludges consisting substantially of insoluble aluminum and iron phosphates, of the type obtained by neutralization of crude phosphoric acids produced from wet-processed phosphate ores. The sludges are combined with silicic acid-containing compounds, which are added in a quantity one or two times the quantity stoichiometrically needed to produce alkali metal aluminum silicates of the general formula

la $Me_2Al_2SiO_6$, in which Me is an alkali metal, and with an alkali liquor, which is added so as to obtain an alkali metal oxide: P_2O_5 -molar ratio between 4.0 and 5.0; the resulting suspension is heated to a temperature higher than $90^\circ C.$, for a period between 30 and 200 minutes, with agitation; phosphoric acid is added so as to produce an alkali metal oxide: P_2O_5 -molar ratio between 2.5 and 3.5; the P_2O_5 -concentration in the resulting solution is reduced down to six to 10 weight percent by the addition of water or recycled wash solution; the solution is filtered; an insoluble residue consisting of $Fe(OH)_3$ and $Me_2Al_2SiO_6$ is washed out; and the filtrate is used for making alkali metal phosphates.

3,637,347

AIR POLLUTION CONTROL SYSTEM WITH CHEMICAL RECOVERY

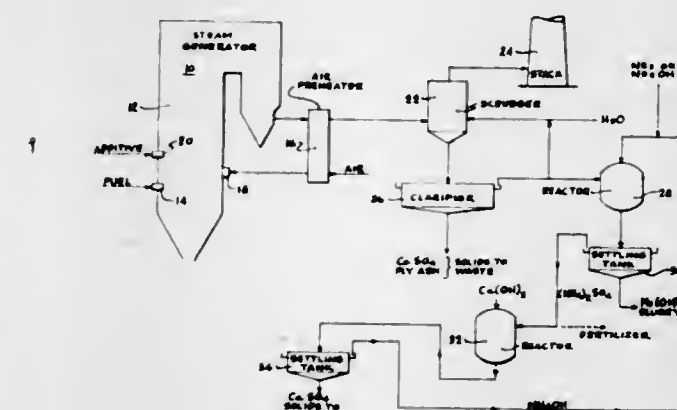
James Jonakin, Simsbury, and Arthur L. Plumley, Wapping, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed July 31, 1969, Ser. No. 846,331

Int. Cl. C01f 11/46, 5/40; C01c 1/24

U.S. Cl. 23—122

4 Claims



A system and process is described for treating the effluent chemicals from an air pollution control system for fossil fuel fired equipment. The air pollution control system involves the addition of magnesium-containing additives such as dolomite to the equipment followed by the wet scrubbing of the flue gases resulting in the reaction of the sulfur oxides with the additive. The treatment involves the addition of ammonium hydroxide to the solution removed from the scrubber to convert the soluble magnesium sulfate to soluble ammonium sulfate and precipitate magnesium hydroxide. The ammonium sulfate solution is removed from the magnesium hydroxide and either used for fertilizer or further reacted with calcium oxide to precipitate calcium sulfate and form ammonium hydroxide which is recycled for reaction with the scrubber effluent.

3,637,348

CONTROL OF POSTPRECIPITATION FROM WET PROCESS PHOSPHORIC ACID

John W. Kraus, Fairfax, Va., and Casimer Claudius Legal, Jr., Elkridge, Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,319

Int. Cl. C01b 25/22

U.S. Cl. 23—165

10 Claims

This invention is directed to controlling the rate and amount of postprecipitate that forms in merchant grade phosphoric acid by treating the acid with cresylic acid, picoline, pyridine and their homologues. This treatment is useful as a control against postprecipitation in the wet process preparation of phosphoric acid. The use of cresylic acid, picoline, and pyridine, and their homologues has been found to cause rapid precipitation of solids from the

phosphoric acid, thereby improving the purity of the phosphoric acid in a shorter period of time than previously possible.

3,637,349

ALKALI METAL-ALKALINE EARTH METAL HYDROXIDES

Robert J. Moolenaar, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 22, 1969, Ser. No. 887,391

Int. Cl. C01f 11/00, 11/02

U.S. Cl. 23—183

1 Claim

A new compound having the general formula of $M_2E(OH)_4$, wherein M is Ea or K and E is Ba or Sr.

3,637,350

METHOD OF INTRODUCING LIQUID QUENCH INTO A CARBON BLACK REACTOR

Warren M. Thomas, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed July 18, 1969, Ser. No. 842,960

Int. Cl. C09c 1/50

U.S. Cl. 23—209.4

7 Claims

Method of introducing a liquid quench into a carbon black reactor to reduce the temperature of the gaseous effluent wherein a gaseous fluid such as steam, nitrogen, or carbon dioxide is used to increase the pressure on the liquid quench and facilitate the dispersal thereof in the gaseous effluent. The method is particularly useful for quenching hot gases in a carbon black reactor in standby operation.

3,637,351

POROUS PARTICULATE SULFUR AND MEANS AND METHOD FOR ITS PREPARATION

Donald C. Young, Fullerton, and Bruce A. Harbott, Northridge, both of Calif., assignors to Union Oil Company, Los Angeles, Calif.

Filed July 30, 1969, Ser. No. 846,141

Int. Cl. C01b 17/02

U.S. Cl. 23—224

4 Claims

Highly porous sulfur particles are prepared by discharging, into a vapor space at substantially atmospheric pressure, water and molten sulfur in intimate admixture to form sulfur droplets having a continuous sulfur phase and a contained water phase, permitting the sulfur droplets to solidify into discrete particles and the water to separate therefrom. This can be accomplished by discharging molten sulfur and water from separate conduits and into intimate admixture in the atmosphere. The sulfur is solidified into porous particles and the momentum of the combined streams is sufficient to convey the sulfur to a desired location on a storage pad. The invention is useful in conveying molten sulfur from tanks of a truck or tankcar to a storage site for further delivery to consumers.

3,637,352

PROCESS OF PURIFYING SULFUR-CONTAINING EXHAUST GASES AND OF RECOVERING SULFUR

Karl Bratzler, Bad Homburg v.d.H.; Wilhelm Herbert, Frankfurt/Main; Reinhard Hoehne, Neu Isenburg, and Klaus Storp, Frankfurt/Main, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt/Main, Germany

Filed Feb. 3, 1969, Ser. No. 807,160

Claims priority, application Germany, Feb. 2, 1968, P 16 67 636.1

Int. Cl. C01b 17/04

U.S. Cl. 23—225 P

15 Claims

A process of purifying gas which contains hydrogen sulfide and sulfur dioxide, and simultaneously recovering sulfur, comprising contacting said gas with activated carbon at an

elevated temperature for adsorption of sulfur by the activated carbon and subsequently regenerating the activated carbon, characterized in that the hydrogen sulfide to sulfur dioxide ratio in the gas is 2.5:1 to 4.0:1, the gas is treated in two successive stages each of which contains activated carbon, the first stage being operated at a temperature of 120°-200° C. and causing hydrogen sulfide and sulfur dioxide to react according to the reaction equation $2H_2S + SO_2 \rightarrow 2H_2O + 3S$, oxygen is added to the gas which has been treated in the first stage, said gas is subsequently passed at temperatures below 200° C. through the second stage containing activated carbon for reaction according to the equation $2H_2S + O \rightarrow 2H_2O + 2S$.

3,637,353

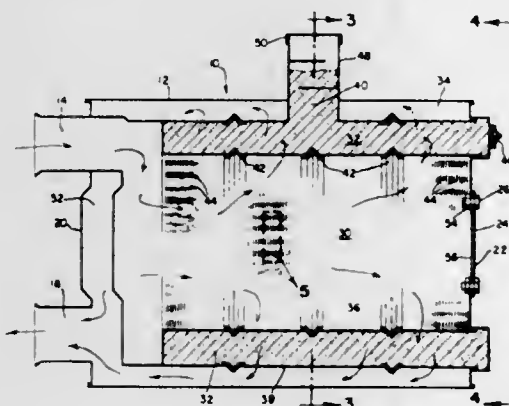
APPARATUS FOR PURIFYING AND SILENCING THE EXHAUST GASES OF A HYDROCARBON-FUELED ENGINE

Harold R. Smithson, Westtown, and Kenneth P. Strohl, Media, both of Pa., assignors to Oxy-Catalyst, Incorporated, West Chester, Pa.
Continuation-in-part of application Ser. No. 7,821, Feb. 2, 1970, now abandoned. This application Aug. 24, 1970, Ser. No. 66,233

Int. Cl. B01J 9/04

U.S. Cl. 23-288 F

9 Claims



An apparatus for purifying and silencing the exhaust gases generated by a hydrocarbon fuel and more especially a gasoline or diesel-fueled engine. The apparatus has an outer shell having inlet and outlet ports and an access means for servicing the apparatus. Inside the shell there are three coaxially aligned chambers through which the exhaust gases flow in series from the inlet port to the outlet port. The central chamber is packed with a heavy metal catalyst, for example, a platinum-plated catalyst for purifying the exhaust gases. The apparatus is especially useful on automobiles, buses and trucks which are operated in congested center city areas.

3,637,354

TRIM MEMBERS

Donald R. Zaremski, Cheswick, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1969, Ser. No. 860,541

Int. Cl. B32b 15/04; B60r 13/04

U.S. Cl. 29-191.6

12 Claims



The application describes assemblies comprised of a body member in combination with a stainless steel trim member

having a contact surface which abuts the body member and an exposure surface subject to view. Adhered to the contact surface and located between the contact surface and the body member is a layer of aluminum which provides galvanic protection for the body member. Covering the aluminum is a chromate or phosphate conversion coating which provides protection against aluminum galvanic corrosion without detrimentally affecting the galvanic protection which aluminum provides for the body member. Also described are conversion-coated, aluminum-stripped stainless steel composites suitable for fabrication into trim members and a method for producing conversion-coated, aluminum-stripped stainless steel trim members.

3,637,355

ARTIFICIAL FIREPLACE LOGS WHICH BURN WITH COLORED FLAME

William Hughes Brockbank, 777 East South Temple, Salt Lake City, Utah

Filed June 20, 1969, Ser. No. 835,092

Int. Cl. C10I 11/00

U.S. Cl. 44-1 R

6 Claims

An artificial fireplace log containing pyrogenic coloring matter which produces colored flames upon ignition of the log continuously until the log is consumed. The log is composed of combustible materials, preferably sawdust and wax, and contains pyrogenic coloring matter distributed throughout the log mix. Additional pyrogenic coloring matter is adhered to the surface of the log, preferably along two adjacent longitudinal sides corresponding to the top and front of the log as it is positioned in a fireplace. The preferred pyrogenic coloring matter comprises chlorinated vinyl polymers or copolymers either alone or in mixture with other metallic salts known to provide flame coloration upon burning. These flame colorants can be used in any form and with virtually any combustible materials in fireplaces. The process of the invention includes the steps of preparing an artificial log mix containing pyrogenic coloring matter, molding an artificial log with the mix, and adhering pyrogenic coloring matter, preferably in the form of dry, finely divided particles, along the surface of the log.

3,637,356

DIESEL FUEL COMPOSITION

Andre Jacques Emile Vanderlinden, Watermael-Boltsford, and Gilbert Jules Ghislain Stubbe, Liege, both of Belgium, assignors to Cosden Oil & Chemical Company, Big Springs, Tex.

Filed July 15, 1965, Ser. No. 472,365

Claims priority, application Italy, Mar. 31, 1965, 28472

Int. Cl. C10I 1/18, 1/24, 1/32

U.S. Cl. 44-51

14 Claims

A diesel fuel containing a carbonated, basic barium salt to reduce smoke.

3,637,357

FUEL EMULSION WITH IMPROVED STABILITY

James Nixon, Westfield, and Fredrick L. Jonach, Short Hills, both of N.J., assignors to Esso Research and Engineering Company

Filed July 23, 1969, Ser. No. 844,195

Int. Cl. C10I 1/32

U.S. Cl. 44-51

11 Claims

Stability of viscous liquid hydrocarbon emulsions, wherein the hydrocarbon is present in a major proportion as the dispersed phase and emulsifiers do not represent more than 2 wt. percent of the total emulsion, is improved by the addition of certain dicarboxylic acid derivatives derived from reaction with amines and alcohols.

3,637,358

STABILIZATION OF HYDROCARBON OILS

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of application Ser. No. 543,008, Apr. 18, 1966, now Patent No. 3,478,096, dated Nov. 11, 1969.

This application Mar. 5, 1969, Ser. No. 804,712

Int. Cl. C10I 1/22

U.S. Cl. 44-72

16 Claims

Stabilizing hydrocarbon oil with an N-substituted alkox-yalkylamine. The invention is particularly advantageous to prevent sediment formation in fuel oil.

3,637,359

COATED ABRASIVE BELT OVERLAP JOINT

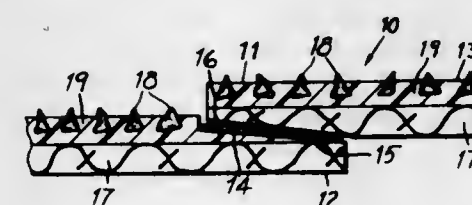
John F. Malloy, Waterford, and Charles J. Sellar, Elmora, both of N.Y., assignors to Norton Company, Troy, N.Y.

Continuation-in-part of application Ser. No. 514,360, Dec. 16, 1965, now abandoned. This application Jan. 6, 1970, Ser. No. 916

Int. Cl. B24d 11/00

U.S. Cl. 51-298

5 Claims



An adhesive composition is provided for the manufacture of coated abrasive belts which has the advantageous characteristics of a relatively long permissible dwell time, shelf and/or pot life, and which provides on curing, after application as a coating, good adhesion. The cured product of the adhesive composition comprises in admixture the reaction product of a hydroxyl terminated polyurethane-polyester and a component having available free isocyanate groups, and a suitable tackifying agent.

3,637,360

PROCESS FOR MAKING CUBICAL SINTERED ALUMINOUS ABRASIVE GRAINS

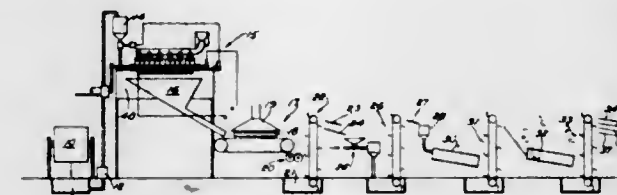
Herbert F. G. Ueltz, Youngstown, N.J., and Alfred G. Rucldio, Niagara Falls, N.Y., assignors to U.S. Industries, Inc.

Filed Aug. 26, 1969, Ser. No. 853,184

Int. Cl. B24d 3/02; C09c 1/68

U.S. Cl. 51-309

12 Claims



Process for making an aluminous abrasive grain formed from bauxite, or mixtures of bauxite and Bayer Process alumina, wherein the comminuted aluminous material is mixed with water and ferric ammonium citrate and reduced to a state of fine subdivision by milling to give a fluid slurry of high solid content, placing said slurry in an electrophoretic cell having one or more electrically conducting rotating anodes, and one or more electrically conducting stationary cathodes. The slurry is maintained at a predetermined level so that the rotating anodes are partially immersed. The anodes are connected to a source of positive direct current and the circuit completed by connection of the cathodes to

the same source of direct current but to the negative terminal thereof. The solid aluminous material migrates to the anodes where it adheres as a layer which is continuously removed from the slurry by rotation of the anodes, is partially dried by impingement of warm air whereupon the layer releases from the surface of the anodes in the form of platelike pieces which are blown free of the cell by the warm airstream. The layer is controlled to a thickness equal in one dimension of the final grain compensated for subsequent shrinkage. The platelike pieces resulting are further dried, broken to approximately cubical grains, screened, optionally rounded by air mulling, screened, sintered and screened to give the final product.

3,637,361

PROCESS FOR THE MANUFACTURE AND SIZING OF FLOAT GLASS

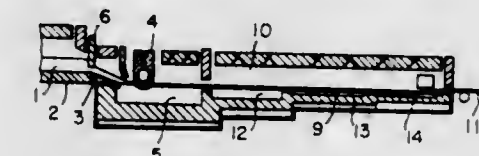
Hideo Kita, Amagasaki-shi, and Kunihiko Ito, Nishinomiya-shi, both of Japan, assignors to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Continuation of application Ser. No. 479,548, Aug. 13, 1965, now abandoned. This application Dec. 12, 1968, Ser. No. 785,048. The portion of the term of this patent subsequent to May 6, 1986, has been disclaimed.

Int. Cl. C03b 39/00

U.S. Cl. 65-25

5 Claims



A process for the manufacture of sheet glass which involves flowing a controlled amount of molten glass down an inclined plane onto and along the upper surface of a bath of molten metal. The molten glass is sized by passing it beneath a sizing member which extends widthwise of the bath and which has at least the portion thereof facing the molten glass layer passing thereunder composed of a porous and permeable material. Producer gas or hydrocarbon gas is introduced into the sizing member and is blown out through the porous and permeable portion thereof to form and maintain a burning gaseous film between the surface of the sizing member and the molten glass layer.

3,637,362

METHOD AND APPARATUS FOR HEAT-TREATING GLASS SHEETS

Waldemar W. Oelke, Rossford; Thomas B. O'Connell, Toledo, and Richard A. Herrington, Millbury, all of Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Sept. 16, 1968, Ser. No. 759,976

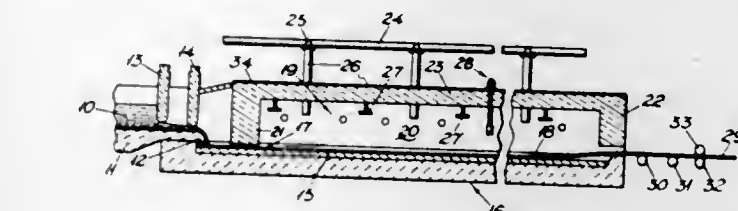
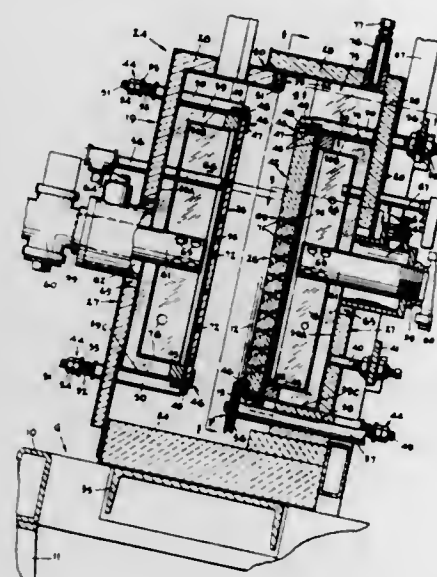
Int. Cl. C03b 25/00

U.S. Cl. 65-25 A

10 Claims

This application discloses a method and apparatus for heating glass sheets to an elevated temperature while they are supported, preferably in a substantially vertical plane, with one surface against a cushion of air and moved in a generally continuous manner through a substantially enclosed tunnel. The apparatus includes apertured panels located within the tunnel at either side of the path of travel of the glass, and through which panels heating and support-

ing gases are directed toward the glass surfaces; aspirating means for recovering and recirculating the gases; and special glass layer is directly sensed and transformed into an electrical signal corresponding to the temperature of the surface. This signal is compared by suitable control means with that



of a predetermined set point, and differences therebetween initiate a response from electrical control means to correct deviations by appropriately increasing or decreasing the power input to the heating elements.

3,637,365

PREHEATING GLASS BATCH MATERIAL BY MELTING THE BATCH CORE AREA

Richard John Oulton, Maghull, England, assignor to Pilkington Brothers Limited, Liverpool, England

Filed Dec. 12, 1968, Ser. No. 783,356

Claims priority, application Great Britain, Dec. 19, 1967, 57,500/67

Int. Cl. C03b 3/00

U.S. Cl. 65—134

23 Claims

designs and patterns of apertures for the panels, at least one of which has improved heat reflecting characteristics.

3,637,363

ATMOSPHERE TWEEL SEAL METHOD AND APPARATUS

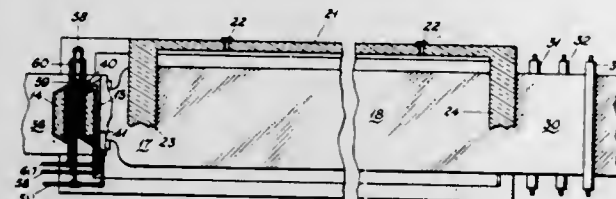
Francis L. Swillinger, Perrysburg, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed May 5, 1969, Ser. No. 821,607

Int. Cl. C03b 18/02

U.S. Cl. 65—32

8 Claims



Sealing the tweel relative to the opening through which it passes in the canal cover of an apparatus for producing float glass. A double-sectioned chamber surrounds the tweel whereby the outer section of the chamber serves as a liquid cooled support, and a gas is supplied to the inner section under pressure. The inner section has a porous wall facing the tweel through which the gas is forced to form a gaseous cushion or film preventing frictional contact between the porous wall and the tweel and minimizing the intrusion of atmospheric oxygen into the canal through the seal.

3,637,364

BATH TEMPERATURE CONTROL IN FLOAT GLASS APPARATUS

Eldwin C. Montgomery, Modesto, Calif., assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Nov. 21, 1969, Ser. No. 878,751

Int. Cl. C03b 18/02

U.S. Cl. 65—65 A

8 Claims

Stabilizing the dimensions of the equilibrium ribbon formed by controlling the temperature of the glass layer in the tank of a float glass apparatus. The power input to electric heating elements within the tank is modulated in response to direct measurement of the temperature of the glass layer. The radiant energy emitted by the surface of the

Glassmaking batch material is heated to form a coherent body by heating the material progressively from a central core area, utilizing the heat insulation characteristics of the surrounding batch material to ensure the progressive melting of the batch material from the inside. Heating is preferably effected by electrodes located in a compatible molten glass core filling. A continuous process is described in which the batch material is advanced along a conveyor during treatment before passing into a glass furnace tank.

3,637,366

METHOD AND COMPOSITION THEREFOR

Ronald E. Wietelmann, and Lawrence S. Wittenbrook, both of Marysville, Ohio, assignors to The O.M. Scott and Sons Co., Marysville, Ohio

Continuation of application Ser. No. 239,794, Nov. 23, 1962, now abandoned. This application Sept. 4, 1969, Ser. No. 855,381

Int. Cl. A01n 9/22

U.S. Cl. 71—92

The herbicidal use of aminobenzenesulfonamides.

9 Claims

3,637,367

PROCESS AND DEVICE FOR THE DISTILLATIVE PURIFICATION OF METALS, ESPECIALLY OF ZINC

Norbert Lowicki, Dulsburg-Hamborn, Germany, assignor to Grillo Werke Aktiengesellschaft, Dulsburg-Hamborn, Germany

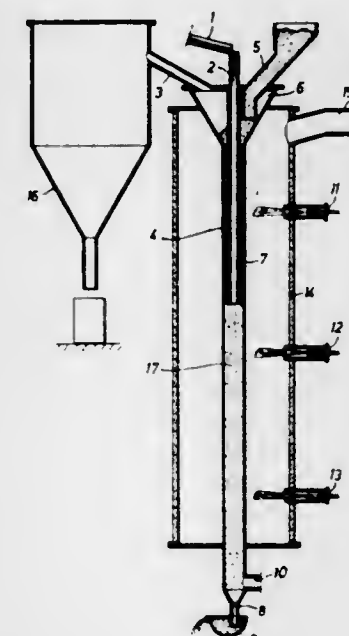
Filed July 19, 1968, Ser. No. 746,191

Claims priority, application Germany, July 20, 1967, P 15 83 880.9

Int. Cl. C22b 9/02, 19/14; B01d 3/28

U.S. Cl. 75—63

22 Claims



Metal, especially zinc, is purified by distillation of the metal in the fused state in a packed column. The fused metal is introduced at the top of the packing so that a coherent stream of the metal flows through a considerable height of the packing. Heat is supplied to the packing to provide a temperature gradient across the packing so that the temperature of the vapor remote from the coherent stream is relatively high with respect to the temperature of the coherent stream.

3,637,368

INCREASED METALLIZATIONS OF IRON ORE FROM FLUIDIZED BED PROCESSES

Glyndwr A. R. Bessant, Baytown, Tex., assignor to Esso Research and Engineering Company

Filed Oct. 16, 1968, Ser. No. 768,162

Int. Cl. C22b 1/02; C21b 13/14

U.S. Cl. 75—26

7 Claims

Improved iron ore metallizations are achieved by reducing the ore in fluidized processes, depositing carbon on the ore and then gasifying the carbon at low pressures.

3,637,369

FLUIDIZED IRON ORE REDUCTION PROCESS

Roger F. Sebenik; Martin O. Gernand, and Marnell A. Segura, all of Baton Rouge, La., assignors to Esso Research and Engineering Company

Filed Jan. 7, 1969, Ser. No. 789,589

Int. Cl. C22b 1/02; C21b 13/14

U.S. Cl. 75—26

9 Claims

An improved process for the production of metallic iron by direct reduction of iron ores at relatively high temperatures. The ore is staged in a series of beds, fluidized by contact with ascending gas, and reduced. In ferric reduction zones, ferric oxide (hematite) is reduced to magnetic oxide of iron (magnetite), and the latter is thence reduced to substantially ferrous oxide (wustite). In the ferrous reduction zone, or zones, the ferrous oxide is reduced to metallic iron. By addition or

3,637,370

PRODUCTION OF FERROVANADIUM ALLOYS

Donald O. Baker, New Concord, Ohio, assignor to Foote Mineral Company, Exton, Pa.

Filed June 10, 1968, Ser. No. 735,590

Int. Cl. C22c 1/00; C22b 55/00

U.S. Cl. 75—40

5 Claims

A method of producing a low-carbon low-oxygen ferrovanadium alloy by carbon reduction in which an agglomerated mixture of comminuted vanadium oxide, preferably a pentoxide, an iron-source material, and a carbon-source material are heated in vacuum to a temperature of 2,400°–2,800° F. The temperature is maintained until evolution of gas substantially ceases and the product fuses. Additional agglomerate can be charged into the vacuum environment without breaking the vacuum, and molten alloy continuously collected to provide a substantially continuous process.

3,637,371

DIRECT PRESSURE LEACHING OF COPPER-IRON SULPHIDES

Vladimir Nicolaus Mackiw, Fort Saskatchewan, Alberta; Herbert Veltman, Edmonton, Alberta, and Andrew Imre Vizsolyi, Vancouver, British Columbia, all of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada

Filed June 19, 1967, Ser. No. 647,201

Claims priority, application Canada, Feb. 10, 1967, 982,536

Int. Cl. C22b 15/08

U.S. Cl. 75—101

9 Claims

Complex copper-iron bearing sulphides, particularly chalcopyrite, ground to at least 90 percent minus 325 mesh standard Tyler screen are leached in aqueous sulphuric acid solution containing less acid than that required to combine with the copper content of the sulphides as copper sulphate. Leaching is continued at a temperature within the range of 210° F. to 250° F. under an oxygen partial pressure above 100 p.s.i. until all the acid is consumed and the iron content of the solution is lowered to an acceptable level.

3,637,372

METHOD FOR RECOVERING NICKEL

Yoland P. P. Mayor, 1299 Commugny, Switzerland, and Pierre F. Tord, 18, rue Visconti, Paris, France

Filed Nov. 6, 1969, Ser. No. 874,725

Claims priority, application France, Nov. 8, 1968, 173235

Int. Cl. C22b 23/04, 15/08

U.S. Cl. 75—101

3 Claims

The method provides the recovery of at least nickel from ores or other materials containing it possibly with copper, by treating the ores with a cupric chloride solution and an alkaline or alkaline earth chloride, and then separating the nickel from the said solution by cementing with iron.

3,637,373

COMPOSITIONS FOR THE TREATMENT OF MOLTEN IRON

Karl Gusten Bylund, and Evert Henry Bark, both of Hälleforsnas, Sweden, assignors to AB Järnforädlings, Hälleforsnas, Sweden

Continuation of Ser. No. 734,518, June 5, 1968, abandoned

Filed Mar. 2, 1970, Ser. No. 14,799

Claims priority, application Sweden, June 8, 1967, 8044/67
Int. Cl. C22c 37/04

U.S. Cl. 75—130 A

3 Claims

A composition for the treatment of molten iron consists of a mechanical mixture, compacted into solid porous bodies, of magnesium which serves as a treatment agent, and sponge iron as a reaction retarding agent.

3,637,374

METHOD OF PRODUCING TUNGSTEN RHENIUM ALLOYS BY CHEMICAL VAPOR DEPOSITION

Robert A. Holzi, La Canada; Frederick A. Glaski, Chatsworth, and James R. Humphrey, North Hollywood, all of Calif., assignors to Fansteel Metallurgical Corporation, North Chicago, Ill.

Filed May 27, 1968, Ser. No. 732,308

Int. Cl. C22c 27/00; B22d 23/00

U.S. Cl. 75—174

6 Claims

In a chemical vapor deposition process wherein a plurality of refractory metals is deposited on the surface of a substrate, the usual columnar grain structure of the deposited metals inherent in chemical vapor deposited coatings is rearranged to form an alloy of such metals having a strong, equiaxed grain structure, by depositing the metals in extremely thin layers wherein all adjacent layers are predominately of different metals, and then heattreating the resultant coating. As a result, diffusion of the metals through substantially all adjacent layers, and rearrangement of the grain structure occurs.

3,637,375

PHOTOPOLYMERIZATION UTILIZING DIAZOSULFONATES AND PHOTOREDUCTIBLE DYES

Steven Levimos, 25 Hickory Pl., Chatham, N.J.

Filed May 25, 1970, Ser. No. 40,439

Int. Cl. G03c 1/70

U.S. Cl. 96—28

10 Claims

Polymerization of ethylenically unsaturated vinyl compounds is effected by exposing such compounds to light in the presence of a photoinitiator comprising a combination of a light-sensitive diazosulfonate and a photoreducible dye. The further addition of amines and aldehyde/bisulfite addition products accelerates the polymerization reaction.

3,637,376

SILVER SALT DIFFUSIONS COPYING METHOD

Rudolf Wendt, Harkesbeide, near Hamburg, Germany, assignor to Lumoprint Zindler KG, Hamburg, Germany

Filed Feb. 5, 1968, Ser. No. 703,026

Claims priority, application Germany, Feb. 10, 1967, L 55706

Int. Cl. G03c 5/54

U.S. Cl. 96—29

5 Claims

Silver salt diffusion transfer method, wherein an image is formed by exposure on the silver halide emulsion layer of a negative sheet and the thus exposed negative sheet is developed by a developer liquid, whereupon the developed image is transferred by pressure contact to a receiving sheet. The invention provides that the receiving sheet is uncoated sheet material which, prior to the pressure contact with the negative material, is moistened with a liquid of different composition than said developer liquid, the liquid comprising an aqueous alkaline or acidic solution containing a substance exhibiting amphoteric properties and being capable of reducing silver salts to silver.

3,637,377

METHOD FOR MAKING A PATTERN ON A SUPPORT MEMBER BY MEANS OF ACTINIC RADIATION SENSITIVE ELEMENT

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, both of Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 627,813, Apr. 3, 1967, and a continuation-in-part of 662,214, Aug. 21, 1967.

This application July 15, 1969, Ser. No. 841,718

Int. Cl. G03c 5/00, 5/04

U.S. Cl. 96—35

16 Claims

A method for making a pattern on a support member by projecting an actinic image of the pattern to be reproduced on an electromagnetic-radiation-sensitive element consisting of a support member or substrate having an adhering metallic layer thereon, the metallic layer, as defined herein, being in turn coated with an adhering overlayer of an inorganic material capable of reacting, when exposed to electromagnetic actinic radiation, with the metallic layer. After exposure, the overlayer is peeled, thereby removing from the support member or substrate portions of the metallic layer corresponding to the nonradiated areas of the element, while the radiated areas of the element remain adhering to the support member or substrate. Alternately, after exposure of the element to a pattern forming image, the element is uniformly exposed to actinic radiation for a time sufficient to decrease the adhesion between the metallic layer and the overlayer, and the two layers are separated or peeled away from each other such that there is formed a pattern upon the support member or substrate.

3,637,378

RADIATION-SENSITIVE ELEMENT, PROVIDED WITH FLEXIBLE BASE AND METHODS FOR EXPOSING AND PROCESSING THE SAME

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, both of Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 642,972, June 1, 1967, which is a continuation-in-part of application Ser. No. 591,711, Nov. 3, 1966, now abandoned, Ser. No. 841,416, July 14, 1969, which is a continuation-in-part of Ser. No. 627,754, Apr. 3, 1967, abandoned, Ser. No. 841,718, July 15, 1969, which is a continuation-in-part of Ser. No. 627,813, Apr. 3, 1967. This application Oct. 20, 1969, Ser. No. 867,575

Int. Cl. G03c 5/04, 5/00

U.S. Cl. 96—35

7 Claims

Radiation-sensitive elements comprising a substantially thin metallic layer coating a flexible sheet material such as paper, cardboard, plastic, and the like, and provided with an overlayer disposed on the metallic layer made of an inorganic material capable of interreacting with the metal or metals of the metallic layer when exposed to electromagnetic actinic radiation. The overlayer may be in a solid phase or a vapor phase. After exposure to electromagnetic actinic radiation, the element is processed by removing the product resulting from the interaction between the metallic layer and the inorganic material of the overlayer, removing the overlayer for some applications, and darkening or dyeing the metallic image thus obtained on the flexible backing.

3,637,379

METHOD FOR MAKING A RELIEF PATTERN BY MEANS OF ELECTROMAGNETIC RADIATION AND HEAT-SENSITIVE ELEMENTS

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, both of Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 647,525, June 20, 1967, now abandoned. This application July 30, 1969,

Ser. No. 846,212

Int. Cl. G03c 5/00, 1/72

U.S. Cl. 96—36

10 Claims

Methods for making a metallic relief pattern article by irradiating, according to the pattern to be reproduced, a radia-

tion and heat sensitive element comprising essentially a layer of metal coated with an adhering overlayer of an inorganic material capable of interreacting with the metal when either exposed to electromagnetic radiation or exposed to heat. After exposure to electromagnetic radiation which causes a reduction in adhesion between the overlayer and the layer of metal, the element is stripped of the portions of the overlayer corresponding to the irradiated areas and is subsequently heated for causing an interreaction between the remaining portions of the overlayer and the layer of metal, consuming in depth and thus etching the metal of the layer of metal.

3,637,380

METHODS FOR ELECTROCHEMICALLY MAKING METALLIC PATTERNS BY MEANS OF RADIATION-SENSITIVE ELEMENTS

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, both of Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 648,713, June 26, 1967, now abandoned. This application Aug. 8, 1969, Ser. No. 848,676

Int. Cl. G03c 5/00; C23b 5/48

U.S. Cl. 96—35

10 Claims

Methods for making metallic patterns by projecting an image of a pattern to be reproduced on an electromagnetic radiation-sensitive element consisting essentially of a first layer coated with an adhering overlayer of an inorganic material capable of reacting, when exposed to electromagnetic actinic radiation, with the first layer. After exposure, the portions of the overlayer having a reduced adhesion with the first layer as a result of such exposure are peeled, thus selectively and discretely exposing surface areas of the first layer which are subsequently electroplated or electrochemically eroded or etched according to whether a relief or a recessed pattern is desired.

Radiation-sensitive elements having a first layer thin enough to be transmissive of the radiation may be exposed by projection of the image of the pattern upon the first layer, thus consuming in depth selective and discrete portions of the first layer. The remaining unreacted portions of the first layer are subsequently electroplated.

3,637,381

RADIATION-SENSITIVE SELF-REVEALING ELEMENTS AND METHODS OF MAKING AND UTILIZING THE SAME

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, both of Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 591,711, Nov. 3, 1966, now abandoned. This application July 3, 1969, Ser. No. 839,038

Int. Cl. G03c 5/00, 1/72

U.S. Cl. 96—35

36 Claims

Electromagnetic radiation-sensitive elements made essentially of a metallic layer and of an overlayer of an inorganic material capable of interreacting with the metal of the metallic layer, when exposed to electromagnetic actinic radiation, so as to cause a selective etching of the metallic layer surface at the boundary between the metallic layer and the overlayer which is proportional in depth to the amount of exposure to the electromagnetic actinic radiation. The overlayer may be in a solid form as a thin coating adhering to the metallic layer, or it may be in a liquid or a vapor form. Electromagnetic radiation sensitive elements, consisting of a plurality of strata, each made of a pair of layers of dissimilar materials, one of which is metallic and the other is a layer of actinically reactive inorganic material are provided for particular applications. Exposure to actinic electromagnetic radiation of the elements of the invention causes physical and chemical changes in the materials of the two layers resulting in selective removal, after exposure, of some of the materials of

predetermined layers for obtaining particular finished articles.

3,637,382

PLATES, SHEETING AND FILM OF PHOTOPOLYMERIZABLE COMPOSITIONS CONTAINING INDIGOID DYES

Carl Heinrich Krauch, Heidelberg, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen(Rhine), Germany

Filed Sept. 20, 1968, Ser. No. 761,343

Claims priority, application Germany, Sept. 22, 1967, P 16 69 723.7

Int. Cl. G03c 1/68

U.S. Cl. 96—35.1

12 Claims

Improved solid or semisolid photopolymerizable layers for use in producing relief printing plates, said layers including a photopolymerizable compound having at least two polymerizable olefinic double bonds, a photoinitiator, and an indigoid dye, and a process for determining the light sensitivity of said layer by using said indigoid dye as a color indicator whereby the amount of exposure required to photopolymerize the layer by irradiation is accurately determined.

3,637,383

RADIATION-SENSITIVE ELEMENTS AND ETCH PROCESSES USING THE SAME

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, both of Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 627,754, Apr. 3, 1967, now abandoned. Continuation-in-part of application Ser. No. 636,863, May 8, 1967, now abandoned. This application July 14, 1969, Ser. No. 841,416

Int. Cl. G03c 1/76, 5/00

U.S. Cl. 96—36

24 Claims

Radiation-sensitive elements comprising a pair of layers of dissimilar inorganic materials capable of interreacting when subjected to impinging electromagnetic actinic radiation with the formation of an interreaction product or products corresponding to the areas exposed to such radiation, and further comprising at least one underlying layer of a third material which is sought to be discretely and selectively etched according to a pattern or image projected upon the sensitive element. The portions of the radiation-sensitive element which have not been exposed to actinic radiation act as a resist material during etching of underlying layers, such that a relief representation of the original image projected upon the sensitive element is obtained by a simple process consisting principally of exposure to actinic radiation followed by a one-step or two-step etch operation.

3,637,384

POSITIVE-WORKING DIAZO-OXIDE TERPOLYMER PHOTORESISTS

Albert S. Deutsch, New York, and Frank J. Loprest, Vestal, both of N.Y., assignors to GAF Corporation, New York, N.Y.

Filed Feb. 17, 1969, Ser. No. 799,998

Int. Cl. G03F 7/08

U.S. Cl. 96—36

5 Claims

A novel positive-working photoresist composition comprising a diazo-oxide such as N-dehydroabietyl-6-diazo-5(6H)-oxo-1-naphthalene-sulfonamide, a resin such as a terpolymer which contains carboxy groups, and a solvent therefor.

3,637,385

SOLID DEFORMATION IMAGING

Lester P. Hayes, Decatur, Ill.; Rexford W. Jones, and William B. Thompson, both of Columbus, Ohio, assignors to A. E. Staley Manufacturing Company, Decatur, Ill.
Filed Feb. 5, 1969, Ser. No. 796,847
Int. Cl. G03c 5/24, 1/68

U.S. Cl. 96—48

47 Claims

Process and articles for forming line, halftone or continuous-tone images which comprises: exposing to actinic radiation in image-receiving manner a solid, positive-acting or negative-acting light-sensitive organic layer having a thickness of at least 0.1 micron, said layer being capable of developing a R_d of 0.2 to 2.2; continuing the exposure to either clear the background of positive-acting light-sensitive layers or to establish a potential R_d of 0.2 to 2.2 with negative-acting light-sensitive organic layers; applying to said layer of organic material, free-flowing powder particles having a diameter, along at least one axis of at least about 0.3 micron but less than 25 times the thickness of said organic layer; while the layer is at a temperature below the melting points of the powder and of the organic layer, physically embedding said powder particles as a monolayer in a stratum at the surface of said light-sensitive layer to yield images having portions varying in density in proportion to the light exposure of each portion; and removing nonembedded particles from said organic layer to develop an image.

3,637,386

METALLIZING SOLUTION FOR INTENSIFYING LAYERS OF METALLIC, IMAGED NUCLEI

Willem Gerbrecht De Ruig, Tromplaan; Arian Molenaar, and Hendrik Jonker, both of Emmasingel, Eindhoven, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 2, 1967, Ser. No. 635,409

Int. Cl. G03c 5/32

U.S. Cl. 96—60

4 Claims

Form metal layer of a metal such as copper, tin, nickel or cobalt on an electrically nonconducting layer by first forming a silver or mercury nuclei image on the layer and then treating the layer with an aqueous solution of the metal to be deposited and a mixture of reducing metal ions and the oxidized forms thereof. An example is an aqueous solution of nickel ions and mixture of Cr^{3+} and Cr^{2+} . This abstract is not intended to be a description of the invention defined by the claims.

3,637,387

DIRECT POSITIVE EMULSION CONTAINING A HALIDE-RELEASING COMPOUND DEVELOPED IN THE PRESENCE OF AN UNSUBSTITUTED HYDRAZINE

Gerard L. Vanreusel, Hove, and Camille A. Vandeputte, Mortsel, both of Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium

Filed Oct. 24, 1967, Ser. No. 677,765

Int. Cl. G03c 5/24

U.S. Cl. 96—64

24 Claims

Direct positive copies obtained by imagewise exposing a light-sensitive material having a layer of a silver halide emulsion of the type that forms a latent image predominantly within the silver halide grains in which emulsion is incorporated at least one compound setting free iodide ions or at least one compound setting free bromide ions in an aqueous medium together with a fog inhibiting compound and developing thus exposed material with an energetic surface developer in the presence of an unsubstituted hydrazine or a water soluble salt thereof provided by way of the developer solution or by way of a processing liquid applied to the exposed material prior to development. Colored images can be formed as well as black and white images provided color coupling agents and color developing agents are utilized.

3,637,388

PROCESS FOR THE PHOTOGRAPHIC PRODUCTION OF EQUIDENSITIES

Erwin Ranz; Harald Von Rintelen; Raymund Pfeiffenschneider, all of Leverkusen, and Armin Voigt, Cologne-Stammheim, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

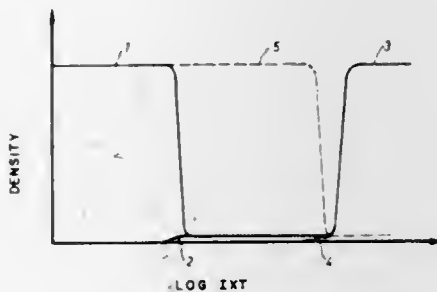
Filed Oct. 9, 1968, Ser. No. 766,155

Claims priority, application Germany, Dec. 18, 1967, P 15 97 509.4

Int. Cl. G03c 5/30, 1/02, 5/38

U.S. Cl. 96—66

6 Claims



The production of areas of equal density in a photographic image by combining in a photographic material two silver halide emulsions in one or two layers, one of which emulsions is more soluble in photographic developer than the other emulsion but the more soluble emulsion is lower in speed than the less soluble emulsion and the less soluble emulsion is present in a much smaller proportion. After the photographic material is exposed it is developed in a bath having a silver halide developing compound and a silver halide solvent for the slower halide emulsion so that the faster less soluble emulsion is developed in the exposed area to yield a negative silver image and the slower silver halide emulsion is physically developed to yield a positive image and chemically developed to yield a negative image. The developed material is finally fixed.

3,637,389

METHOD OF PRODUCING PHOTOGRAPHIC IMAGES BY RAPID PROCESSING

Emiel Alexander Hofman, Mortsel, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium

Filed Apr. 7, 1969, Ser. No. 814,165

Int. Cl. G03c 5/30, 1/78, 1/06

U.S. Cl. 96—66

12 Claims

Significant improvement in gradation, relative speed, and maximum density is obtained in a method of rapidly photographically developing an imagewise exposed light-sensitive photographic material comprising a hydrophobic film support and a rapidly developable silver halide emulsion layer wherein the silver halide consists of at least about 90 percent silver chloride, is developed with an aqueous processing solution in the presence of a photographic developing agent for a time of less than 15 seconds, provided at least one water permeable layer formed essentially of a hydrophilic colloid is interposed between the film support and the emulsion layer and in direct contact with the emulsion layer, the total weight of such water permeable layers being at least about 2 grams per square meter up to about 8 gm/sq. m. Preferably the colloid is proteinaceous and preferably the developed photographic material is passed in succession through stabilizing, fixing, and rinsing baths, remaining in contact with each less than about 15 seconds. An optimum time of contact for each processing step is about 2-8 seconds.

3,637,390

PHOTOGRAPHIC MEDIUM CONTAINING AN ALIPHATIC AMINE STABILIZER

John O. H. Peterson, Cape Elizabeth, Maine, assignor to Scott Paper Company, Delaware County, Pa.

Filed Dec. 19, 1969, Ser. No. 886,738

Int. Cl. G03c 1/72

U.S. Cl. 96—90

7 Claims

In a photographic medium containing a furfurylidene, an aromatic amine enhancer system and a lower haloalkane sensitizer, the improvement comprising adding an aliphatic amine to the aromatic amine enhancer system.

3,637,391

PROCESS FOR THE PREPARATION OF SILVER HALIDE EMULSIONS

Wilhelm Saleck, Gladbach-Schldgen; Wolfgang Himmelmann, Opladen-Luetzenkirchen; Rudolf Meyer, Leverkusen; Franz Moll, and Harald Huckstadt, both of Cologne, Stammheim, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 2, 1969, Ser. No. 854,792

Claims priority, application Germany, Sept. 5, 1968, P 17 97 254.2

Int. Cl. G03c 1/02

U.S. Cl. 96—94

9 Claims

The photographic properties such as sensitivity and graininess of silver halide emulsions can be improved by performing the precipitation of silver halide and/or the afterripening in presence of silicic acid sols instead of or in admixture to gelatin as protective colloid. The agglomeration of silicic acid particles which often occurs at high concentrations of salts can be avoided by addition of ethanol or of water-soluble polymers or by the preparation of such polymers in the silicic acid sol.

3,637,392

DIRECT-POSITIVE SILVER HALIDE EMULSIONS CONTAINING BORON HYDRIDES

John Howard Bigelow, Rochester, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 8,417, Feb. 3, 1970. This application Aug. 10, 1970, Ser. No. 62,650

Int. Cl. G03c 1/28, 1/34

U.S. Cl. 96—108

13 Claims

Direct-positive photographic elements having good sensitometric characteristics and aging stability are prepared by incorporating in the silver halide emulsion from 5×10^{-7} to 2.4×10^{-4} mole per 1.5 moles of silver halide of at least one boron hydride in which the skeletal framework forms a polyhedron or a fragment thereof, and which may contain heteroskeletal atoms selected from the groups C, S, and N, as a chemical fogging agent.

3,637,393

LIGHT-SENSITIVE COLOR PHOTOGRAPHIC MATERIAL WITH REDUCED FOG AND NO DECREASE IN SPEED DURING DEVELOPMENT

Kenro Sakamoto; Isamu Fushiki, and Shinichi Nakamura, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed July 9, 1970, Ser. No. 53,657

Claims priority, application Japan, July 10, 1969, 44/54116

Int. Cl. G03c 1/34

U.S. Cl. 96—109

7 Claims

Fog is reduced and speed is maintained during development of light-sensitive color photographic materials which comprise at least one of certain mercaptotetrazole compounds and at least one of several hydroquinone compounds.

3,637,394

PHOTOGRAPHIC ELEMENTS CONTAINING SYNTHETIC POLYMERIC VEHICLES

Donald Arthur Smith, and Donald M. Copenhagen, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 22, 1968, Ser. No. 723,279

Int. Cl. G03c 1/72

U.S. Cl. 96—114

7 Claims

Novel synthetic polymers derived from poly(vinyl alcohol) useful as hardenable gelatin replacements in compositions, photographic emulsions and elements, and a process for preparing said polymers are disclosed.

3,637,395

SILVER HALIDE EMULSIONS CONTAINING CYCLIC ENAMINE CYANINE DYES

Roy A. Jeffreys, and Elizabeth A. Glog, both of Harrow, England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 9, 1970, Ser. No. 27,179

Int. Cl. G03c 1/08, 1/10

U.S. Cl. 96—130

13 Claims

Silver halide emulsions containing optical sensitizing cyanine and merocyanine dyes which feature a cyclic enamine group containing a bridgehead nitrogen selected from a 1,2,3,5,6,7-hexahydroindolizidine nucleus or a 1H-2,3,4,6,7,8-hexahydroquinolizidine nucleus.

3,637,396

PROCESS FOR THE PRODUCTION OF FIBERLESS GREEN PLANT CONCENTRATE OF FULL BIOLOGICAL VALUE

Janos Hollo, 9, Guyon R. utca II; Istvan Zagyal, 4, Maricz Zsigmond Korter, and Lehel Koch, 19, Erkel F. utca, all of Budapest, Hungary

Continuation-in-part of application Ser. No. 490,728, Sept. 27, 1965, now abandoned. This application July 30, 1969, Ser. No. 846,239

Claims priority, application Hungary, Sept. 28, 1964, HO-836

Int. Cl. A23k 1/14

U.S. Cl. 99—9

9 Claims

High-protein plant extract is obtained by comminuting young green plant material, pressing the material to force liquid therefrom, and coagulating and separating the true protein fraction of this liquid. The remaining liquid, which can contain toxic substances, is inoculated with a yeast capable of utilizing nitrogen sources and subjected to aerobic fermentation until the nitrogen sources are substantially exhausted and the toxicants greatly reduced. The yeast is then concentrated, either by separation or by evaporation, and combined with the coagulated true protein thereby to obtain an extract which is detoxicated.

3,637,397

PUFFED INSTANT COFFEE SPHERES

James H. Menzies, Springfield Township, Hamilton County, and Joseph R. McSwiggan, Cincinnati, both of Ohio, assignors to The Proctor & Gamble Company, Cincinnati, Ohio

Filed July 17, 1969, Ser. No. 842,586

Int. Cl. A23f 1/04

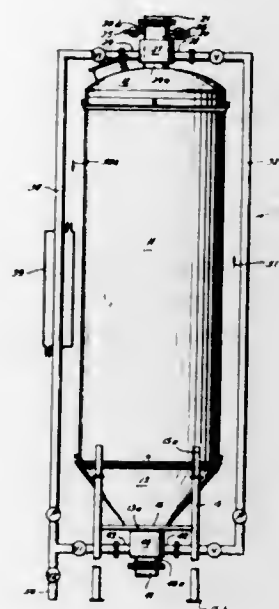
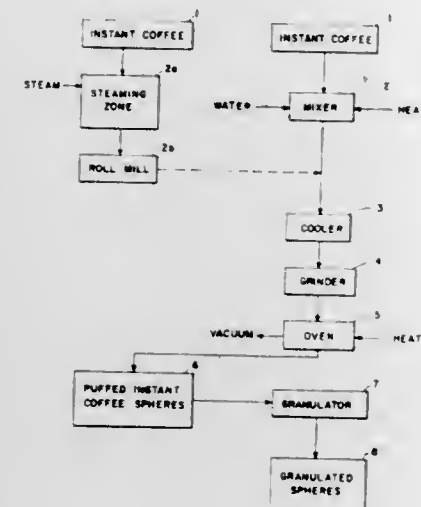
U.S. Cl. 99—65

12 Claims

A process for producing instant coffee in the form of distinctively appearing multidimensionally puffed spheres having very fast dissolving properties comprises forming a coffee dough, cooling the dough to form hardened slabs, grinding the slabs into discrete particles and multidimen-

sionally puffing said particles by exposing them to heat and vacuum to form puffed instant coffee spheres and sub-

that the grain will form a suitable globule and homogenize to become a solid substance. The water in the tank is then



sequently granulating the spheres to produce a product resembling roast and ground coffee in appearance.

3,637,398

PREPARATION OF PARTICULATE MATTER FOR FREEZE DRYING

Byron Everett Elerath, Mountain Lakes, N.J., assignor to General Foods Corporation, White Plains, N.Y.

Filed Jan. 14, 1969, Ser. No. 791,157

Int. Cl. A23 1/08

U.S. Cl. 99-71

7 Claims

A new method of preparing an extract for freeze drying has been discovered which produces particles of improved appearance in that they are more uniform and have a desirable shape and color. Preparation of frozen particles via the method of this invention is simplified and freeze drying efficiency is increased. The particles are prepared by slush freezing an extract (e.g. coffee extract) to a hard slush condition (as opposed to a soft slush condition) wherein the slush has an ice crystal content of from 20 to 60 percent by weight of the slush and the slush has a viscosity such that it can not be readily spread on a flat surface and will not tend to run or spread after extrusion, extruding the slush in a desired shape into a cold gaseous atmosphere having a temperature below the eutectic point of the extract, cutting the extruded slush and completely freezing the particles prior to freeze drying.

3,637,399

PROCESS FOR TREATING GRAIN

James H. Neel, 6217 Ariel, Houston, Harris County, Tex.

Filed Apr. 22, 1970, Ser. No. 30,656

Int. Cl. C13 1/02

U.S. Cl. 99-80 PS

2 Claims

A steeping tank is filled with grain and then with water. The water is then circulated continuously through the steeping tank and recirculated through a heating device and pump such that the temperature in the tank is controlled. When the temperature in the tank is uniform, and has reached a desired temperature, the water pump is closed and air is then pumped into the tank until it reaches a desired pressure. Water is then circulated downwardly through the vessel so

removed which simultaneously releases the pressure in the vessel and thereafter the grain is removed.

3,637,400

HIGH-PRESSURE PROCESS FOR MAKING PUFFED FOOD PRODUCT AND PRODUCT

Joseph D. Mullen, Golden Valley; Alde Ogrina, St. Paul, and Ali R. Touba, Crystal, all of Minn., assignors to General Mills, Inc.

Filed Mar. 26, 1969, Ser. No. 810,776

Int. Cl. A23 1/18, 1/20

U.S. Cl. 99-83

5 Claims

The process for producing a puffed food product having a high-protein level from a combination of legumes and cereal grains by subjecting the raw food product to high pressures and temperatures to produce a sheet of product having relatively high-protein-content and crunchy texture.

3,637,401

HYDROSTATIC FRYING METHOD

Walter F. Kuhlman, Norwalk, Ohio, assignor to The Roto Corporation, Norwalk, Ohio

Continuation of application Ser. No. 731,949, May 24, 1968, now abandoned. This application July 28, 1970, Ser. No. 58,821

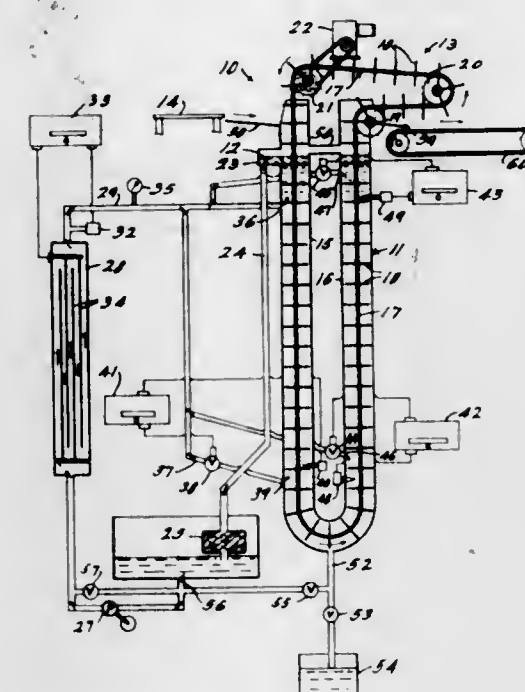
Int. Cl. A22c 21/00, 25/00

U.S. Cl. 99-107

10 Claims

A method and apparatus for continuously pressure frying food items in an open, heated, generally U-shaped column of oil having a depth such that a pressure of not less than 2.5 p.s.i.g., and preferably at least 5 p.s.i.g., exists at the lower portion of the column. The food items are placed on a conveyor which moves continuously along a path leading from the surface of the oil downwardly to the bottom of the column of oil and back upwardly to the surface. Heated oil is added at predetermined points on the U-shaped oil column to maintain distinct thermal zones or thermal gradients in the

oil column. The oil temperatures and the conveyor speed are selected such that each food item is properly cooked and



3,637,402

PROCESS OF MAKING AERATED SHORTENING

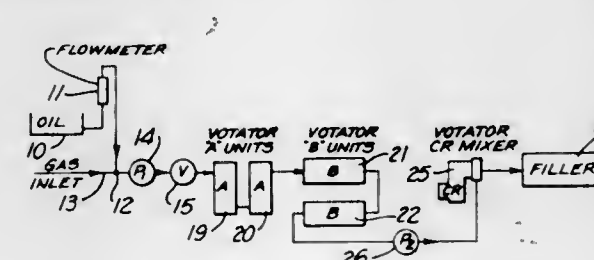
Edward J. Reid, Brea, and Perry W. Morgan, Jr., Fullerton, both of Calif., assignors to Hunt-Wesson Foods, Inc., Fullerton, Calif.

Filed Feb. 11, 1969, Ser. No. 798,327

Int. Cl. A23d 5/02

U.S. Cl. 99-118 R

11 Claims



A process for making an aerated shortening, preferably a shortening containing about 20 to 26 percent gas by volume. A process utilizing the conventional chilling and agitating such as is obtained in Votator A and B units, in which the liquid fat and gas mixture is initially pressured to a relatively high pressure to place the gas in solution, and in which the pressure is then reduced by about half to convert at least a portion of the gas in solution to dispersed gas prior to chilling and agitation, permitting subsequent processing at lower pressure. A process in which the chilled and agitated stream is subjected to shear-type agitation with recirculation prior to packaging.

3,637,403

ENHANCEMENT OF THE FLAVOR OF FOODSTUFFS

Robert A. Heckman, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Apr. 28, 1969, Ser. No. 819,952

Int. Cl. A23 1/22, 1/26

U.S. Cl. 99-140 R

4 Claims

Enhancement of the flavor of foodstuffs is achieved by incorporating therewith a small amount of 1-oxa-8-oxo-2,6,10,10-tetramethyl-spiro[4,5]-6-decene.

3,637,404 CONTAINER FOR A PIE OR THE LIKE

John MacManus, 143-16 Twenty-Second Road, Whitestone, N.Y.

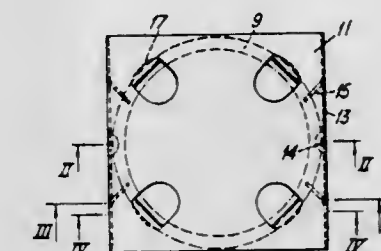
Filed Feb. 19, 1970, Ser. No. 12,695

Claims priority, application Great Britain, Mar. 7, 1969, 12,265/69

Int. Cl. B65b 25/16

U.S. Cl. 99-172

12 Claims



browned when it is removed from the surface of the cooking oil.

The container includes an open-ended sleeve for receiving a flanged dish. Tabs are pressed out of the sleeve material to hold the dish against the bottom wall and also against longitudinal movement. A pair of elastic cords are received in diagonally opposite slots formed by pressing out material. An upright plastic peg extends from adjacent the bottom of the pie to the top wall of the sleeve to provide a spacer.

3,637,405

PROCESS FOR PACKAGING AND PRESERVING MEATS

William J. Mendelson, c/o Hillcrest Poultry Industries, P.O. Box 1707 48 Commercial St., Lewiston, Maine, and William F. Morris, Jr., Morris & Associates, Inc. P.O. Box 1406, Raleigh, N.C.

Filed May 16, 1969, Ser. No. 825,430

Int. Cl. A23b 1/00

U.S. Cl. 99-194

9 Claims

A process for packaging and preserving meats to give long shelf life and greater tenderness comprising: slaughtering the animal to produce a carcass, dressing, eviscerating and cleaning the carcass to form meat units, packaging at least one of the meat units prior to attaining a temperature of 40° F. and generally above 70° F. in a vaporproof package within approximately 2 hours after slaughter to prevent shrinkage of the meat due to dehydration, exposing the packaged meat unit to a chilling medium such as an airstream at below -20° F. for sufficient time to establish a negative heat content reservoir within a surface zone of a meat unit generally comprising about one-third or less of the mass of the meat unit, the negative heat content reservoir being formed by reducing the temperature of the mass of the meat unit within the surface zone to below 27° F. and generally between 0° to 27° F. and preferably 20°-27° F., to create an increased sensible heat capacity and extracting the heat of fusion of said mass within the meat unit to freeze the mass and provide a latent heat capacity, withdrawing the packaged unit from contact with cold gaseous medium upon attaining an internal zone meat unit temperature of approximately 30° to 44° F. and a sufficient negative heat content reservoir to absorb all of the heat to be lost from the internal zone, and maintaining the packaged meat at a temperature above 28° F. for a sufficient time to absorb the sensible heat and latent heats from said internal zone into said negative zone capacity reservoir and equilibrate the temperature throughout the meat unit whereby to avoid natural meat juice weeping during storage, and activating the natural enzymes in the surface zone to effect improved tenderization.

3,637,406

ULTRAPURE ALUMINA CERAMICS FORMED BY COPRECIPITATION

Joseph T. Bailey, Hixson, Tenn., assignor to American Lava Corporation, Chattanooga, Tenn.
Continuation of application Ser. No. 746,316, July 22, 1968, now abandoned. This application Dec. 23, 1970, Ser. No. 101,150

Int. Cl. C04b 33/00

U.S. Cl. 106—39 R

8 Claims

Alumina ceramics of homogeneous composition and fine-grained structure are produced using alpha-alumina obtained by calcination of aluminum oxide hydroxide including any desired adjuvants.

3,637,407

COMPOSITION AND METHOD FOR SURFACE-SIZING PAPER AND THE LIKE

Ulrich Schobinger, Zug; Cla Christoffel, Waedenswil, and Kurt Berner, Pfäeffikon, all of Switzerland, assignors to Blattmann & Co., Waedenswil, Switzerland

Filed May 21, 1969, Ser. No. 826,658

Claims priority, application Switzerland, May 21, 1968, 7533/68

Int. Cl. C08h 25/02

U.S. Cl. 106—213

17 Claims

Paper and like webs are given improved surface properties and resistance to ink penetration by means of a composition, readily dispersible in water at about 65°-70° C., of a small proportion of higher ketene dimer with a highly water soluble dextrin phosphate having 0.3-3 percent of phosphorus molecularly bound therein and typically containing 1-3 percent of free phosphate, or with a mixture of a water soluble noncationic starch derivative of low viscosity and suitable alkali metal phosphate. A composition particularly valuable for sizing papers of high-alum content contains the dextrin phosphate and 4-8 percent of ketene dimer with up to 20 percent of guar flour, about 2-5 percent of sodium fluoride and about 3-5 percent of sodium carbonate.

3,637,408

DECORATIVE LAMINATES CARRYING REMOVABLE PROTECTIVE COATING

Jerry George Alert, Mount Carmel, and Robert Daniel Mauldin, Cincinnati, both of Ohio, assignors to Formica Corporation, Cincinnati, Ohio

Filed May 26, 1969, Ser. No. 827,969

Int. Cl. B44d 5/00; C11d 9/46

U.S. Cl. 117—6

3 Claims

A decorative laminate carrying on its decorative surface a removable film of a mixture of a preponderant amount of a fatty acid soap a minor amount of a nonionic detergent and a coupling agent.

3,637,409

MANUFACTURE OF FLAME-RESISTANT NONWOVEN FABRICS

Ludwig Hartman, Oberflockenbach, Germany, assignor to Carl Freudenberg, Weinheim (Bergstr.), Germany

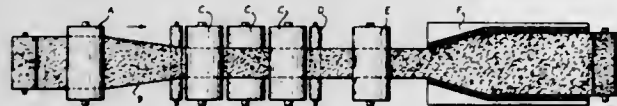
Filed July 30, 1968, Ser. No. 748,881

Claims priority, application Germany, Aug. 5, 1967, F 53156

Int. Cl. B05c 3/107; B29d 7/22

U.S. Cl. 117—7

8 Claims



Nonwoven fabrics are impregnated first with a conventional binder and then with a polyvinyl chloride-antimony

trioxide binder. After the second impregnation the fabric is longitudinally stretched while it is being dried, rewetted with water, and then transversely stretched while it is being dried. Further there is disclosed a novel impregnant composition which is useful in fireproofing nonwoven fabrics.

3,637,410

METHOD OF TREATING CATHODO-LUMINESCENT PHOSPHORS

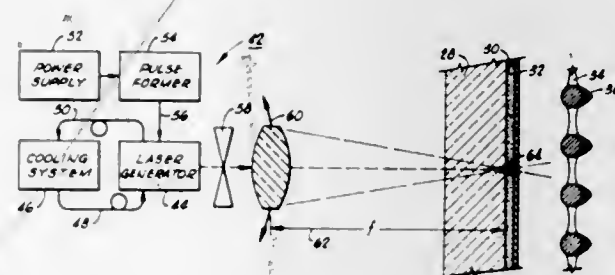
Gary L. Stevens, 1631 Vine, Norman, Okla.

Filed Dec. 18, 1968, Ser. No. 784,860

Int. Cl. H01j 31/20

U.S. Cl. 117—8

8 Claims



A method of treating an expanse of phosphor material to remove selected spots which have interfering luminescent properties. The method consists of isolating and identifying spots or areas considered to be objectionable as regards the desired function of the particular phosphor, and then focusing a laser beam of selected wavelength at each spot whereupon the phosphor material absorbs the laser generated radiant energy to develop heat energy sufficient to effect vaporization of the spot of phosphor material.

3,637,411

DUAL FINISH SURGEON'S GLOVE

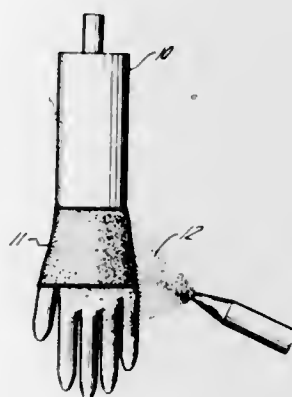
Armand J. Agostinelli, East Haven, Conn., assignor to Dart Industries Inc., Los Angeles, Calif.

Continuation of application Ser. No. 720,854, Apr. 12, 1968, now abandoned. This application Nov. 18, 1969, Ser. No. 871,679

Int. Cl. B44d 1/094; A61b 19/04

U.S. Cl. 117—18

7 Claims



A dual-finished rubber surgeon's glove having an external surface that is nonadherent to antifriction powders and an adherent powdered inside surface. Sufficient dust or powder is present on the inside to facilitate donning, while the absence of dust on the outside minimizes the possibility of introducing dust particles into surgical openings and causing infections or post operative adhesions.

3,637,412

LADLE LINING REFRACTORY

Frank T. Felice, Chicago; Robert E. Fisher, Clarendon Hills, and Louis J. Jacobs, Chicago, all of Ill., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Sept. 16, 1968, Ser. No. 760,094

Int. Cl. B44d 1/14; C04b 35/54, 35/66

U.S. Cl. 117—26

15 Claims

A refractory material for lining metallurgical ladles and the method of producing the same are disclosed. The material comprises refractory aggregate particles such as calcined flint clay which are coated with various materials including an outer coating of graphite which is covered with an elastic film of material such as aluminum phosphate binder. The graphite gives the refractory mixture the desirable properties and the film protects the graphite from oxidation and wear. The material is prepared in apparatus such as a pelletizer with an inclined revolving disk whereby the separate particles are each coated to produce a final mixture of discrete particles which are flowable and thus easy to handle. The refractory may be used as a monolithic lining or it may be formed into brick.

3,637,413

LUMINESCENT SCREEN AND METHOD OF MAKING THE SAME

Heinrich Jarczyk, Gross Bleiberau, Germany, assignor to Fernsch GmbH, Darmstadt, Germany

Filed May 31, 1968, Ser. No. 733,281

Claims priority, application Germany, June 8, 1967, P 15 89 787.7

Int. Cl. H01j 31/12

U.S. Cl. 117—33.5 CS

8 Claims

A luminescent screen free of binder material is produced in an electron discharge device by introducing into the envelope of the electron discharge device a suspension of a phosphor in a settling liquid in which a relatively small proportion of a swellable organic colloid is distributed which is capable of being decomposed with complete volatilization. The phosphor of the suspension is then allowed to settle in the envelope so as to form therein a phosphor layer which will include a portion of the settling liquid and the colloid. The settling liquid is then removed and the residual layer is heated in the envelope at an elevated temperature and for a period of time sufficient to cause volatilization of the colloid so that a phosphor layer remains which is free of binder material.

3,637,414

THERMOGRAPHIC TRANSFER SHEET

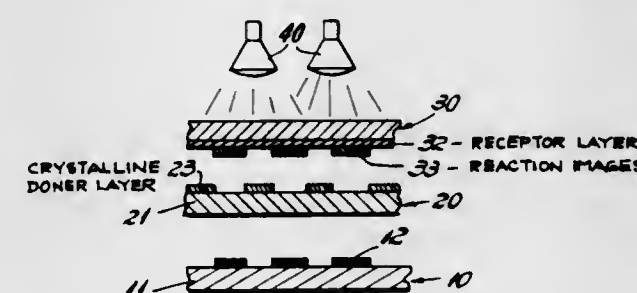
Douglas A. Newman, Glen Cove, and Herbert Knabe, Centereach, both of N.Y., assignors to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.

Continuation-in-part of application Ser. No. 692,164, Dec. 20, 1967, now abandoned. This application Mar. 16, 1970, Ser. No. 20,070

Int. Cl. B41m 5/22, 5/10

U.S. Cl. 117—36.2

6 Claims



The heat-imaging of translucent plastic films for projection purposes using an imaged original sheet and infrared radia-

tion characterized by the use of a transfer sheet having a heat-stable film foundation carrying a translucent heat transferable layer which is based mainly on a crystalline material carried by a resinous binder which softens and becomes adhesive during the heat-imaging process, the crystalline material being incompatible with the resin and providing the layer with a chalky appearance due to the refraction of light caused by its crystalline structure.

3,637,415

LEATHERLIKE MATERIAL

Frank Peter Civardi, Wayne, N.J., assignor to Inmont Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 780,477, Dec. 2, 1968. This application June 9, 1969, Ser. No. 831,664

Int. Cl. B44d 1/44; D06n 3/00

U.S. Cl. 117—62

12 Claims



Surface treatment of water vapor-permeable sheet having a microporous surface of thermoplastic elastomeric polyurethane by applying discrete particles (such as fine droplets) of a solution of an elastomeric polyurethane containing dispersed pigment and collapsing the microporous structure at said surface.

3,637,416

METHOD OF TREATING SYNTHETIC PLASTIC AND ELASTOMERIC MATERIALS AND ARTICLES PRODUCED THEREBY

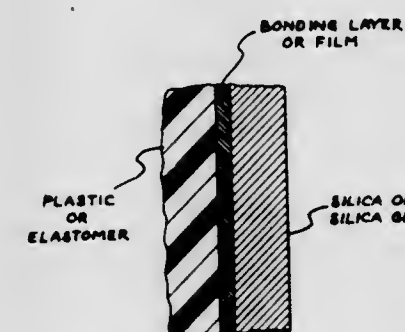
Robert D. Misch, and Donald A. Daus, both of Chicago, Ill., assignors to MBT Corporation, Chicago, Ill.

Continuation of application Ser. No. 636,258, May 5, 1967, now abandoned, Continuation of application Ser. No. 473,212, July 19, 1965, now abandoned, Continuation of application Ser. No. 524,454, Feb. 2, 1966, now abandoned, Continuation of application Ser. No. 231,299, Oct. 17, 1962, now abandoned. This application Feb. 4, 1970, Ser. No. 8,530

Int. Cl. B44d 1/14; G02c 7/04; C32b 27/68

U.S. Cl. 117—72

25 Claims



A method of improving the surface characteristics of plastics and elastomers which in its preferred aspects includes the steps of forming a bonding or coupling film of an organic silicon compound on the surface of a plastic or

3,637,429

IMPREGNATED CELLULOSIC SHEET MEMBERS WHEREIN IMPREGNANT IS A C⁶-C¹³ CARBOCYCLIC SUBSTITUTED RESOLE

George J. Anderson, Wilbraham, and Ronald H. Dahms, Springfield, both of Mass., assignors to Monsanto Company, Saint Louis, Mo.

Continuation-in-part of application Ser. No. 588,310, Oct. 21, 1966, now abandoned. This application June 21, 1968, Ser. No. 738,797

Int. Cl. C08g 5/08, 37/10, 37/18

U.S. Cl. 117-143 A

9 Claims

Cellulosic substrates impregnated with a phenol-formaldehyde resin using a phenol which has been previously substituted with a specific C₆ through C₁₃ mixture of carbocyclic compounds. The resulting impregnated sheets display an improved combination of properties including good tensile strength and flexibility, and are especially useful as filter media and as intermediates for the manufacture of laminates.

3,637,430

CELLULOSIC SUBSTRATES IMPREGNATED WITH A CYCLOPENTADIENE DIMER SUBSTITUTED RESOLE

Ronald H. Dahms, Springfield, and George J. Anderson, Wilbraham, both of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed July 25, 1968, Ser. No. 747,498. The portion of the term of the patent subsequent to Nov. 3, 1987, has been disclaimed.

Int. Cl. C08g 5/08, 37/10, 37/18

U.S. Cl. 117-143 A

11 Claims

Cellulosic substrates impregnated with a phenol-formaldehyde resin using a phenol which has been previously substituted with a specific mixture of cyclopentadiene codimers. The resulting impregnated sheets display an improved combination of properties including good tensile strength and flexibility, and are especially useful as filter media and as intermediates for the manufacture of laminates.

3,637,431

COATING COMPOSITION AND ARTICLE COATED WITH SAME

Richard S. Brenneman, Natick; John J. Clancy, Westwood; William T. MacLeish, Andover, and Robert C. Wells, Arlington, all of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Sept. 30, 1968, Ser. No. 763,884

Int. Cl. D21h 1/38, 1/34

U.S. Cl. 117-155 UA

13 Claims



An emulsion coating composition and a substrate coated therewith. The aqueous phase of the coating contains a blend of resinous materials, one resin component, such as casein, forming a matrix structure and the other, such as an acrylic polymer, forming an essentially continuous film. The coating after drying contains small air-binder interfaces which scatter light. The resin components making up the binder may be chosen to give the coating a wide range of physical and chemical properties.

3,637,432

PREPARATION OF INHERENTLY COLLOIDALLY STABLE INTERPOLYMER LATEXES BY A CONTINUOUS ADDITION POLYMERIZATION TECHNIQUE AND ARTICLES COATED THEREWITH

Dale S. Gibbs; Ritchie A. Weastling, and Earl H. Wagener, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 2, 1969, Ser. No. 863,337

Int. Cl. C09d 3/74; B32b 27/06

U.S. Cl. 117-161

4 Claims

Preparation of inherently colloidal stable polymer latexes by the continuous, addition polymerization in aqueous dispersion of a copolymerizable monomeric mixture of specified amounts of (1) an essentially hydrophobic ethylenically unsaturated monomer, such as vinylidene chloride, (2) a second, relatively more hydrophilic ethylenically unsaturated monomer having a solubility of at least 1 weight percent in both the water and oil phase of the aqueous dispersion and (3) a significantly water soluble ionic material which is copolymerizable with (2) and which has an onium functionality; and improved substantially water-insoluble substrates having a coating of the dried residue of such aqueous dispersion thereon.

3,637,433

PROCESS FOR IMPROVING PHOTOCONDUCTIVE ELEMENTS

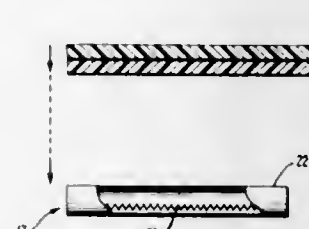
Jimmy A. Sims, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 21, 1969, Ser. No. 852,018

Int. Cl. B44d 1/18

U.S. Cl. 117-201

10 Claims



The surface properties of a solvent coated photoconductive element comprising a heat softenable photoconductive insulating layer on an electrically conductive substrate are improved by quickly heating the photoconductive insulating layer above its softening point such as by placing the element in contact with a heated member for a short period of time.

3,637,434

VAPOR DEPOSITION APPARATUS

Sho Nakanuma; Yuichi Haneta; Keizo Fujimori, and Toshio Wada, all of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Nov. 4, 1969, Ser. No. 874,002

Claims priority, application Japan, Nov. 7, 1968, 43/81716

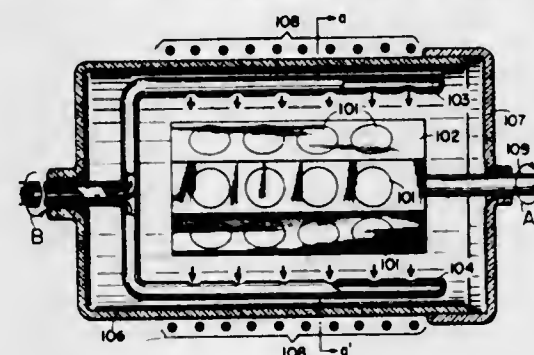
Int. Cl. C23c 13/08; B05c 11/14

U.S. Cl. 117-201

5 Claims

An apparatus is provided for vapor depositing an epitaxial semiconductor layer or film on a semiconductor substrate comprising a susceptor of prismatic configuration supported along its longitudinal axis. The susceptor is confined within a housing to shield it from the external environment. A gas inlet pipe with at least one slit or orifice therealong is provided within the housing along one side of the susceptor and an outlet pipe also with at least one slit or orifice for exhausting gas substantially diametrically opposite the inlet pipe along the other side of the susceptor. The surface of the susceptor is provided with holding means for supporting semiconductor substrates. The apparatus has means for heating the susceptor and means for effecting relative axial rotation as between the pipes and the susceptor about the longitudinal axis of the

susceptor. Preferably, the susceptor and pipes are rotated in



mutually opposite directions.

3,637,435

METALLIZING PROCESS FOR GLASS-FREE CERAMICS BODIES

Raymond E. Schwyn, Flint, and Morris Berg, Grand Blanc, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of application Ser. No. 597,868, Nov. 30, 1966, now abandoned. This application July 8, 1969, Ser. No. 840,007

Int. Cl. C04b 41/14

U.S. Cl. 117-227

5 Claims

This invention relates to sintered, substantially glass-free, ceramic bodies, and more particularly to an improved method of producing a metallized surface on such ceramic bodies. The method includes coating a sintered ceramic body with a metallizing ink composition containing a metal from the group molybdenum, tungsten, and mixtures of each of such metals with manganese, and subsequently firing the coated ceramic body in a wet reducing atmosphere to oxidize the metal from said first-mentioned group to yield a metallic layer which is tightly bonded to the surface of the ceramic body. The oxide of the metal from said first-mentioned group bonds directly to the ceramic body which in turn mechanically adheres the metal layer, from said second-mentioned group, to the ceramic body.

3,637,436

CATHODE MIXTURE CONTAINING A HIGH- STRUCTURE, HIGH-SURFACE AREA CARBON BLACK

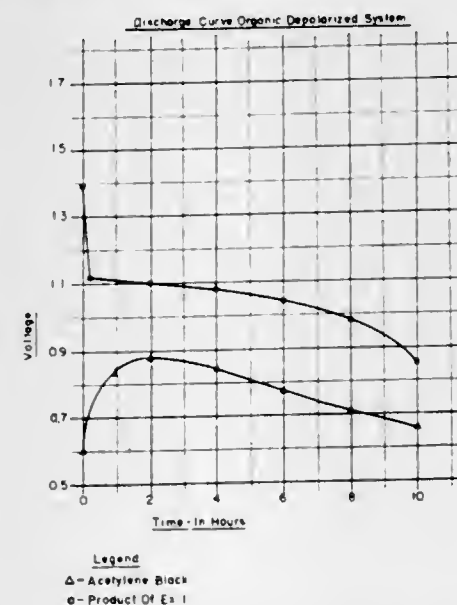
Fletcher A. Hinson, Jr., Portland, Tex., assignor to Ashland Oil, Inc., Houston, Tex.

Original application July 13, 1966, Ser. No. 564,667, now abandoned. Divided and this application May 5, 1970, Ser. No. 46,569

Int. Cl. H01m 21/00, 13/02, 15/06

U.S. Cl. 136-83 R

16 Claims



A cathode mixture for a cell which contains a furnace carbon black having a surface area (iodine adsorption) of about

600 m.²/gram to about 1300 m.²/gram, a structure level as measured by oil factor of about 250 to about 450 milliliters per 100 grams of carbon, a pH of about 6 to about 10, and an ash content of about 0.5 percent to about 10 percent.

3,637,437

RANEY METAL SHEET MATERIAL

Max Goldberger, Wapping, Conn., assignor to Catalytic Technology Corporation, Manchester, Conn.

Continuation-in-part of application Ser. No. 447,551, Apr. 12, 1965, Continuation-in-part of application Ser. No. 408,217, Nov. 2, 1964, now abandoned, Continuation-in-part of application Ser. No. 761,880, Sept. 23, 1968. This application June 3, 1970, Ser. No. 43,220

Int. Cl. H01m 13/06

U.S. Cl. 136-120 FC

10 Claims

A Raney metal catalytic sheet material is prepared by spraying molten particles of a Raney alloy, such as a silver, nickel, iron, platinum or cobalt alloy with aluminum on a substrate, and leaching aluminum from the alloy. The sheet catalyst is claimed as is the process of manufacture.

3,637,438

THERMOCOUPLE GUIDE

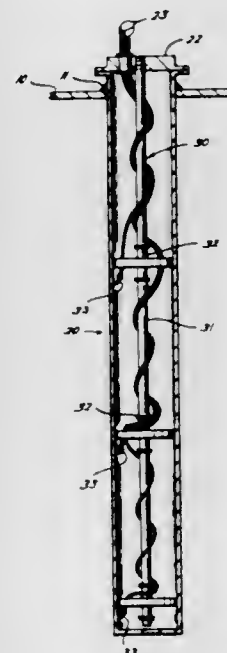
Redwood L. Springfield, 3827 Sun Valley, Houston, Tex.

Filed May 13, 1965, Ser. No. 455,402

Int. Cl. H01v 1/00, 1/02

U.S. Cl. 136-230

10 Claims



A flexible central support having a plurality of hollow guides spirally wrapped therearound, and individual thermocouple cables removably inserted within each guide. Spiderlike positioners are spaced along the support to extract individual guides and lead the remainder to their proper location.

3,637,439

PROCESS AND APPARATUS FOR PULLING SINGLE CRYSTALS OF GERMANIUM

Edouard DeBie, Antwerpen, Belgium, assignor to Metallurgie Hoboken, Montagne du Parc, Brussels, Belgium

Filed July 2, 1969, Ser. No. 838,393

Claims priority, application Belgium, Nov. 13, 1968, 65987

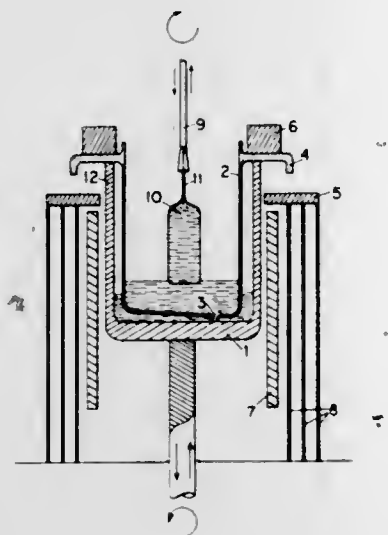
Int. Cl. B01j 17/00; H01l 7/00

U.S. Cl. 148-1.6

3 Claims

A process and apparatus for separating scum from molten metal, particularly germanium, and the pulling of single

crystals with the use of outer and inner crucibles. The metal is placed in the outer crucible and there melted. In the inner crucible is weighted with a ballast to ensure its penetration into the molten metal and to avoid its flotation on the molten metal. The outer crucible is then lifted and rotated to segregate the scum from the molten metal and to introduce the metal from the outer to the inner crucible through an ori-



fice provided in the bottom of the inner crucible while the scum remains in the outer crucible. The outer crucible is then lowered to empty the inner crucible and again lifted and rotated to reintroduce scum-free metal from the outer to the inner crucible. The steps are repeated until all traces of the scum are separated from the molten metal, which is followed by growing a single crystal of metal from the scum-free metal in the inner crucible.

3,637,440

METHOD OF MAKING A CREEP RESISTANT LEAD ALLOY

George S. Foerster, and Garth D. Lawrence, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Original application Nov. 1, 1967, Ser. No. 679,621, now abandoned. Divided and this application Apr. 24, 1970, Ser. No. 31,801

Int. Cl. C22f 1/12; C22c 1/100

U.S. Cl. 148—11.5 R

13 Claims

The present invention comprises a creep resistant lead base alloy characterized by finely dispersed intermetallic compound and containing, by addition, at least one solid soluble alkali or alkaline earth metal component prealloyed with lead which is selected from Groups IA and IIA of the Mendeleeff Periodic Chart of the atoms, and at least one metalloid component selected from Group VB of said atomic chart, the balance being essentially lead, and a method of preparing said alloy. The method of making said creep resistant lead base alloy comprises: (a) dissolving the selected alkali or alkaline earth metal in molten lead, (b) particulating the mass from the molten form to provide a prealloy, (c) intimately and homogeneously contacting said solid, particulate prealloy with the metalloid component, and (d) diffusing said metalloid component into the prealloy at an elevated temperature to form an essentially insoluble intermetallic compound finely dispersed throughout a final creep resistant lead base alloy.

3,637,441 ALUMINUM-COPPER-MAGNESIUM-ZINC POWDER METALLURGY ALLOYS

John P. Lyle, Jr., New Kensington, Pa., and Raymond J. Towner, Lima, Ohio, assignors to Aluminum Company of America, Pittsburgh, PA

Original application Apr. 8, 1968, Ser. No. 719,752, now Patent No. 3,544,394, dated Dec. 1, 1970. Divided and this application Mar. 2, 1970, Ser. No. 18,781

Int. Cl. C22c 21/00; C22f 1/04

U.S. Cl. 148—32.5

5 Claims

Aluminum base powder metallurgy alloy article having an improved combination of high-transverse yield strength and high-stress corrosion cracking resistance. The alloy contains the basic precipitation hardening elements zinc, magnesium and copper plus dispersion strengthening elements iron and nickel. It may additionally contain chromium and/or manganese. The alloy is prepared by atomization of a melt of the elements, hot-working, solution heat treating, quenching and artificial aging. Components of the alloy in percent by weight are, in addition to the aluminum, from at least 6.5 to 13 zinc, 1.75 to 6 magnesium, 0.25 to 2.5 copper, 0.75 to 4.25 iron and 0.75 to 6 nickel, up to 3 manganese and up to 0.75 chromium. The iron to nickel ratio is from 0.2:1 to 2.0:1.

ERRATUM

For Class 148—111 see:
Patent No. 3,636,579

3,637,442

PROCESS FOR PRODUCING PLASTICALLY DEFORMED IRON-RHODIUM BASE ALLOY BODIES

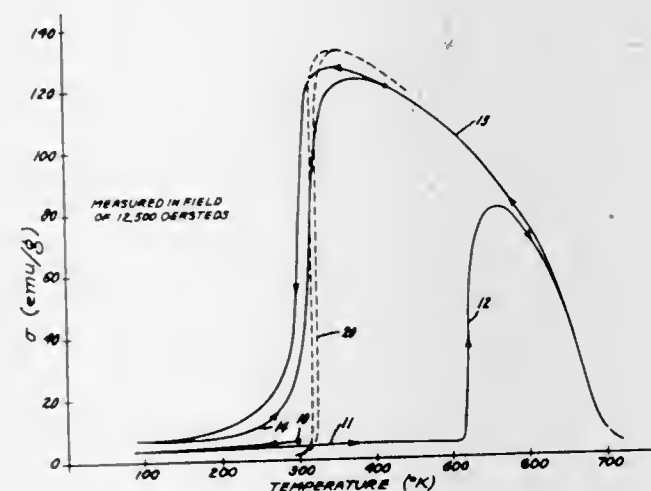
James S. Kouvel, Colonie; James M. Lommel, Niskayuna, and Thomas E. Douglas, Rotterdam, all of N.Y., assignors to General Electric Company

Filed Feb. 13, 1967, Ser. No. 615,433

Int. Cl. H01f 1/00

U.S. Cl. 148—120

4 Claims



This invention concerns a new process for producing plastically deformed shapes of iron-rhodium base alloys which exhibit controlled magnetic transitions. The process comprises hot and cold reducing a starting body to some final dimension, the cold reduction causing an increase in the ductility of the starting body by partially rendering it crystallographically face-centered cubic, and then heat treating the final body at a temperature no lower than about 235° C. to produce a CsCl-type ordered crystal structure having an

abrupt magnetic transition. Subsequent cold reducing of the heat-treated body by varying amounts alters the nature of the magnetic transition.

3,637,443

METHOD FOR ANNEALING MAGNETIC WIRE

Lloyd D. Ransom, Torrance, Calif., assignor to Motorola, Inc.

Filed Nov. 28, 1969, Ser. No. 880,860

Int. Cl. H01f 1/12; B32b 15/00, 15/20

U.S. Cl. 148—122

1 Claim

A conductive wire which is plated with a magnetic coating is annealed in an oxygen environment. The resulting oxides are removed to provide good electrical contact for online testing.

3,637,444

PROCESS OF MAKING DETERRENT-COATED AND GRAPHITE-GLAZED SMOKELESS POWDER

John O. Bonyata, Mountain Lakes, and Lynn G. Rohrbaugh, Lake Hopatcong, both of N.J., assignors to Hercules Incorporated, Wilmington, Del.

Filed Apr. 14, 1969, Ser. No. 816,023

Int. Cl. C06b 19/02

U.S. Cl. 149—10

20 Claims

An improved process for manufacture of deterrent-coated and graphite-glazed smokeless powder is provided with deterrent coating and graphite glazing being done in an aqueous slurry at elevated temperatures.

3,637,445

METHOD FOR MAKING EXPLOSIVE OIL IMPREGNATED SENSITIZER GELLED AQUEOUS EXPLOSIVE SLURRY

Phillip G. Newman, Kenvil, N.J., assignor to Hercules Incorporated, Wilmington, Del.

Filed Nov. 26, 1968, Ser. No. 779,240

Int. Cl. C06b 1/04

U.S. Cl. 149—50

8 Claims

A process for preparing gelled aqueous explosive slurries having increased detonation velocity and sensitivity while employing densified nitrocellulose particles as the sensitizing agent is disclosed. The increase in detonation velocity and sensitivity are achieved by impregnating the densified nitrocellulose particles with an explosive oil in the form of an aqueous emulsion in which the aqueous phase is a solution of water and water-soluble oxygen-containing salt.

3,637,446

MANUFACTURE OF RADIAL-FILAMENT SPHERES

Daniel R. Elliott, Ridgewood; Edgar Francois, Wayne, and Donald C. MacDonald, Ridgewood, all of N.J., assignors to Uniroyal, Inc., New York, N.Y.

Original application Jan. 24, 1966, Ser. No. 522,675, now Patent No. 3,490,638, dated Jan. 20, 1970. Divided and this application Feb. 3, 1969, Ser. No. 822,769

Int. Cl. B29c 27/10; B29d 25/00

U.S. Cl. 156—69

6 Claims



Making a shell-type body of spherical curvature by various methods which include the butt edge bonding in a spherical configuration of segments of resin/reinforced by short length

high-modulus filaments extending substantially normal to the inner and outer surfaces of the segments and preferably through the entire segment thickness whereby the filaments are disposed generally radially with respect to the curvature of the body. Complete spheres of this construction are particularly suited for deep submergence work under high-external hydrostatic pressures, being characterized by a low weight to displacement ratio and a high-compressive strength to weight ratio. The full nature and extent of the invention is discernable only by reference to the entire disclosure.

3,637,447

METHOD OF MAKING FILTER MEANS BY CRIMPING AND OVERWRAPPING A TUBULAR ELEMENT

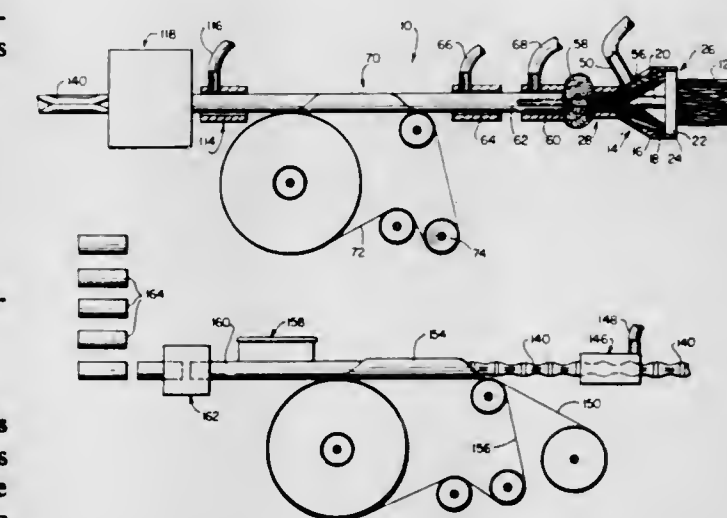
Richard M. Berger, Richmond, and Elwin W. Brooks, Mechanicsville, both of Va., assignors to American Filtrona Corporation, Richmond, Va.

Continuation-in-part of application Ser. No. 727,477, May 8, 1968, now Patent No. 3,533,416, and a continuation-in-part of 820,355, Apr. 30, 1969. This application June 10, 1970, Ser. No. 45,109

Int. Cl. B29h 9/02

U.S. Cl. 156—180

5 Claims



A method and apparatus for making filter means of a type which is constructed to provide elongated, high-surface area, cavities defined on opposite sides of a relatively thin wall formed of filtering material with only the ends of the filter means contacting an overwrapped outer tube thereby presenting maximum available surface area of the material from which the products are formed to the smoke for filtration is disclosed. A tow of a suitable filtering material is passed through an air nozzle containing a mandrel centered therein, the tow thereby achieving a uniformly random, but tubular, configuration and then through a steam-curing station followed by an air-curing station. The formed rod is then again steam cured and passes to a crimping device which imparts a particular configuration thereto. The crimped rod is then again air cured, wrapped, and cut. In another embodiment, an addition material may be added by means either of a printing applicator device or a pulsating nozzle device.

3,637,448

LAMINATING METHOD FOR HONEYCOMB

Burton L. Siegal, Skokie, Ill., and Steve Herndon, deceased, late of Fredericktown, Ohio (by Nancy Herndon, executrix), assignors to Orbitex, Inc., Miami, Fla., by said Siegal

Filed Feb. 12, 1968, Ser. No. 705,885

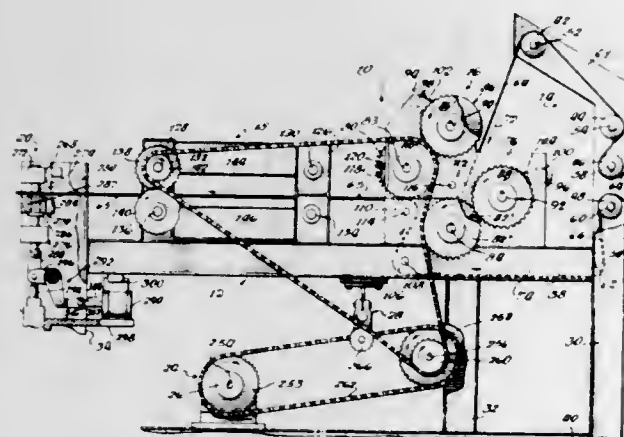
Int. Cl. B31d 3/02

U.S. Cl. 156—197

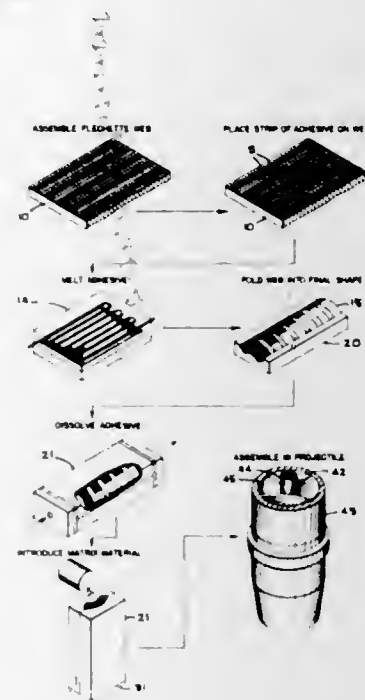
5 Claims

There is described a novel method and a laminating machine useful to perform said method, all for the production of unexpanded honeycomb laminate, which machine in-

cludes a printing stage for application of adhesive upon the upper and lower faces of the upper one of a pair of webs transverse to the direction of travel of said webs and in the form of spaced parallel lines; said printing stage including means for laminating the printed one of said pair of webs to the clean web during the application of the adhesive; a tractive or draw stage which receives the printed, laminated pair of webs from the printing stage and transports same to a severing stage where the webs are cut between the adhesive lines whereat severance of the webs to sheets of predetermined length is accomplished without disturbance of said adhesive lines; the described invention also including a framework for mounting said stages thereon, drive means, including a motor and chain drive, capable of driving the printing and draw stages at a differential rate one relative to the other with the draw stage operated at a slightly greater speed than the printing stage so that the webs are held taut in transport to the severing stage; and, control means for actuating the severing of the webs into said sections of length, said control means being operated as a function of the number of lines of adhesive printed upon one of the upper or lower web faces of said printed web and there being means for compensating for the relative speed of the webs and the inertia of the

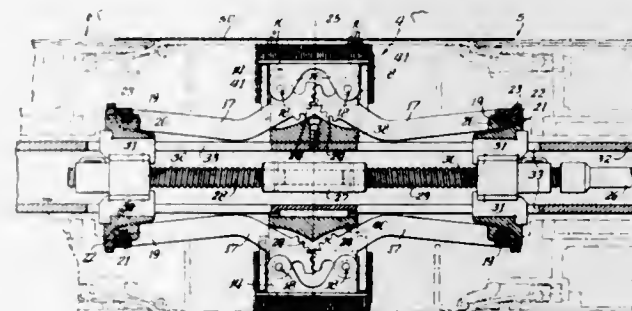


3,637,449
PROCESS FOR PREPARATION OF MISSILES
 Harry Raech, Jr., San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.
 Filed Feb. 20, 1969, Ser. No. 800,971
 Int. Cl. F42b 13/32
 U.S. Cl. 156—305
 12 Claims



A method, or process, is disclosed of preparing flechettes in packs for insertion in a projectile, and a flexible web of flechettes, which is formed during the process, is also disclosed. In preparation of the pack, the flechettes are initially arranged on a rack in an interdigitated array, and a soluble, elastic adhesive is applied, in strip form, to the array. After the strips of adhesive are melted into the array, a flexible web is formed which can be removed from the rack. The web is folded into a mold with an internal cavity in the shape of a pack suitable for insertion into a projectile. A solvent is passed through the mold to dissolve the adhesive, and a matrix material is introduced in liquid form into the mold. The matrix binds the flechettes into a frangible pack which is then installed in a projectile.

3,637,450
MECHANISM FOR EFFECTING MOVEMENT OF A TIRE BUILDING DRUM DECK
 Emerson C. Bryant, South Bend, Ind., assignor to National-Standard Company, Niles, Mich.
 Filed Jan. 20, 1970, Ser. No. 4,285
 Int. Cl. B29h 17/16, 17/26
 U.S. Cl. 156—415
 2 Claims

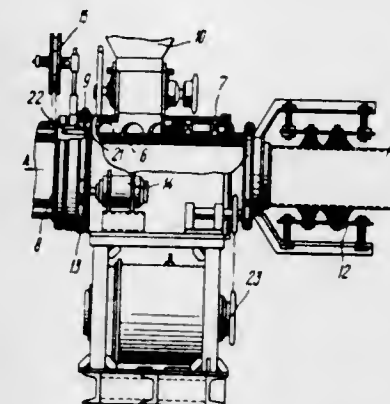


A platform moving mechanism for effecting movement of platform means, such as the deck segments of a tire-building

actual severing means utilized at the severing stage. The severing means at the severing stage is actuated when a predetermined condition being reached, said condition being a function of the number of printed lines and being capable of presetting to any value. A proximity detector is utilized as sensing means in a relay circuit to count the number of lines printed by monitoring the rotation of one of the printing rollers of the printing stage, said count being transmitted to tabulating means which is present to actuate the severing means upon a predetermined count; said circuit-tabulating means including a DC solenoid valve system for causing movement of the severing means, and also includes means for actuating the severing means while tallying the count to a retallying condition so that counts are not lost during the motion of the severing means. Guide means are described for monitoring and adjusting the alignment of the webs and a pneumatically operated solenoid actuated blade system is provided as the severing means for the severing stage, said system including a fixed blade positioned above the webs and a movable blade positioned below the webs, a pneumatic cylinder system for actuating the movable blade toward the fixed blade and said solenoid valve system being operable upon said cylinder system to drive the movable blade for severance of the web.

machine having an annular expandable drum defined by a plurality of circumferentially arranged deck segments each having a plurality of supporting members extending circumferentially of the drum in spaced apart side-by-side relation, and which are in end to end interleaved relation between adjacent deck segments, and in which the deck segments are movable radially to effect relative circumferential movement of the supporting members to define substantially cylindrical supporting surfaces of different radii, in which the platform moving mechanism is formed by opposed pusher arms lying in planes extending axially of the drum pivoted at their inner ends to the deck segments and pivoted at their outer ends to pusher rings movable axially toward and away from each other, and in which the inner ends of the pusher arms are provided with meshing gear teeth so that as the pusher rings are moved axially toward and away from each other, the deck segments are moved conjointly radially inwardly and outwardly to provide for the desired radial positioning of the deck segments and consequently the circumferential positioning of the supporting members so that the outer surfaces of the latter define substantially concentric supporting surfaces at any position of the pusher rings with respect to each other.

3,637,451
DEVICE FOR APPLYING HEAT-INSULATING SUBSTANCES ONTO PIPES
 Vladimir Alexeevich Gusev, ulitsa Malaya Podvalnaya, 14, kv. 9, and Nikolai Nikolaevich Rudenko, ulitsa Kikvidze, 13-a, kv. 10, both of Kiev, U.S.S.R.
 Filed Aug. 14, 1969, Ser. No. 850,028
 Int. Cl. B22d 7/10; B29b 5/04
 U.S. Cl. 156—500
 4 Claims

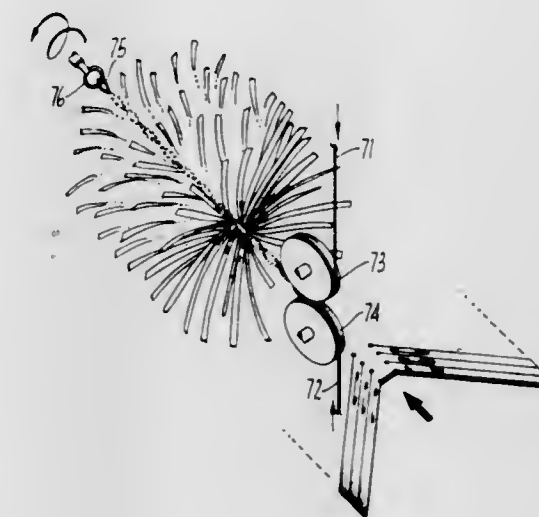


A device disclosed for applying heat-insulating substances onto pipes, wherein a pipe being insulation-coated is progressively displaced inside a hollow auger enclosed in a cylindrical casing and designed to feed and consolidate the substance being applied onto the pipe. The device makes it possible to apply onto pipes coatings of insulating substances having a volume weight of 400 kg./sq.cm. and less, which is attained owing to the fact that on the side of the outlet end of the casting there is mounted a ring element progressively displaceable together with the pipe and serving to limit the extrusion of insulating substance from the casing, while at the outlet end of the casing there is mounted a device for winding a band of elastic material onto the surface of the insulation-coated pipe.

3,637,452
DECORATIVE SHEETING AND GARLAND
 Frederick M. Sanders, 8338 N. Sunnyside Ave., Clovis, Calif.
 Filed June 3, 1970, Ser. No. 42,949
 Int. Cl. A41g 1/00; A47g 33/08
 U.S. Cl. 161—15
 10 Claims

Decorative polymer sheeting comprising a longitudinal web portion positioned centrally widthwise thereof, a mul-

tiplicity of elongated strips integral with said web portion and extending outwardly from both sides thereof and a permanent crease on each strip extending over a substantial portion of its length is continuously made by passing a continuous thin, deformable polymer sheet through a die in which a



pair of elongated blades repetitively cuts slits in the sheet thereby forming the strips and a pair of creaser punches which move in unison with the blades longitudinally creases each strip as the next following adjacent strip is being cut by the blades.

3,637,453
GLASS-CERAMIC ARTICLES HAVING AN INTEGRAL COMPRESSIVE STRESS SURFACE LAYER
 George A. Simmons, Toledo, Ohio, assignor to Owens-Illinois, Inc.
 Continuation-in-part of application Ser. No. 558,238, June 17, 1966, Original application Oct. 4, 1967, Ser. No. 672,711, now Patent No. 3,498,775. Divided and this application Oct. 7, 1969, Ser. No. 871,026
 Int. Cl. C03c 3/22, 21/00
 U.S. Cl. 161—43
 7 Claims

A glass-ceramic article is made from a glass composition, the glass-ceramic breaking or dicing like thermally tempered glass instead of producing fragments with sharp and pointed edges. One method of making such a glass-ceramic article is by heat-treating a thermally crystallizable glass having the following composition:

INGREDIENTS	PERCENT BY WEIGHT
SiO ₂	70.4
Al ₂ O ₃	15
MgO	4
CaO	3
Li ₂ O	1.6
TiO ₂	2
ZrO ₂	1
Na ₂ O	3
F	0.2

to provide by bulk crystallization a glass-ceramic article, ion-exchanging the surface of the article, heating the ion-exchanged glass-ceramic article to provide additional crystallization, and thermally tempering the resultant article.

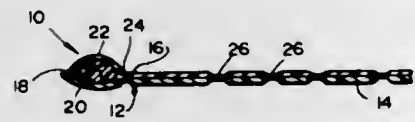
3,637,454 FEEDING MAT

Stanford Pavernick, c/o Aljen Manufacturing Co., 115 Grand St., New York, N.Y.

Filed Sept. 12, 1969, Ser. No. 857,522
Int. Cl. B32b 1/04; B65d 1/34

U.S. Cl. 161-44

4 Claims



An infant's feeding mat is provided with a substantially flat bottom and an upstanding ridge lying within a marginal zone adjacent the peripheral edges. The mat is formed of a base ply of foamed resilient flexible plastic and a top ply of non-foamed flexible plastic. A thick border strip of foamed flexible resilient plastic is interposed between the plies and within the marginal zone, and the two plies are subsequently heat sealed to one another along their peripheries. An additional heat sealed seam between the plies surrounds the inner border of the strip and encloses the strip. The strip is held under compression between the plies and imparts the ridge to the mat.

3,637,455 PREFABRICATED BOW FORMS

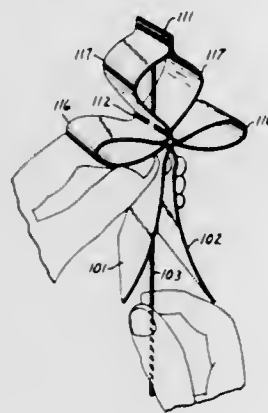
Walter C. Pearson, St. Paul; Edward R. Quinn, Burnsville, and Dorman N. Thompson, North St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of application Ser. No. 791,992, Jan. 17, 1967, now abandoned. This application Jan. 2, 1970, Ser. No. 320

Int. Cl. D04d 7/10

U.S. Cl. 161-49

2 Claims



Apparatus for mechanically fabricating prefabricated bow forms from two strips of decorative ribbon material and including a drawstring partially bonded to the ribbon, said apparatus comprising a ribbon and drawstring supply, motor means, a ribbon bonding assembly for bonding said ribbon materials together at spaced points, a ribbon advancing means and a ribbon cutoff means. A simple method of forming decorative bows from the prefabricated bow forms is also disclosed, said method comprising accumulating the bonded areas of said prefabricated bow forms one upon another, simultaneously forming loops of ribbon on either side of said bonded areas, by means of the drawstring.

3,637,456 PROCESS FOR REINFORCING POLYVINYL CHLORIDE MECHANICAL FOAMS, AND IMITATION LEATHER MADE FROM SUCH FOAMS

Gerard Mao, Collonges au Mont D'Or, France, assignor to Etablissements A. Chomarat & Cie, Paris, France

Filed May 7, 1970, Ser. No. 35,503

Claims priority, application France, May 8, 1969, 5912924
Int. Cl. B32b 5/08, 5/18, 7/00

U.S. Cl. 161-64

6 Claims

A polyvinyl chloride foam obtained by beating a plastisol is reinforced by incorporating textile fibers into the foam, before, during or after emulsification of the foam in a mechanical beater. The fibers may be natural or synthetic textile fibers such as superpolyamides or polyesters and they are from 1-2 deniers, 0.1-6 mm. in length and present in an amount between 2 and 20 percent by weight in the plastisol. Imitation leather is produced from these foams by joining two layers thereof together, one layer being of lower density but having a greater quantity of fibers therein per unit weight of the plastisol.

3,637,457 NYLON SPUN BONDED FABRIC-CONCRETE COMPOSITE

Edwin S. Gothard, Cary, and John D. Calfee, Raleigh, both of N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed June 8, 1970, Ser. No. 44,492

Int. Cl. B28b 23/04; B32b 13/02, 13/14

U.S. Cl. 161-140

8 Claims



A high-impact resistant concrete-spun bonded fabric laminae including a layer of concrete and a planar fabric comprised of continuous nylon filaments arranged without apparent order within the plane of the fabric and being autogenously bonded together at a substantial number of touching filament crossover points, the fabric being at least partially embedded and under tension in said concrete.

3,637,458 MICROCELLULAR FOAM SHEET

Robert Guy Parrish, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 664,781, Aug. 31, 1967, now abandoned. This application Dec. 27, 1968, Ser. No. 797,312

Int. Cl. B32b 3/00, 7/00; B29d 27/00

U.S. Cl. 161-160

7 Claims

A low-density foam sheet of a high work-to-break value thermoplastic crystalline polymer comprising polyhedral-shaped closed cells having a median diameter of at least 500 microns and a process for its preparation by flash extrusion with reduced bubble nuclei formation.

3,637,459 STRUCTURAL PANEL HAVING FOAM PLASTIC CORE

Hal G. Parish; Albert J. Palfrey, and Eugene R. Moore, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 17, 1970, Ser. No. 20,316

Int. Cl. B32b 3/26, 27/06, 31/04

U.S. Cl. 161-161

5 Claims

Laminated panels of improved stability and wide utility are obtained by employing a styrene-maleic anhydride

copolymer as a foamed core of the panel. The copolymer is a uniform copolymer of from 85 to 65 weight percent styrene and 15 to 35 weight percent maleic anhydride.

3,637,460 DEWATERING APPARATUS

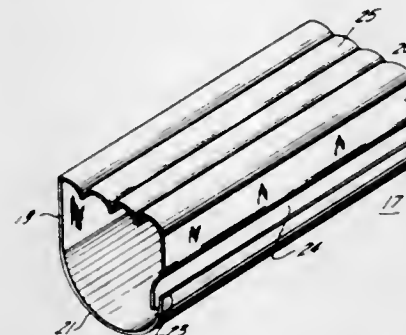
Peter James Newsom, Centreville, Nova Scotia; William G. Smith, St. John's, Newfoundland, and Robert Anthony Robinson, New Glasgow, Nova Scotia, all of Canada, assignors to Huyck Corporation, Stamford, Conn.

Filed Aug. 15, 1967, Ser. No. 671,177

Int. Cl. D21t 1/52

U.S. Cl. 162-352

6 Claims



This invention relates to dewatering devices for use in the forming section of papermaking machines. A preferred embodiment comprises an enclosure, the top of which is open to the underside of the forming medium with which it is associated, at least one of the sidewalls of which has a concave lower portion extending into an upturned lip, thereby forming a pocket in which effluent drawn through the forming medium will collect and a second member coextensive with, and having a portion spaced from and within, said concave portion to form a channel that will provide a means for discharging excess effluent from the pocket while keeping the pocket at least partially filled with effluent so as to maintain a seal between the inside of the enclosure and the surrounding air.

3,637,461 PROCESS FOR PRODUCING FATTY ACID ESTERS OF SUGARS

Katsunobu Tanaka, and Takeo Suzuki, both of Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Jan. 31, 1969, Ser. No. 795,738

Claims priority, application Japan, Feb. 1, 1968, 43/5735

Int. Cl. C12d 13/00

U.S. Cl. 195-28 R

15 Claims

A process for producing fatty acid esters of sugars by fermentation which comprises culturing a hydrocarbon-assimilating micro-organism under aerobic conditions in an aqueous nutrient medium containing hydrocarbons as the main source of carbon. Good yields are obtained using n-paraffins of six to 25 carbon atoms or kerosene as the hydrocarbon in the medium. Exemplary micro-organisms are those belonging to the genus *Arthrobacter*, *Brevibacterium*, *Micrococcus*, *Corynebacterium*, *Mycobacterium*, *Candida*, or *Aspergillus*.

3,637,462 PURIFICATION OF ENZYMES

Joseph M. Hill, Dallas, and Robert J. Speer, Richardson, both of Tex., assignors to J. K. and Susie L. Wadley Research Institute and Blood Bank, Dallas, Tex.

Filed Apr. 21, 1969, Ser. No. 818,117

Int. Cl. C07g 7/028

U.S. Cl. 195-66 A

17 Claims

A therapeutic enzyme such as L-Asparaginase is purified from a protein mixture containing the L-Asparaginase by adding a controlled amount of a buffer solution which will solu-

bilize a major portion of the protein mixture, but only a minor portion of the L-Asparaginase, for example, a sodium acetate buffer solution having a pH in the range of 5.3 to 5.7, and thoroughly mixing the resulting dispersion until the protein is solubilized and a solution is formed containing the enzyme dispersed therein. The enzyme is then separated from the buffer solution by suitable means such as centrifugation. Noxious agents such as endotoxin and pyrogen are removed from the purified or partially purified L-Asparaginase by intimate contact with a water insoluble nonionic sorbent material. Additionally, protectant agents such as Vitamin C can be added to the purified or partially purified L-Asparaginase and thereby cause an increase in the storage life thereof.

3,637,463 PRODUCTION OF OXYTETRACYCLINE USING STREPTOMYCES ALBOFLAVUS (ATCC 15388)

Ivan Villax, Lisbon, Portugal, assignor to International Rectifier Corporation, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 312,877, Oct. 1, 1963, now abandoned. This application Aug. 16, 1967, Ser. No. 660,936

Int. Cl. C12d 9/00

U.S. Cl. 195-80

5 Claims

A fermentative process for the production of oxytetracycline which comprises fermenting a nutrient broth under aerobic conditions at a temperature between 22° and 30° C. by a mutant of *Streptomyces alboflavus* (Waksman & Curtis), and recovering accumulated oxytetracycline from the fermented broth.

3,637,464 UPGRADING COKING COALS AND COKE PRODUCTION

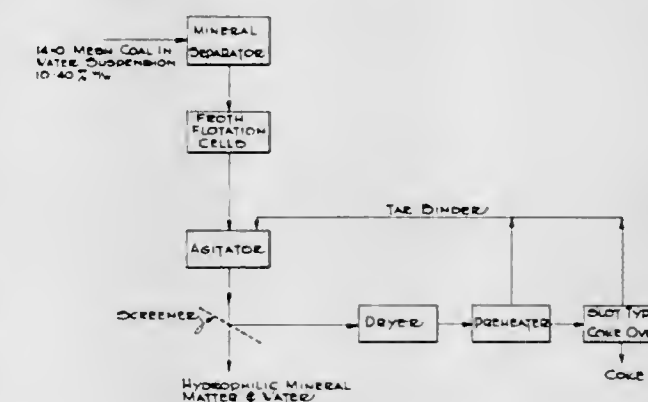
John H. Walsh, Manotick, Ontario; Basil J. P. Whalley, Ottawa, Ontario, and John C. Botham, Ottawa, Ontario, all of Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed Mar. 24, 1969, Ser. No. 810,004

Int. Cl. C10b 47/00, 53/08

U.S. Cl. 201-6

9 Claims



In coke production, coal fines are agglomerated by adding a liquid hydrocarbon to an aqueous dispersion of the fines and agitating the mixture to form spherical agglomerates. These agglomerates are separated, dried, preheated and carbonized.

3,637,465 DISTILLATION METHOD HAVING COUNTERFLOW HEAT EXCHANGE WITH CONDENSATE

James D. Wilson, 902 Marine St., Boulder, Colo.

Continuation of application Ser. No. 582,147, Sept. 26, 1966, now abandoned. This application Aug. 6, 1969, Ser. No. 850,325

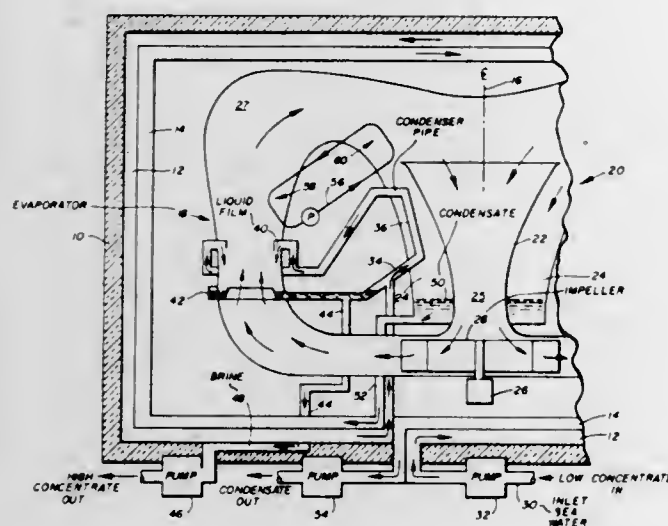
Int. Cl. B01d 3/00; C02b 1/06

U.S. Cl. 203-11

A distillation method and apparatus which may be used in making potable water from sea water. The input liquid is cir-

culated in a system wherein the heat of evaporation is recovered as the heat of condensation from the condenser is returned to the evaporator. The heat required to bring the

sure, to one side of a semipermeable membrane for separation into a concentrate and a permeate. The concentrate and



raw liquid to the boiling point is supplied by heat exchange between the leaving condensate and/or concentrate with the entering raw liquid.

3,637,466

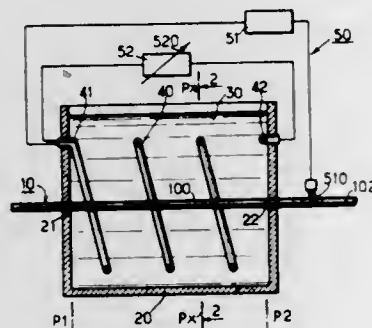
APPARATUS FOR THE ELECTROLYTIC TREATMENT OF WIRES

Rene Fernand Victor Girard, Grenoble, France, assignor to Societe Industrielle Honeywell Bull, Paris, France
Filed May 20, 1968, Ser. No. 730,314

Int. Cl. B01k 3/02; C23b 5/68

U.S. Cl. 204-1 R

8 Claims



The invention concerns apparatus for obtaining an electrolyzing current density which is approximately uniform along a wire subjected to the electrolytic treatment and forming one electrode of the apparatus.

3,637,467

METAL RECLAMATION PROCESS AND APPARATUS

Donald Dean Spatz, Minnetonka, Minn., assignor to Osmonics, Inc., Minneapolis, Minn.

Filed May 7, 1970, Ser. No. 35,472

Int. Cl. C23b 5/00; B65g 49/00; B01k 3/00

U.S. Cl. 204-14 R

11 Claims

A method of reclaiming metal salts from an electroplating process which utilizes exposing the rinse solution, under pres-

permeate are then recycled back into the electroplating system.

3,637,468

ELECTRODES FOR ELECTROLYTIC PROCESSES

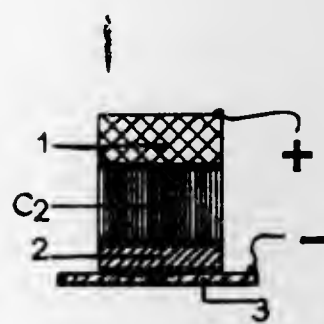
Jean J. G. Ixli, Paris, and Philippe J. Tliche, Clamart, both of France, assignors to Datic S.A., Paris, France and Le Carbone-Lorraine S.A., Paris, France
Filed Apr. 25, 1969, Ser. No. 819,142

Claims priority, application France, Apr. 29, 1969, 149897

Int. Cl. C23b 5/48, 5/76

U.S. Cl. 204-15

7 Claims



This invention relates to electrolytic electroplating processes and devices. In accordance with the invention, the absorbent material that is conventionally used, for example, in the brush or tampon process, consists of an absorbent porous carbon material. A device for use in this context can comprise an electrode in contact with at least one carbon material member.

3,637,469

ELECTROPLATE HONING METHOD

Myron P. Ellis, Royal Oak, and Richard J. Gavasso, Detroit, both of Mich., assignors to Micromatic Hone Corporation, Detroit, Mich.

Filed Oct. 6, 1969, Ser. No. 864,086

Int. Cl. C23b 5/56; B23p 1/00; B23n 1/02

U.S. Cl. 204-26

2 Claims

An electroplate honing technique that utilizes mechanical abrading or honing to clean the metallic surface of a workpiece, then with the tool acting as an electrode, utilizes an

electroplate honing cycle to plate or deposit metal on the surface of the workpiece, then terminating the flow of cur-

3,637,472

CHEMICAL PLATING BATHS CONTAINING AN ALKALI METAL CYANOBOROHYDRIDE

Edward A. Sullivan, Beverly, and Robert C. Wade, Ipswich, both of Mass., assignors to Ventron Corporation, Beverly, Mass.

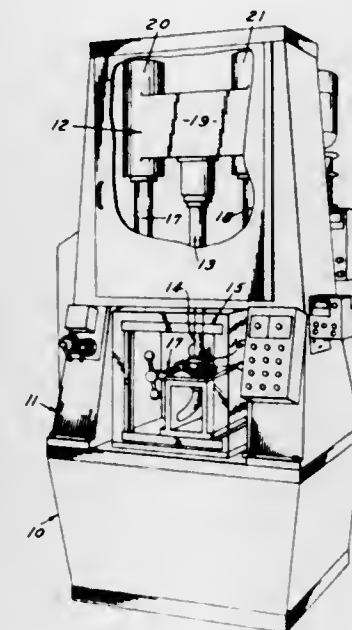
Filed Mar. 16, 1970, Ser. No. 20,075

Int. Cl. C23b 5/02; C23c 3/02

U.S. Cl. 204-46

5 Claims

The invention provides an aqueous plating bath comprising an aqueous solution of a cyanoborohydride of lithium, sodium or potassium and a salt of a metal, such as nickel cobalt, chromium, cadmium, copper and silver, and having a pH between about 3 and about 8. Metals and alloys may be chemically deposited in uniform layers from such plating solutions on substrates which have catalytic surfaces. The term "catalytic surface" as used herein refers to the surface of any article which contains, in whole or part, a material which promotes on its surface the reduction of metal ions.



3,637,476

METHOD OF RECOVERING METALS

Michael Pang, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Sept. 11, 1969, Ser. No. 856,960

Int. Cl. C22d 1/16

U.S. Cl. 204—106

5 Claims

Copper is recovered from ores, or slags, or tailing piles, in which the cupriferous material is finally subdivided by leaching with a dilute aqueous acidic leach solution, the leach solution separated from insolubles, and the copper extracted using as extractant a long chain alkyl quinaldinic acid, such as 6-dodecylquinaldinic acid, in an organic solvent system, such as 75/25 kerosene/aromatic petroleum fraction, and which may contain up to 25 percent of a C_8 to C_{14} alkanol, the organic extractant in solution separated from the aqueous leach solution, and the copper stripped from the organic extractant by strong sulfuric acid, the copper being stripped as copper sulfate in acid solution, from which copper is recovered as electrolytic grade copper by electrolysis.

New quinaldinic acids and methods of synthesis are disclosed.

3,637,477

METHOD OF PREPARING OF $CF_3CHClOCHF_2$

Louise S. Croix, Summit, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Continuation of Ser. No. 731,264, May 22, 1968, abandoned.

Filed Feb. 20, 1970, Ser. No. 14,716

Int. Cl. C07c 41/04, 41/12

U.S. Cl. 204—158 HA

4 Claims

Trifluoroethanol, an alkali metal hydroxide, and difluorochloromethane are reacted to prepare 2,2,2-trifluoroethyl difluoromethyl ether which is recovered and chlorinated in the presence of photoenergy to prepare 1-chloro-2,2,2-trifluoroethyl difluoromethyl ether which exhibits excellent anesthetic properties in inhalation susceptible mammals.

3,637,478

PROCESS FOR PRODUCTION OF ALIPHATIC ACIDS
William A. Mueller, and Ronald Swidler, both of Pasadena, Calif., assignors to Armour Industrial Chemical Company, Chicago, Ill.

Filed Apr. 3, 1968, Ser. No. 718,355

Int. Cl. B01j 1/00; C07c 51/00

U.S. Cl. 204—162

18 Claims

Production of aliphatic acids by reaction of terminally unsaturated aliphatic compounds or monocyclic monounsaturated aliphatic compounds with formate ion in the presence of a free radical initiator. The aliphatic acids formed are useful in the production of lubricants, paper coating, rubber compounding or for the formation of derivatives such as soaps, amines and the like.

3,637,479

HALOGENATION PROCESS USING ULTRAVIOLET LIGHT

David D. Rosenberg, Niagara Falls, and David U. Spinney, Grand Island, both of N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,387

Int. Cl. B01j 1/10

U.S. Cl. 204—163 R

3 Claims

Liquid cyclopentadiene and chlorine are diluted in a polychlorocyclopentane solvent, reacting to form tetrachlorocyclopentane. The tetrachlorocyclopentane is then passed through an illuminated zone where gaseous chlorine is injected, effecting photochemical chlorination of the organic feed to form a hexachlorocyclopentane product.

A portion of the circulating stream leaving the reaction zone is withdrawn as product of the reaction zone, the remainder being recirculated to provide the solvent for the conversion phase of cyclopentadiene and chlorine to tetrachlorocyclopentane.

3,637,480

ELECTRODIALYSIS PROCESS THROUGH SUPPLY WATER PRETREATMENT ON ION-EXCHANGE RESINS

Roberto Passino, Via F. Ferrara 8 00191, Roma, and Gianfranco Boari, Via S. Lioco Polar H. 70124, Bari, both of Italy

Filed Nov. 18, 1968, Ser. No. 776,821

Claims priority, application Italy, Nov. 18, 1967, 40817 A/67

Int. Cl. B01d 13/02; C02b 1/82

U.S. Cl. 204—180 P

5 Claims

A process for the desalination of salt water employing separate sodium and hydrogen form cation exchange resins to soften, to dealkalize and to partially deionize the said water prior to substantial demineralization by electrodialysis. The salt-concentrated waste stream from the electrodialysis cell may be employed to regenerate the sodium-form exchange resin that becomes exhausted during the softening step.

3,637,481

ELECTROLYTIC DEMETALLIZING APPARATUS HAVING ELECTROLYTE-PRESSURE-RESPONSIVE LOAD-COMPENSATING MEANS

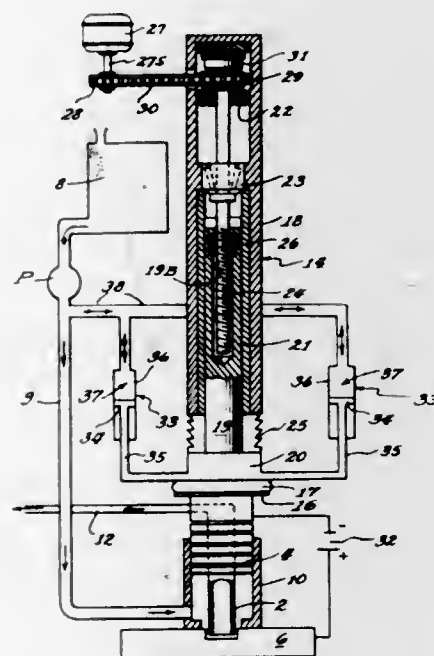
Lynn A. Williams, Winnetka, Ill., assignor to Anocut Engineering Company

Continuation-in-part of application Ser. No. 680,811, Nov. 6, 1967, now abandoned. This application Sept. 24, 1968, Ser. No. 762,077

Int. Cl. B23p 1/02, 1/12

U.S. Cl. 204—224

9 Claims



This application discloses an electrolytic demetallizing apparatus adapted to drive a shaping cathode toward and into a conductive metal workpiece, with a gap that is maintained between the cathode and workpiece being filled by pressurized, rapidly flowing electrolyte through which electric current flows between the cathode and workpiece. The apparatus contains drive means for producing relative movement of the cathode and workpiece at a constant rate along a path that determines the shaping of the workpiece. Also, a hydraulic load-compensating means urges the cathode forward into the workpiece to at least partially counteract the

tendency of the electrolyte pressure to produce relative retracting movement between the cathode and the workpiece. The load-compensating means is directly responsive to a change of electrolyte pressure between cathode and workpiece, so that the load-compensating force is relieved upon a sudden decrease in the electrolyte pressure such as may be occasioned when the electrode breaks through the workpiece upon completion of the shaping step.

3,637,482

IONIC CORROSION AND SCALE REMOVAL SYSTEM FOR PLUMBING

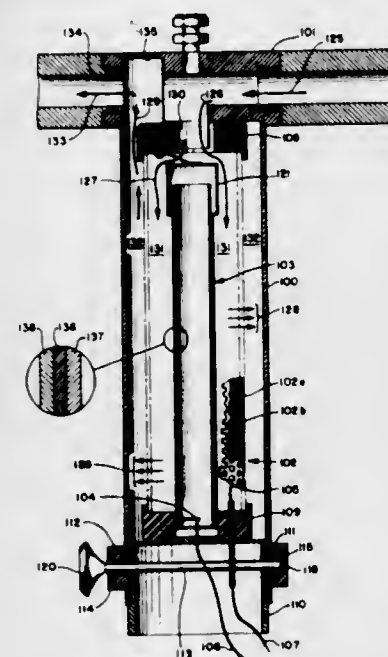
Geza L. Vajda, 4561 West 160th St., Lawndale, Calif.

Filed Aug. 22, 1967, Ser. No. 662,413

Int. Cl. B01k 3/00; C22d 1/02

U.S. Cl. 204—228

4 Claims



This invention describes a novel scale and corrosion prevention and removal method and means for water systems, wherein alternating current fields are applied to the water at predetermined prime number frequencies to condition the water electrically which results in the breakup of ionic components in the water, usually responsive for corrosion and scale formation, thereby preventing the development of scale or corrosion in the water system plumbing and, in effect, dissolving scale and corrosion which may already be present.

3,637,483

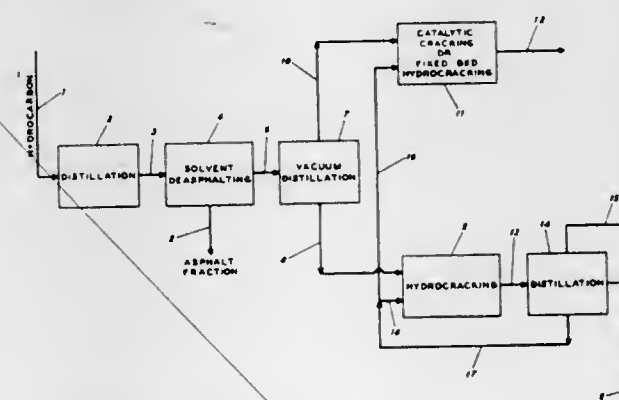
SYNTHETIC LUBRICATING OIL STOCK PRODUCTION
Ralph A. Carey, San Anselmo, Calif., assignor to Ghenron Research Company, San Francisco, Calif.

Filed Nov. 10, 1969, Ser. No. 875,027

Int. Cl. C10g 13/00

U.S. Cl. 208—86

6 Claims



A process for the production of a synthetic lubricating oil, which comprises:

- Solvent deasphalting a metals-contaminated heavy oil to obtain an asphalt-rich fraction and a raffinate oil of reduced metals content;
- Vacuum distilling the raffinate oil to obtain at least a light oil fraction and a bottoms fraction;
- Hydrocracking at least a portion of the bottoms fraction in a hydrocracking zone; and
- Separating an all-synthetic lubricating oil stock from an effluent stream from the hydrocracking zone.

3,637,484

PLATINUM GROUP METAL ON SILICA-ALUMINA HYDROGENATION CATALYST AND PROCESS

Rowland C. Hansford, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 754,483, Aug. 21, 1968, now abandoned, continuation of Ser. No. 28,115, Apr. 13, 1970. This application June 18, 1970, Ser. No. 47,559

Int. Cl. C10g 23/04; C07c 5/10

U.S. Cl. 208—143

10 Claims

Unsaturated hydrocarbons, particularly aromatic hydrocarbons, are hydrogenated to corresponding saturated hydrocarbons, using a novel, highly active catalyst comprising platinum and/or palladium deposited selectively by cation exchange upon a silica-alumina cogel or copolymer, which in turn is dispersed in a large pore alumina gel matrix.

3,637,485

HYDROCARBON FEED STRIPPING WITH GAS STRIPPED FROM THE REACTOR EFFLUENT

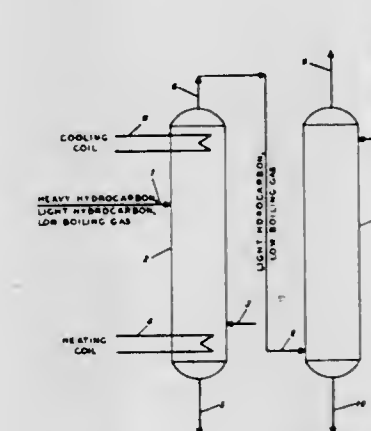
Arnold I. Salka, Walnut Creek, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Sept. 26, 1969, Ser. No. 862,163

Int. Cl. C10g 23/00

U.S. Cl. 208—211

7 Claims



The reactor effluent from a hydroconversion process is (1) passed directly to an effluent stripper, components, hydrogen and light hydrocarbons are stripped by passing a hydrogen-rich gas stream through the stripper in countercurrent flow to said effluent and (3) the hydrogen and light hydrocarbons from the effluent stripper are then passed to a feed stripper to strip oxygen eluant the hydrocarbon feed which is utilized in the hydroconversion process. The invention finds particular utility in hydrosulfurization.

3,637,486

STEAM DISTILLING PYROLYSIS GASOLINE

Martin P. Grosboll, Homewood, Ill., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Mar. 11, 1969, Ser. No. 806,306

Int. Cl. B01d 3/38; C10g 7/00

U.S. Cl. 208-363

3 Claims

A method of separating dripolene from entrained higher boiling hydrocarbons using a steam stripper is disclosed. The stripper is operated without sufficient preheating of feed, with partial condensation of the steam, and at about 200° to 235° F.

3,637,487

SEWAGE TREATMENT PROCESS

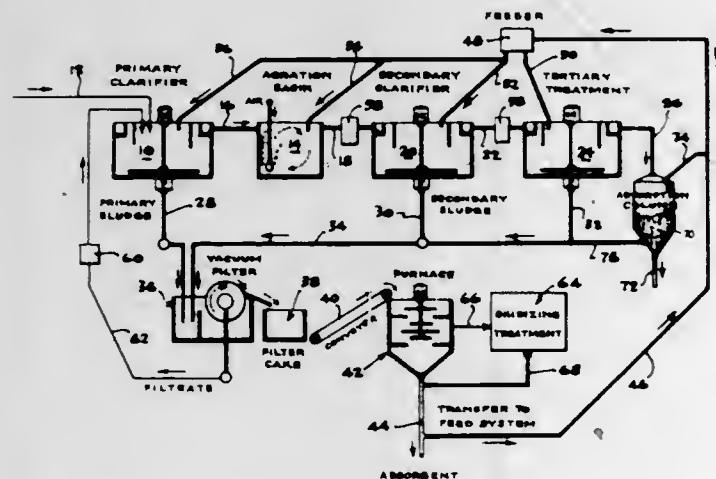
Frank N. Kemmer, La Grange; Reed S. Robertson, Glen Ellyn, and Rodney Mattix, Lemont, all of Ill., assignors to Walco Chemical Company, Chicago, Ill.

Continuation-in-part of application Ser. No. 852,421, Aug. 22, 1969. This application Jan. 11, 1971, Ser. No. 77,046

Int. Cl. C02c 1/06

U.S. Cl. 210-5

3 Claims



A continuous sewage treatment process for upgrading the quality of sewage plant effluent by converting sewage sludges to active substances and returning these active substances to the sewage system whereby removal of dissolved contaminants occurs by the addition of the active substances.

3,637,488

REMOVAL OF INORGANIC SPECIES BY LIQUID MEMBRANE

Norman N. Li, Edison; Robert P. Cahn, Millburn, and Adam L. Shrier, Upper Montclair, all of N.J., assignors to Esso Research and Engineering Company

Continuation-in-part of application Ser. No. 28,094, Apr. 13, 1970. This application May 12, 1970, Ser. No. 36,686

Int. Cl. B01d 13/00

U.S. Cl. 210-22

13 Claims

Inorganic species are removed from liquid streams such as waste water streams by treatment with an emulsion of reagent-containing aqueous droplets suspended in an organic liquid containing surfactant which forms a membrane around said aqueous droplets. The inorganic species, such as phosphates in waste water will permeate the membrane; the reagent within the droplet is such that it will react with the permeating inorganic species to form a new compound which will precipitate and remain within the droplets. The emulsion is then removed from the system.

3,637,489

PROCESS FOR THE SEPARATION OF BLOOD COMPONENTS, PARTICULARLY OF IMMUNOLOGICALLY ACTIVE GLOBULINS FROM OTHER COMPONENTS

Wolfgang Haller, 5400 Pooks Hill Road Apt. 912, Bethesda, Md.

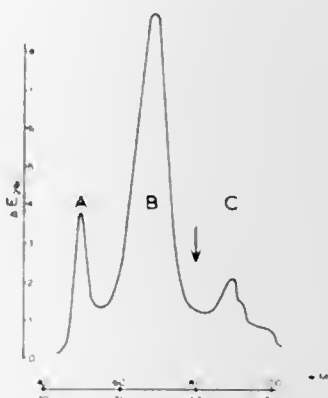
Filed Feb. 12, 1970, Ser. No. 10,752

Claims priority, application Germany, Feb. 12, 1969, P 19 07 014.5

Int. Cl. B01d 15/08

U.S. Cl. 210-31 C

6 Claims



A process for the separation of blood components, particularly of immunologically active globulins from other components, by steric chromatography, whereby plasma or serum, either in natural form or already coarsely pre-fractionated, is introduced into a chromatographic column which is filled with a porous auxiliary substance and is subsequently eluted from the chromatographic column with an aqueous solvent, the eluant emerging from the column being collected in fractions which may be further concentrated and/or purified. The porous auxiliary substance is a porous glass of a pore diameter of an average value of 100-250 Å, said porous glass having been produced by heat treating, particulating, leaching with acid and base of the solidified product of melting together of B₂O₃, SiO₂ and RO, wherein R is an alkali metal, alkaline earth metal or heavy metal.

3,637,490

FLOTATION OF SOLIDS FROM WASTE WATERS

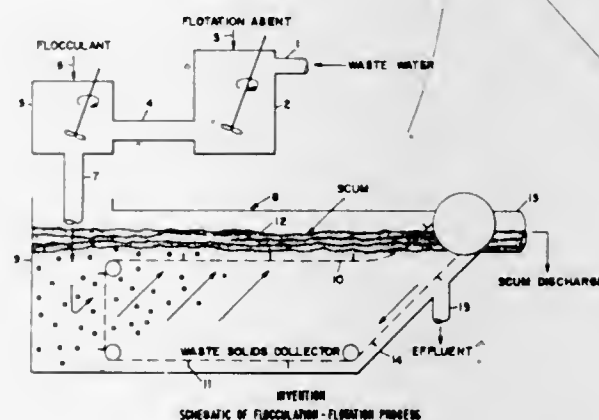
William H. Gardner, and Norval F. Stanley, both of La Vale, Md., assignors to Hercules Incorporated, Wilmington, Del.

Filed July 27, 1970, Ser. No. 58,444

Int. Cl. C02c 1/18

U.S. Cl. 210-44

6 Claims



In a method for the removal of waste solids from industrial and municipal waste water in flotation apparatus, the im-

provement comprising; blending into the waste water, prior to flotation, a sufficient amount of flotation agent and flocculant to effect rapid flotation of the waste solids from the waste water, passing the blended mixture thus formed into the flotation apparatus, removing the waste solids from the flotation apparatus as scum, and removing the remaining waste water from the flotation apparatus as effluent. Microballoon agents and flocculant polymers are utilized.

3,637,491

CLARIFICATION OF WATER

Ross M. Hedrick, St. Louis, Mo., and David T. Mowry, Yokohama, Japan, assignors to Monsanto Company

Continuation of application Ser. No. 199,659, June 4, 1962, now Patent No. 3,516,932, which is a continuation-in-part of application Ser. No. 230,701, June 8, 1951, now abandoned.

This application Nov. 3, 1969, Ser. No. 873,657

Int. Cl. B01d 21/01

U.S. Cl. 210-54

23 Claims

Aqueous suspensions of inorganic particles are clarified by addition of a polyacrylamide.

3,637,492

DRILLING FLUID

Jack H. Kolaian, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.

Original application Apr. 25, 1967, Ser. No. 633,434. Divided and this application Apr. 27, 1970, Ser. No. 32,355

Int. Cl. C10m 3/14, 3/24

U.S. Cl. 252-8.5 C

14 Claims

An aqueous drilling fluid dispersant and a method of drilling wells using said drilling fluid which contains a substituted dihydroxybenzene compound as the dispersant, namely, a substituted dihydroxybenzene compound selected from the group consisting of 2,5-dihydroxy-1,4-benzoquinone, 2,5-dihydroxy-3,6-dichloro-1,4-benzoquinone, 4,5-dihydroxy-1,2-benzoquinone, 4,5-dihydroxy-3,6-dichloro-1,2-benzoquinone and mixtures of said compounds.

3,637,493

DRILLING FLUID

Jack H. Kolaian, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.

Filed June 30, 1969, Ser. No. 837,887

Int. Cl. C10m 3/14, 3/22

U.S. Cl. 252-8.5 C

4 Claims

A chemically oxidized starch drilling fluid dispersant having improved resistance to deterioration in the presence of bacteria in a low pH mud system by heating a chemically oxidized starch dispersant for 15 to 50 minutes at temperatures of 400°-475° F. and an aqueous drilling fluid containing the heated chemically oxidized starch dispersant.

3,637,494

SECONDARY OIL RECOVERY PROCESS

Frank Sullivan, Santa Barbara, Calif., assignor to GAF Corporation

Continuation of application Ser. No. 545,834, Apr. 28, 1966, now abandoned. This application May 29, 1969, Ser. No. 845,591

Int. Cl. E21b 43/20

U.S. Cl. 252-8.55 D

4 Claims

The secondary recovery of petroleum from subterranean formations by the waterflooding method is improved so that the said formations remain pervious, permit the fluid water to flow unimpeded and displace the residual oil from said formations by incorporating into the fluid water which is injected through an input well into said formations, a composition consisting essentially of a copolymer of methyl vinyl ether and maleic anhydride having a specific viscosity of from about 1.3 to 10 and from about 0.2 percent to about 1.5 percent by weight based on the total weight of the com-

position, of a mixture of inorganic salts consisting of alkali metal chloride, sodium bicarbonate and either calcium or magnesium chloride.

3,637,495

AGENT FOR THE POSTTREATMENT OF LAUNDRY

Hans-Werner Eckert, Düsseldorf, and Arnold Heins, Hilden/Rhld., Germany, assignors to Henkel & Cie GmbH, Postfach, Germany

Filed July 26, 1967, Ser. No. 656,136

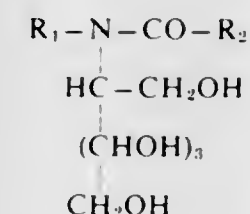
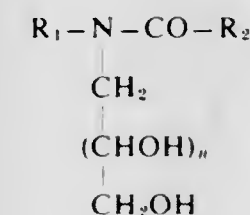
Claims priority, application Germany, Aug. 1, 1966, H 60124

Int. Cl. D06m 13/40; C11c 3/00

U.S. Cl. 252-8.8

3 Claims

A softening agent for the posttreatment of washed laundry is disclosed, the same being adapted for addition to the rinse water either as a solid or in liquid form. The softening agent corresponds to the following formula:



wherein R₁ is alkyl containing 10 to 22 carbon atoms, and may be interrupted by ether oxygen atoms in the vicinity of the N atom group, R₂ is alkyl containing seven to 21 carbon atoms and n is either 3 or 4. Preferably the total number of the carbon atoms contained in R₁ and R₂ amounts to at least 23 and preferably amounts to from 27 to 35. The aforesaid softening agents can be employed per se or in combination with other conventional laundry agents such as optical brighteners, acidifiers, disincrusting agents, colorants, perfumes, antimicrobial agents, etc.

3,637,496

PHOSPHINIMINOSULFOXONIUM COMPOUNDS AND PROCESS FOR PREPARING THE SAME

Ted J. Logan, Colerain Township, Hamilton County, Ohio, and Terence W. Rave, Wilmington, Del., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Original application Oct. 25, 1966, Ser. No. 589,208, now Patent No. 3,524,881. Divided and this application Aug. 25, 1969, Ser. No. 852,873

Int. Cl. C07c 145/00; D06m 9/00; C11d 1/00

U.S. Cl. 252-8.75

4 Claims

The phosphiniminosulfoxonium salts and a process for preparing these salts are disclosed. The phosphiniminosulfoxonium salts are useful as emulsifying fabric softening and antibacterial agents.

3,637,497

MOISTURE RESISTANT DRY FILM LUBRICANTS
 Vincent G. Fitz Simmons, Great Falls, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed June 12, 1968, Ser. No. 736,287

Int. Cl. C10m 7/24, 7/06, 7/04

U.S. Cl. 252-29

2 Claims

Chemical and galvanic corrosion of metallic substrates, by dry film lubricants, is prevented by application over the lubricant surface of a hydrophobic organic polymer coating having a melting point between 100° to 325° C. and a critical surface tension of 31 dynes/cm. or lower.

3,637,498

EXTRUSION LUBRICANT

David W. Sawyer, Oakmont, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Apr. 29, 1968, Ser. No. 725,156

Int. Cl. C10m 3/04, 3/02

U.S. Cl. 252-30

2 Claims

An extrusion lubricant comprising 2.5 to 30 percent graphite, 3 to 9 percent lead borate or zinc oxide, 10 to 15 percent sodium monophosphate or ammonium monophosphate, 1 to 5 percent wetting agent, up to 1 percent microbicide, and balance water.

3,637,499

AMINE DERIVATIVES OF DITHIOPHOSPHORIC ACID COMPOUNDS

Kurt Pollak, Westfield, N.J., assignor to Esso Research and Engineering Company

Original application May 11, 1967, Ser. No. 637,646, now Patent No. 3,546,324. Divided and this application Mar. 16, 1970, Ser. No. 20,082

Int. Cl. C10m 1/48

U.S. Cl. 252-32.7 R

9 Claims

Lubricating oil compositions containing as antiwear and detergent-inhibitor additives therein, an amine neutralized derivative of a dithiophosphoric acid prepared by reacting a long chain alkenyl-substituted C₃-C₈ monocarboxylic acid of 400-3,000 molecular weight with a primary or secondary hydrocarbyl amine, reacting the resultant amide with a phosphorus sulfide and neutralizing the resultant dithiophosphoric acid with a polyamino compound.

3,637,500

LUBRICATING COMPOSITIONS

Eric Simon Forbes, Woking, and Keith George Allum, Bagshot, both of England, assignors to The British Petroleum Company Limited, London, England

Continuation-in-part of application Ser. No. 700,022, Jan. 24, 1968, now abandoned. This application July 17, 1970, Ser. No. 55,967

Int. Cl. C10m 1/42; C01m 1/38

U.S. Cl. 252-48.6

12 Claims

Synthetic ester lubricants and certain organic sulfide load-carrying additives form a synergistic mixture when added to mineral base oils, and there is a marked increase in the load-carrying properties of the base oil.

3,637,501

COMPLEX ESTERS

Robert E. Malec, Birmingham, and Peter A. Immethun, Southfield, both of Mich., assignors to Ethyl Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 773,665, Nov. 5, 1968, now abandoned. This application July 3, 1969, Ser. No. 839,052

Int. Cl. C10m 1/26

U.S. Cl. 252-57

11 Claims

A complex ester is made by the reaction of a neopentyl-type polyol such as pentaerythritol, trimethylolpropane, or

neopentyl glycol; an aromatic polycarboxylic acid such as phthalic, trimellitic, pyromellitic, or mellitic acid, and an aliphatic monocarboxylic acid having from 2-12 carbon atoms, in proportion such that the average number of carbon atoms per acid molecule is from 4-10. The esters have exceptionally low pour points, high viscosity index, and are suitable for lubricating turbine bearings.

3,637,502

METHOD FOR MANUFACTURING GEL

Howard J. Matson, Markham, Ill., and Ira T. Fritz, Atlanta, Ga., assignors to Atlantic Richfield Company, New York, N.Y.

Filed July 11, 1969, Ser. No. 841,122

Int. Cl. C10m 1/16

U.S. Cl. 252-59

7 Claims

An improved method for manufacturing a foam inhibitor for soluble oils is described. The foam inhibitor is a gel of a mineral oil of lubricating viscosity, about 2 to 10 weight percent of a petroleum microcrystalline wax and about 1 to 10 weight percent of a polymer of ethylene having a molecular weight of about 1,000 to 12,000. A mixture of these components is heated at a temperature sufficient to provide a solution and the heated solution is shock cooled by adding particles of solid carbon dioxide in an amount sufficient to cool the mixture to a temperature below about 120° F. in a time sufficient to yield a gel having low particle size and a high degree of particle distribution of the ethylene polymer and the wax.

3,637,503

LUBRICATING COMPOSITION

Joseph P. Giannetti, Allison Park, and Robert A. Plundo, Greensburg, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed July 18, 1969, Ser. No. 845,502

Int. Cl. C10m 1/16

U.S. Cl. 252-59

10 Claims

A lubricating oil composition having good shear stability is obtained by blending together a mineral lubricating oil and a viscosity index improving amount of a polymer of a normal alpha olefin having from four to 16 carbon atoms per molecule. The polymer is obtained by polymerizing the alpha olefin or alpha olefin mixture in the liquid phase in the presence of aluminum chloride and a nonpolymerizing hydrocarbon diluent at a temperature between about -40° and +70° F. for a time sufficient to produce a polymer having a viscosity of about 40 to about 3000 centistokes at 210° F. The alpha olefin is introduced into the polymerization system at a rate of about 0.6 to about 60 moles of olefin per mole of aluminum chloride per hour. The addition of the olefin is continued until 2 to 200 moles of olefin per mole of aluminum chloride has been added.

3,637,504

FERROMAGNETIC STORAGE CORES AND PROCESS OF MAKING THE SAME

Rudolf Schmid, Neu-Germering, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Sept. 26, 1968, Ser. No. 762,907

Claims priority, application Germany, Sept. 26, 1967, P 16

71 071.7

Int. Cl. C04b 35/26

U.S. Cl. 252-62.61

14 Claims

Ferromagnetic storage cores and a process of making the same wherein the cores are composed of 3.5 to 15 mol percent of ZnO, 10 to 16 mol percent of Li₂O and 70 to 81 mol percent of Fe₂O₃ and exhibit a rectangular hysteresis loop with a R_h of more than 0.7 over a broad operating temperature range without current readjustment. The process comprises presintering the core material in a nitrogen atmosphere, then initially sintering in an oxygen atmosphere, continuing sintering in the oxygen atmosphere at an elevated

temperature, initially cooling the sintered materials and finally cooling the materials to ambient temperatures.

3,637,505

METHOD OF PREPARING A LITHIUM-CONTAINING FERRITE COMPOSITION

Adolph L. Michell, Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 16, 1969, Ser. No. 833,448

Int. Cl. C04b 35/26

U.S. Cl. 252-62.61

4 Claims

Finely divided particles of lithium ferrites are prepared by coprecipitating from aqueous solution a suitable fatty acid salt of lithium (such as, preferably, lithium laurate or lithium stearate) with ferric hydroxide and, when desired, hydroxides of other metals. The finely divided precipitated particles comprising an intimate mixture of ferrite precursor materials are heated to burn out the organic fatty acid material and yield a residue of uniformly mixed metal oxides, which oxides are subsequently calcined to form a desired ferrite.

3,637,506

FERROELECTRIC CERAMIC COMPOSITION

Mikio Tanizake; Yasuo Omori, both of Irumagun, and Jun Sugihara, Kawagoe, all of Japan, assignors to Toko Inc., Tokyo, Japan

Filed June 25, 1970, Ser. No. 49,655

Claims priority, application Japan, June 30, 1970, 44/51374

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252-62.9

1 Claim

The ferroelectric ceramic compositions consist of PbTiO₃, PbZrO₃ and Pb(Ni_{1/5}Fe_{1/3}Nb_{3/5})O₃ which are in a hexagonal region defined by points A, B, C, D, E and F in the ternary diagram, the mol percent of these components at these points being

	PbTiO ₃	PbZrO ₃	Pb(Ni _{1/5} Fe _{1/3} Nb _{3/5})O ₃
A	20	0	80
B	0	30	70
C	0	70	30
D	9	90	1
E	70	29	1
F	60	0	40

3,637,507

AIRCRAFT HYDRAULIC FLUID AND METHOD OF CONTROLLING ACID BUILDUP THEREIN WITH ACID ACCEPTOR

William F. Gentil, Mohegan Lake, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

Filed Feb. 12, 1968, Ser. No. 704,514

Int. Cl. C09k 3/02; C10m 3/20, 3/40

U.S. Cl. 252-78

15 Claims

An aircraft hydraulic fluid comprising (1) a base stock material selected from the group consisting of esters of an acid of phosphorus, amides of an acid of phosphorus and mixtures thereof, and (2) an acid acceptor consisting of a 3,4-epoxycycloalkyl 3,4-epoxycycloalkyl carboxylate. By incorporating about 0.1 to about 10 percent by weight of said acid acceptor in said hydraulic fluid, acid buildup therein is controlled.

3,637,508

PROCESS AND COMPOSITION FOR DISSOLVING COPPER OXIDE

William B. Willsey, 108 Deerfield Drive, Cherry Hill, N.J., and Daniel J. Brogan, 7111 Penarth Ave., Upper Darby, Pa.

Continuation-in-part of application Ser. No. 601,181, Dec. 12, 1966, now abandoned. This application Mar. 6, 1970, Ser. No. 17,154

Int. Cl. C02b 5/06

U.S. Cl. 252-87

17 Claims

The present invention relates to dissolving copper oxide, whether cuprous or cupric oxide. A polyamine selected from

a group consisting of ethylenediamine, diethylenetriamine, triethylenetetramine and tetraethylenepentamine is mixed with a compound selected from a second group consisting of salicylic acid, metahydroxybenzoic acid, parahydroxybenzoic acid, a dihydroxybenzoic acid, 5-5'-methylenedisalicylic acid, 3-hydroxy-2-naphthoic acid and salts thereof with an aliphatic polyamine of the first class and with ammonium hydroxide in an alkaline water solution or a salicylate of one of these amines can be used with ammonium hydroxide. The composition can be used cold but will preferably be used in a temperature range between 150° F. and the boiling temperature at the particular pressure.

3,637,509

CHLORINATED MACHINE DISHWASHING COMPOSITION AND PROCESS

William R. Brennan, and Phillip M. Sabatelli, both of Cincinnati, Ohio, assignors to W. R. Grace & Co., New York, N.Y.

Filed Feb. 10, 1970, Ser. No. 10,292

Int. Cl. C11d 7/56

U.S. Cl. 252-99

3 Claims

A chlorinated machine dishwashing composition is disclosed which includes a combination of an organic chlorinating agent and an alkali metal tripolyphosphate. Particles of the combination are coated or encapsulated with tetrapotassium pyrophosphate. An admixture of the coated combination with a low-foaming surfactant and a defoamer remains stable after long storage periods with respect to retention of both available chlorine and low-foaming characteristics during use even in the presence of proteinaceous substances. Cooking and eating utensils may be cleaned by a low-foaming aqueous solution of the present machine dishwashing composition with less spotting and greater clarity than is generally experienced when using related compositions including chlorinated materials.

3,637,510

ANTISEPTIC DETERGENT COMPOSITION

Moneeb Hassan Zakaria, Chicago, Ill., assignor to Armour-Dial, Inc., Chicago, Ill.

Original application Aug. 18, 1967, Ser. No. 661,521, now Patent No. 3,551,441, dated Dec. 29, 1970. Divided and this application Feb. 2, 1970, Ser. No. 12,501

Int. Cl. C11d 3/48

U.S. Cl. 252-107

7 Claims

The products resulting from the reaction of halogenated aminobenzothiazoles with 3,4-dichlorophenyl isocyanate in a dry inert organic solvent are disclosed. These products have a high degree of activity against bacteria such as *S. aureus* 209 and are thus useful as the active ingredients in antiseptic compositions.

3,637,511

DETERGENT FORMULATIONS

Melling T. Yang, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed May 19, 1969, Ser. No. 825,984

Int. Cl. C11d 3/30

U.S. Cl. 252-527

10 Claims

To obviate eutrophication of water, nonphosphorus detergent builders are provided. These are the water-soluble salts of N,N-di(carboxymethyl)-aspartic acid (e.g., the tetrasodium salt thereof). Conventional detergent actives may be used with these builders. Synthesis of the builders is described.

3,637,512

HYDROCARBON SOLVENT COMPOSITION

Ted P. Matson, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed July 22, 1968, Ser. No. 746,321

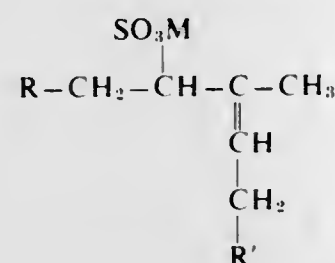
Int. Cl. C11d 1/12; D06f 1/04

U.S. Cl. 252-555

5 Claims

A hydrocarbon solvent composition having improved foaming characteristics is provided wherein the hydrocarbon

solvent composition consists of a petroleum-derived light hydrocarbon fraction and a foaming agent having the general formula



where R and R' are selected from H and acrylic hydrocarbon radicals, M is an alkaline earth or an alkali metal, and the total number of carbon atoms in said foaming agent is at least 18.

3,637,513

CLEANSING AGENT COMPOSITION

Alvin F. Schneider, Edison, N.J., assignor to Alpha Metals, Inc., Jersey City, N.J.

Filed Oct. 23, 1969, Ser. No. 868,909

Int. Cl. C09d 9/00; C11d 7/50; C23g 5/02

U.S. Cl. 252-171

3 Claims

A cleansing agent for removing polar and nonpolar soils from electrical packages which is suitably active on both polar and nonpolar soils, is nonflammable, has a narrow boiling range of 113°-121° C., and includes the azeotrope of 2-ethoxyethanol and tetrachloroethylene, with an excess of the latter of approximately 15 to 70 percent by weight.

3,637,514

VICINAL TOLUENEDIAMINE MIXTURES

Sydney M. Spatz, Williamsville; Maurice E. Bailey, Orchard Park, and Francis E. Evans, Hamburg, all of N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed June 20, 1969, Ser. No. 835,257

Int. Cl. C07c 87/48

U.S. Cl. 252-182

3 Claims

Toluenediamine mixtures comprising at least about 96 percent by weight of vicinal toluenediamine isomers and not more than about 4 percent by weight of nonvicinal isomers, said mixtures being adapted for conversion to bz-methyl-1-H-benzotriazoles in high yields.

3,637,515

TELLURIUM DIOXIDE SOLUTIONS

Juan Luis Huguet, Corpus Christi, Tex., assignor to Celanese Corporation, New York, N.Y.

Original application May 2, 1966, Ser. No. 546,618, now Patent No. 3,479,395. Divided and this application Apr. 23, 1969, Ser. No. 841,647

Int. Cl. C01b 19/00

U.S. Cl. 252-182

5 Claims

Solutions of tellurium dioxide, suitable for employment as reaction medium in tellurium dioxide oxidations of suitable organic compounds such as olefins, are prepared by introducing tellurium dioxide and a source of halide ion into a liquid which comprises a solvent for the halide ion source.

3,637,516

ALKALI METAL CYANOBOROHYDRIDE REDUCTIVE BLEACHING LIQUOR

Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass.

Filed Aug. 19, 1969, Ser. No. 851,472

Int. Cl. D21c 9/10; D06l 3/10

U.S. Cl. 252-188

6 Claims

The invention provides an aqueous reductive bleaching liquor containing the material to be bleached selected from groundwood pulp, kraft pulp, chemigroundwood pulp and

clay dispersed therein in conventional amounts. As the reducing agent, a cyanoborohydride is dissolved in the liquor in an amount between about 0.01 and about 0.3 percent based upon the dry weight of the selected material to be bleached. The liquor has a pH between about 3 and 6 and is stable at a temperature between room temperature and about 180° F. The cyanoborohydride is selected from lithium, potassium, and sodium cyanoborohydride, sodium cyanoborohydride being preferred.

3,637,517

PROCESS FOR PRODUCING PHOSPHORS

James E. Mathers, Ulster, and Felix F. Mikus, Towanda, both of Pa., assignors to Sylvania Electric Products Inc.

Filed Jan. 15, 1970, Ser. No. 3,236

Int. Cl. C09k 1/10, 1/14

U.S. Cl. 252-301.4 R

6 Claims

A process for producing an ultrapure rare earth oxide phosphor from partially purified raw materials is disclosed that comprises forming an acidic aqueous solution comprising water, a mineral acid, europium and a second rare earth element selected from the group consisting of yttrium, gadolinium and mixtures thereof having a relatively minute amount of an impurity selected from the group consisting of cerium, thorium and mixtures thereof, maintaining the solution under controlled pH and temperature condition, adding to the solution a controlled amount of a water-soluble persulfate source to thereby form a solid and liquid phase, separating the phases and adding oxalic acid to the liquid phase to form a rare earth oxalate and converting the oxalate to the corresponding rare earth phosphor selected from the group consisting of rare earth oxides and rare earth oxysulfides.

3,637,518

PHOSPHOR FOR THERMOLUMINESCENT RADIATION DOSIMETER

Naohiro Nada, Nishinomiyashi, and Tadaoki Yamashita, Hirakata-shi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 1, 1968, Ser. No. 709,739

Claims priority, application Japan, Oct. 12, 1967, 42/66211; 42/66212; Feb. 9, 1968, 43/8656

Int. Cl. C09k 1/10

U.S. Cl. 252-301.4 R

9 Claims

A phosphor for a thermoluminescent radiation dosimeter, which is composed primarily of beryllium oxide doped with at least one activator selected from the group consisting of lithium, sodium, potassium, silicon, germanium, tin, zinc, cadmium, aluminum, thallium, cadmium and ytterbium, and which is especially adapted for measuring the dose absorbed by a tissue as its effective atomic number is approximately the same as that of the tissue, and has an excellent sensitivity and retention of radiation energy absorbed.

3,637,519

METHOD FOR THERMALLY REFINING PRECIPITATED HALOAPATITES

Roger D. Piper, Des Peres, Mo., assignor to Mallinckrodt Chemical Works, St. Louis, Mo.

Filed July 22, 1969, Ser. No. 843,462

Int. Cl. C09k 1/36

U.S. Cl. 252-301.4 P

4 Claims

Precipitated alkaline earth haloapatites containing antimony as an activator are thermally refined by heating them first to a temperature of at least 800° C. in an oxidizing atmosphere to remove ammonia and water without reducing the antimony. Thereafter, the haloapatites may be further thermally refined by being heated at 1,050°-1,200° C. in an inert atmosphere to complete the refining treatment. This method avoids loss of antimony and other activators and produces a significantly brighter phosphor product.

3,637,520

SOLVENT-SOLUBLE QUATERNARY AMMONIUM SALTS OF CELLULOSE SULFATE

Richard G. Schweiger, Muscatine, Iowa, assignor to Kelco Company, San Diego, Calif.

Continuation-in-part of application Ser. No. 772,814, Nov. 1, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 615,337, Feb. 13, 1967, now abandoned.

This application Sept. 25, 1969, Ser. No. 861,156

Int. Cl. C08b 5/14

U.S. Cl. 252-316

51 Claims

Quaternary ammonium salts of a colloidal cellulose sulfate having a degree of substitution of at least about two and method of making by adding a water-soluble salt of the colloidal cellulose sulfate to water, then adding a quaternary ammonium salt and optionally a lower alcohol. The resulting products are soluble in many organic solvents.

As described in my prior U.S. Pat. application Ser. No. 467,738, the essentially undegraded cellulose sulfate employed as a reactant according to the present invention has a viscosity in a 1 percent aqueous solution in excess of 20 cps. and preferably in excess of 100 cps. as measured with a Brookfield Synchro Electric Viscometer Model LVF at 60 r.p.m. and 25° C., and a number of these cellulose sulfates have a viscosity in a 1 percent aqueous solution in excess of 100 cps. The cellulose sulfates employed as reactants according to the present invention and as described in U.S. application Ser. No. 467,738 are further characterized by their reactivity with potassium ions in aqueous media to form a thermoreversible gel.

3,637,521

DEMULSIFICATION OF SULFONATED OIL EMULSIONS

Andrew G. Tsuk, Laurel, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed June 26, 1969, Ser. No. 836,979

Int. Cl. B01d 17/00

U.S. Cl. 252-326

14 Claims

Sulfonated oil emulsions are readily demulsified by contact with an alkyl amine and an acid. Such emulsions comprise cutting oils, and sulfonated petroleum fractions. The alkyl amines contain from one to five amine groups and from two to 12 carbon atoms.

3,637,522

PROCESS AND APPARATUS FOR TREATING OIL EMULSIONS

Noble E. Young, Box 383, Gelsmar, La.

Continuation-in-part of application Ser. No. 330,811, Dec. 16, 1963, now abandoned. This application July 16, 1968, Ser. No. 745,181

Int. Cl. B01d 17/04

U.S. Cl. 252-328

11 Claims

An oil-water-solid particles emulsion is separated by heating the emulsion to its critical separation temperature, thoroughly mixing and washing the heated oil with salt water to coagulate the emulsion water and solid particles into larger globules, increase the specific gravity of the globules and make the mixture homogeneous, then establishing vibratory waves in the mixture to accelerate separation of the mixture by gravity. Batch and continuous flow systems for carrying out the process, including a steam-operated jet pump injection system, are also disclosed.

3,637,523

ESTERS OF GLYCEROL AND POLYHYDRIC ALCOHOL COPOLYMERS USEFUL AS EMULSIFYING AGENTS AND PROCESS FOR THEIR PRODUCTION

James Harwood, Chicago, Ill., assignor to SCM Corporation, Cleveland, Ohio

Filed Sept. 12, 1968, Ser. No. 759,496

Int. Cl. B01f 17/34

U.S. Cl. 252-356

8 Claims

This invention relates to a class of emulsifying agents which have been found to be particularly useful in food and

bakery products. Basically, the emulsifying agents are esters of a copolymer of glycerin and a polyhydric alcohol other than glycerin. The polyhydric alcohol employed can have from two to six carbon atoms in the molecular structure. The mole ratio of glycerin to polyhydric alcohol is from about 0.1:1 to 10:1. The esters are produced generally by reacting the copolymer with a carboxylic acid or carboxylic acid radical donating compound which has from eight to 22 carbon atoms and, preferably, the acid radical donated is a fatty acid radical.

3,637,524

HALIDE ADDITION AND DISTRIBUTION IN THE REACTIVATION OF PLATINUM GROUP CATALYSTS

Marvin F. L. Johnson, Homewood, and Stuart L. Graff, Calumet City, both of Ill., assignors to Atlantic Richfield Company, New York, N.Y.

Filed July 11, 1968, Ser. No. 743,924

Int. Cl. B01j 11/18, 11/80

U.S. Cl. 252-415

10 Claims

There is disclosed a method for reactivating a fixed bed of used platinum group metal-alumina catalyst of the type in which the alumina is derived from hydrous alumina predominating in alumina trihydrate. Such catalysts are employed in, for instance, the catalytic reforming of gasoline boiling range hydrocarbons to obtain fuels of high-octane ratings or aromatics. The method for reactivating the catalyst which has declined in activity during use and contains carbonaceous deposits, involves treating the deactivated catalyst at elevated temperatures with an oxygen-containing gas to burn the carbonaceous deposits therefrom. The relatively carbon-free catalyst is contacted under controlled conditions with a gaseous stream containing small amounts of chlorine, in combined or elemental form, oxygen and often water vapor to deposit chloride in a first portion of the catalyst bed. After the chlorine component is added to the catalyst, preferably in a relatively short period of time, the catalyst is then contacted with a gaseous stream containing oxygen and water vapor. This treatment may continue for a longer time than the chlorine treating period and until the chloride deposited on the catalyst is distributed through a major portion of the catalyst bed. Distribution of the chloride is a function of the time, temperature and water vapor partial pressure observed during the treatment and thus the distribution is controlled essentially by kinetics. The extent of water contact with the catalyst is limited by controlling the amount of water in the gaseous streams and the length of the overall treatment.

3,637,525

CATALYST AND METHOD OF PREPARATION

Mark J. O'Hara, Prospect Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 21, 1969, Ser. No. 878,908. The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed.

Int. Cl. B01j 11/82

U.S. Cl. 252-432

16 Claims

A method of manufacturing an extruded catalyst composite of a Group VIII metal, a Group VIB metal and a refractory inorganic oxide-boron phosphate carrier material. A refractory inorganic oxide hydrogel is prepared and formed into a slurry with an aqueous solution of boric and phosphoric acids. The liquid level of the slurry is adjusted to form an extrudable mass comprising from about 15 to about 45 weight percent solids. The material is then extruded, impregnated with a metal of Group VIII and a metal of Group VIB, dried and calcined in an oxidizing atmosphere.

3,637,526

PREPARATION OF OXIDATION CATALYST

Leon B. Levy, Corpus Christi, Tex., assignor to Celanese Corporation, New York, N.Y.

Filed Apr. 2, 1970, Ser. No. 25,305

Int. Cl. B01j 11/74

U.S. Cl. 252-439

10 Claims

Disclosed herein is a process for preparing an oxidation catalyst containing molybdenum, tungsten, tellurium, and oxygen, which catalyst has particular utility for the oxidation of propylene to acrolein. A preferred embodiment comprises forming an aqueous solution of ammonium paratungstate and ammonium molybdate, evaporating the liquid from the solution, pulverizing the solid, and then calcining at a temperature of about 400° C. The calcinate is then mixed with tellurium dioxide and the admixture is calcined. This procedure gives longer catalyst life for the oxidation of propylene to acrolein.

3,637,527

PREPARATION OF MULTICOMPONENT CATALYSTS

Joseph Jaffe, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of application Ser. No. 756,396, Aug. 30, 1968, now Patent No. 3,523,912, which is a continuation-in-part of application Ser. No. 568,760, July 29, 1966, now Patent No. 3,401,125, which is a continuation-in-part of application Ser. No. 369,583, May 22, 1964, now Patent No. 3,280,040. This application July 23, 1969, Ser. No. 844,194. The portion of the term of this patent subsequent to Oct. 18, 1983, has been disclaimed.

Int. Cl. B01j 11/78

U.S. Cl. 252-441

6 Claims

Method of producing a multicomponent hydrocarbon conversion catalyst comprising coprecipitating a mixture of at least three different metal compounds at a pH of 5.5 to 8, at least one of said compounds being a compound of palladium, at least one of said compounds being a metal chloride, reducing the chloride content of the coprecipitate to below about 0.25 percent of the total weight thereof, drying the coprecipitate, and heat treating the dried coprecipitate by contact with an oxygen-containing gas at 850° to 1,600° F. for 0.25 to 48 hours.

3,637,528

LOW TEMPERATURE-SHIFT CATALYST

Alvin B. Stiles, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 688,407, Dec. 6, 1967. This application Aug. 26, 1969, Ser. No. 853,201

Int. Cl. B01j 11/58, 11/32

U.S. Cl. 252-454

2 Claims

A reduced zinc oxide-copper oxide low-temperature shift catalyst is prepared that contains colloidal silica and diatomaceous earth. The resulting catalyst has improved pore, density and strength characteristics.

3,637,529

PROCESS FOR PREPARING SUPPORTED CATALYSTS

Wilhelmus Petrus Van Beek, and Theo Jan Osinga, both of Vlaardingen, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

Filed Apr. 6, 1970, Ser. No. 26,099

Claims priority, application Luxembourg, Apr. 9, 1969, 58,392

Int. Cl. B01j 11/24

U.S. Cl. 252-459

5 Claims

A process for preparing a catalyst comprising a metallic catalytic agent on a particulate carrier is disclosed which provides improved uniformity of distribution and fineness of division with narrowness of particle size distribution of the metallic catalytic agent on the carrier. The carrier is impregnated with an aqueous solution of a salt of the metallic

catalytic agent and of a source, on heating in aqueous solution, of hydroxyl ions. The impregnated carrier is heated without substantial loss by evaporation of the aqueous solution to precipitate the metal or the particles with uniformity of distribution and fineness of division with narrowness of particle size distribution. The metal is converted by conventional methods to the appropriate active, oxidized or reduced, state. The process is particularly significant with carriers, such as alumina and silica, that in alkaline media are liable to undergo structural charges.

3,637,530

RESISTOR COMPOSITION

Mira E. A. Casale, Owen N. Collier, and Gerald S. Iles, all of London, England, assignors to Johnson, Matthey & Co., Limited, London, England

Continuation-in-part of application Ser. No. 675,786, now abandoned. This application Feb. 10, 1970, Ser. No. 9,995

Int. Cl. H01b 1/06; B44c 1/18

U.S. Cl. 252-518

8 Claims

A resistor composition in the form of an oxide containing niobium and ruthenium in which the atomic ratio of metal to oxygen is 1:2 and in which the atomic ratio of niobium to ruthenium is within the range of 1:2000 to 1:1.

3,637,531

METHOD FOR MAKING CERAMIC TITANATE ELEMENTS AND MATERIALS THEREFOR

Robert C. Faxon, Attleboro, Mass., and Robert T. McGovern, Providence, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of application Ser. No. 651,992, July 10, 1967, now abandoned. This application May 1, 1970, Ser. No. 33,962

Int. Cl. H01b 1/06

U.S. Cl. 252-520

26 Claims

A method for making ceramic titanate elements and materials therefor, particularly semiconducting lanthanide-doped barium titanate elements having positive temperature coefficients of resistance for use as solid-state sensors or the like, is shown to comprise the steps of dissolving the titanium chelate of triethanolamine with selected alkaline earth salts such as barium acetate and with selected lanthanide salts such as lanthanum acetate in a solvent to form a common solution. Alternatively, tetraisopropyl titanate mixed with lactic acid is combined with selected alkaline earth salts such as barium acetate and with selected lanthanide salts such as lanthanum acetate in a solvent to form a common solution. The solution is then heated, initially to form a semisolid material and thereafter—in an oxidizing or neutral atmosphere—to calcine the semisolid material to form the desired titanate material. The resulting titanate material is then combined with a binder, is pressed into a desired shape, and is fired at high temperature to form the desired ceramic titanate elements.

3,637,532

SINTERED COLD-CONDUCTOR RESISTOR BODY AND METHOD FOR ITS PRODUCTION

Emil Ramisch, and Werner Schwan, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Continuation of application Ser. No. 485,238, Sept. 7, 1965, now abandoned. This application Aug. 1, 1969, Ser. No. 852,147

Int. Cl. H01b 1/06

U.S. Cl. 252-520

12 Claims

Positive temperature coefficient resistor materials composed of doped ferroelectric substances such as barium titanate, the materials including at least two discrete crystalline phases, one composed of a material having a Curie temperature above and the other composed of a material having

a Curie temperature below the Curie temperature of the composite, the composite having a substantially improved load quotient.

3,637,533

PERFUME-CONTAINING COMPOSITIONS CONTAINING CERTAIN OXIMES AS OLFACTORY AGENTS

Robert T. Dahill, Jr., Perth Amboy, N.J., assignor to Glavdan Corporation, Clifton, N.J.

Filed Feb. 14, 1967, Ser. No. 617,761

Int. Cl. A61k 7/00; C11b 9/00

U.S. Cl. 252-522

13 Claims

The use of certain oximes as olfactory agents in perfume compositions is described. The oximes are those of seven to 10 carbon atom aliphatic aldehydes and Ketones, excluding oximes of saturated, straight-chain aldehydes. Numerous examples showing the use of the oximes in various perfume compositions are given, as well as examples showing the preparation and identifying properties of the following 3 novel oximes: 3,7-dimethyloctanal oxime; 2,6-dimethyl-5-heptenal oxime and 3-methylheptan-5-one oxime.

3,637,534

POLYMERS FROM AROMATIC PRIMARY DIAMINES

Hartwig C. Bach, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

Continuation of application Ser. No. 629,354, Apr. 10, 1967, now abandoned, Continuation-in-part of application Ser. No. 491,828, Sept. 30, 1965, now abandoned. This application July 9, 1969, Ser. No. 840,452

Int. Cl. C08g 33/02

U.S. Cl. 260-2 R

14 Claims

Aromatic primary diamines are polymerized by an oxidative solution polymerization reaction using a cupric-cuprous redox couple complexed with a nitrogen base to give ordered polymers containing the azo linkage.

3,637,535

ANION EXCHANGER WITH SPONGE STRUCTURE

Herbert Corte, Leverkusen, and Alfred Meyer, Cologne-Stammheim, both of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 4, 1958, Ser. No. 718,989

Claims priority, application Germany, Mar. 9, 1957, F 22532

Int. Cl. C08j 1/34

U.S. Cl. 260-2.1

15 Claims

1. A process which comprises (a) dissolving a major amount of styrene and a minor amount of divinyl benzene in an inert organic liquid which is a solvent for styrene but not for linear polystyrene, said inert organic liquid being selected from the group consisting of an inert aliphatic oxygen-containing solvent and an inert aliphatic hydrocarbon solvent, said solvent being present in an amount sufficient to impart a spongelike porosity to the copolymer formed therein; (b) incorporating said solution into an excess of water to form a dispersion of droplets; and (c) copolymerizing said styrene and said divinyl benzene while suspended in said aqueous medium and in the presence of said inert organic liquid, the resulting copolymer being recovered in the form of opaque resin beads.

3. A method for producing anion-exchange resins which comprises haloalkylating and aminating the product formed in the process of claim 2.

3,637,536

HIGHLY ELASTIC POLYURETHANE FOAMS BASED ON A QUASI-PREPOLYMER OF TWO DIISOCYANATES

Hans-Georg Ring, 2844 Lemförde, Hagedorferstrasse 304, and Jürgen Scheffler, 2844 Quernheim, Lemförde, both of Germany

Continuation of application Ser. No. 677,013, Oct. 23, 1967, now abandoned. This application May 28, 1970, Ser. No. 41,725

Int. Cl. C08q 22/46, 22/06

U.S. Cl. 260-2.5 AT

3 Claims

Process for the manufacture of highly elastic polyurethane foams which comprises reacting (a) a mixture comprising a polyfunctional polyether glycol having a mean molecular weight between about 3,000 and 5,500, water and catalysts with (b) a quasi-prepolymer mixture of polyether polyols enriched with at least two different organic polyisocyanates. Also included is a further process whereby the mixtures are foamed in a mold at about room temperature or slightly higher.

3,637,537

PHOSPHORUS-CONTAINING NON-INFLAMMABLE POLYURETHANE FOAMS

Michel Buisson, Lavern, Gérard Repliquet, Martigues, and Camille Granger, Lavern, France, assignors to Naphtachimie, Paris, France

No Drawing. Filed Oct. 3, 1967, Ser. No. 672,430

Claims priority, application France, Oct. 25, 1966, 81,499

Int. Cl. C08g 22/44, 23/10

U.S. Cl. 260-2.5 AR

13 Claims

Non-inflammable polyurethanes having improved physical and chemical properties prepared by the reaction of a chlorochloroalkyl-phosphate with a primary or secondary amine in the presence of excess propylene oxide, separating lower boiling compounds from the reaction product and then reacting the reaction product with an organic polyisocyanate alone or in combination with an organic polyhydroxylated compound which does not contain phosphorus to produce a polyurethane.

3,637,538

FOAMABLE STYRENE POLYMER RESINS

Charles Robert Heald, Newport, England, assignor to Monsanto Chemicals Limited, London, England

No Drawing. Filed June 13, 1968, Ser. No. 736,567

Claims priority, application Great Britain, July 7, 1967, 31,349/67

Int. Cl. C08f 33/02, 47/10

U.S. Cl. 260-2.5 B

8 Claims

Foamable resin particles comprising a monovinylidene aromatic polymer, a volatile blowing agent, and an amide having a melting point in the range of 35-115° C. and corresponding to the general formula RCONHR' wherein R is an aliphatic hydrocarbon radical containing 10-24 carbon atoms and R' is hydrogen or an alkyl radical containing 1-3 carbon atoms; and processes for preparing foamed articles by steam-heating the foamable resin particles to form a prefoam and subsequently treating the prefoam with steam in a mold.

3,637,539

POLYURETHANES PREPARED FROM GLYCERIDE REACTION PRODUCTS

Per Wolff, Farum, and Hans-Ole Larsen, Bagsvaerd, Denmark, assignors to Per Wolff and Henning Kaaber, Farum, Denmark, and H. C. Anderson, Bellavista, Switzerland

No Drawing. Filed Oct. 4, 1968, Ser. No. 765,027

Claims priority, application Great Britain, Oct. 12, 1967, 46,671/67; Feb. 20, 1968, 8,268/68

Int. Cl. C08c 17/08; C08d 13/08; C08f 47/10
U.S. Cl. 260—2.5 5 Claims

A new group of polyurethanes are described and claimed together with methods for their production, the said polyurethanes being the reaction products of a polyisocyanate with a polyol component, of which latter a substantial part is a reaction mixture of hydrocarbon fatty acid glyceride with dialkanolamine, in which at least about half of the fatty acid has been converted into alkanolamide.

3,637,540

POLYURETHANES FROM FATTY ACIDS AND THEIR PRODUCTION

Per Wolff, Rugmarken, and Hans-Ole Larsen, Mollemarken, Denmark, assignors to Per Wolff and Henning Kaaber, both of Rugmarken, Farum, Denmark, and H. C. Anderson, Bellavista, Switzerland

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,641

Claims priority, application Great Britain, Oct. 12, 1967, 46,671/67; Feb. 20, 1968, 8,268/68

Int. Cl. C08g 22/44
U.S. Cl. 260—2.5 AM 6 Claims

A new group of polyurethanes are described and claimed together with methods for their production, the said polyurethanes resulting from the reaction between a polyisocyanate and a polyol component, a substantial part of which is a reaction mixture of hydrocarbon fatty acid or a lower alkyl ester thereof with dialkanolamine, in which at least about half of the fatty acid has been converted into alkanolamide, and the polyol component contains at least about 25% of monomeric fatty acid radicals.

3,637,541

PROCESS FOR PRODUCING POLYETHER-URETHANE FOAM EMPLOYING POLYOXY-ALKYLENE-POLYSILOXANE BLOCK POLYMERS AS SURFACTANTS

Gerd Rossmay, Essen-Werden, Germany, assignor to Th. Goldschmidt A.-G., Essen, Germany

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,153

Claims priority, application Germany, Mar. 16, 1968, P 16 94 366.1

Int. Cl. C07f 7/08; C08g 22/46, 53/08
U.S. Cl. 260—2.5 AH 8 Claims

In a foaming process for producing polyurethane foam in which the foaming is performed in the presence of polyoxyalkylene-polysiloxane mixed block polymers, the invention proposes that the polyoxyalkylene block should consist of two separate moieties, of which the first constitutes about 25–70% by weight and has an average molecular weight of about 1600–4000, 20–100% by weight of the block being constituted by ethylene oxide. The second polyoxyalkylene moiety constitutes 30–75% by weight of the block and has an average molecular weight of 400–1200, the ethylene oxide content of the block being between about 65–100% by weight.

URETHANE FOAMS WITH REDUCED SMOKE LEVELS

Herman P. Doerge, Verona, and Marco Wismer, Gibsonia, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Nov. 3, 1969, Ser. No. 873,596
Int. Cl. C08g 22/44, 51/58

U.S. Cl. 260—2.5 AJ 20 Claims
This invention relates to fire-retardant polyurethane foams having reduced smoke levels. The invention comprises incorporating adipic acid into a fire-retardant foam formulation.

3,637,543

FIRE RESISTANT POLYURETHANE FOAMS FROM POLYISOCYANATES, POLYOLS, AND CARBOXYLIC ACID DERIVATIVES

Stanley T. Kus, Griffith, and Fred W. Koenig, Highland, Ind., assignors to Standard Oil Company, Chicago, Ill.
Continuation-in-part of applications Ser. No. 420,500, Dec. 23, 1964, Ser. No. 420,774, Dec. 23, 1964, Ser. No. 448,253, Apr. 15, 1965, and Ser. No. 691,729, Dec. 19, 1967, all now abandoned. This application Nov. 12, 1969, Ser. No. 876,060
Int. Cl. C08g 22/44

U.S. Cl. 260—2.5 AJ 23 Claims
Novel thermally stable resins and foams are prepared by reacting without the addition of external heat or pressure a polyfunctional aromatic carboxylic acid derivative comprising a benzene nucleus substituted by members selected from the group consisting of anhydride, carboxyl, or acyl halide with a polyarylpolyisocyanate and a polyol containing at least three hydroxyl groups. The products of this invention are useful for insulation of walls, for fire-proofing buildings and the like.

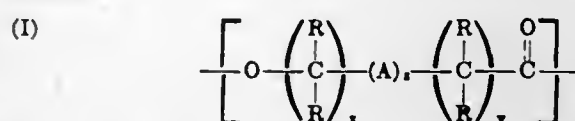
3,637,544

VULCANIZED ELASTOMERIC BLENDS CONTAINING A CYCLIC ESTER POLYMER

Robert Dean Lundberg, Somerville, N.J., and Joseph Victor Koleske and Earl Richard Walter, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,335
Int. Cl. C08c 9/16; C08d 9/08

U.S. Cl. 260—3 10 Claims
Vulcanizable elastomeric blends having improved processability, additive acceptance, improved strengths in the vulcanized form, improved creep resistance in the unvulcanized form, improved handling and forming characteristics in the unvulcanized form and/or improved stiffness, or in some cases improved flexibility, in the uncured and cured forms, containing a vulcanizable rubber gumstock having substantial, residual, ethylenic unsaturation and a cyclic ester polymer containing recurring units of the formula:



wherein each R, individually, is selected from the class consisting of hydrogen, alkyl, halo, and alkoxy; A is the oxy group; x is an integer from 1 to 4; y is an integer from 1 to 4; z is an integer of zero or one; with the provisos that (a) the sum of x+y+z is at least 4 and not greater than 7, and (b) the total number of R variables which are substituents other than hydrogen does not exceed 3, and up to a minor molar amount of recurring units of the formula:



3,637,548

MELAMINE MOLDING COMPOSITION

Norman W. Standish, Shaker Heights, and Richard W. Yanik, North Randall, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

No Drawing. Filed Apr. 24, 1970, Ser. No. 31,734

Int. Cl. C08g 51/18 10 Claims
U.S. Cl. 260—17.3

A process for producing an improved melamine-formaldehyde molding composition and molded articles therefrom comprises incorporating into the standard melamine-formaldehyde "popcorn" or molding powder from about 1 to 50 percent by weight of a cured, pulverized melamine-formaldehyde polymer composition based on the total weight of the molding powder formulation.

3,637,545

PROCESS OF PREPARING METHYL METHACRYLATE POLYMERS

Ernest Fivel, Lyon, France, assignor to Plastugil (Plastiques et Elastomeres Ugine-Progil), Paris, France

Filed Jan. 3, 1969, Ser. No. 788,797

Claims priority, application France, Jan. 19, 1968, 136,319

Int. Cl. C08f 3/68, 15/18 8 Claims
U.S. Cl. 260—4

Polymers of methyl methacrylate, optionally containing a minor proportion of modifying agent, are prepared by continuous mass polymerization in the presence of an initiator and a molecular weight regulator, the reaction mixture being passed in a lamellar flow between diathermic walls at a constant temperature of 145–165° C. and polymerized to a conversion rate of 40–60%. The mixture thus obtained is flash devolatilized above 200° C. to recover the polymer.

3,637,546

THERMOSETTING ACRYLIC ENAMEL CONTAINING CELLULOSE ACETATE BUTYRATE

Fred W. Parker, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 780,190, Nov. 29, 1968. This application Oct. 16, 1970, Ser. No. 81,630

Int. Cl. C03c 7/02; C08b 21/08 14 Claims
U.S. Cl. 260—15

A coating composition in which the film-forming polymeric material consists essentially of:

- (1) an acrylic polymer of styrene, methyl methacrylate, a soft constituent, such as an alkyl acrylate or an alkyl methacrylate other than methyl methacrylate, a hydroxy containing constituent which is either a hydroxy alkyl acrylate or a hydroxy alkyl methacrylate, and an α,β -unsaturated monocarboxylic acid;
- (2) cellulose acetate butyrate; and
- (3) a thermosetting nitrogen containing resin.

The novel coating composition is particularly useful as a high quality finish on automobiles and trucks.

3,637,547

PHENOL-ALDEHYDE RESIN ADHESIVE COMPOSITION

George Otto Orth, Jr., Seattle, Wash., assignor to Georgia-Pacific Corporation, Portland, Ore.

No Drawing. Original application Nov. 7, 1966, Ser. No. 592,322, now Patent No. 3,522,128. Divided and this application Jan. 28, 1970, Ser. No. 6,556

Int. Cl. C08g 51/06, 51/18 4 Claims
U.S. Cl. 260—17.2

A phenol-aldehyde resin adhesive containing from 5 to 50 weight percent of a colloidal attapulgus or sepiolite clay.

3,637,549

POLYOL/LACTAM/SYNTHETIC RESIN MODIFIED UREA-FORMALDEHYDE RESINS

Michael Edgar Hall, Warrington, and Malcolm Negus, Prescott, near Liverpool, England, assignors to Fibreglass Limited, Liverpool, England

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,725
Claims priority, application Great Britain, Sept. 12, 1968, 43,430/68

Int. Cl. C08g 9/10, 9/24, 9/32 8 Claims
U.S. Cl. 260—17.3

A urea-formaldehyde resin for use in bonding glass fibres comprises 1 mole of urea together with from 3 to 5 moles of formaldehyde copolymerised with 0.05 mole of a polyol and from 10 to 50% of a lactam based on the amount of urea present.

3,637,550

SILANATED POLYAMIDE ADHESIVE AND ITS PREPARATION

Jerome W. Sprauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of applications Ser. No. 630,548, Apr. 13, 1967, and Ser. No. 832,422, June 11, 1969. This application Jan. 23, 1970, Ser. No. 5,353

Int. Cl. S08h 9/00; C09j 3/14 17 Claims
U.S. Cl. 260—18

Adhesive binders for bare metal substrates predominantly comprising a thermoplastic silanated polyamide prepared by melt blending a melt-polymerized polyamide consisting essentially of recurring carboxyamido groups and at least two different species of recurring hydrocarbylene groups selected from the group consisting of aliphatic and alicyclic groups of 2 to 48 carbon atoms as integral parts of the main polymer chain, and having at least three different recurring polyamide repeat units, a crystalline melting point below about 230° C., a melt index of about 0.1 to 200, a moisture content of less than about 0.5 weight percent, and at least as many amine ends as carboxyl ends, at a temperature above the crystalline melting point of the polyamide, with about 0.1 to 3 percent, based on the weight of the polyamide, of a silanating compound of the formula $(\text{RO})_3\text{Si}-\text{R}^1-\text{Q}$ in which R is alkyl or alkoxyalkyl, R^1 is hydrocarbylene selected from the group consisting of saturated aliphatics, saturated alicyclics and aromatics of 2 to 40 carbon atoms, and Q is a radical selected from the group consisting of amine, oxirane, alkoxy-carbonyl, carboxyl, hydroxyl, aldehyde, amide, anhydride, carbamate, isocyanate, isocyanide, isothiocyanate, isothioureia, ketoxime, lactide, mercapto, oxime, ozonide, peroxide, thial, thiocyanate and ureido.

3,637,551 MELT-CONDENSED POLYAMIDE INTERPOLYMER ADHESIVES

Jerome W. Sprauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 832,422, June 11, 1969. This application May 21, 1970, Ser. No. 39,574

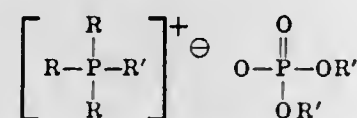
Int. Cl. C08g 20/20

U.S. Cl. 260—18 9 Claims
Melt-condensed polyamide interpolymers consisting essentially of at least three different recurring polyamide repeat units in which about 20–100 mole percent of the imine groups are derived from polymethylene diamine of 6 to 20 carbons, about 5–65 mole percent of the carbonyl groups are derived from dimerized fatty acid of 16 to 48 carbons, about 8–65 mole percent of the carbonyl groups are derived from polymethylene diacid of 6 to 18 carbons, and about 8–65 mole percent of the carbonyl groups are derived from monomer selected from the group consisting of polymethylene diacid of 6 to 18 carbons different from the above diacid and polymethylene omega-aminoacid of 6 to 18 carbons, and which has an annealed heat of fusion of about 5 to 18 calories per gram, is quenchable to the amorphous state at a cooling rate of about 100° C. per minute, and has a glass transition temperature in the amorphous state of less than about 30° C., are useful as adhesives, particularly as adhesives for forming metal cans having side lapped seams.

3,637,552 FLAME RETARDANT, ANTISTATIC POLYMERS

Roland J. Bryan, Jr., Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed July 8, 1970, Ser. No. 53,296
Int. Cl. C08g 51/54; C08k 1/66

U.S. Cl. 260—18 R 10 Claims
The flame-resistance and antistatic properties of fabrics formed from thermoplastic polymer filaments containing from 2 to 15% by weight, based on the weight of polymer, of a polyalkoxylated compound are greatly improved by incorporating into said filaments in combination with the polyalkoxylated compound from 2 to 15% by weight, based on the weight of the polymer of an alkyl phosphonium phosphate of the formula



wherein each R and R' is an alkyl radical having from 1 to 20 carbon atoms.

3,637,553 PRODUCTION OF HOMOGENEOUS, THERMO- PLASTIC, AND HIGHLY ELASTIC PLASTICS FROM VINYL CHLORIDE POLYMERS AND POLYURETHANES

Wolfgang Keberle, Leverkusen, and Wilhelm Göbel, Cologne-Flittard, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Sept. 24, 1969, Ser. No. 860,810
Claims priority, application Germany, Oct. 11, 1968, P 18 02 471.0

Int. Cl. C08f 45/24; C08g 41/04

U.S. Cl. 260—23 9 Claims
Polyvinyl chloride stabilizers are readily and acceptably introduced into vinyl or vinylidene chloride polymer/polyurethane mixtures by using polyurethane dispersions containing polyvinyl chloride stabilizers either in solution or in fine distribution in the discrete polyurethane dispersion particles to prepare the vinyl chloride polymer/

polyurethane plastics mixtures from vinyl chloride polymer dispersions and polyurethane dispersions, by admixture and co-coagulation.

3,637,554 POLYSTYRENE COMPOSITIONS

Clifford W. Childers, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation-in-part of abandoned application Ser. No. 485,532, Sept. 7, 1965. This application Nov. 7, 1966, Ser. No. 592,323

Int. Cl. C08f 19/08, 41/12

U.S. Cl. 260—23.7 R 7 Claims
Preparation of polystyrene compositions of improved impact strength, tensile strength, and elongation by blending with polystyrene one or more branched radial block copolymers.

3,637,555 ADDITIVE SYSTEMS FOR ABS GRAFT COPOLYMERS

Paul J. Marinacci, Monroe, Conn., and Joseph M. Kelley, Westfield, Frederick E. Carrock, Paramus, and Edward E. Allemand, Oak Ridge, N.J., assignors to Dart Industries Inc., Los Angeles, Calif.
No Drawing. Filed Sept. 30, 1968, Ser. No. 763,906
Int. Cl. C08d 5/00; C08f 45/58

U.S. Cl. 260—23.7 11 Claims
ABS resins have improved stability against degradation due to heat and oxygen by addition of a balanced stabilizer composition which maintains initial color and impact strength, minimizes melt flow changes, and reduces tendency for carbonyl formation in the ABS resin during long term heat aging (LTHA). This composition comprises for example, 0.05 to 1.0 percent of each of the following constituents:

- (1) DLTDP,
- (2) 2,6-di-t-butyl-4-methylphenol,
- (3) 2,2'-methylenebis(4-ethyl-6-t-butylphenol), and
- (4) an epoxy compound derived from soybean oil or by the condensation of an ethylene oxide with a hydroxy-containing compound.

3,637,556 SEALING COMPOSITION CONTAINING A GELLED POLYBUTENE OIL PLASTICIZER

James H. Brillinger, Westfield, N.J., assignor to W. R. Grace & Co., Cambridge, Mass.
No Drawing. Continuation-in-part of application Ser. No. 537,321, Mar. 25, 1966. This application July 9, 1969, Ser. No. 840,486

Int. Cl. C08d 9/08

U.S. Cl. 260—23.7 11 Claims
A sealing composition particularly suited for caulking joints, cracks, etc., contains butyl or halogenated butyl rubber, a solvent for the rubber and a polybutene oil gelled with, e.g., aluminum stearate as a plasticizer. The composition can additionally contain a drying oil and fillers.

3,637,557 ESTERS OF TRIS(POLYALKYLENEOXY) ISOCYANURATES

Edwin D. Little, Convent Station, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Sept. 23, 1969, Ser. No. 860,402
Int. Cl. C07d 55/38

U.S. Cl. 260—248 NS 10 Claims
Triesters of tris(hydropolyoxyalkylene)isocyanurates and alkanolic or alkenolic acid are fluid over a wide temperature range. The products are useful in functional fluid

and lubricating applications, such as lubricating additives to gasoline.

3,637,558 ELASTOMERIC COMPOSITIONS FROM ASPHALT AND PARTIALLY UNCURED URETHANES OF ALLYLIC, HYDROXYL-TERMINATED DIENE POLYMERS

Joseph A. Verdol, Dolton, and Patrick W. Ryan, Chicago Heights, Ill., assignors to Atlantic Richfield Company
No Drawing. Continuation of application Ser. No. 536,301, Mar. 22, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 465,161, June 18, 1965. This application Jan. 23, 1969, Ser. No. 797,347

Int. Cl. C08f 45/52

U.S. Cl. 260—28.5 18 Claims
Compositions containing asphalt and urethane which is the reaction product of a diisocyanate with an intermediate polyhydroxy polymer having an average of at least about 1.8 predominantly primary, terminal, allylic hydroxyl groups per molecule and being an addition polymer of 0–75% by weight of an alpha-olefinic monomer of 2 to 12 carbon atoms, and about 25 to 100% of a 1,3-diene hydrocarbon of 4 to about 12 carbon atoms, the intermediate polyhydroxy polymer having a viscosity at 30° C. of about 5–20,000 poises and a number average molecular weight of about 400–25,000. The urethane component is at least partially uncured when combined with the asphalt. These rubberized asphalt compositions are easily worked and can be used alone for patching, crack-filling and weatherproof coatings, or can be mixed with other materials, such as granular, inorganic, often siliceous materials and with conventional paving aggregates to make paving compositions. The material sets up to an elastomeric composition after the paving composition is applied to the road surface. These compositions possess improved low temperature flexibility, improved adhesion, high abrasion resistance, decreased tack and little tendency to bleed at elevated temperatures.

3,637,559 METHYL METHACRYLATE POLYMER-IN- MONOMER COMPOSITION

Paul S. Pinkney, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 705,225, Feb. 13, 1968, which is a continuation of application Ser. No. 437,307, Mar. 4, 1965, both now abandoned. This application Sept. 29, 1969, Ser. No. 862,083

Int. Cl. C08f 45/52, 17/00

U.S. Cl. 260—28.5 9 Claims
Quick-hardening, durable coating compositions of the substantially 100 percent solids type are formulated from methyl methacrylate monomer/polymer sirup, a methacrylate compound having at least three methacrylate ester groups, paraffin wax, titanium dioxide, a substituted aniline activator, a benzoyl or chlorobenzoyl peroxide, and preferably a hindered phenol stabilizer.

3,637,560 PREPARATION OF AQUEOUS METHYL- SILSESQUOXANE DISPERSIONS

Joseph Cekada, Jr., Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Mar. 13, 1967, Ser. No. 622,417
Int. Cl. C08g 31/12, 51/24

U.S. Cl. 260—29.2 M 6 Claims
Stable aqueous dispersions of methylsilsesquioxane are prepared by contacting an alkali or alkaline earth

metal monomethylsiliconate with an acid cation exchange resin and employing an anionic or cationic surfactant. The dispersion may subsequently be neutralized. These dispersions are useful for imparting dulling, antislip, and antisoiling characteristics to fabrics.

3,637,561 SULFONATED PHENOLIC-UREA RESIN SYSTEM

Joel M. Schnur, Agawam, and Rodney M. Huck, Longmeadow, Mass., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Oct. 21, 1968, Ser. No. 769,396
Int. Cl. C08g 51/24; C09d 5/02

U.S. Cl. 260—29.3 3 Claims
A liquid sulfonated phenolic-urea mixed resin system which has improved bench life and low formaldehyde evolution during thermosetting. The system is useful in foundries for the production of sand cores at a rapid rate.

3,637,562 BIURET-UREA-FORMALDEHYDE RESINS

George O. Orth, Jr., Seattle, Wash., assignor to Nipak, Inc., Dallas, Tex.
Filed June 30, 1969, Ser. No. 837,390
Int. Cl. C08g 9/10, 9/12

U.S. Cl. 260—29.4 R 20 Claims
A method of forming a biuret-urea-formaldehyde polymer and the product thereof, including, mixing formaldehyde with the biuret, in the ratio of 0.8 to 1.1 moles of formaldehyde per mole of primary amide group in the biuret and the hereaftermentioned urea, in the presence of an acid, such as hydrochloric acid, formic acid, etc., in an amount sufficient to attain a pH between about 3.7 and 4.8, and maintaining a temperature between about 70 and 100° C. for a predetermined period of time and thereafter adding the urea in an amount such that the ratio of biuret to urea is between about 0.4 and 9, adjusting the pH with an acid or a base to a value of about 3.7 to 5.6 and cooking the solution for a predetermined period of time. The exothermic reaction can be moderated by the addition of a buffer, such as disodiumcyanurate, sodium acetate, sodium borate, sodium phosphate, sodium citrate, etc., in amounts of about 1 to 12% based upon the volume of urea and biuret. The resultant polymer may be cured by the addition thereto of an appropriate catalyst, such as ammonium chloride, ammonium sulfate, ammonium phosphate, etc., in amounts of about 1 to 1.5% by weight, based on resin solids.

3,637,563 PREPARATION OF HIGH SOLIDS POLYMER AQUEOUS EMULSIONS

Ray C. Christena, Wichita, Kans., assignor to Celanese Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 725,539, Apr. 30, 1968, which is a continuation-in-part of application Ser. No. 657,895, Aug. 2, 1967. This application May 20, 1969, Ser. No. 826,254
Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 R 32 Claims
High solids aqueous polymer emulsions are produced by first admixing a surfactant with one or more polymerizable monomers each containing at least one olefinic double bond, together with an amount of water corresponding to between about 6% and about 25% by weight based on the total weight of monomer employed. The resultant pre-emulsion is then added to an aqueous medium and polymerized in the reactive presence of a free radical polymerization catalyst.

3,637,564

DISSOLUTION OF POLYACRYLAMIDES

Peter Economou, Bedford, Mass., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 546,214, Apr. 29, 1966. This application July 22, 1969, Ser. No. 843,806

Int. Cl. C08f 29/00, 29/34, 47/18

U.S. Cl. 260—29.6 H

9 Claims

The dissolution of dry particulate anionic vinyl polymers in water is accelerated when the water has a dissolved content of a cationic polyamine and an ionization suppressor for the anionic substituent of the polymer.

3,637,565

LATEX COMPOSITIONS HAVING IMPROVED ADHESION

David P. Sheetz, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 30, 1964, Ser. No. 414,834

Int. Cl. C08f 45/34, 1/13

U.S. Cl. 260—29.6 TA

5 Claims

Stable, cationic latices are prepared by emulsion polymerization at a pH value of below 7 of (1) (a) a primary or secondary amino alcohol ester of an α,β -ethylenically unsaturated carboxylic acid and an α,β -ethylenically unsaturated carboxylic acid or (b) a primary or secondary amino alcohol half ester of an α,β -ethylenically unsaturated dicarboxylic acid with (2) at least one other polymerizable ethylenically unsaturated substantially water-insoluble monomer. To these cationic latices may be added a non-ionic surfactant and a base-acting material to raise the pH to a value greater than 8 to obtain anionic latices which have desirable adhesive properties and are compatible with conventional paint formulating ingredients.

3,637,566

TERPOLYMER OF AN OLEFIN VINYL MONOMER AND A PARTIAL ESTER OF AN UNSATURATED ACID ANHYDRIDE WITH AN ETHOXYLATED ALKYL ALCOHOL

Oliver deS. Deex, Clayton, and William F. Fallwell, Jr., St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 29, 1968, Ser. No. 732,887

Int. Cl. C08f 15/40, 29/48

U.S. Cl. 260—29.6 TA

10 Claims

This invention relates to terpolymers of an olefinically unsaturated hydrocarbon, vinyl-type monomers and hydroxyl containing non-ionic dispersing agent partial esters of unsaturated polybasic carboxylic acid and their use as pigment binders in mineral coated paper. The non-ionic dispersing agent is represented by the formula



where n is 5 to 60 and R is an alkyl group. A polymer of ethylene vinyl chloride and the ethoxylated tridecyl half ester of maleic acid is a representative terpolymer of this invention.

3,637,567

STABLE AQUEOUS EMULSIONS

Marvin M. Fein, Westfield, and Eugene S. Barabas, Watchung, N.J., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed May 4, 1970, Ser. No. 34,571

Int. Cl. C08d 7/00

U.S. Cl. 260—29.7 U

4 Claims

A stable water emulsion of a poly (N-vinyl lactam) engrafted with isoprene and styrene side chains is disclosed.

3,637,568

SYNTHETIC RESIN MOLDING COMPOSITIONS CONTAINING N-ALKYLGLUCONAMIDES

Koichi Sato, Osaka, Norifusa Tamugi, Kawasaki, and Katsutoshi Abe, Ikeda, Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

No Drawing. Filed Mar. 23, 1970, Ser. No. 22,035

Claims priority, application Japan, Mar. 24, 1969, 44/22,209

Int. Cl. C08f 45/44; C08g 51/44

U.S. Cl. 260—32.6

6 Claims

Use of N-alkylgluconamides of the formula:



wherein R is an alkyl group having 1 to 24 carbon atoms as an additive for molding synthetic resins, especially as a lubricant for thermoplastic resin, a releasing agent for thermosetting resin, and an antistatic agent for both resins, and resinous compositions for molding containing the said N-alkylgluconamide.

3,637,569

PROCESS FOR PREPARING FLUOROCARBON RESIN ORGANOSOLS

James C. Fang, Media, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of applications Ser. No. 413,333, Nov. 23, 1964, Ser. No. 528,047, Feb. 17, 1966, Ser. No. 654,333, July 19, 1967, Ser. No. 738,821, June 21, 1968, and Ser. No. 19,062, Mar. 12, 1970. This application July 1, 1970, Ser. No. 51,717

Int. Cl. B01f 3/12; C08f 45/28, 45/34

U.S. Cl. 260—32.8 R

6 Claims

A process for preparing a dispersion of tetrafluoroethylene/hexafluoropropylene copolymer in an organic liquid, which comprises mixing an organic liquid with an aqueous dispersion of copolymer, boiling the mixture, taking off the resulting azeotrope, separating the water from the azeotrope and returning the organic liquid to the boiling mass until it is substantially anhydrous.

3,637,570

PROCESS FOR PRODUCING PROTECTIVE COATING OF SILOXANE RESIN AND PRODUCT PRODUCED

Robert L. Stout, Dayton, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force

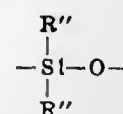
No Drawing. Filed Feb. 25, 1969, Ser. No. 802,249

Int. Cl. C08g 51/28

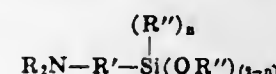
U.S. Cl. 260—33.6 SB

9 Claims

The process described herein comprises the mixing of a siloxane prepolymer having repeating units of the formula



with 3-25 parts per 100 of prepolymer of a curing agent comprising an amino-alkyl-alkoxyl-silane having the formula



wherein R is selected from the group consisting of hydrogen, alkyl, cycloalkyl and amino-alkyl radicals; R' is a divalent hydrocarbon radical having at least three carbon atoms and having the valence bonds which are attached to the N and Si of the formula separated by at least three carbon atoms; R'' is a monovalent hydrocarbon radical having one to six carbon atoms; and n is an integer having a value of 0-2. These components are mixed in an inert

solvent such as xylene or toluene in a proportion so as to produce a solution of approximately 50-60 percent by weight solids, allowing the components to react in solution for a period of 30-60 minutes, thereafter applying the solution as a coating on a solid substrate, and curing the applied film by air-drying at a temperature of about 20-40° C. The coating cures in a relatively short time, even without modifiers and without heating, to a film capable of withstanding temperatures of 650° F. for extended periods.

3,637,571

PROCESS FOR PREPARING THERMOPLASTIC RESIN-ADDITIVE COMPOSITIONS

Walter Polovina, Princeton, N.J., assignor to Rexall Drug and Chemical Company, Los Angeles, Calif.

No Drawing. Filed Apr. 15, 1968, Ser. No. 721,209

Int. Cl. C08f 45/04; C08g 51/04, 53/04

U.S. Cl. 260—34.2 R

5 Claims

The process comprises preparing a liquid formulation of solid additives such as pigments dissolved or dispersed in a suitable media such as water or aliphatic hydrocarbons, removing all the agglomerates and combining the resulting formulation with a thermoplastic resin. The resulting mixture is then dried and can be either extruded or milled and reduced into pellets or chips of resin-additive compositions or concentrates. The concentrates are blended with the respective base resins to achieve the desired modifications of the physical and chemical properties of the base.

3,637,572

EPOXY RESINS WITH ORGANOBORON CURE PROMOTORS

Masatzugu Ogata, Mikio Sato, Yutaka Watanabe, and Hiroshi Suzuki, Hitachi, Japan, assignors to Hitachi, Ltd., and Hitachi Chemical Company, Ltd., both of Tokyo, Japan

Filed May 21, 1970, Ser. No. 39,224

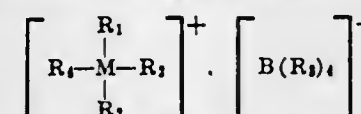
Claims priority, application Japan, May 26, 1969, 44/40,189, 44/40,190

Int. Cl. C08g 51/04, 17/13, 33/10

U.S. Cl. 260—37 EP

10 Claims

An epoxy resin composition improved in curability and pot life (storing stability) which is prepared by blending an epoxy resin with an acid anhydride curing agent and a curing promotor composed of an organoboron compound represented by the general formula,



wherein M represents P or As ; and R_1, R_2, R_3, R_4 and R_5 , which may be same or different, represent individually an alkyl, alkenyl or aryl group.

3,637,573

POLYURETHANES STABILIZED WITH p-PHENYLENEDIAMINES

Noritoshi Mise, Ikeda, Minoru Yamada, Suita, and Ken-ichi Nishino, Takatsuki, Japan, assignors to Takeda Chemical Industries Ltd., Osaka, Japan

No Drawing. Filed Nov. 27, 1967, Ser. No. 685,947

Claims priority, application Japan, Nov. 28, 1966, 41/78,195

Int. Cl. C08g 51/60, 51/08

U.S. Cl. 260—37 N

6 Claims

A stabilized polyurethane composition containing p-phenylenediamine of the following formula:



wherein each of X and Y stands for a substituted or unsubstituted hydrocarbon group.

3,637,574

SULFUR MODIFIED ZINC COMPOUND/TETRA-ALKYLTHIURAM POLYSULFIDE CURE SYSTEM FOR LIQUID POLYTHIOL POLYMERS

Edward G. Millen, Princeton, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed Jan. 16, 1969, Ser. No. 791,681

Int. Cl. C08g 25/00

U.S. Cl. 260—37 R

13 Claims

Room temperature cured sealant composition having greatly improved physical properties is obtained by curing a curable polymeric sealant composition comprising a liquid polythiol polymer, e.g. —SH terminated liquid polysulfide polymer, by means of a curing agent system comprising a zinc compound and a tetraalkylthiuram polysulfide essentially modified by the addition of up to about 10 parts by weight of sulfur per 100 parts by weight of the polymer. The cured composition has utility as a sealant for waterproofing, caulking and similar applications where a relatively rapid room temperature cure is desired.

3,637,575

PROCESS FOR HOMOGENEOUSLY COLORING COPOLYMERS OF TRIOXANE

Edgar Fischer, Frankfurt am Main, and Karl-Heinz Häfner, Bad Orb, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 644,095, June 7, 1967. This application Aug. 18, 1969, Ser. No. 851,042

Claims priority, application Germany, June 18, 1966, F 49,496

The portion of the term of the patent subsequent to July 8, 1986, has been disclaimed
Int. Cl. C08f 3/40

U.S. Cl. 260—37 P

7 Claims

Thermostable colored polyacetals are prepared by reacting a copolymer of trioxane containing aldehyde groups with a disperse dyestuff. They are suitable for coloring uncolored polyacetals and they are especially processed into colored blown films and transparent colored shaped articles.

3,637,576

EPDM RUBBER INSULATING COMPOSITION

Gordon Sutherland, Wilmington, Del., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Apr. 22, 1970, Ser. No. 30,970

Int. Cl. C08g 37/18

U.S. Cl. 260—38

10 Claims

An insulating composition for the inside of rocket motors comprising (1) a rubber comprising ethylene, propylene and a diene selected from the group consisting of methylidene norbornene and ethylidene norbornene, (2) carbon or silica (3) asbestos (4) zinc oxide and (5) bromomethyl alkylated phenolformaldehyde resin.

3,637,577

CURING OF FOUNDRY MOLDS AND CORES BY INDUCTION HEATING

Vernon L. Guyer, Minneapolis, and Robert J. Schafer, Edina, Minn., assignors to Ashland Oil, Inc., Ashland, Ky.

No Drawing. Filed June 19, 1967, Ser. No. 647,247

Int. Cl. C08g 51/04

U.S. Cl. 260—38

31 Claims

A process for the catalytic cross-linking of a curable material, comprising, in sequence, the steps of:

- (A) forming a mixture comprising:
- (1) the curable material, and

- (2) a catalytic agent which, upon heating, releases a catalyst which promotes curing of the curable material, and
 (3) an inductively heatable material in thermal proximity with the catalytic agent, and then
 (B) subjecting the mixture to an alternating inductive field,

whereby the heat generated in the inductively heatable material is transferred to the catalytic agent, releasing the catalyst and promoting curing of the curable material.

A catalytic pill adapted to promote curing of a curable material when subjected to an alternating inductive field, said pill comprising:

- (A) an inert catalytic agent which, upon heating, releases a catalyst which promotes curing of the curable material, and
 (B) an inductively heatable material in thermal proximity with the catalytic agent.

This invention finds particular utility in the foundry art when the mixture further contains a foundry aggregate.

3,637,578

POLYESTER-POLYPHENYLENE ETHER MIXED RESINS

Carl L. Wright, Severn, and Harry H. Beacham, Severn Park, Md., assignors to FMC Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 699,813, Jan. 23, 1968. This application Apr. 23, 1970, Ser. No. 31,407

Int. Cl. C08f 43/06; C08g 43/02

U.S. Cl. 260—40 R

8 Claims

Thermosetting resin compositions of improved qualities made by combining a high-temperature thermoplastic resin, i.e., a polyphenylene ether polymer with mixtures of reactive monomers and reactive-type polyester resins, each containing polymerizable carbon-to-carbon unsaturation. The polyphenylene ether polymers combine with these polymerizable materials containing carbon-to-carbon unsaturation in the presence of a free radical catalyst. The compositions are formed by moderate heat and pressure into articles with excellent electrical and mechanical properties which are retained at elevated temperatures, and under conditions of high humidity.

3,637,579

POLYEPOXIDE-POLYANHYDRIDE ADHESIVE COMPOSITION

Walter P. Barie, Jr., Shaler Township, and Norman W. Franke, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Dec. 18, 1969, Ser. No. 886,392

Int. Cl. C08f 45/04; C08g 51/04

U.S. Cl. 260—41 A

11 Claims

An adhesive composition containing a copolymer of a straight chain mono- α -olefin and maleic anhydride, a liquid polyepoxide, and a powdered filler. The adhesive is useful for bonding solid elements, such as metal, together.

3,637,580

METHOD FOR PREVENTING SAGGING OF COATING MATERIALS

Kenichi Hattori and Atushi Goukon, Wakayama-shi, Yoshiaki Komeda, Tokyo, and Hiroshi Mori, Wakayama-shi, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

No Drawing. Filed Aug. 25, 1969, Ser. No. 852,933

Int. Cl. C08g 51/04

U.S. Cl. 260—40 R

4 Claims

A paint composition containing from 0.05 to 10% by weight, based on the total weight of the paint composition, of an antisagging agent made by reacting one mole

of a dimer acid with 0.1 to 0.99 mole of a glycol of the formula $\text{HO}-(\text{CH}_2\text{CH}_2\text{O})_n-\text{H}$, wherein n is a number from 1 to 30, until the hydroxyl value of the reaction mixture reaches a constant value of less than 10.

3,637,581

METHOD OF MAKING CHROMOGEN-BONDED- POLYMER AND PRODUCTS THEREOF

Shojiro Horiguchi, 965 Shimochoya, Hiyamachi, Kitatama-gun, Tokyo, Japan, and Michiel Nakamura, 156, 5-chome, Motobuto-cho, Urawa-shi, Saitama-ken, Japan
 Continuation-in-part of application Ser. No. 477,946, Aug. 6, 1965. This application Aug. 4, 1967, Ser. No. 658,465

Int. Cl. B44d 1/00; C08d 11/00; C08f 45/04

U.S. Cl. 260—41.5 R

21 Claims

A method of making a metal phthalocyanine-bonded-polymer comprising diazotizing triamino metal phthalocyanine in aqueous medium containing hydrochloric acid in a quantity which exceeds its theoretical quantity by at least 10 moles per one amino radical to produce the diazotized product comprising diazotized triamino metal phthalocyanine, stabilizing the diazotized product with a stabilizer to produce the stabilized diazo compound, mixing the stabilized diazo compound with an addition-polymerizable monomer and polymerizing said monomer using the stabilized diazo compound as an initiator for the polymerizing to form the metal phthalocyanine-bonded-polymer and the metal phthalocyanine-bonded-polymer made thereby.

3,637,582

HYDROXYPHENYLALKYLENYL ISOCYANURATES

Jack C. Gilles, Shaker Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application Oct. 25, 1968, Ser. No. 770,863, now Patent No. 3,531,483, dated Sept. 29, 1970. Divided and this application Dec. 29, 1969, Ser. No. 1,927

Int. Cl. C08f 45/60; C10m 1/32; C11b 5/00

U.S. Cl. 260—45.8 N

22 Claims

Novel hydroxyphenylalkylene isocyanurates have been prepared. These compounds stabilize organic materials against the deleterious effects of oxygen, heat and light. The stability of α -monoolefin homopolymers and copolymers is particularly enhanced by incorporating stabilizing amounts of the hydroxybenzyl isocyanurates therein.

3,637,583

POLYESTERURETHANES STABILIZED WITH IMINOCARBONATES

Sidney H. Metzger, Jr., Leverkusen-Neuenhof, Germany, and John E. Over, Pittsburgh, Pa., assignors to Mobay Chemical Company, Pittsburgh, Pa.

No Drawing. Filed Oct. 23, 1968, Ser. No. 770,117

Int. Cl. C08g 51/60

U.S. Cl. 260—45.8 A

6 Claims

Polyester compositions stabilized against hydrolysis and ageing are prepared by incorporating therein iminocarbonate compounds.

3,637,584

STABILIZATION OF POLYOLEFINS

Ronald James Hurlock and Eric Samuel Nicholson, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 19, 1969, Ser. No. 825,933

Claims priority, application Great Britain, May 30, 1968, 25,981/68

Int. Cl. C08f 45/60

U.S. Cl. 260—45.8 N

4 Claims

Poly- α -olefins derived from mono olefins containing three or more carbon atoms are stabilised against oxida-

tive degradation by 1,3-imidazoles in which the 4 and 5 positions are substituted by aryl groups and the 2 position by a 2-hydroxyphenyl or 4,5-diaryl-1,3-imidazole group.

3,637,585

ANTIOXIDATION OF ORGANIC COMPOSITIONS

Patrick D. Beirne, Farmington, Mich., assignor to

Ethyl Corporation, New York, N.Y.

No Drawing. Original application Jan. 26, 1966, Ser. No. 523,025, now Patent No. 3,465,029, dated Sept. 2, 1969. Divided and this application Nov. 4, 1968, Ser. No. 773,275

Int. Cl. C08f 45/58

U.S. Cl. 260—45.85 R

12 Claims

Esters of (3,5 - dihydrocarbyl-4-hydroxybenzyl)thiodicarboxylic acids are effective stabilizers for organic material. For example, dilauryl[(3,5 - di-tert-butyl-4-hydroxybenzyl)thio]succinate prolongs the life of polypropylene. Effectiveness is synergistically increased by inclusion of an ester of a thiodialkanoic acid such as dilaurylthiodipropionate.

3,637,586

STABLE PLASTIC COMPOSITIONS

Bernard R. Meltsner, Royal Oak, Mich., assignor to

Ethyl Corporation, New York, N.Y.

No Drawing. Original application July 9, 1965, Ser. No. 470,891, now Patent No. 3,476,814, dated Nov. 4, 1969. Divided and this application Aug. 4, 1969, Ser. No. 847,402

Int. Cl. C08f 45/58; C08g 51/58

U.S. Cl. 260—45.95

5 Claims

Mono- and di- (3,5 - dihydrocarbyl - 4 - hydroxybenzyl)phenyl alkyl ethers are useful either alone or in synergistic combination with a dialkyl thiodialkanoate as antioxidants for a broad range of organic material.

3,637,587

STABILIZATION OF ORGANIC SUBSTANCE WITH N,N-DISUBSTITUTED-AMINOALKYL PHOSPHITE

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 589,841, Oct. 27, 1966, now Patent No. 3,480,698, dated Nov. 25, 1969. This application Mar. 25, 1969, Ser. No. 810,372

Int. Cl. C08f 45/60

U.S. Cl. 260—45.9 R

10 Claims

Stabilizing organic substance by incorporating therein the stabilizing concentration of an N,N-dialkylaminoalkyl phosphite or N,N-dicycloalkyl-aminoalkyl phosphite. One example is the stabilizing of hydrocarbon distillates.

3,637,588

POLYOLEFINS STABILIZED WITH MIXTURES COMPRISING A PHOSPHORUS ACID AND A PHENOL

James S. Dix and Ronald D. Mathis, Bartlesville, Okla., and Leslie T. Netherton, Fayetteville, Ark., assignors to Phillips Petroleum Company

No Drawing. Filed Jan. 17, 1969, Ser. No. 792,142

Int. Cl. C08f 45/58, 45/60, 45/62

U.S. Cl. 260—45.75 N

5 Claims

Polyolefin resin compositions having improved properties are obtained by incorporating with the resins small amounts of an organophosphonic acid or an organophosphinic acid in combination with other stabilizers, e.g., a benzophenone and a phenol.

3,637,589

METHOD FOR PREPARING POLY-CARBORANYL- ENESILOXANE POLYMERS

Herbert R. Kwasnik, Silver Spring, Md., and John F. Sieckhaus, Milford, and Karl O. Knollmuller, Hamden, Conn., assignors to Olin Corporation

No Drawing. Filed May 28, 1970, Ser. No. 41,598

Int. Cl. C08g 31/30

U.S. Cl. 260—46.5 E

8 Claims

This invention relates to the method for the preparation of linear poly-meta(-m-) and para (-p-) carboranylenesiloxanes by the controlled hydrolytic condensation of selected silicon-containing carboranes.

For example, 1.473 moles of H_2O in 400 ml. tetrahydrofuran was added over a period of 30 minutes to a flask cooled with an ice-bath and containing 1.052 moles of bis(1,1,3,3 - tetramethyl - 3 - chlorodisiloxane) - m-carborane and 2100 mol. of diethyl ether. Stirring was continued for another 30 minutes; the flask was warmed to 25° C. and after 2½ hours, the solvents were stripped under reduced pressure. After removing the last traces of solvent the polymer obtained had a number average molecular weight of 10,000.

The polymers obtained by the controlled hydrolytic condensation have utility as high temperature liquids and coatings, gaskets, O-rings, encapsulation materials, heat resistant adhesives and in liquid partitioning phases used in vapor phase chromatography.

3,637,590

THERMOPLASTIC POLYETHER RESINS OF BISPHENOLS

Russel L. Maycock, 7206 Prestwick St., Houston, Tex. 77025, and Alton J. Landua, 280 Wyoming Ave., Maplewood, N.J. 07040

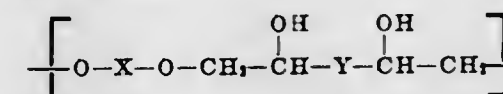
No Drawing. Continuation-in-part of application Ser. No. 598,527, Aug. 8, 1966, which is a division of application Ser. No. 145,486, Oct. 16, 1961, now Patent No. 3,306,872, which in turn is a continuation-in-part of application Ser. No. 46,387, Aug. 1, 1960. This application Mar. 31, 1970, Ser. No. 24,357

Int. Cl. C08g 30/04

U.S. Cl. 260—47 EP

8 Claims

Novel thermoplastic polyethers having high impact resistance consist essentially of linear molecules having a repeating structure



wherein X is the central or residue group, between the —OH groups, of a dihydric polynuclear phenol and Y the central or residue group, between the oxirane rings, of a terminal di-vic-epoxide. Preferred are those polyethers in which X and Y are the residue groups, respectively, of bisphenols and of diglycidyl ethers or lower polyethers of bisphenols, especially preferred bisphenols being bisphenol A and 4,4'-dihydroxydiphenylmethylethylmethane.

3,637,591

EPOXY RESIN COMPOSITIONS

Aubert Y. Coran, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation of abandoned application Ser. No. 823,957, May 12, 1969, which is a continuation-in-part of abandoned application Ser. No. 791,792, Feb. 9, 1959. This application Apr. 27, 1970, Ser. No. 32,417

Int. Cl. C08g 30/02, 30/04, 45/00

U.S. Cl. 260—47 EC

17 Claims

An epoxide resin composition suitable for curing and a process for preparing the same are provided wherein a neutral ester of a phosphorous acid is incorporated in a mixture of an epoxide resin and a curing agent free from a BF_3 -organic base complex.

3,637,592 CRYSTALLINE COPOLYKETONE FILM STRUCTURES

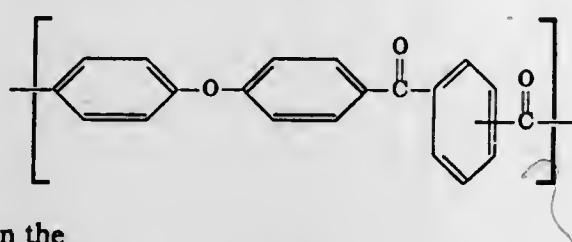
Charles E. Berr, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 702,802, Feb. 5, 1968. This application June 10, 1970, Ser. No. 45,232

The portion of the term of the patent subsequent to June 23, 1987, has been disclaimed

Int. Cl. C08g 33/10

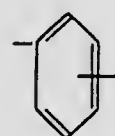
U.S. Cl. 260—47 R

Crystalline copolyketone film structures having the following repeating structural unit



wherein the

moiety is either



(T moiety) or



(I moiety), and the T:I ratio varies from 90:10 to 50:50 are provided; crystallized film structures are useful in a variety of applications, for example, electrical insulation.

3,637,593 PROCESS FOR SEPARATING POLYPHENYLENE OXIDES

Hans-Dieter Becker, Gothenburg, Sweden, and Alfred R. Gilbert, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed July 9, 1970, Ser. No. 53,649

Int. Cl. C08g 23/18

U.S. Cl. 260—47 ET

Diphenylquinones present in polyphenylene oxides as a result of oxidation of diorganophenols can be separated from the polyphenylene oxides as biphenols by treatment of the mixture of the polyphenylene oxide and the diphenylquinone with a hydrogen halide.

3,637,594 HIGH MOLECULAR WEIGHT AROMATIC POLYBENZOXAZINONES

Manfred Gallus, Gunter Lorenz, and Gunter Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 29, 1969, Ser. No. 829,124

Claims priority, application Germany, June 10, 1968, P 17 70 608.0

Int. Cl. C08g 20/08, 33/02

U.S. Cl. 260—47 CP

High molecular weight aromatic polybenzoxazinones and a process for their production by polycondensation of aromatic diaminocarboxylic acids containing ether oxygen

with aromatic dicarboxylic acid dihalides in polar organic solvents, and heating the polyamide carboxylic acids thus obtained at temperatures above 150° C. said polymers being useful in the form of films and foils.

3,637,595 P-OXYBENZOYL COPOLYESTERS

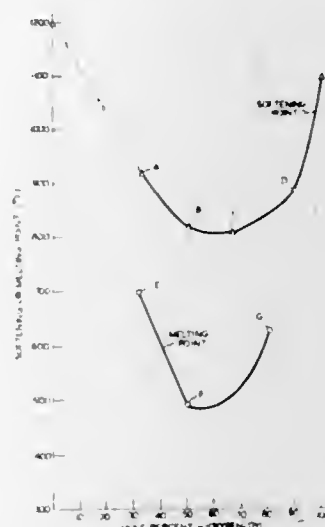
Steve G. Cottis, 85 Niagara Falls Blvd. 14214; James Economy, 465 Ruskin Road 14226, both of Buffalo, N.Y.; and Bernard E. Nowak, 148 Seneca Place, Lancaster, N.Y. 14086

Filed May 28, 1969, Ser. No. 828,484

Int. Cl. C08g 17/02, 17/08

U.S. Cl. 260—47 C

13 Claims

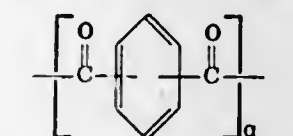


A polyester of recurring moieties of Formulae I, II and III:

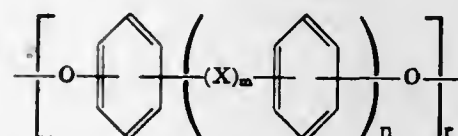
(I)



(II)



(III)



wherein X is —O— or —SO₂—; m is 0 or 1; n is 0 or 1; and p, q and r are preferably present in certain defined ratios.

3,637,596 COPOLYMERS OF BUTADIENE AND/OR CO- POLYMERIZABLE CARBOXYLIC NITRILES AND OTHER MONOMERS WHICH RESIST YELLOWING

Klaus Gulbins, Limburgerhof, Hans Wilhelm, Heinsheim, Heinrich Hartmann, Limburgerhof, and Albrecht Eckell, Frankenthal, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 3, 1969, Ser. No. 830,092

Claims priority, application Germany, June 6, 1968, P 17 70 578.1

Int. Cl. C08f 15/38, 45/60

U.S. Cl. 260—47 UA

Copolymers which do not become yellow at all or only become yellow after a long time and which are based on butadiene and/or carboxylic nitriles copolymerizable therewith and contain small amounts of a colored compound which absorbs light in the wavelength range from 570 to 605 millimicrons and which bears at least one copolymerizable group.

3,637,597 WATER DISPERSIBLE, CROSSLINKING RESINS VIA THE INCORPORATION OF PENDANT MANNICH ADDUCT UNITS THEREIN

George Jalics, Rocky River, Ohio, assignor to SCM Corporation, Cleveland, Ohio

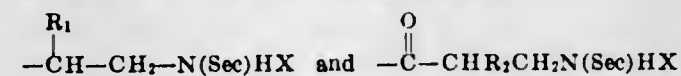
No Drawing. Filed Oct. 18, 1968, Ser. No. 768,924

Int. Cl. C08f 3/40, 27/08

U.S. Cl. 260—65

10 Claims

There is presented certain water dispersible polymers and coating compositions suitable for coating, impregnating, and electrocoating, and an improvement in process for producing the water dispersible polymers which comprises including in the polymer sufficient pendant Mannich adduct units for rendering the polymer dispersible in water. The pendant Mannich adduct units are represented by at least one of the following formulas:



wherein R₁ represents a carboxyl, aldehyde, or carboxylic acid ester group, R₂ represents hydrogen, a halide, or lower alkyl radical, N(Sec) represents a lower alkyl, cycloaliphatic, aromatic, or heterocyclic secondary amine, and HX represents a salt-forming acid.

3,637,598 2-PYRROLIDONYL POLYACROLEIN

Nathan D. Field, Allentown, and David I. Randall, Easton, Pa., and Jimmie D. Fitzpatrick, Lafayette, La., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Feb. 13, 1969, Ser. No. 799,072

Int. Cl. C08g 9/28

U.S. Cl. 260—72 R

2 Claims

A new composition of matter comprising 2-pyrrolidonyl polyacrolein.

3,637,599 METHOD OF PRODUCING POLYURETHANES AND SAID PRODUCT

James E. Ditty, North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation of application Ser. No. 827,090, May 12, 1969, which is a continuation of application Ser. No. 415,817, Dec. 3, 1964. This application Feb. 16, 1970, Ser. No. 10,083

Int. Cl. C08g 17/00

U.S. Cl. 260—75 NT

1 Claim

This invention relates to a method of preparing reaction mixtures comprising a reactive hydrogen containing polymeric material of about 500 to 6000 molecular weight and a mixture of about 1 to 35 parts of a polyaryl methane polyisocyanate of the formula



in which —R— and —R'— are arylene radicals, Y is selected from the group consisting of hydrogen, alkyl, and aryl radicals, n is a whole number having values of from about 1 to about 10 with at least a major percentage being the polyisocyanate, where n is at least 2, and the —(CY₂—R'—NCO) groups in excess of one are attached to the preceding R' radical for each 100 parts of toluidine diisocyanate. This reaction mixture has unusual storage stable characteristics.

3,637,600 POLYIMIDE-AMIDES FROM REDUCED MALEOPIMARIC ACID

Walter H. Schuller and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Apr. 15, 1970, Ser. No. 28,944

Int. Cl. C08g 20/32

U.S. Cl. 260—78 TF

3 Claims

This invention relates to the preparation of reduced maleopimaric acid from reduced fumaropimaric acid, the

preparation of the acid chloride of reduced maleopimaric acid, and the reaction of the acid chloride with diamines to give polyimide-amides, useful for the preparation of films.

3,637,601 SULFUR-CONTAINING POLYAMIDE DYE RECEPTION PROMOTERS

William E. Truce, Lafayette, Ind., and Elizabeth G. Horvath, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Continuation of application Ser. No. 654,681, July 20, 1967. This application Jan. 22, 1970, Ser. No. 6,022

Int. Cl. C08g 20/20

U.S. Cl. 260—78 R

11 Claims

Sulfur-containing polyesters and polyamides are produced by reacting a mixed dianhydride of a dicarboxylic acid and a sulfonic acid with a glycol and/or a diamine or by reacting a dicarboxylic acid, a sulfonyl halide and a glycol and/or a diamine in the presence of a base. The sulfur-containing polyamides and polyesters are combined with conventional polyamides, polyesters, or polyolefins as dye reception promoters.

3,637,602 RESINS FROM PHENYLENE BISACRYLIC ACID

Anthony B. Conciatori, Chatham, N.J., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,584

Int. Cl. C08g 20/00

U.S. Cl. 260—78

3 Claims

An approximately equimolar quantity of an aromatic dicarboxylic acid possessing at least one non-aromatic side chain having a carbon to carbon double bond in conjugation with the aromatic nucleus, or an acid halide derivative thereof, is condensed with a primary or a secondary diamine to form a high melting polyamide resin. The polyamide resin possesses improved performance properties, and is particularly suited for use in the production of fibers, and as a vehicle or binder in the formation of high temperature resistant composite articles.

3,637,603 ALPHA-METHYLENEGLUTARIMIDE POLYMERS AND COPOLYMERS AND PREPARATION THEREOF

John M. Hoyt, Cincinnati, and Karl Koch, Norwood, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed Dec. 28, 1967, Ser. No. 694,048

Int. Cl. C08g 20/20

U.S. Cl. 260—78 UA

7 Claims

Homopolymers and copolymers of alpha-methylene-glutarimide and process for preparing same using heat alone or with a solvent or with a free radical source, which polymers can be employed to make fibers, foils and films.

3,637,604 SHAPED ARTICLES MADE FROM POLYCAPRO- LACTAMS CONTAINING AN ORGANOSILICON COMPOUND AS AN ANTIELECTROSTATIC AGENT

Joachim Schneider, Krefeld-Urdingen, Herbert Gröschel, Harry Kubitzek, and Günther Nawrath, Dormagen, and Hans Rudolph, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,369

Claims priority, application Germany, Dec. 28, 1967, P 16 94 235.1

Int. Cl. C08g 41/04, 47/10

U.S. Cl. 260—78

2 Claims

Shaped articles which are antielectrostatic and which are made from high molecular weight polycaprolactams

containing an organosilicon compound as an antielectrostatic agent.

3,637,605 OXIDE MAGNETS

Teruhiko Ojima and Gosaburo Nishi, Nagareyama-shi, Japan, assignors to TDK Electronics Company Ltd., Tokyo, Japan

Filed Sept. 4, 1969, Ser. No. 855,221

Claims priority, application Japan, Sept. 16, 1968, 43/66,081

Int. Cl. H01f 1/00

U.S. Cl. 252—62.59

1 Claim

An oxide magnet consisting primarily of BaO and Fe₂O₃, the molar ratio of BaO to Fe₂O₃ being between 1:5 and 1:6, and containing in addition 0.05 to 0.3% by weight CaO and 0.4 to 0.65% by weight of SiO₂, has large coercive force and high magnetic energy.

3,637,606

PROCESS FOR CHAIN TERMINATING POLY-(1,4-AMINO BENZOIC ACID)

Paul W. Morgan, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 22, 1969, Ser. No. 793,175

Int. Cl. C08g 20/04

U.S. Cl. 260—78 A

5 Claims

A process for chain terminating poly(1,4-benzamide) by using a preferred class of aromatic amino, hydrazino, and hydrazido carboxylic acids and derivatives, p-amino-benzoic acid being most preferred. An improved means of polymer stabilization is provided which permits the polymers, in the form of shaped articles, to undergo both a desirable increase in molecular weight and enhancement of physical properties.

3,637,607

SILICON-CONTAINING POLYAMIDE

Alvin D. Delman, Old Bethpage, Hanna N. Kovacs, Kew Gardens, and Bernard B. Simms, Franklin Square, N.Y., assignors to the United States of America as represented by the Secretary of the Navy

Filed Feb. 12, 1969, Ser. No. 798,640

Int. Cl. C08g 20/20

U.S. Cl. 260—78 R

2 Claims

Aromatic silicon-containing polyamides soluble in organic solvents and stable up to about 400° C., prepared by reaction of bis(p-chlorocarbonylphenyl) diphenylsilane and m-(or p-)phenylenediamine or by reaction of bis(p-carbopentachlorophenoxyphenyl) diphenylsilane and benzidine or by reaction of bis-p-carbo-(p-nitrophenoxy) phenyldiphenylsilane and benzidine. Solution-cast films from the polymers are flexible and show good adhesion to glass and metal surfaces.

3,637,608

METHOD OF REGULATING THE POLYMERIZATION RATE IN THE ANIONIC POLYMERIZATION OF LACTAMS

Siegfried Schaaf and Clau Berther, Chur, Grisons, Switzerland, assignors to Inventa AG fur Forschung und Patentverwertung Zurich

No Drawing. Filed Sept. 25, 1969, Ser. No. 861,150

Claims priority, application Switzerland, Oct. 9, 1968, 15,078/68

Int. Cl. C08g 20/18

U.S. Cl. 260—78 L

7 Claims

The method relates to the polymerization of lactams having more than 6 member rings, at a temperature in the range of 130–180° C. An alkaline polymerization catalyst and a mixture of cocatalysts is employed in the polymerization reaction. The cocatalyst mixture consists of from 30–70% of a high-activity cocatalyst comprising

acetylactams, acid chlorides, acid anhydrides, cyanamides, isocyanates, ketenes, and oxazolidinedione derivatives, and the balance consisting of polycarbodiimides.

3,637,609

PREPARATION OF SODIUM POLYMALEATE

John H. Blumbergs, Highland Park, Joseph H. Finley, Metuchen, and John J. Rizzo, Trenton, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed June 1, 1970, Ser. No. 42,542

Int. Cl. C08f 27/04

U.S. Cl. 260—78.4 R

5 Claims

The sodium salt of poly(maleic acid), useful as a detergent builder, is prepared by hydrolyzing poly(maleic anhydride) with water at 60 to 80° C., and simultaneously adding the aqueous solution and a source of sodium oxide into a heel of water at pH 9.2 to 10.6, maintaining this pH throughout the addition, then bleaching the slurry, and recovering the salt.

3,637,610

MULTIFUNCTIONAL POLYMERIC ADDITIVE

Norman Jacobson, East Brunswick, N.J., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 664,925, Sept. 1, 1967. This application Feb. 25, 1970, Ser. No. 14,190

Int. Cl. C08f 27/08

U.S. Cl. 260—78.5 T

13 Claims

A hydrocarbon-oil-soluble polymeric additive having multifunctional qualities including viscosity-index-improving properties and sludge-dispersing properties is prepared by reacting an oil-soluble polymeric material, which contains acid or acid anhydride groups distributed along the polymer chain, with a heterocyclic amino compound under conditions which cause the formation of an amide or imide linkage between carboxyl or carboxyl anhydride groups of the polymer and the amino groups of the heterocyclic amino compound. The latter is characterized as a heterocyclic amino compound of the pseudo-aromatic type that has either oxygen or nitrogen in the ring, has only one group with an active amino hydrogen, contains no other active hydrogen groups, and has the amino group separated from the ring by from one to five carbon atoms.

3,637,611

NOVEL ALTERNATING COPOLYMER OF MULTI-SUBSTITUTED CONJUGATED VINYL COMPOUND AND UNSATURATED COMPOUND AND PROCESS FOR PRODUCING SAME

Kenji Takeya, Yoshihiro Uno, and Akira Yamane, Okayama, Japan, assignors to Sumitomo Chemical Company, Ltd., and Japan Exlan Company Ltd., both of Osaka, Japan

No Drawing. Filed Mar. 20, 1970, Ser. No. 21,475

Claims priority, application Japan, Mar. 26, 1969, 44/23,424

Int. Cl. C08f 1/28, 15/38, 19/16

U.S. Cl. 260—78.5 N

17 Claims

A novel alternating copolymer composed of the group (B) monomer consisting of at least one α -, β - or α,β -multisubstituted conjugated vinyl compound, and the group (A) monomer consisting of at least one monomer selected from the group of olefins, haloolefins, internal olefins, polyenes, acetylenes, and carbonyl compounds or thio-carbonyl compounds; the units from the group (A) monomer always alternating with the units from the group (B) monomer. Said alternating copolymer is produced by contacting at least the group (B) monomer of the two groups with an organoaluminum or organoboron halide to form a complex and then contacting the remaining monomer with the complex formed. When monomers of

both groups (A) and (B) are properly chosen, said novel alternating copolymer can be useful as a material for the production of film, fiber and molded articles, and as an additive for the plastics processing.

3,637,612

FAST CURING OF POLYSULFIDE POLYMERS

Eugene R. Bertozzi, Yardley, Pa., assignor to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Filed Jan. 27, 1970, Ser. No. 6,329

Int. Cl. C08g 23/00

U.S. Cl. 260—79

5 Claims

A process is disclosed for achieving an exceptionally fast room temperature cure of liquid polythiopolymercapitan polymers by using as a curing agent either the combination of an aqueous weak acid and a zinc compound selected from the oxide, peroxide, hydroxide and carbonate or an aqueous zinc salt of a weak acid.

3,637,613

POLYMERIZATION OF CYCLIC SULFIDES

Edwin J. Vandenberg, Foulk Woods, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 374,171, June 10, 1964. This application Sept. 13, 1966, Ser. No. 578,999

Int. Cl. C08g 23/00, 23/14

U.S. Cl. 260—79

5 Claims

Halogen-free organomagnesium compounds reacted with a polyreactive compound, such as a compound containing at least two active hydrogens as in water, ammonia, and resorcinol, are effective catalysts for the polymerization of episulfides. Crystalline polymers of episulfides are described.

3,637,614

SOLVENT SOLUBLE DRY SOIL RESISTANT FLUOROPOLYMERS

Edward J. Greenwood, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 803,093, Feb. 27, 1969. This application Aug. 19, 1969, Ser. No. 851,489

Int. Cl. C08f 15/40, 15/18

U.S. Cl. 260—80.72

27 Claims

A fluorinated oil and water repellent and dry soil resistant copolymer having an inherent viscosity as a 0.5% solution in trichlorotrifluoroethane at 30° C. of from about 0.05 to 0.8 selected from units derived from monomers having the structure:

(I)

- (a) $R_1CH_2CH_2O_2CCH=CH_2$,
(b) $R'O_2CC(CH_3)=CH_2$, and optionally
(c) $R''O_2CC(CH_3)=CH_2$,

wherein the sum of the weight of units derived from (b) and (c) is from about 15% to 35% by weight of the total copolymer or:

(II)

- (a') $R_1CH_2CH_2O_2CC(CH_3)=CH_2$,
(b') $R'O_2CCH=CH_2$, and optionally
(c') $R''O_2CCH=CH_2$,

wherein the sum of the weight of units derived from (b') and (c') is from about 15% to 35% by weight of the copolymer; and wherein R_1 is a perfluoroalkyl group having from 4 to 14 carbon atoms, R' is an alkyl group having from 1 to 18 carbon atoms and R'' is a glycidyl group. The copolymers are useful in treating textile fabrics to render said fabrics oil and water-repellent and dry soil resistant and they form stable solvent solutions or dispersions.

3,637,615

PRESSURE-SENSITIVE ADHESIVE

Alfred M. Coffman, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Sept. 19, 1969, Ser. No. 859,567

Int. Cl. C08f 15/40

U.S. Cl. 260—80.73

10 Claims

Pressure-sensitive adhesives having an excellent balance of adhesive and cohesive strength at elevated temperatures are provided by interpolymers of (1) a major proportion of an alkyl ester of acrylic acid wherein the alkyl group contains 4 to 8 carbon atoms, (2) lesser proportions of an N-alkyl-keto-acrylamide and (3) small amounts (a) of at least one of an N-alkylol amide of α,β -olefinically unsaturated carboxylic acids having from 4 to 10 carbon atoms, an N-substituted alkoxyalkyl acrylamide or methacrylamide and (b) at least one of an α,β -olefinically unsaturated carboxylic acid containing 3 to 6 carbon atoms and a monoolefinically unsaturated amide having at least one hydrogen on the amide nitrogen and olefinic unsaturation α,β the carbonyl group.

3,637,616

ETHYLENE COPOLYMERIZATION PROCESS

Robert E. A. Petersen, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 15, 1967, Ser. No. 660,687

Int. Cl. C08f 15/40

U.S. Cl. 260—80.78

11 Claims

In the copolymerization of ethylene with an α -olefin, such as propylene, in a solvent, e.g., n-hexane, reactor fouling due to high ethylene-content polymer formation can be reduced by feeding ethylene to the reactor both as a vapor and a liquid, the ratio of liquid propylene to liquid ethylene maintained high enough to form solvent-soluble copolymer.

3,637,617

MINIMIZING COMPRESSION SET OF CURABLE RUBBERS

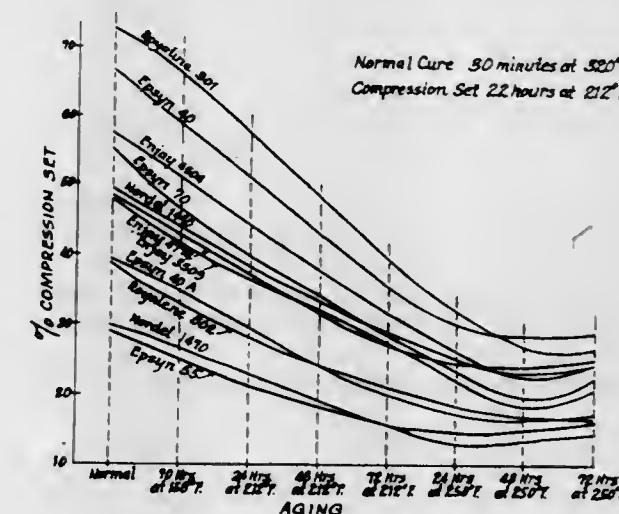
Kenneth H. Wirth, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation, Baton Rouge, La.

Filed Sept. 8, 1969, Ser. No. 855,940

Int. Cl. C08f 15/04

U.S. Cl. 260—80.78

8 Claims



The method for reducing compression set of curable elastomeric materials comprising heating the cured elastomer to a temperature within the range of 200° to 400° F. for a time within the range of more than 72 hours at

212° F. to more than 1 hour at 400° F. and in which the cured elastomer is preferably an EPDM rubber having at least five C=C groups per 1000 carbon atoms before cure.

3,637,618

UNSATURATED POLYESTERS FROM EPOXIDES AND ETHYLENICALLY UNSATURATED MONOCARBOXYLIC ACID MIXED WITH SOLID EPOXIDE RESIN

Clayton A. May, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 764,957, Oct. 3, 1968, which is a continuation-in-part of application Ser. No. 411,138, Nov. 13, 1964. This application Mar. 11, 1970, Ser. No. 18,696

Int. Cl. C08g 45/04

U.S. Cl. 260—837 R

13 Claims

New curable polyester compositions having controlled viscosity which eliminate surface tack and which impart improved chemical resistance to glass reinforced structures are disclosed. These compositions comprise a mixture of (A) a soluble, curable unsaturated polyester of (1) a normally liquid polyepoxide and (2) an ethylenically unsaturated organic carboxylic acid and (B) a dissimilar normally solid polymeric material possessing a plurality of epoxy groups. Also disclosed are the above-defined compositions containing an ethylenically unsaturated monomer, such as styrene.

3,637,619

PROCESS FOR THE POLYMERIZATION OF VINYL CHLORIDE

Corrado Mazzolini, Mestre, Sergio Lo Monaco, Vicenza, Luigi Patron and Alberto Moretti, Venice, and Marcello Di Ciolo, Treviso, Italy, assignors to Chatillon-Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 811,576, Mar. 28, 1969. This application Feb. 26, 1970, Ser. No. 14,642

Claims priority, application Italy, Feb. 28, 1969, 13,475/69, 13,476/69

Int. Cl. C08f 3/30, 1/62, 1/04

U.S. Cl. 260—85.5

24 Claims

Bulk polymerization of vinyl chloride in the presence of a catalytic system comprising an organic hydroperoxide, an alcoholate of an alkali metal and an organic sulphite or a sulphinic acid wherein the polymerization is conducted at a temperature higher than 0° C.

3,637,620

PROCESS FOR THE POLYMERIZATION OF VINYL CHLORIDE

Luigi Patron and Alberto Moretti, Venice, and Renato Pasqualetto, Porto Marghera, Italy, assignors to Chatillon-Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 836,166, June 24, 1969. This application Feb. 26, 1970, Ser. No. 14,670

Claims priority, application Italy, Feb. 28, 1969, 13,477/69

Int. Cl. C08f 3/30, 1/04, 1/62

U.S. Cl. 260—85.5

20 Claims

Bulk polymerization of vinyl chloride in the presence of a catalytic system consisting essentially of an organic hydroperoxide activated by an alcoholic solution of sulphur dioxide and at least one oxide or hydroxide of an alkali metal or of magnesium or magnesium sulphite, wherein the polymerization process is conducted continuously or semi-continuously at a temperature higher than 0° C.

3,637,621

PROCESS FOR THE POLYMERIZATION OF VINYL CHLORIDE

Sergio Lo Monaco, Vicenza, Corrado Mazzolini, Mestre, Luigi Patron, Sestriere, and Alberto Moretti, Venice, Italy, assignors to Chatillon Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 784,191, Dec. 16, 1968. This application Feb. 26, 1970, Ser. No. 14,671

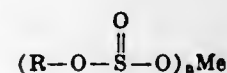
Claims priority, application Italy, Dec. 19, 1967, 24,081/67

Int. Cl. C08f 1/04, 1/62, 3/30

U.S. Cl. 260—85.5

15 Claims

Bulk polymerization of vinyl chloride in the presence of a catalytic system comprising an organic hydroperoxide and a salt of a mono-ester of sulphurous acid having the general formula:



in which R is an alkyl, cycloalkyl or aryl radical having from 1 to 12 carbon atoms, Me is a metal of the first or second group of the Periodic System or aluminum and n is 1, 2 or 3 depending on the valency of Me, wherein the polymerization is conducted continuously or semi-continuously at a temperature higher than 0° C.

3,637,622

PROCESS FOR THE POLYMERIZATION OF VINYL CHLORIDE

Sergio Lo Monaco, Milan, Corrado Mazzolini, Mestre, and Luigi Patron and Alberto Moretti, Venice, Italy, assignors to Chatillon Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 784,191, Dec. 16, 1968. This application July 22, 1970, Ser. No. 57,305

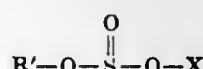
Claims priority, application Italy, July 31, 1969, 20,357/69

Int. Cl. C08f 1/04, 1/61, 3/30

U.S. Cl. 260—85.5

5 Claims

A process is disclosed for the low temperature bulk polymerization of vinyl chloride by using, as catalyst, a catalytic system consisting essentially of an organic hydroperoxide and an ammonium salt of the general formula:



wherein

R' is an alkyl, cyclo-alkyl, aryl or aryl-alkyl radical having from 1 to 12 carbon atoms, and

X is a radical containing quaternary nitrogen

Preferably R' is an alkyl radical having from 1 to 4 carbon atoms, and

X is NH₄ or NR₄⁺, R'' being an alkyl radical having from 1 to 4 carbon atoms.

3,637,623

POLYMERIZATION OF VINYL CHLORIDE IN BULK AND AT LOW TEMPERATURES

Sergio Lo Monaco, Vicenza, Corrado Mazzolini, Mestre, and Luigi Patron and Alberto Moretti, Venice, Italy, assignors to Chatillon Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 671,216, Sept. 28, 1967. This application Feb. 27, 1970, Ser. No. 15,217

Claims priority, application Italy, Sept. 19, 1969, 22,250/69

Int. Cl. C08f 1/04, 1/61, 3/30

U.S. Cl. 260—85.5

15 Claims

Vinyl chloride is polymerized in bulk and at low temperatures in the presence of a lower mercaptan utilizing a

polymerization catalyst comprised of an organic hydroperoxide, sulphur dioxide and an alcoholate of a Group I metal of the Periodic Table, the molar ratio of the difference between the concentrations in moles of the said alcoholate and the SO₂ to the concentration in moles of the said hydroperoxide being greater than 0 but less than about 0.5.

3,637,624

POLYMERIZATION OF VINYL CHLORIDE IN BULK

Sergio Lo Monaco, Vicenza, Corrado Mazzolini, Mestre, and Luigi Patron and Alberto Moretti, Venice, Italy, assignors to Chatillon Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Continuation-in-part of applications Ser. No. 671,216, Sept. 28, 1967, and Ser. No. 885,293, Dec. 15, 1969. This application Feb. 27, 1970, Ser. No. 15,218

Claims priority, application Italy, Feb. 28, 1969, 13,473/69

Int. Cl. C08f 1/04, 1/61, 3/30

U.S. Cl. 260—85.5

15 Claims

Vinyl chloride is polymerized in bulk utilizing a polymerization catalyst comprised of an organic hydroperoxide, sulphur dioxide and an alcoholate of a Group I or II metal of the Periodic Table, or of aluminum, said alcoholate having from 1 to 6 carbon atoms, by conducting the polymerization at temperatures ranging from between 0° C. and about 100° C. and according to a continuous or semi-continuous process, with the gradual addition of the components of the catalytic system to the monomer.

3,637,625

LOW TEMPERATURE POLYMERIZATION OF VINYL CHLORIDE IN THE PRESENCE OF A REDOX CATALYST

Robert Buning, Oberlar, Karl-Heinz Diessel, Nienburg, and Gerhard Bier, Troisdorf, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed May 15, 1968, Ser. No. 729,426

Claims priority, application Germany, June 22, 1967, P 17 20 481.8

Int. Cl. C08f 3/30, 15/08

U.S. Cl. 260—85.5

5 Claims

Homo and copolymerization of vinyl chloride with or without comonomers at about -8 to -50° C. in the presence of ascorbic acid, heavy metal salts and a combination of hydrogen peroxide and cyclohexanesulfonyl-acetyl peroxide as a redox system polymerization catalyst.

3,637,626

PROCESS FOR THE POLYMERIZATION OF VINYL CHLORIDE

Corrado Mazzolini, Sergio Lo Monaco, Luigi Patron, and Alberto Moretti, Mestre, and Marcello Di Ciolo, Treviso, Italy, assignors to Chatillon Società Anonima Italiana per le Fibre Tessili Artificiali S.p.A., Milan, Italy

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,576

Claims priority, application Italy, Apr. 3, 1968, 14,761/68; May 6, 1968, 16,142/68

Int. Cl. C08f 3/30, 1/62

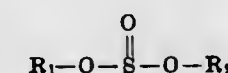
U.S. Cl. 260—85.5

19 Claims

This application relates to a process for obtaining highly syndiotactic, white, and heat-stable polyvinylchloride particularly suitable for being transformed into fibers by the low temperature bulk-polymerization of vinyl chlo-

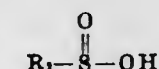
ride, the polymerization being conducted in the presence of a catalytic system comprising an organic hydroperoxide, an alcoholate of an alkali metal in which the alkyl radical may have a linear or branched chain having from 1 to 6 carbon atoms (or, instead of the alkali metal alcoholate, an alkali metal hydroxide in solution in a linear or branched chain alcohol having from 1 to 5 carbon atoms) and:

(a) an organic sulphite of the general formula:



wherein R₁ and R₂ may be, independently of each other, either a simple or substituted, linear or branched alkyl radical or a cycloalkyl radical such radicals having from 1 to 12 carbon atoms; or

(b) a sulphinic acid of the general formula:



or one of its esters, in which R₃ may be a simple or substituted linear or branched alkyl radical, or a cycloalkyl- or aryl-radical such radicals having from 1 to 12 carbon atoms.

3,637,627

OLEFIN POLYMERS AND METHOD FOR PRODUCING SAME

James N. Short, Robert P. Zelinski, Rudolf H. Gaeth, and Ernest A. Zuech, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed May 3, 1967, Ser. No. 635,708

Int. Cl. C08f 1/56, 15/04

U.S. Cl. 260—88.2

18 Claims

Acyclic olefinic monomers containing 3 to about 20 carbon atoms per molecule are converted into ethylene-propylene copolymers by contact with a catalyst system comprising a coordination complex of a transition metal or a transition metal inorganic compound associated with a difficultly reducible metal oxide or phosphate; a Group IV-B or V-B metal compound; and an organoaluminum dihalide or organoaluminum sesquihalide.

3,637,628

METAL NITRIDE CATALYSTS FOR PREPARING TRIAZINES AND CROSS-LINKED NITRILE POLYMERS

Edwin Dorfman, Grand Island, N.Y., and William E. Emerson, Barrington, Ill., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 634,866, May 1, 1967. This application Nov. 12, 1970, Ser. No. 89,101

Int. Cl. C08f 3/74

U.S. Cl. 260—88.7 E

5 Claims

This invention relates (A) to a process for producing a triazine by reaction of a perfluoroalkane nitrile in the presence of a catalytic amount of a metal nitride and (B) the cross-linking of a polymer or copolymer containing at least greater than an average of one cyanohaloalkyl group on the chain of the polymer or copolymer, to form a cross-linked polymer or copolymer, in the presence of a metal nitride.

3,637,629

SILVER SALT CATALYSTS FOR PREPARING TRIAZINES AND CROSS-LINKED NITRILE POLYMERS

Edwin Dorfman, Grand Island, N.Y., and William E. Emerson, Barrington, Ill., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 634,867, May 1, 1967. This application Nov. 12, 1970, Ser. No. 89,107

Int. Cl. C08f 3/74

U.S. Cl. 260—88.7 E 9 Claims
This invention relates (A) to a process for producing a triazine by reaction of a perfluoroalkane nitrile in the presence of a catalytic amount of a silver salt, and (B) the cross-linking a polymer or copolymer containing greater than the average of one cyanohaloalkyl group per molecule of the polymer or copolymer, to form a cross-linked polymer or copolymer, in the presence of a silver salt.

3,637,630

FLUORIDE CATALYSTS FOR PREPARING TRIAZINES AND CROSS-LINKED NITRILE POLYMERS

Edwin Dorfman, Grand Island, N.Y., and William E. Emerson, Barrington, Ill., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 634,893, May 1, 1967. This application Nov. 12, 1970, Ser. No. 89,106

Int. Cl. C08f 3/74

U.S. Cl. 260—88.7 E 10 Claims
This invention relates (A) to a process for producing, preferably at low reaction temperatures, a triazine at high levels of conversion and yield from a haloalkane nitrile such as perfluoroalkane nitriles by the employment of a catalytic amount of a fluoride catalyst of members selected from the group consisting of the Periodic Table Groups I, II-B, III, IV, V-B, VI, VII, VIII, ammonium, hydrates thereof, and fluoride mixtures of said members, and also (B) to the employment of the above-described catalyst in a catalytic amount with a polymer or copolymer containing at least greater than an average of one cyanohaloalkyl group on the chain of a polymer or copolymer, to form a cross-linked polymer or copolymer.

3,637,631

HOMOPOLYMERIZATION OF VINYL FLUORIDE TO ORIENTABLE POLYVINYL FLUORIDE IN A MEDIUM CONTAINING TERTIARY BUTYL ALCOHOL

Dario Sianesi and Gerardo Caporiccio, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Apr. 8, 1969, Ser. No. 814,431
Claims priority, application Italy, May 10, 1965, 10,491/65

Int. Cl. C08f 3/22

U.S. Cl. 260—92.1 6 Claims
There is disclosed herein an improved process for polymerizing vinyl fluoride to orientable polyvinyl fluoride. The orientable homopolymer is obtained by polymerizing vinyl fluoride in tert. butyl alcohol as liquid medium, and in contact with radical initiators under practical temperature and pressure conditions.

3,637,632

SHORTSTOPPING FREE RADICAL POLYMERIZATION OF VINYLIDENE MONOMERS

Lee Traynor, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed June 1, 1970, Ser. No. 42,571
Int. Cl. C08f 1/82, 3/30

U.S. Cl. 260—92.8 A 10 Claims
The free radical polymerization of vinylidene monomers is effectively terminated by adding to a polymerization mixture thiosemicarbazide or thiosemicarbazone derivatives thereof. These short-stops are particularly effective in the polymerization of vinyl halides with organic peroxy catalysts and result in stable uniform polymers.

3,637,633

PEROXY COMPOUNDS

David Rodney Dixon and John Andrew Cunningham, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Apr. 15, 1969, Ser. No. 816,409
Claims priority, application Great Britain, Apr. 24, 1968, 19,427/68

Int. Cl. C08f 3/30, 1/60

U.S. Cl. 260—92.8 W 6 Claims
A mixture of a diacyl peroxide, a peroxydicarbonate, and an acyl peroxydicarbonate is made by the action of an inorganic peroxide on a mixture of a chloroformate and an acid chloride. The mixture of peroxy compounds can be used as catalysts for the polymerization of vinyl chloride.

3,637,634

METHOD FOR NUCLEATING ALPHA-OLEFIN POLYMERS

Paul Joseph Marinaccio, Monroe, Conn., and Joseph Matthew Kelley, Westfield, N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

No Drawing. Filed Mar. 13, 1968, Ser. No. 712,587
Int. Cl. C08f 27/00

U.S. Cl. 260—93.7 4 Claims
The nucleation of crystalline polypropylene is accomplished by employment of a masterbatch prepared by dissolving sodium benzoate in water, precipitating the benzoate by addition of an alcohol to form a gel, adding to the gel from 50 to 75% by weight finely divided polypropylene and drying the resulting masterbatch.

3,637,635

TREATMENT OF RUBBERY POLYMERS WITH LEWIS ACIDS

Ernest J. Buckler, Hugh K. Coulthart, Nathan J. McCracken, and Mieczyslaw Marcinkowski, Sarnia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada

No Drawing. Filed Jan. 27, 1964, Ser. No. 340,546
Int. Cl. C08d 5/00, 5/02, 5/04

U.S. Cl. 260—94.7 R 7 Claims
1. A process of modifying a substantially gel-free rubbery polymer of butadiene prepared in the presence of a Ziegler catalyst and having at least 75% of the butadiene units in the cis-1,4 configuration which comprises treating said polymer of butadiene having a Mooney viscosity of about 10 to 70, while dispersed in an inert organic liquid, with between 0.3 and 5% by weight of the butadiene polymer of a Lewis acid selected from the group consisting of hydrogen chloride, aluminum trichloride, titanium tetrachloride and a product of incomplete stopping of a polymerization catalyst comprising a cobalt salt and an organo-aluminum chloride, with less than equimolar amount of a catalyst stopper, to produce a substantially gel-free modified polymer of butadiene having a Mooney viscosity which is at least Mooney points higher than that of the unmodified polymer.

3,637,636

ETHYLENE POLYMERIZATION IN THE PRESENCE OF COMPLEX NICKEL CATALYSTS CONTAINING BENZOIC ACID DERIVATIVE LIGANDS

Ronald Bauer, Orinda, and Harold Chung, Lawrence George Cannell, and Wilhelm Keim, Berkeley, Calif., and Henry van Zwet, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Jan. 15, 1970, Ser. No. 3,191
Int. Cl. C08f 3/06, 1/58

U.S. Cl. 260—94.9 C 15 Claims
Ethylene is polymerized in the presence of a catalyst which is the reaction product of a nickel compound

with a benzoic acid derivative ligand substituted with one or more substituents selected from the group consisting of —SH, —CN, —N(R¹)(R²), —OR³ and alkyl of up to 8 carbon atoms; R¹, R² and R³ can be hydrogen or alkyl of up to 8 carbon atoms with the proviso that at least one of the substituents is



The nickel compounds comprise olefinically unsaturated compounds of from 2 to 20 carbon atoms. The preferred nickel compound is bis-cyclooctadiene-1,5-nickel.

3,637,637

PROCESS FOR THE POLYMERIZATION OF ETHYLENE

Pietro Saccardo, Milan, Gianni Trada, Gozzano, Maurizio Galastri, Sesto San Giovanni, Milan, and Jean Herzenberg, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 387,785, Aug. 5, 1964. This application Sept. 14, 1967, Ser. No. 667,678

Claims priority, application Italy, Aug. 9, 1963, 16,878/63

Int. Cl. C08f 1/66, 3/06

U.S. Cl. 260—94.9 D 11 Claims
A process for the polymerization of ethylene carried out in the presence of a catalytic system obtained by reacting chromyl fluoride with a carrier containing silicon compounds.

3,637,638

RESINS FROM MALEOPIMARIC ACID AND PRIMARY AMINES

Martin F. Sloan, Brandywood, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 710,756, Mar. 6, 1968. This application May 28, 1970, Ser. No. 41,644

Int. Cl. C09f 1/04, 1/06

U.S. Cl. 260—102 9 Claims
Novel resinous compounds useful in manufacture of printing inks are prepared from maleopimaric acid and primary amines.

3,637,639

RESIN EXTRACTION PROCESS

Francis R. Zinnel, 1182 Westwood Drive, San Jose, Calif. 95125, Eugene R. Blome, San Jose, Calif., and Phillip D. Kimball, Long Lake, Minn.; said Blome and Kimball assignors to said Zinnel

Filed Oct. 28, 1968, Ser. No. 771,125

Int. Cl. C09f 1/00

U.S. Cl. 260—107 19 Claims
A continuous process for the extraction from resin-containing coal, of substantially all of the contained resin. The process provides for subjecting resin-containing coal fines to an integrated solvent-extraction and solution-separation procedure for obtaining both a first quantity of resin solution containing a major portion of the resin, and a mixture of coal fines and solution containing substantially all of the remaining portion of the resin; subjecting the mixture to a series of integrated solvent-dilution and solution-separation procedures for obtaining both

a second quantity of resin solution containing substantially all of the remaining portion of the resin and a residual mixture of coal fines and solvent, recovering substantially all of the resin contained in the first and second quantities of solution; and recovering substantially all of the solvent employed.

3,637,640

ORGOTEIN STABILIZED WITH SACCHARIDE, PROCESS AND PRODUCTS

Wolfgang Huber, San Francisco, Calif., assignor to Diagnostic Data, Inc., Palo Alto, Calif.

Continuation-in-part of application Ser. No. 657,971, Aug. 2, 1967. This application May 4, 1970, Ser. No. 34,006

Int. Cl. C07g 7/04

U.S. Cl. 260—115 17 Claims
Sucrose, glucose, mannose, and certain pentose, hexose and heptose saccharides improve the stability of orgotein to lyophilization and storage. Orgotein is the name assigned by USCAN to an isolated, substantially pure, soluble, globular, non-toxic and substantially non-antigenic metalloprotein having anti-inflammatory and other pharmacodynamic activity.

3,637,641

METHOD OF TREATING POST-TRAUMATIC ARTHRITIS

Wolfgang Huber, San Francisco, and Thomas L. Schulte, Woodside, Calif., assignors to Diagnostic Data, Inc., Palo Alto, Calif.

No Drawing. Continuation-in-part of application Ser. No. 576,454, Aug. 31, 1966, which is a continuation-in-part of application Ser. No. 494,048, Oct. 8, 1965, both now abandoned. This application Jan. 16, 1970, Ser. No. 3,518

Int. Cl. A61k 27/00

U.S. Cl. 424—177 9 Claims
The pain and structural abnormalities associated with post-traumatic arthritis are alleviated by systemic administration of orgotein to the patient affected with the arthritic condition.

3,637,642

PROCESS FOR DISSOLVING INSOLUBLE COLLAGEN EMPLOYING A MIXTURE OF AN ALKALI METAL HYDROXIDE, AN ALKALI METAL SULFATE, AND AN AMINE

Tadahiko Fujii, Tokyo, Japan, assignor to Nihon Hikaku Kabushiki Kaisha, Tokyo, Japan

No Drawing. Continuation of application Ser. No. 758,685, Sept. 10, 1968. This application Mar. 20, 1970, Ser. No. 19,553

Claims priority, application Japan, Sept. 16, 1967, 42/59,201

Int. Cl. C09h 1/00, 1/04, 3/00

U.S. Cl. 260—118 8 Claims
A process for dissolving insoluble collagen in an aqueous medium in which insoluble collagen is treated with an aqueous solution containing alkali metal hydroxide, alkali metal sulfate and a small amount of a lower primary or secondary amine and then, after desalting, treated with an acid solution of a pH less than 4.0.

3,637,643

PROTEIN SEPARATION FROM WHEY USING A SOLUBILIZED PHOSPHATE

Winston Harold Wingerd, Elgin, Ill., assignor to Borden Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 745,142, July 16, 1968, which is a continuation-in-part of application Ser. No. 486,524, Sept. 10, 1965, which in turn is a continuation-in-part of application Ser. No. 395,562, Sept. 10, 1964. This application Feb. 2, 1970, Ser. No. 7,974

Int. Cl. A23j 1/20

U.S. Cl. 260—122

4 Claims

This invention relates to the method of separating proteins in undenatured form from a crude source thereof by first reducing the ratio of divalent cations to actual protein in the source to no more than about 1 part by weight of divalent cations to 35 parts by weight of actual protein followed by admixing with said source a solubilized phosphate composition consisting essentially of one part by weight of a potassium polymetaphosphate and from about 5 to about 15 parts of a sodium phosphate, and to the resulting products. The invention has particular reference to the separation of lactalbumin from whey and to the resulting products.

3,637,644

AZONIA DIAZO KETONES

Kenneth R. Dunham, Donald L. Fieles, Douglas G. Borden, and Jerry B. Miller, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

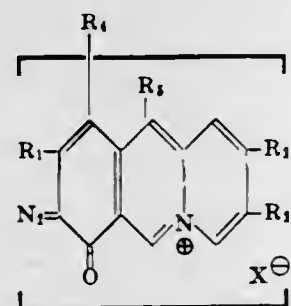
No Drawing. Original application Mar. 8, 1967, Ser. No. 621,469, now Patent No. 3,526,503, dated Sept. 1, 1970. Divided and this application Nov. 13, 1969, Ser. No. 871,287

Int. Cl. C07c 113/04; G03c 1/54

U.S. Cl. 260—141

8 Claims

This invention concerns azonia diazo ketones having the following structure:



wherein X^- represents an anion such as a halide ion, a perchlorate ion, a tetrafluoroborate ion, or the like, n is a whole integer 1 or 2; R_1 and R_2 each represents a hydrogen atom, an alkyl (e.g. 1-8 carbon atoms), aralkyl, cycloalkyl, alkoxy or aryl group, said group optionally containing hetero atoms, or said group being optionally substituted; R_3 represents a hydrogen atom or the atoms necessary to complete an aromatic carbocyclic ring with R_2 , said ring being optionally substituted; R_4 represents a hydrogen atom, alkyl groups or phenyl groups optionally substituted; and R_4 , when $n=2$, represents an alkylene group or chemical bond and, when $n=1$, R_4 represents a hydrogen atom, an alkyl group (e.g. 1-8 carbon atoms),

or an aryl group, and the use of these ketones in photoresist compositions and in lithography.

3,637,645

WATER-SOLUBLE PYRAZALINE DISAZO DYE-STUFFS AND METAL COMPLEX COMPOUNDS THEREOF

Fritz Meininger and Hermann Fuchs, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

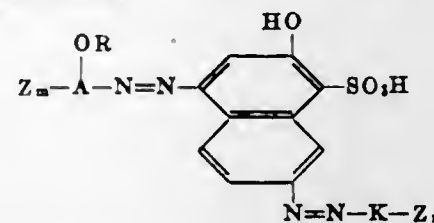
No Drawing. Filed Sept. 6, 1968, Ser. No. 758,105
Claims priority, application Germany, Sept. 9, 1967, P 16 44 228.7

Int. Cl. C09b 31/14, 45/24; D06p 1/10

U.S. Cl. 260—147

6 Claims

Water-soluble disazo-dyestuffs having in form of the free acid the formula



in which Z represents $-SO_2-CH=CH_2$,
 $-SO_2-CH_2-CH_2-O-SO_3H$,
 $-SO_2-CH_2-CH_2-O-SO_3-CH_3$,
 $-SO_2-CH_2-CH_2-O-SO_2-$ (cyclohexyl),
 $-SO_2-CH_2-CH_2-S-SO_3H$, $-SO_2-CH_2-CH_2-O-C(=O)-CH_3$,
 $-SO_2-CH_2-CH_2-O-$ (cyclohexyl),
 $-SO_2-CH_2-CH_2-N$ (lower alkyl) $_2$ or
 $-SO_2-CH_2-CH_2-Cl$

R represents hydrogen or lower alkyl, m and n represent integers from 0 to 2, the sum of m and n being at least 1 and at most 2, A represents the radical of a diazo component of the benzene and naphthalene series, and K represents the radical of a coupling component of the naphthalene, pyrazolone and aceto-acetylarylamide series, and the 1:1 copper complex compound or the 1:2-cobalt- or 1:2-chromium complex compounds thereof, said dyestuffs being suitable for the dyeing or printing of fibrous materials of native or regenerated cellulose, wool, silk, polyamides or polyurethanes, the dyeings and prints obtained on cellulose fibrous materials being of intense red-brown, dark brown, olive, grey (black) or navy blue shades and being distinguished by a very good fastness to light and to wet processing.

3,637,646

FIBER-REACTIVE PHTHALOCYANINESULFONAMIDOARYLAZO - STILBENYL PYRAZOLONE DYE-STUFF

Gerd Hoelzle, Liestal, Switzerland, assignor to Ciba Limited, Basel, Switzerland

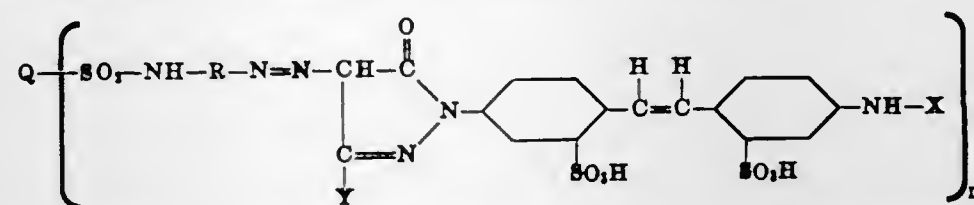
No Drawing. Filed Oct. 15, 1968, Ser. No. 767,820
Claims priority, application Switzerland, Oct. 24, 1967, 14,825/67; Sept. 9, 1968, 13,509/68

Int. Cl. C09b 29/38, 47/04; D06p 1/38

U.S. Cl. 260—147

15 Claims

Phthalocyanine dyestuffs of the formula



in which Q represents the residue of a phthalocyanine, n stands for a number between 1 and 2 inclusive, R repre-

sents a residue of the benzene series, X represents a fibre-reactive residue and Y represents a methyl, carbalkoxy or carboxyl group. Such compounds are valuable dyestuffs for dyeing especially cellulosic fibres brilliant green shades of good general fastness especially to light and wet treatment.

3,637,647

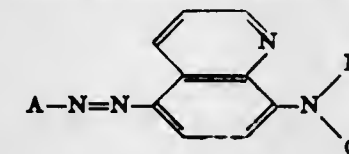
WATER-INSOLUBLE MONOAZO DYE-STUFFS CONTAINING A QUINOLINE COUPLING COMPONENTKonrad Optz, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed June 3, 1970, Ser. No. 43,187
Claims priority, application Germany, June 11, 1969, P 19 29 573.9

Int. Cl. C09b 29/36; D06p 1/02

U.S. Cl. 260—155

8 Claims

A water-insoluble monoazo dyestuff of the formula



wherein A as a radical of a diazo component represents dichloro-phenylene, dinitro-phenylene, cyano-nitro-phenylene, chloro-nitro-phenylene, nitro-trifluoromethyl-phenylene, chloro-dinitro-phenylene, bromo-dinitro-phenylene, chloro-nitro-cyano-phenylene, bromo-nitro-carbomethoxy-phenylene, bromo-cyano-phenylene, methylsulfonyl-nitro-phenylene, dinitro-trifluoromethyl-phenylene or dinitro-carbomethoxy-phenylene, B represents hydrogen or lower alkyl, and C represents hydrogen, phenyl, lower alkyl-phenylene, chloro-phenylene, benzyl, cyclohexyl, hydroxyethyl, cyanoethyl, hydroxypropyl or n-butan-3-onyl, said dyestuff being suitable for the dyeing or printing of cellulose acetate or synthetic polyamide or polyester fibres, the dyeings or prints being distinguished by very good fastness properties to thermofixation, washing, rubbing, waste gas and light.

3,637,648

REACTIVE MONOAZO-DYE-STUFFS

Rudolf Kühne and Fritz Meininger, Frankfurt am Main, and Heinrich Fröhlich, Kolkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of application Ser. No. 365,489, May 6, 1964. This application July 9, 1968, Ser. No. 743,275

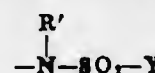
Claims priority, application Germany, May 14, 1963, F 39,735

Int. Cl. C09d 29/38, 29/16

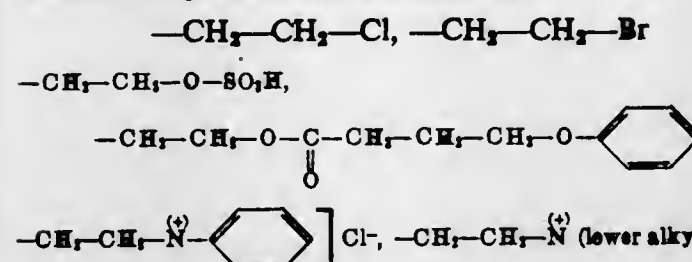
U.S. Cl. 260—162

6 Claims

Reactive monoazo dyestuffs containing as reactive groupings one or two groups of the formula



wherein Y represents one of the moieties



and $-CH=CH_2$, and R' is lower alkyl or benzyl, which are suitable for the dyeing or printing of leather, wool, silk, textile materials of polyamides, polyacrylonitrile, polyurethanes or cellulose.

3,637,649

WATER-SOLUBLE PHENYL AZONAPHTHYL-AZOPHENYL

Fritz Meininger, Frankfurt am Main, and Ludwig Schläfer, Salzbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

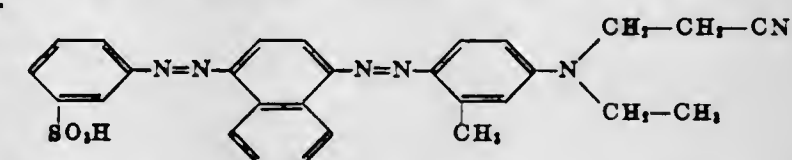
No Drawing. Filed Nov. 13, 1968, Ser. No. 775,497
Claims priority, application Germany, Nov. 30, 1967, P 16 44 235.6

Int. Cl. C09b 31/04; D06p 1/06

U.S. Cl. 260—191

1 Claim

The water-soluble disazo-dyestuff of the formula



said dyestuff being suitable for the dyeing or printing of fibres, foils or fibres of wool, silk, polyamides, polyurethanes or leather, which dyeings are intense of a uniform Bordeaux red coloration and are very fast to light and to wet processing.

3,637,650

OXIDATION OF BIUREAS TO AZOBISFORMAMIDES

Arthur Doering, Middlesex, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 12, 1969, Ser. No. 849,510
Int. Cl. C07c 107/00; C09b 27/00

U.S. Cl. 260—192

6 Claims

Biureas are oxidized to azoamides, as a slurry in acetonitrile or aqueous acetonitrile, or other 2 to 6 carbon fatty acid nitrile, by heating in the presence of a 5 to 10% stoichiometric excess of concentrated nitric acid. Acetonitrile may be recovered from the reaction mixture simultaneously by distillation. For example, 1,6-di(n-butyl)biurea is oxidized to 1,1'-azobis(N-n-butylformamide).

3,637,651

ORTHO NITRATION OF THE PHENYL DIAZO COMPONENT OF AN AZO COMPOUND

Thomas Douglas Baron and Brian Ribbons Fishwick, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,426
Claims priority, application Great Britain, Nov. 7, 1967, 50,615/67

Int. Cl. C09b 43/04

U.S. Cl. 260—207

3 Claims

Manufacture of disperse monoazo dyestuffs having at least one nitro group in ortho position to the azo group, which comprises treating the corresponding dyestuff containing a halogen atom in ortho position to the azo group with an alkali metal nitrite and a copper compound in a polar aprotic organic liquid.

3,637,682

DISPERSE MONOAZO DYE-STUFFS

Brian Ribbons Fishwick, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation-in-part of abandoned application Ser. No. 308,681, Sept. 13, 1963. This application Mar. 23, 1966, Ser. No. 536,665

Claims priority, application Great Britain, Sept. 24, 1962, 33,487/62, 36,189/62, 36,190/62; Mar. 14, 1963, 10,164/63

Int. Cl. C09d 29/08

U.S. Cl. 260—207.1

7 Claims

Disperse monoazo dyestuffs obtained by coupling a diazotised optionally substituted p-nitroaniline with a 3-formylamino-N:N-bis(carboalkoxyalkyl)aniline, and the

use of the said dyestuffs for coloring synthetic textile materials.

3,637,653

PHENYL-AZO-PHENYL DYESTUFFS

Hanswilli von Brachel, Offenbach am Main, Dieter Cornelius, Darmstadt-Arbhagen, and Eberhard Stier, Frankfurt am Main, Germany, assignors to Cassella Farbwerte Mainkur Aktiengesellschaft, Frankfurt am Main, Germany

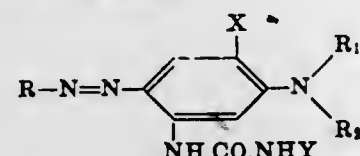
No Drawing. Filed Oct. 8, 1968, Ser. No. 765,983
Claims priority, application Germany, Oct. 13, 1967, C 43,559

Int. Cl. C07c 107/06; C07b 29/06

U.S. Cl. 260-207

2 Claims

Dyestuffs of the formula:



wherein R is the residue of a diazo component of a benzene or heterocyclic series free of water solubilizing substituent groups, R₁ and R₂ are aliphatic substituents, Y is an aliphatic or aromatic substituent and X is hydrogen or aliphatic and the utility thereof particularly in dyeing and printing of synthetic textile materials.

3,637,654

PURIFICATION OF ERYTHROMYCIN THIOCYANATE

Gerald George Post, Kenosha County, Wis., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Apr. 3, 1969, Ser. No. 813,327

Int. Cl. C07c 47/18

U.S. Cl. 260-210 E

4 Claims

Erythromycin thiocyanate can be purified effectively and its potency can be increased significantly by treating it with trichloroethylene.

3,637,655

METHOD FOR EXTRACTING WATER-SOLUBLE SUBSTANCES FROM BIOLOGICAL MATERIALS

John R. Clendenning, Washington, D.C., assignor to Hazleton Laboratories, Inc., Falls Church, Va.

No Drawing. Continuation-in-part of application Ser. No. 433,488, Feb. 19, 1965. This application Sept. 1, 1967, Ser. No. 664,945

Int. Cl. C07d 51/54, 55/62

U.S. Cl. 260-211.5 R

8 Claims

In a method for determining the quantity of adenosine triphosphate (ATP) in a sample containing biological cells, for example, by reacting ATP with luciferin and luciferase and detecting the light emitted, the invention comprising mixing dimethyl sulfoxide and the sample, preferably in the presence of H₂O, thereby extracting ATP from the biological cells.

3,637,656

PREPARATION OF STARCH DERIVATIVES

Felix Joseph Germino, Palos Park, and Joseph Ronald Caracci, Chicago, Ill., assignors to CPC International Inc.

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,295

Int. Cl. C08b 19/01

U.S. Cl. 260-233.3 R

6 Claims

Starch derivatives are produced without the use of gel-retarding salts by forming a mixture of 10-40 percent by weight starch in water, adding to the mixture, a reagent, and derivatizing the starch by reacting it with the reagent at temperatures between about 225°-400° F. The derivatization reaction effected, is substantially homogeneous and may be carried out in a continuous process if desired.

3,637,657
ALUMINUM COMPLEX OF SULFATED POLY-SACCHARIDE AND PROCESS FOR THE PREPARATION THEREOF

Eiji Morii and Tadasuke Numasawa, Nagoya, Kouichi Iwata, Chita-gun, Sholchi Yamagata and Akira Ishimori, Sendai-shi, and Hiromi Hanai, Nagoya, Japan, assignors to Meito Sangyo Kabushiki Kaisha, Nagoya, Japan

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,575
Claims priority, application Japan, Apr. 1, 1968, 43/20,964; Aug. 1, 1968, 43/53,904; Aug. 13, 1968, 43/57,146

Int. Cl. C07c 49/18, 69/32

U.S. Cl. 260-234 R

2 Claims

Aluminum complex of sulfated polysaccharide which exhibits an anti-peptic ulcer activity when orally administered, and which is a complex of water-soluble salts of sulfated polysaccharide and basic aluminum salts of the formula



(wherein X stands for an anion, n is a positive number greater than zero, and y is a positive number equalling 6/valency of X), which have an intrinsic viscosity $[\eta]$ of 0.02-1.30 as measured in 1 N aqueous caustic soda solution at 25° C., a sulfur content of 10±1-20% by weight, and an aluminum content of 2-12% by weight; and a process for the preparation thereof.

3,637,658

PROCESSING RDX AND HMX

Sam B. Wright and Julius T. Rogers, Kingsport, Tenn., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,262

Int. Cl. C07d 55/16, 55/60

U.S. Cl. 260-239 HM

3 Claims

Recovery of HMX in good concentrations is achieved from RDX-HMX admixtures by preferential crystal growth of RDX in spent acid and subsequent separation of the fine crystals of HMX by physical methods. The spent acid will normally comprise 60 to 86% acetic acid, 1 to 2% nitric acid, 1 to 3% formic acid and 1 to 2% ammonium nitrate.

3,637,659

ARALKYL PENTA- AND HEXAMETHYLENIMINE

Janis Plostnleke, Philadelphia, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Continuation-in-part of abandoned application Ser. No. 717,363, Mar. 29, 1968. This application Feb. 17, 1969, Ser. No. 799,943

Int. Cl. C07d 29/16, 29/24, 41/04

U.S. Cl. 260-239 B

14 Claims

The compounds are of the class of aralkyl penta- and hexamethylenimines which are useful as anti-arrhythmic agents; and to certain intermediates useful in the syntheses of such methylenimines.

3,637,660

DIBENZAZEPINE DERIVATIVES

Edgar Eriksoo, Hans Jacob Fex, and Knut Beril Högborg, Helsingborg, Henri René Mollberg, Paarp, Paul Hans Otto Josef Kneip, Helsingborg, and Oskar Adolf Rohte, Raa, Sweden, assignors to Aktiebolaget Leo, Helsingborg, Sweden

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,665

Claims priority, application Great Britain, Apr. 13, 1967, 17,115/67

Int. Cl. C07d 41/08, 93/14

U.S. Cl. 260-239

31 Claims

Heterocyclic aminoketones wherein the heterocyclic moiety is phenothiazin-10-yl, 5H-dibenz(b,f)-azepin-5-yl,

or 10,11-dihydro-5H-dibenz(b,f)-azepin-5-yl and the aminoketone moiety is



wherein n is 1-3 and R³ is a phenyl, thienyl, furyl, or pyrrol group with optional substituents, the compounds having para-sympatholytic, sympathomimetic, and sedative activity useful in the treatment of central nervous system disorders, especially endogenic depressions, compositions thereof, and a method of treating therewith.

3,637,661

10-HYDROXY-10,11-DIHYDRO-DIBENZAZEPINE DERIVATIVE

Walter Schindler, Riehen, Switzerland, assignor to Ciba-Gelgy Corporation, Ardsley, N.Y.

No Drawing. Filed Mar. 4, 1970, Ser. No. 16,551

Int. Cl. C07d 41/08

U.S. Cl. 260-239 D

1 Claim

10-hydroxy-10,11-dihydro-5H-dibenz(b,f)-azepine-5-carboxamide has a depressant effect on the central nervous system; the compound is the active ingredient of pharmaceutical compositions and is useful for the treatment of psychosomatic disturbances, of epilepsy and of trigeminal neuralgia.

3,637,662

1-[2-(PHENYL)-LOWER-ALKYL]-AZIRIDINES

Raj K. Razdan, Belmont, Mass., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Continuation-in-part of abandoned application Ser. No. 640,815, May 24, 1967. This application Mar. 25, 1970, Ser. No. 22,668

Int. Cl. C07d 45/00, 99/04

U.S. Cl. 260-239 E

4 Claims

1-[2-(3,4,5-trimethoxyphenyl)ethyl]aziridine, 1-[1-(3,4,5-trimethoxyphenyl)-2-propyl]aziridine and 1-[1-(2-methoxy-4,5-methylenedioxyphenyl)-2-propyl]aziridine are prepared from the appropriate vinyl-substituted benzene and ethylenimine. The compounds are useful as mild incapacitating agents.

3,637,663

FLUORINE-CONTAINING DIAZIRINES

Ronald A. Mitsch, Falcon Heights, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

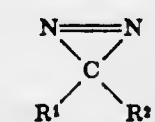
No Drawing. Continuation-in-part of applications Ser. No. 188,926, Apr. 16, 1962, and Ser. No. 196,859, May 21, 1962. This application Sept. 9, 1963, Ser. No. 307,730

Int. Cl. C07d 45/00

U.S. Cl. 260-239 AA

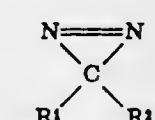
24 Claims

1. A compound having up to 18 carbon atoms of the formula:



wherein R¹ and R² are covalently bonded substituents free from reactive organometallic groups and at least one of which contains covalently bonded fluorine.

24. A process for the preparation of fluorine containing diazirines containing up to 18 carbon atoms of the formula:



wherein R¹ and R² are covalently bonded substituents free from reactive organometallic groups and at least one of which contains covalently bonded fluorine, which comprises reacting a compound which contains at least two -NF- groups attached to a single carbon atom with a reducing agent at a temperature of from about 0° to 50° C.

3,637,664

N-SUBSTITUTED AMINOALKYL-S, S-DIPHENYL-SULFOXIMINES AND PROCESS FOR THEIR PRODUCTION

Gerhard Satzinger, Gundelfingen, Freiburg, and Peter Stoss, Wildtal, Germany, assignors to Warner-Lambert Company

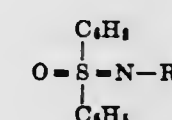
No Drawing. Filed Dec. 15, 1967, Ser. No. 697,263
Claims priority, application Germany, Dec. 22, 1966, G 48,828

Int. Cl. C07d 41/04

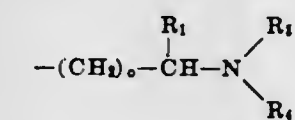
U.S. Cl. 260-239

20 Claims

The present invention discloses a new class of N-substituted aminoalkyl-S,S-diphenylsulfoximines which in their free base form have the following structural formula:



wherein R represents a branched, heterocyclic, bicyclic or a polyacidic amino radical, or R represents a radical of the formula:



in which R₁ may be hydrogen or lower alkyl, and R₂ and R₃ may be alkyl or substituted alkyl, or R₂ and R₃ taken together with the nitrogen atom to which they are attached form a 5- or 6-membered heterocyclic ring system.

These compounds are prepared by treating a suspension of a diphenylsulfoximine-alkali metal compound in an anhydrous aromatic hydrocarbon solvent with a compound of the formula



wherein "Hal" is halogen and R is as defined.

These compounds exhibit broncholytic-antispasmodic activity in a mammalian host and are useful in treating conditions generally associated with bronchial diseases.

3,637,665

PROCESS FOR THE PREPARATION OF HIGH DENSITY N,N'-DIBENZYL-ETHYLENEDIAMINE BIS(D-)-α-AMINO BENZYL-PENICILLIN

Arthur C. Adams, deceased, late of West Chester, Pa., by Mary Adams, administratrix, West Chester, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Feb. 9, 1970, Ser. No. 10,050

Int. Cl. C07d 99/20

U.S. Cl. 260-239.1

4 Claims

This invention concerns a process for the preparation of N,N'-dibenzylethylenediamine bis[D(-)-α-amino benzylpenicillin] of high purity and density which is useful in the preparation of pharmaceutically elegant antibiotic dosage forms.

3,637,666

2-ANDROSTENE-17-ETHERS AND PROCESS FOR THE PREPARATION THEREOF

Klaus Irmscher, Gerhard Cimbollek, Helmut Wahlig, Karl-Otto Freisberg, Herbert Nowak, and Andreas Garbe, all of 250 Frankfurter Str., 6100 Darmstadt, Germany

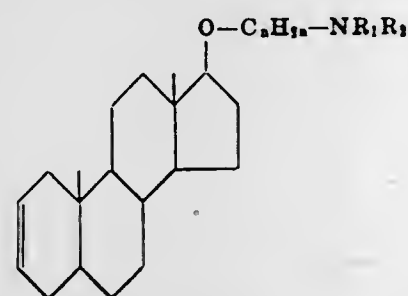
No Drawing. Filed Apr. 8, 1970, Ser. No. 26,784

Int. Cl. C07c 173/00

U.S. Cl. 260—239.5

21 Claims

2-androstene-17-ethers of the formula



wherein n is 2, 3 or 4 and R_1 and R_2 each are alkyl of 1 to 3 carbon atoms or, collectively with the amino nitrogen atom, pyrrolidino, piperidino, hexamethylenimino, piperazino or morpholino, have cholesterol blood-level lowering activity, anti-fungal and anti-bacterial activity and steroidal hormonal activity.

3,637,667

8,19-EPOXY- $\Delta^4,3$ -KETOSTEROIDS AND INTERMEDIATES FOR THEIR SYNTHESIS

Günther Krüger, St. Laurent, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Feb. 10, 1970, Ser. No. 10,307

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

10 Claims

Disclosed herein are the 8,19-epoxysteroids, 8,19-epoxy-androsta-4,6-diene-3,17-dione, 8,19-epoxy-17 β -hydroxyandrosta-4,6-diene-3-one and the 17-lower acyl esters of the latter compound. The compounds are useful for lowering cholesterol concentrations in the blood serum and inhibiting gonadotrophin secretion. Methods for the preparation and use of these 8,19-epoxysteroids are given.

3,637,668

N-SUBSTITUTED 4-AMINOSTEROIDS

Henry Laurent, Hermann Steinbeck, and Rudolf Weichert, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,058

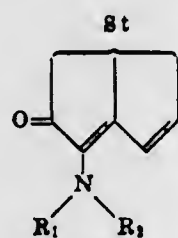
Claims priority, application Germany, Feb. 29, 1968, P 16 68 689.8, P 16 68 690.1

Int. Cl. C07c 173/00

U.S. Cl. 260—239.5

32 Claims

4-aminosteroids of the partial formula



wherein R_1 and R_2 are alkyl or substituted alkyl and wherein R_1 and R_2 , together with the nitrogen which is attached in the 4-position, may form an additional ring and wherein said additional ring may include a further hetero atom or a positive nitrogen and wherein St is a steroid molecule residue. The compounds have particular use as progestational agents. The compounds of the androstane series have androgenous, anabolic and anti-estrogenic properties.

3,637,669

NITRO DYESTUFFS

Ruedi Altermatt, Tecknau-Basel, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,372

Claims priority, application Switzerland, Nov. 17, 1967, 16,140/67

Int. Cl. C07d 15/04

U.S. Cl. 260—239.6

10 Claims

This invention relates to disperse dyes of the nitro series which are substituted by a radical of formula



and are very suitable for dyeing and printing of fibres and fibre materials made of fully synthetic or semi-synthetic, hydrophobic, high molecular organic substances.

3,637,670

INTERMEDIATES AND PROCESS FOR PREPARING USEFUL 17 α -HYDROXY-20-KETO AND 17 α ,21-DI-HYDROXY-20-KETO PREGNANES AND DERIVATIVES THEREOF

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,746

Int. Cl. C07c 169/32

U.S. Cl. 260—239.55 R

15 Claims

New processes for preparing 17 α -hydroxy-20-keto and 17 α ,21-hydroxy-20-keto pregnanes and derivatives thereof, which compounds are useful as progestational and anti-inflammatory agents. The processes utilize the steps of converting a 17-keto steroid to the corresponding 17-methylene steroid with methylene triphenylphosphorane, converting the 17-methylene steroid to the corresponding 17-spiro-(gem-dihalocyclopropyl) steroid with a dihalocarbene, converting the 17-spiro-(gem-dihalocyclopropyl) steroid to the corresponding 17-vinylidene steroid with a lower alkyl or phenyl lithium, and oxidizing the 17-vinylidene steroid to form the corresponding product pregnanes. The 17-spiro-(gem-dihalocyclopropyl) steroid intermediates are new compounds useful, via the disclosed process, for preparing the progestational and anti-inflammatory pregnane products.

3,637,671

17 β -TETRAHYDROPYRANYL ETHERS OF THE 19-NOR- Δ^4 AND $\Delta^4(10)$ -ANDROSTENES

Alexander D. Cross, Mexico City, Mexico, assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed Mar. 30, 1966, Ser. No. 538,537

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

10 Claims

Novel 17 β -tetrahydropyranyl ethers of the 19-nor- Δ^4 -androstene series and $\Delta^4(10)$ -androstene series substituted

3,637,674

EPOXIDES OF ESTERS OF 2,4,6,10-TETRAENOIC ACIDS

Vaclav Jarolim, Karel Hejzlo, Karel Slama, and Frantisek Sorm, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed Oct. 8, 1969, Ser. No. 864,912

Claims priority, application Czechoslovakia, Oct. 20, 1968, 7,127/68

Int. Cl. C07d 1/22

U.S. Cl. 260—240 R

6 Claims

Methods employing and compositions comprising novel epoxides of esters of 2,4,6-10-tetraenoic acids for the control of insects.

3,637,672

AZOLE COMPOUNDS

Shuichi Seino, Osaka, Tomizo Fujino, Suita-shi, and Kakuji Tonegawa, Kyoto, Japan, assignors to Osaka Seika Kogyo Kabushiki Kaisha, Osaka, and Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

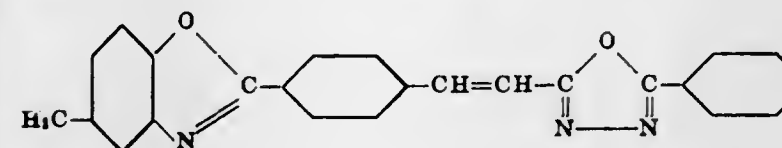
No Drawing. Filed July 9, 1968, Ser. No. 743,303

Int. Cl. C09b 23/14

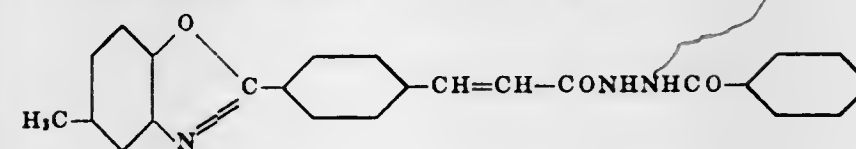
U.S. Cl. 260—240.9

9 Claims

Azole compounds useful for fluorescent brightening agents for synthetic fibers, such as



The compound is prepared by heating



with a dehydrating agent of thionyl chloride in order to cause ring formation.

3,637,673

OPTICAL BLEACHING OF ORGANIC MATERIAL

Ichiro Okubo and Michihiro Tsujimoto, Tokyo, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,429

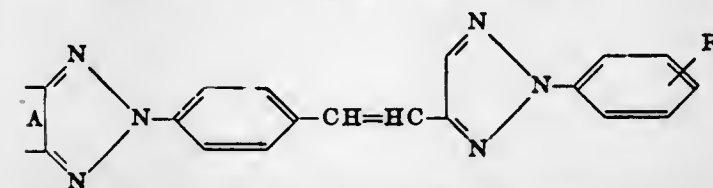
Claims priority, application Japan, Oct. 26, 1967, 42/68,938

Int. Cl. C07d 55/04

U.S. Cl. 260—240.9

1 Claim

An optical bleaching agent for organic materials comprising as an effective ingredient a bistriazolyl styrene derivative expressed by the general formula



wherein A represents a benzene, naphthalene or acenaphthene nucleus, with the proviso that when A is a benzene or naphthalene nucleus, it may have an alkyl group, alkoxy group, acylamino group, sulphonic acid group, sulphonate group, or sulphonamide group as a substituent; R_1 represents a cyano group, sulphonic acid group, substituted or unsubstituted sulphonamide group, aryl sulphonate group, alkylsulphone group, carbamoyl group, or carboxylate group; and R_2 represents a hydrogen atom, halogen atom or methyl group.

894 O.G.—55

3,637,676

POLYMETHINE DYES CONTAINING A DILACTONE RING, INTERMEDIATES USEFUL IN THEIR SYNTHESIS AND PROCESS FOR PREPARING SAID INTERMEDIATES

Donald W. Heseltine, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application June 10, 1965, Ser. No. 463,024, now Patent No. 3,440,052. Divided and this application July 30, 1968, Ser. No. 763,456

Int. Cl. C09b 23/00

U.S. Cl. 260—240.1

5 Claims

Novel polymethine dyes having at least two heterocyclic nuclei and wherein said polymethine dyes contain at

least one dilactone ring, useful as optical sensitizers for photographic silver halide emulsions or as filter dyes, are described. Novel intermediates useful in preparing said polymethine dyes and a novel process for preparing said intermediates are also described.

3,637,677

NITROSOAMINES

Carl T. Bahner, David H. Brotherton, and Mary K. Brotherton, Jefferson City, Tenn., assignors to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare

No Drawing. Filed Feb. 14, 1969, Ser. No. 799,505

Int. Cl. C07c 87/28; C07d 33/52

U.S. Cl. 260—240.9

6 Claims

A series of nitrosoamines which comprise 4-N-nitroso-N-alkylaminobenzylidene derivatives of a fused bicyclic moiety selected from 1-indene, 2-methyl quinoline, 4-methyl quinoline, and 1-methyl isoquinoline.

In contrast to the carcinogenic activity exemplified by related nitroso and amino compounds, members of the present group of nitroso compounds have exhibited carcinostatic activity in animals in standard tests against Walker 256 tumor.

3,637,678

DELTA-2 CEPHALOSPORIN COMPOUNDS

J. Alan Webber and Earle M. van Heyningen, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of abandoned application Ser. No. 703,523, Feb. 7, 1968. This application Jan. 13, 1969, Ser. No. 790,886

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

20 Claims

3-bromomethyl - Δ^2 - cephalosporin ester intermediates, and Δ^2 -3-functionalized cephalosporin esters prepared by (a) brominating the 3-methyl group of a Δ^2 -desacetoxy-cephalosporin ester, and then (b) reacting the resulting 3-bromomethyl- Δ^2 -cephalosporin ester with a nucleophilic reagent to displace the bromine with the nucleophile and to form 3-(functionalized-methyl)- Δ^2 -cephalosporin esters which are useful as intermediates in the production of cephalosporin antibiotics, e.g., from penicillin starting materials.

3,637,679

QUATERNARY PHENOTHIAZINE SULFAMATE

Calvin Lovell, Morton Grove, and Henry William Sause, Deerfield, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Oct. 30, 1968, Ser. No. 772,024

Int. Cl. C07d 93/14

U.S. Cl. 260—243

5 Claims

Phenothiazinylalkylammonium salts of sulfamic acids are described herein. They are useful as anti-ulcer agents, pepsin inhibitors, anti-bacterial agents, and anti-algal agents. The compounds are obtained by the reaction of the appropriate quaternary ammonium halide with silver oxide and an appropriate sulfamic acid.

3,637,680
2-(3-TRIFLUOROMETHYL)-PHENYL
MORPHOLINES

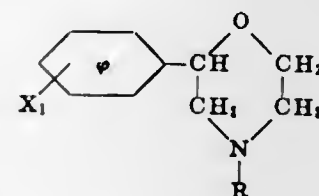
Roland Yves Mauvernay, Norbert Busch, Jacques Moleyre, and Jacques Simond, Puy-de-Dome, France, assignors to Societe Anonyme: Centre Europeen de Recherches Mauvernay, Riom, Puy-de-Dome, France No Drawing. Filed Feb. 28, 1969, Ser. No. 803,400 Claims priority, application France, Mar. 4, 1968, 142,279; May 29, 1968, 153,287; June 18, 1968, 155,482; Aug. 27, 1968, 164,260; Nov. 15, 1968, 173,894; Feb. 19, 1969, 6904203

Int. Cl. C07d 87/30

U.S. Cl. 260—247

6 Claims

New 2,4-disubstituted tetrahydro 1,4-oxazines of formula:



wherein R is a hydrogen atom or an alkyl radical such as a methyl, propyl, butyl, isopropyl, isobutyl, pentyl, hexyl, heptyl, isopentyl, or cyclohexyl, radical, an alkenyl radical such as an allyl radical, an aryl radical or an arylalkyl radical such as benzyl or phenylethyl radical, and X₁ is a halogen or a —CF₃ group, in the meta or para positions.

These compositions are obtained by a three step process in which the process is started with a β -halogenated vinyl ether to which bromine is added, and an organomagnesian compound and a primary amine of the formula R—NH₂ are successively reacted.

These compounds are useful as medicaments or as intermediaries in the synthesis of pharmaceutical products. Essentially, they have a tranquilizing effect on the central nervous system and also possess an anti-inflammatory and analgesic activity.

3,637,681

1-TERTIARYAMINO ALKANOYL - 2-HYDROGEN,
METHYL OR PHENYL-3-METHYL OR PHENYL-
4-OXO-1,2,3,4-TETRAHYDROQUINAZOLINES

Giuseppe Bonola, Milanese, Paolo Da Re, Pisa, and Ivo Setnikar, Milan, Italy, assignors to Societe d'Exploitations Chimiques et Pharmaceutiques Seceph, Lugano, Switzerland

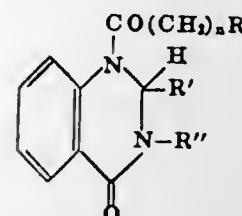
No Drawing. Filed June 12, 1968, Ser. No. 736,289 Claims priority, application Switzerland, June 20, 1967, 8,716/67

Int. Cl. C07d 87/42

U.S. Cl. 260—247.2

21 Claims

1,2,3,4-tetrahydroquinazoline derivatives of the general formula:



and methods of preparing same. The compounds possess choleric and antifibrillatory activity.

3,637,682

N-2-HYDROXY ALKYL MORPHOLINE OXIDES
John Fred Gerecht, Somerville, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Oct. 24, 1967, Ser. No. 677,723

Int. Cl. C07d 87/32

U.S. Cl. 260—247.7 A

2 Claims

Hydroxy higher alkyl morpholine oxides, and formulations containing the same. The compounds have many

beneficial effects in detergent and cosmetic compositions, particularly desirable for application to the skin and for modification of foaming power of detergent compositions.

3,637,683

PROCESS FOR THE PREPARATION OF 4-(2-HYDROXYPROPYOYL) MORPHOLINE

Daijiro Nishio, Kanagawa, Japan, assignor to Fujii Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan Filed Nov. 4, 1968, Ser. No. 772,958

Claims priority, application Japan, Nov. 2, 1967, 42/70,563

Int. Cl. C07d 87/34

U.S. Cl. 260—247.7 A

1 Claim

An improved process for preparing 4-(2-hydroxypropionoyl) morpholine by the ring-opening reaction of beta-propiolactone with morpholine, the improvement which comprises conducting the ring-opening reaction in the presence of dehydrated diethyl ether.

3,637,684

PREPARATION OF HETEROCYCLOIMIDAZOLES

Irving M. Goldman, Niantic, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,861

Int. Cl. C07d 51/46

U.S. Cl. 260—248 AS

2 Claims

1,3-dimethyl - 1,2,3,4 - tetrahydropyrido[2,1-f]purine-2,4-dione is prepared by extruding sulfur monoxide from 1,3 - dimethyl - 1,2,3,4 - tetrahydropyrido[1,2-b]6H-pyrimido[4,5-e][1,2,4]thiadiazine-2,4,5-trione, which is prepared by treating 1,3-dimethyl-6-(2-pyridylamino)uracil with thionyl chloride. The extrusion provides a general route to various imidazoles, especially heterocycloimidazoles, through intermediate 2H-1,2,4-thiadiazine-1-oxides which can be prepared from N-vinylamidines. An alternative route is heating 1,3-dimethyl-5-halo-6-(2-pyridylamino)uracil. Novel 1,3-dimethyl-1,2,3,4-tetrahydroheterocyclo[x,y-f]purine-2,4-diones are useful for a variety of biological and chemotherapeutic purposes.

3,637,685

TRIAMINO-s-TRIAZINES

Gaetano F. D'Alelio, South Bend, Ind., assignor of a fractional part interest to Walter J. Monacelli, Cleveland, Ohio

No Drawing. Filed May 15, 1967, Ser. No. 638,654

Int. Cl. C07d 55/24

U.S. Cl. 260—249.6

5 Claims

The compositions disclosed herein comprise derivatives of symmetrical triazines in which at least one of the derivative groups has a radical of the formula

—CHR⁴COOM

wherein M is hydrogen, a quaternary ammonium group or metal, and R⁴ represents hydrogen, phenyl, cycloheptyl, cyclohexyl or an alkyl group of 1-6 carbon atoms. These compounds are useful for chelating or coordinating metal ions and recovery of the same from solutions.

3,637,686

PROCESS FOR RECOVERING PURIFIED
MELAMINE

Ryo Kokubo, Koji Yokomichi, Yasuo Takakuwa, Isao Maruyama, and Akihiro Shiroishi, Fuchumachi, and Mizuhiko Nagakura, Tokyo, Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

Filed Feb. 10, 1969, Ser. No. 798,022

Int. Cl. C07d 55/24

U.S. Cl. 260—249.7 P

4 Claims

A process for recovering purified melamine comprising cooling the crude molten melamine obtained through thermal decomposition of urea or a mixture of said crude

3,637,687

POLYSUBSTITUTED AS-TRIAZINO[5,6-b]INDOLES
Alfred W. Chow, Radnor, Pa., assignor to Smith Kline & French Laboratories

No Drawing. Filed Apr. 21, 1970, Ser. No. 30,576

Int. Cl. C07d 57/34

U.S. Cl. 260—249.9

10 Claims

The compounds are as-triazino[5,6-b]indoles polysubstituted on the benzene ring substituted on the triazine ring at the 3-position with a hydroxyalkylamino group which have antiviral activity.

3,637,688

6-(FLUORO AND TRIFLUOROMETHYL PHENYL)-
3,5-DIAMINO - 1,2,4 - TRIAZINES AND SUBSTITUTED - 6 - PHENYLALKYL-3,5-DIAMINO-1,2,4-
TRIAZINES

Richard W. Rees, Newtown Square, and Peter B. Russell, Villanova, Pa., assignors to American Home Products Corporation, New York, N.Y.

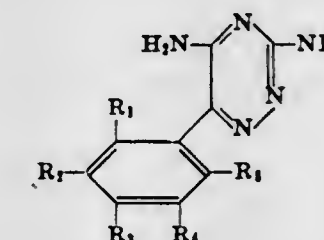
No Drawing. Filed Jan. 9, 1970, Ser. No. 1,842

Int. Cl. C07d 55/10

U.S. Cl. 260—249.9

7 Claims

This invention includes but is not limited to compounds of the formula:



wherein

R₁ is selected from the group consisting of hydrogen and fluorine;

R₂, R₃ and R₄ are selected from the group consisting of hydrogen, fluorine and trifluoromethyl;

R₅ is hydrogen, with the proviso that at least one member selected from the group consisting of R₁, R₂, R₃ and R₄ are always fluorine or trifluoromethyl. The compounds are useful in the treatment of malaria.

3,637,689

PROCESS FOR THE PREPARATION OF 4,6-
DIAMINO-2-VINYLS-TRIAZINE

Goro Inoue, Tokyo, and Hirokazu Fukumi, Iruma-gun, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Japan

No Drawing. Filed May 27, 1970, Ser. No. 41,049

Claims priority, application Japan, May 31, 1969, 44/42,092

Int. Cl. C07d 55/20

U.S. Cl. 260—249.9

8 Claims

An economically attractive process for the industrial production of 4,6-diamino-2-vinyl-s-triazine in high yield is provided. 1,2-bis(4',6'-diamino-s-triazinyl-(2'))-cyclobutane, available as a low cost-industrial commodity, is heated under reduced pressure to prevent thermal decomposition of the triazine rings and to crack the carbon-carbon bonds between the 1- and 2-positions and between the 3- and 4-positions of the cyclobutane ring. The resulting product is a useful monomer in the production of homo- or copolymers.

3,637,690

TETRAZOLO PYRIDAZINES

Paul L. Anderson, Denville, and William J. Houllihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Filed Apr. 4, 1969, Ser. No. 813,695
Int. Cl. C07d 51/04

U.S. Cl. 266—250 3 Claims
Alkenylamino tetrazolo pyridazines, e.g., 6-chloro-8- β -methallylamino tetrazolo[1,5-b]pyridazine, are useful as hypotensives.

3,637,691

CHLOROPYRIDAZINECARBONITRILE COMPOUNDS

Donald E. Bublitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed June 6, 1969, Ser. No. 831,216
Int. Cl. C07d 51/04

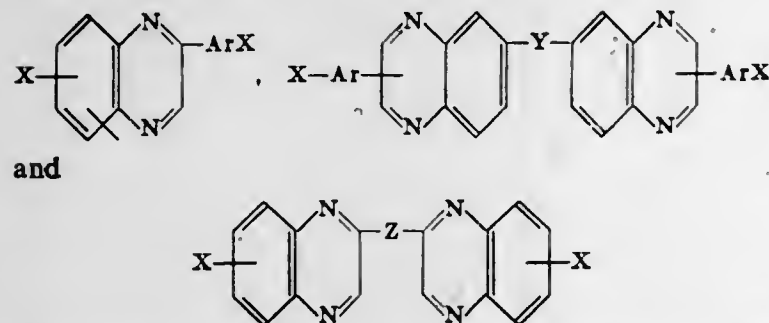
U.S. Cl. 260—250 7 Claims
Disclosed as novel compounds are chloropyridazine-carbonitrile compounds substituted by at least one chloro radical and at least one cyano group, the total number of chloro and cyano groups present being 3 or 4. The compounds have utility as fungicides, herbicides and antimicrobials, among other applications.

3,637,692

SUBSTITUTED QUINOXALINES

Billy M. Culbertson, 150 Maple Island Road, Burnsville, Minn. 55378
No Drawing. Continuation of application Ser. No. 539,641, Apr. 4, 1966. This application Oct. 2, 1969, Ser. No. 863,316
Int. Cl. C07d 51/78

U.S. Cl. 260—250 8 Claims
Quinoxalines represented by the general formulae



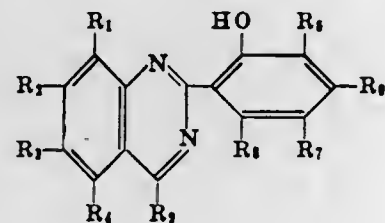
wherein X is nitro or amino, Ar is a divalent aromatic hydrocarbon radical, Y is a covalent bond or a divalent linking radical and Z is a divalent radical containing one or two benzene rings. The compositions are useful in the formation of fiber and film forming polyimides and polyamides and in the formation of molding resins.

3,637,693

HYDROXYARYLQUINAZOLINES AND THEIR USE AS UV-ABSORBERS

Jan-Erik Anders Otterstedt, Pennsville, N.J., and Richard Pater, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 12, 1968, Ser. No. 744,310
Int. Cl. C07d 51/48

U.S. Cl. 260—251 13 Claims
Novel ultra-violet absorbing 2-(o-hydroxyaryl)quinazolines of the formula



wherein R₁₋₄ are selected from H and other substituents having Hammett para sigma values of -0.67 to +0.78; R₅₋₈ are selected from H and other substituents having Hammett para sigma values of -0.67 to +0.25; and R₉ is selected from H and substituents, other than hydroxyl, having a Hammett para sigma value of -0.67 to +0.25; said substituents, when other than a single hydrogen or halogen atom, being joined to the quinazoline ring through a carbon, nitrogen or oxygen atom; and the use of such compounds as light screens and photostabilizers in photodegradation-prone substrates.

3,637,694

4,5,6-TRICHLORO-2-CHLOROCARBONYL-PYRIMIDINE

Gunther Beck and Hans Holtschmidt, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 14, 1969, Ser. No. 807,437
Claims priority, application Germany, Mar. 25, 1968, P 17 70 049.1
Int. Cl. C07d 51/36

U.S. Cl. 260—251 6 Claims
A process for the production of 4,5,6-trichloro-2-chlorocarbonyl-pyrimidine by reacting 4-morpholino-propionitrile with chlorine, optionally in the presence of ultraviolet radiation, followed by heating in the absence of chlorine, is disclosed. The compound finds utility in the production of reactive dyestuffs.

3,637,695

SYNTHESIS OF HOMOPTEROIC AND HOMOFOLIC ACID

Young-Ho Kim, Vytautas Grublauskas, and Orrie M. Friedman, Waltham, Mass., assignors to the United States of America as represented by the Secretary of Health, Education, and Welfare
No Drawing. Filed Mar. 20, 1968, Ser. No. 714,426
Int. Cl. C07d 57/28

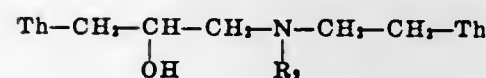
U.S. Cl. 260—251.5 2 Claims
The production of homopteroic and homofolic acids by virtue of selecting a critical keto condensing agent, namely 1-acetoxy-4-[N-acetyl-(p-carbethoxyphenyl)amino]-2-butanone, which is condensed with a conventional pyrimidine reactant, namely 6-hydroxy-2,4,5-triaminopyrimidine, under condition of narrow pH control, preferably in the mildly alkaline range 9.0-9.4.

3,637,696

THEOPHYLLINE AND THEOBROMINE SUBSTITUTED AMINES

Walter Otto, Vienna, Austria, assignor to Gerot Pharmazeutika Dr. Walter Otto K.G., Vienna, Austria
No Drawing. Filed Aug. 21, 1967, Ser. No. 661,824
Claims priority, application Austria, Aug. 23, 1966, A 7,999/66
Int. Cl. C07d 57/42, 57/48

U.S. Cl. 260—256 9 Claims
A substituted amine having the formula



wherein each Th is 7-theophylline or 1-theobromine and R₂ is selected from alkyl and hydroxyalkyl groups, wherein each of said alkyl and hydroxyalkyl groups is a straight or branched chain alkyl containing 1-4 carbon atoms.

3,637,697

6-AMINO-1,2-DIHYDRO-1-HYDROXY-2-IMINOPYRIMIDINES

William C. Anthony, Kalamazoo, and Joseph J. Ursprung, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Original application Nov. 1, 1965, Ser. No. 505,993, now Patent No. 3,461,461, dated Aug. 12, 1969. Divided and this application Feb. 20, 1969, Ser. No. 801,177
Int. Cl. C07d 151/34

U.S. Cl. 260—256.4 H 6 Claims
6-amino-1,2-dihydro-1-hydroxy-2-iminopyrimidines, their carboxyacylated counterparts, and the corresponding acid addition salts thereof are disclosed. These compounds, useful inter alia as antihypertensive agents, are substituted in the 4-position and in the 5-position, the substituent in the 4-position being a secondary or tertiary amino moiety.

3,637,698

HALO-SULFAMYL-SPIRO- AND DIALKYL-QUINAZOLINONES

Bola Vithal Shetty, Rochester, N.Y., assignor to Pennwalt Corporation
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,855
Int. Cl. C07d 51/48

U.S. Cl. 260—256.5 R 11 Claims
A 7-halo-6'-sulfamylspiro- or dialkyl-4,2'-(1'H)-quinazolin-4'(3'H)-one, having the spiro group in the 2-position, hydrogen or alkyl in the 3-position, and hydrogen, alkyl, amino, halogen or haloloweralkyl in the 5- and 8-positions. The hydrogens of the sulfamyl group may be substituted by alkyl or phenylalkyl or together form a carbocyclic or heterocyclic ring. The spiro group can be composed entirely of carbon atoms or can contain one or more hetero atoms, especially sulfur, nitrogen or oxygen. The compounds are useful in diuretics and saluretics.

3,637,699

DIALKYL-SUBSTITUTED-4-(HYDROXYALKYL-BEARING)AMINOQUINAZOLINES NITRATES

Lloyd P. Gabel, Morris Plains, and William R. J. Simpson, Hanover, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of application Ser. No. 841,990, July 15, 1969. This application Feb. 24, 1970, Ser. No. 13,818
Int. Cl. C07d 51/48

U.S. Cl. 260—256.4 Q 15 Claims
Disclosed are compounds of the class of quinazolines substituted in the benzene ring portion of the quinazoline by lower alkyl and further substituted at the 4-position by an amino function bearing a hydroxyalkyl nitrate moiety, e.g., 4-(5-hydroxypentyl)amino-7,8-dimethylquinazoline nitrate. The compounds have pharmacological activity in animals and are useful, for example, as hypotensive and coronary dilating agents. Also disclosed are the corresponding hydroxy intermediates useful in preparation of the nitrates.

3,637,700

CERTAIN TRIALKOXY-SUBSTITUTED 4-AMINOQUINAZOLINE NITRATES

Lloyd P. Gabel, Morris Plains, and William R. J. Simpson, Hanover, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of application Ser. No. 870,439, Dec. 5, 1969. This application Nov. 13, 1970, Ser. No. 89,472
Int. Cl. C07d 31/48

U.S. Cl. 260—256.5 R 26 Claims
Disclosed are compounds of the class of quinazolines substituted in the benzene ring portion of the quinazoline by trialkoxy and further substituted at the 4-position by an amino function bearing a hydroxyalkyl nitrate moiety,

e.g., 4-(5-hydroxypentyl) amino-6,7,8-trimethoxyquinazoline nitrate. The compounds have pharmacological activity in animals and are useful, for example, as hypotensive, coronary dilators and antianginal agents. Also disclosed are the corresponding hydroxy intermediates useful in preparation of the nitrates.

3,637,701

CERTAIN NITRATE DERIVATIVES OF 4-AMINOQUINAZOLINES

Lloyd P. Gabel and William R. J. Simpson, Morris Plains, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of application Ser. No. 803,933, Mar. 3, 1969. This application June 26, 1969, Ser. No. 838,050
Int. Cl. C07d 51/48

U.S. Cl. 260—256.4 Q 22 Claims
The invention disclosed compounds of the class which are nitrates of 4-substituted-amino-quinazolines, e.g., 4-(2-hydroxyethyl)amino-6,7-dimethoxyquinazoline nitrate, having pharmacological activity in animals and useful, for example, as hypotensive and anti-anginal agents. Also disclosed are the hydroxy intermediates useful in preparation of said nitrates.

3,637,702

1-[HYDROXYALKYL]-2-MORPHOLINOMETHYL-5-NITROIMIDAZOLES

Dale R. Hoff, Basking Ridge, N.J., and David W. Henry, Menlo Park, Calif., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Continuation-in-part of application Ser. No. 848,404, July 29, 1969, which is a continuation of application Ser. No. 717,464, Mar. 29, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 565,333, June 17, 1966, now abandoned, which in turn is a division of application Ser. No. 355,428, Mar. 27, 1964, now Patent No. 3,299,090. This application Nov. 2, 1970, Ser. No. 86,331
Int. Cl. C07d 87/40

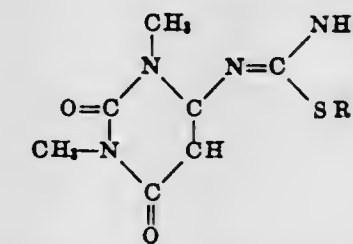
U.S. Cl. 260—247.5 R 1 Claim
1-(2'-hydroxyethyl)-2-morpholinomethyl-5-nitroimidazole is a novel compound prepared from 1-(2'-hydroxyethyl)-2-hydroxymethyl-5-nitroimidazole, having utility against parasitic diseases, especially histomoniasis and trichomoniasis.

3,637,703

URACIL THIOPSEUDOUREAS

Arthur Berger, Skokie, Ill., and Edeltraut E. Borgaes, Sindelfingen, Germany, assignors to Baxter Laboratories, Inc., Morton Grove, Ill.
No Drawing. Filed Aug. 13, 1969, Ser. No. 849,891
Int. Cl. C07d 51/30

U.S. Cl. 260—256.5 7 Claims
Uracil thiopseudo-ureas having the general formula:



wherein R and R' are each independently selected from the group consisting of lower alkyl having from 1 to 3 carbon atoms, allyl and methallyl, and the pharmaceutically acceptable acid salts thereof, for example, 1-allyl-3-(2',4'-diketo-1',2',3',4'-tetrahydropyrimidin-6-yl)-1',2',3'-trimethyl-2-thiopseudo-urea. These compounds are useful central nervous system anti-depressants.

3,637,704
1-(p-FLUOROBENZOYL)PROPYL-4-PHENYLALKYL PIPERAZINE

Susumu Umemoto, Sakai-shi, Yasutaka Nagai, Kyoto-fu, and Keiji Nakamura, Neyakawa-shi, Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,581
 Claims priority, application Japan, Oct. 18, 1967, 42/67,137, 42/67,138; Oct. 19, 1967, 42/67,364
 Int. Cl. C07d 51/70

U.S. Cl. 260—268 R 14 Claims
 Novel 1-arylpropyl-4-alkyl piperazines and pharmaceutically acceptable non-toxic salts thereof which are useful as the psychotropic agents, and to compositions for psychotropic agents which comprise as an active component a 1-arylpropyl-4-alkyl piperazine or a pharmaceutically acceptable non-toxic salt thereof.

3,637,705
N-3,4-DIHALO PHENYL PIPERAZINES

Bruce Wayne Horrom, Waukegan, and Howard Bernard Wright, Gurnee, Ill., assignors to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed Oct. 1, 1968, Ser. No. 764,323
 Int. Cl. C07d 51/70

U.S. Cl. 260—268 PH 2 Claims
 It has been found that certain specifically halogen substituted N-phenylpiperazines and N-phenyl-N'-tetrahydropyranpiperazines have unusually strong anorexic properties. The specific substituents must be in the 3- and 4-positions of the phenyl ring to produce these outstanding pharmacological results.

3,637,706
10-[4 - (LOWER)ALKYLPYPERAZINO] - 1,2,3,4-TETRAHYDROBENZO[b][1,6]NAPHTHYRIDINE DERIVATIVES USEFUL AS CNS DEPRESSANTS
 Milton Wolf, West Chester, and James L. Diebold, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
 No Drawing. Division of application Ser. No. 760,063, Sept. 16, 1968, which is a continuation-in-part of applications Ser. No. 533,802 and Ser. No. 533,793, Mar. 14, 1966, and Ser. No. 581,756, Sept. 22, 1966. This application Apr. 30, 1970, Ser. No. 33,509
 Int. Cl. C07d 51/70

U.S. Cl. 260—268 TR 2 Claims
 This invention concerns 10-[4-(lower)alkylpiperazino]-1,2,3,4-tetrahydrobenzo[b][1,6]naphthyridines and the pharmacologically acceptable acid addition salts thereof which are pharmacologically active as central nervous system depressants which are useful in producing a calming effect in warm-blooded animals.

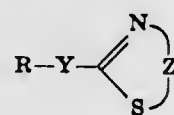
3,637,707
2-(SUBSTITUTED) 2-THIAZOLINES FOR THE CONTROL OF RICE BLAST

Richard C. Koch, Niantic, Conn. (% Pfizer, Inc., 235 E. 42nd St., New York, N.Y. 10017)

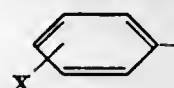
No Drawing. Application May 28, 1970, Ser. No. 41,532, which is a continuation-in-part of application Ser. No. 788,642, Jan. 2, 1969. Divided and this application Nov. 24, 1970, Ser. No. 92,504

Int. Cl. A01n 9/20

U.S. Cl. 424—270 9 Claims
 The control of rice blast disease on rice plants by contacting the plants with a fungicidally effective amount of a composition comprising, as active ingredient, a compound having the formula



and the non-phytotoxic acid addition salts thereof, and a carrier therefor, wherein R is 2-thienyl, 1-naphthyl, 2-naphthyl, 3,4-methylenedioxyphenyl or



wherein

X is hydrogen, chloro, bromo, fluoro, nitro, methyl, or ethyl, with the proviso that when Y is $-(CH_2)_n-$, X is other than hydrogen;

Y is $-CH=CH-$, $-C(CH_3)=CH-$,

$-CH=C(CH_3)-$

$-C(OH)=CH-$ or $-(CH_2)_n-$ wherein n is an integer of from 2 to 4; and

Z is ethylene or trimethylene.

3,637,708
WATER-INSOLUBLE PERINONE DYESTUFFS

Richard Peter and Enrico Gallacchi, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Nov. 20, 1967, Ser. No. 684,522
 Claims priority, application Switzerland, Nov. 21, 1966, 16,658/66; Oct. 16, 1967, 14,444/67
 Int. Cl. C07d 57/02

U.S. Cl. 260—282 6 Claims
 Water-insoluble perinones carrying at one of the periphery positions of the naphthalene nucleus a heterocyclic substituent bound via a sulfur, nitrogen or oxygen atom.

3,637,709
TETRAHYDROISOQUINOLINE-2 CARBOXAMIDES

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application May 21, 1968, Ser. No. 730,957, now Patent No. 3,565,900, dated Feb. 23, 1971, which is a continuation-in-part of application Ser. No. 663,218, Aug. 25, 1967. Divided and this application May 27, 1970, Ser. No. 51,403

Int. Cl. C07d 35/10

U.S. Cl. 260—287 R 6 Claims
 1-(α hydroxy benzyl) 1,2,3,4 tetrahydro isoquinolines-2 carboxamides are cyclized with $SOCl_2$ to form oxazolo [4,3-a]isoquinolines.

3,637,710
4-(PHENYLIMINO)-1,4-DIHYDROQUINOLINE DERIVATIVES

Jan W. F. Wasley, Ossining, and Norbert Gruenfeld, Bronx, N.Y., assignors to Geigy Chemical Corporation, Greenburgh, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 694,411, Dec. 29, 1967. This application May 26, 1969, Ser. No. 827,998

Int. Cl. C07d 33/48

U.S. Cl. 260—287 R 17 Claims
 4-[(carboxyalkyl and carbalkoxyalkyl)phenylimino]-1,4-dihydroquinolines and derivatives thereof are anti-inflammatory and antimalarial agents which can be synthetically prepared by a number of routes. A typical embodiment is 7-chloro-4-[2-(carbomethoxymethyl)phenylimino]-1,4-dihydroquinoline.

3,637,711
BETA-ALKENYL SUBSTITUTED 8-HYDROXYQUINOLINES

Walter M. Budde, Jr., Prior Lake, and James A. Hartlage, Burnsville, Minn., assignors to Ashland Oil & Refining Company, Houston, Tex.

Filed Mar. 25, 1968, Ser. No. 715,879

Int. Cl. C07d 33/38

U.S. Cl. 260—289 4 Claims
 Metal values, e.g., copper values, are recovered from aqueous solutions by solvent extraction with an organic

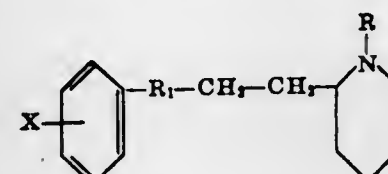
solvent containing hydrocarbyl-substituted 8-hydroxyquinoline derivatives, such as alkylbenzyl or β -alkenyl 8-hydroxyquinolines.

3,637,712
PIPERIDYLPROPANOL COMPOUNDS

Richard Anthony Partyka, Liverpool, and Robert Ted Standridge and Barbara Ann Hall, Syracuse, N.Y., assignors to Bristol-Myers Company, New York, N.Y.
 No Drawing. Filed Jan. 26, 1970, Ser. No. 5,922

Int. Cl. C07d 29/16

U.S. Cl. 260—294.7 R 3 Claims
 The specification discloses substituted piperidylpropanols and propanones of the structure



wherein X is halogen, hydrogen, or lower alkoxy, R₁ is hydroxymethylene or carbonyl, and R is lower alkyl and nontoxic acid addition salts thereof and a process for preparing the hydroxy compound by preparation and reduction of the carbonyl compounds. The hydroxy compounds are useful in the treatment of mammals and in the study of physiology and pharmacology.

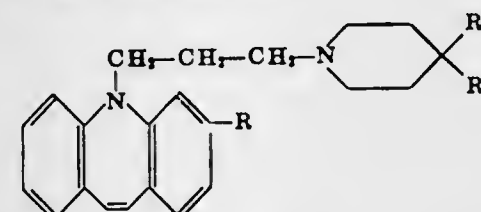
3,637,713
DIBENZAZEPINE DERIVATIVES

Michio Nakanishi, Nakatsu, Oita, and Chiaki Tashiro, Fukuoka, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Higashiku, Osaka, Japan

No Drawing. Filed July 3, 1968, Ser. No. 742,135
 Claims priority, application Japan, July 3, 1967, 42/42,657; Feb. 7, 1968, 43/7,571

Int. Cl. C07d 41/08, 99/10

U.S. Cl. 260—293.59 24 Claims
 Compounds of the formula



wherein R is H or Cl, R¹ is OH, cyano, carbamoyl, methoxy or acetyl, R² is phenyl, tolyl, (trifluoromethyl) phenyl, benzyl, dimethylamino or piperidino, or R¹ and R² combinedly can represent $-S-CH_2-CO-N(R^3)-$ in which R³ is H, phenyl, tolyl or (trifluoromethyl)phenyl, and pharmaceutically acceptable acid addition salts thereof are useful e.g. as vasodilators.

3,637,714
5-FLUORO-3-PYRIDINEMETHANOL ESTERS THEREOF AND THERAPEUTICALLY ACCEPTABLE SALTS THEREOF

Lars Anders Fritz Carlsson, Bromma, Åke John Erik Helgstrand, Enhorna, and Berndt Olof Harald Sjöberg and Nils Erik Sjöström, Sodertälje, Sweden, assignors to Aktiebolaget Astra, Sodertälje, Sweden
 No Drawing. Filed Nov. 15, 1967, Ser. No. 689,751
 Claims priority, application Sweden, Nov. 16, 1966, 15,717/66

Int. Cl. C07d 31/48, 31/34

U.S. Cl. 260—294.8 R 2 Claims
 The invention relates to 3,5-substituted pyridines, which in one of the positions 3 and 5 may be substituted by halo-

gen or $-NH_2$, and in the other position are substituted by an organic group. The compounds are useful for the inhibition of serum lipid mobilization.

3,637,715
AMMOXIDATION OF 2-PICOLINE TO PICOLINONITRILE

Francis M. Scheidt, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 No Drawing. Filed Sept. 3, 1968, Ser. No. 757,121
 Int. Cl. C07d 31/46

U.S. Cl. 260—294.9 3 Claims
 A novel and improved method for preparing 2-picolonitrile by passing a non-flammable mixture of 2-picoline, ammonia and air at an ammoxidation temperature over a vanadium oxide catalyst.

3,637,716
POLYCHLORO DERIVATIVES OF MONOCARBOXY PYRIDINES

Russell M. Blumber, Painesville, and Paul H. Schultdt, Mentor, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio
 No Drawing. Filed July 9, 1969, Ser. No. 840,484
 Int. Cl. C07d 31/36

U.S. Cl. 260—295 R 5 Claims
 Novel polychloroderivatives of monocarboxy and dicarboxy pyridines and their amino derivatives, their methods of preparation and utilization as pesticides and intermediates are disclosed.

3,637,717
NICOTINIC ACID ESTER

Eupremio Vitale, Bologna, Italy, assignor to Alfa Farmaceutici S.p.A., Bologna, Italy
 No Drawing. Filed Apr. 17, 1969, Ser. No. 817,190
 Claims priority, application Spain, Apr. 19, 1968, 352,933

Int. Cl. C07d 31/36

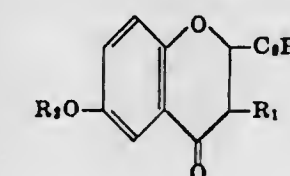
U.S. Cl. 260—295.5 R 1 Claim
 The invention is concerned with a new chemical compound, guaiacol salicylate nicotinate, which possesses analgesic activity; pharmaceutical compositions (particularly orally administrative compositions) containing the new compound and the preparation of the new compound by the reaction of guaiacol salicylate with nicotiny chloride hydrochloride in the presence of an acid binding agent.

3,637,718
3-LOWER-ALKYL-6-HYDROXYFLAVANONES AND ESTERS THEREOF

Josef Krämer, Herbert Halpaap, and Karl-Otto Freisberg, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany
 No Drawing. Filed June 21, 1968, Ser. No. 738,832

Int. Cl. C07d 7/24, 31/36

U.S. Cl. 260—295.5 B 23 Claims
 Suitable for decreasing cholesterol levels, compounds of the following formula, esters and ester salts thereof:



wherein

R_1 represents alkyl of 1-6 carbon atoms,
 R_2 represents hydrogen, alkyl or 1-6 carbon atoms or
 $Z-(CH_2)_n-$,
 Z is dialkylamino of 2-6 carbon atoms, pyrrolidino, piper-
 idino or morpholino, and
 n is 2 or 3.

3,637,719

5-[2-(PHENYLAMINO)-3-PYRIDYL]TETRAZOLES SUBSTITUTED IN THE PHENYL NUCLEUS

Charles Hoffmann, Enghien-les Bains, and Andree Dor-
 dilly, born Faure, Paris, France, assigns to Societe
 Anonyme dite: Hexachimie, Gennevilliers, France
 No Drawing. Filed July 10, 1969, Ser. No. 840,840
 Claims priority, application Great Britain, July 10, 1968,
 32,986/68

Int. Cl. C07d 31/42

U.S. Cl. 260-296 R

2 Claims

Novel 5 - [2 - (phenylamino) - 3 - pyridyl]tetrazoles
 substituted in the phenyl nucleus, e.g. by trifluoromethyl,
 are useful as anti-inflammation agents, analgesics, and
 local anaesthetics.

3,637,720

CERTAIN SUBSTITUTED PYRIDYL PHENYL ETHERS

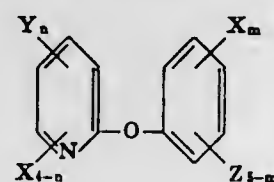
Ryuzo Nishiyama, Kyoto, and Kanichi Fujikawa, Isao
 Yokomichi, and Fumio Kimura, Kusatsu-shi, Japan,
 assigns to Ishihara Sangyo Co., Ltd., Osaka, Japan
 No Drawing. Filed June 17, 1968, Ser. No. 737,324
 Claims priority, application Japan, June 15, 1967,
 42/37,832

Int. Cl. C07d 31/30

U.S. Cl. 260-297 R

10 Claims

A compound having the formula



wherein X represents a hydrogen atom, Y being a chlo-
 rine atom, or a methyl radical; n is an integer of 1 to 4; Z
 represents a chlorine atom, a methyl radical, or a nitro
 radical; and m is an integer of 1 to 5, and a herbicidally
 effective salt or N-oxide thereof.

3,637,721

PROCESS FOR PRODUCING ALDEHYDES BY OZONIZING AND REDUCING CERTAIN ARO- MATIC AND HETEROCYCLIC COMPOUNDS CONTAINING CARBON-TO-CARBON UNSATU- RATION

James J. Pappas, Parsippany, and William P. Keaveney,
 Pequannock, N.J., assigns to Inmont Corporation,
 Clifton, N.J.

No Drawing. Continuation-in-part of application Ser. No.
 543,079, Apr. 18, 1966. This application June 25, 1970,
 Ser. No. 49,971

Int. Cl. C07d 31/32; C07c 47/52, 47/54

U.S. Cl. 260-297 R

9 Claims

An improved process for producing carbonyl com-
 pounds as products of the ozonization and reduction of
 organic compounds having carbon-to-carbon unsatura-
 tion which comprises ozonizing the unsaturated compound
 in a participating solvent and, as the improvement, reduc-
 ing the hydroperoxide derivative formed thereby with a
 sulfide to convert to the carbonyl compound.

3,637,722

HALOGENATED-4-HYDROXY-6-METHYL- 2(1H)PYRIDONES

Chun-shan Wang and Thomas W. McGee, Midland, Mich.,
 assigns to The Dow Chemical Company, Midland,
 Mich.

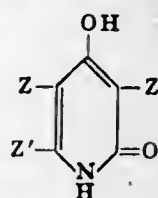
No Drawing. Filed Mar. 17, 1969, Ser. No. 807,962

Int. Cl. C07d 31/30

U.S. Cl. 260-297 Z

3 Claims

The invention relates to halogenated-4-hydroxy-6-
 methyl-2(1H)pyridones of the formula



wherein each Z is hydrogen or X; X is chlorine, bromine
 or iodine; and Z' is $-CH_3$, $-CH_2X$, $-CHX_2$ or $-CX_3$.
 The compounds of the invention are particularly useful
 as insecticides and fungicides.

3,637,723

CERTAIN BIS(HYDROXYPHENYL)- 1,3,4-THIADIAZOLES

William H. Meek, Northfield, Ohio, assignor to Ferro
 Corporation, Cleveland, Ohio

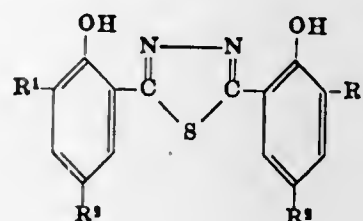
No Drawing. Filed Aug. 21, 1969, Ser. No. 852,084

Int. Cl. C07d 91/62

U.S. Cl. 260-302 D

2 Claims

Novel 2,5-disubstituted-1,3,4-thiadiazoles of the for-
 mula:



wherein R^1 and R^2 can be hydrogen, tertiary alkyl of
 from 4 to 8 carbon atoms inclusive, and primary or
 secondary alkyl of from 1 to 10 carbon atoms, providing
 that at least one of R^1 and R^2 is a tertiary alkyl. The
 compounds are useful as bacteriostats.

3,637,724

BENZOTHIADIAZOLE SALICYLAMIDES

Peter Kirby, Kent, England, assignor to Shell Oil
 Company, New York, N.Y.

No Drawing. Filed Jan. 23, 1970, Ser. No. 5,425

Int. Cl. C07d 91/56

U.S. Cl. 260-304

7 Claims

Certain novel N-(1,2,3-benzothiadiazolyl)-salicylamides,
 useful as pesticides.

3,637,725

CERTAIN 5-NITRO-4-THIAZOLIN- 2-YLIDENEUREA COMPOUNDS

Leslie M. Werbel, Ann Arbor, Mich., assignor to Parke,
 Davis & Company, Detroit, Mich.

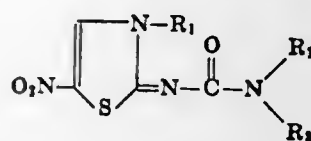
No Drawing. Continuation-in-part of abandoned applica-
 tion Ser. No. 733,266, May 31, 1968. This application
 Mar. 10, 1969, Ser. No. 805,802

Int. Cl. C07d 91/22

U.S. Cl. 260-306.7

6 Claims

5-nitro-4-thiazolin-2-ylideneurea compounds having the
 formula



where R_1 is alkyl, alkenyl, chloroalkenyl, dichloroalkenyl,
 hydroxyalkyl, alkoxyalkyl, alkylthioalkyl, benzyl, sub-
 stituted benzyl, aralkyl, aryloxyalkyl, alkanoyloxyalkyl,
 cycloalkylalkyl, or propynyl; R_2 is hydrogen, alkyl, cyclo-
 alkyl, chloroethyl, allyl, or propynyl; R_3 is hydrogen,
 methyl, or ethyl; or R_2 and R_3 together with -N represent
 heterocyclic amino; and their production by (a) reacting
 a 4-thiazolin-2-ylideneurea or a salt thereof with a ni-
 trating agent, (b) reacting a 5-nitro-2-thiazolylurea with
 an organic halide in the presence of a base, or (c) reacting
 one of the 3-hydroxyalkyl compounds with an alkanoyl
 acid or a reactive derivative thereof to produce one of the
 3-alkanoyloxy compounds. The compounds are useful
 schistosomacides and trichomonacides.

3,637,726

SUBSTITUTED-5-[(3,4-DIHALOPHENOXY) METHYL]-2-OXAZOLINE COMPOUNDS

Herman Eldridge Faith, Indianapolis, Ind., assignor to
 The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 9, 1970, Ser. No. 27,132

Int. Cl. C07d 85/28

U.S. Cl. 260-307 F

6 Claims

Substituted - 5 - [(3,4 - dihalophenoxy)methyl] - 2-
 oxazoline compounds and their pharmaceutically-accept-
 able salts, such as 2-amino-5-[(3,4-dichlorophenoxy)
 methyl]-2-oxazoline and 2-(imino)-5-[(3,4-dichlorophe-
 noxy)methyl]-3-methyl-2-oxazolidine hydrobromide are
 prepared by the reaction of a substituted 1-amino-3-(3,4-
 dihalophenoxy)-2-propanol with cyanogen bromide. The
 novel compounds are useful as antimicrobials for the con-
 trol of bacteria and fungi.

3,637,727

PROCESS FOR PRODUCING N-CARBOXY ANHYDRIDES OF AMINO ACIDS

Yasuo Fujimoto and Keizo Tatsukawa, Machida-shi, and
 Yoichi Koiwa, Tokyo, Japan, assigns to Kyowa
 Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan

No Drawing. Filed May 15, 1968, Ser. No. 729,460

Claims priority, application Japan, May 17, 1967,
 42/30,877; May 22, 1967, 42/32,107, 42/32,108

Int. Cl. C07d 85/34

U.S. Cl. 260-307 B

20 Claims

A process for the preparation of highly pure N-carboxy
 anhydrides of amino acids which comprises suspending
 an amino acid in an inert organic solvent and reacting
 with phosgene in the presence of a metal salt, metal
 oxide, or a powdered metal or alloy at a temperature of
 at least 50° C. The reaction may also be effected in the
 absence of the additive if it is carried out in a solvent
 comprising an aromatic nitro compound or an aromatic
 halogen compound, or if it is conducted at a temperature
 above 60° C. in a mixed hydrocarbon solvent of an
 aliphatic hydrocarbon and an aromatic hydrocarbon, the
 latter being a petroleum fraction.

3,637,728

2-PHENYLBENZOXAZOLE DERIVATIVES

Christian Luethi, Muenchenstein, Switzerland, assignor
 to Ciba Limited, Basel, Switzerland

Filed June 4, 1969, Ser. No. 830,283

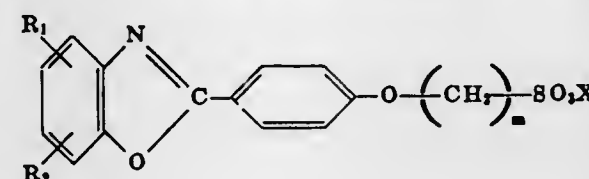
Claims priority, application Switzerland, June 11, 1968,
 8,659/68

Int. Cl. C07d 85/00

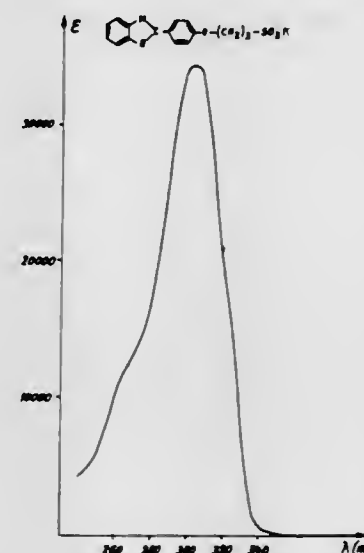
U.S. Cl. 260-307

3 Claims

2-phenylbenzoxazoles of the formula



wherein R_1 stands for hydrogen, alkyl, phenylalkyl or
 cycloalkyl, R_2 stands for hydrogen or alkyl, m is 3 or 4



and X a cation. These compounds are valuable ultraviolet
 absorbers for cosmetic purposes.

3,637,729

PERFLUOROALKANESULFONAMIDES N-SUBSTI- TUTED BY HETEROCYCLIC GROUPS

Joseph Kenneth Harrington, Edina, Donald C. Kvam,
 North Oaks, Arthur Mendel, Vadnais Heights, and
 Jerry E. Robertson, North Oaks, Minn., assigns to
 Minnesota Mining and Manufacturing Company, St.
 Paul, Minn.

No Drawing. Continuation-in-part of abandoned applica-
 tion Ser. No. 588,338, Oct. 21, 1966. This application
 June 30, 1969, Ser. No. 837,932

Int. Cl. A01n 9/22, 9/28; C07d 55/06

U.S. Cl. 260-308 R

2 Claims

N-substituted perfluoroalkanesulfonamides in which
 the sulfonamide nitrogen substituent is a heteroatom-con-
 taining group selected from pyridinyl, quinolinyl, pyrazo-
 ly, thiazolyl, quinoxalinylphenyl, imidazo[1,2a]pyridinyl-
 phenyl, imidazo[1,2a]pyrimidinylphenyl, benzoxazolyl and
 1,2,4-triazolyl, which can be unsubstituted or which can
 carry certain substituents.

Also included are salts of these compounds, composi-
 tions containing the compounds of the present invention
 and processes for their preparation and use. The com-
 pounds are active as herbicides and plant growth
 modifiers.

3,637,730

TETRAHYDROBENZIMIDAZOLES

Berthold Halpern, Menlo Park, Calif., assignor to
 Syntex Corporation, Panama, Panama

No Drawing. Filed Dec. 1, 1966, Ser. No. 598,190

Claims priority, application Mexico, Dec. 18, 1965,
 86,307

Int. Cl. C07d 49/36

U.S. Cl. 260-309

8 Claims

4,5,6,7 - tetrahydrobenzimidazoles prepared by the re-
 action of a cyclic 1,3-diketone with an α -amino acid ester
 hydrohalide followed by treatment with base to obtain an
 N - (cycloalk - 2 - en - 1 - one - 3 - yl) α -amino acid which
 is converted into N-(α -isonitrosocycloalk - 1 - one - 3-
 ylidene) α -amino acid by treatment with nitrous acid or
 nitrosyl chloride which is cyclized to a 4,5,6,7-tetrahydro-
 benzimidazole having hypotensive activity.

3,637,731

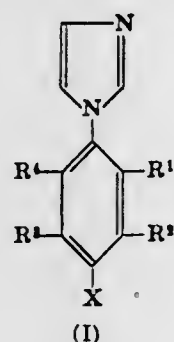
1-(ALKYLSUBSTITUTED PHENYL)IMIDAZOLES
USEFUL IN ACTH RESERVE ASSAY
 Alexander Lawrence Johnson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 18, 1968, Ser. No. 745,672
 Int. Cl. C07d 49/36

U.S. Cl. 260—309

7 Claims

Described and claimed are the 1-(alkylsubstituted-phenyl) imidazoles of the formula



wherein at least one of R¹ through R⁴ is a saturated lower aliphatic group of up to six carbon atoms, the remaining R groups being hydrogen, and X is hydrogen with the proviso that X can be lower alkyl when both R¹ and R⁴ are lower alkyl.

The compounds of this invention possess selective activity as inhibitors of steroid hydroxylation in the adrenal cortex and are thus useful in the ACTH reserve assay.

3,637,732

SATURATED HYDROCARBON SUBSTITUTED IMIDAZOLYL PHOSPHORUS COMPOUNDS
 Paul B. Budde and Henry Tolkmith, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Feb. 1, 1966, Ser. No. 523,852, now Patent No. 3,466,369, dated Sept. 9, 1969. Divided and this application Apr. 24, 1969, Ser. No. 835,846

Int. Cl. C07d 49/36

U.S. Cl. 260—309

4 Claims

Imidazolyl phosphorothioates wherein the phosphorus atom additionally bears (a) an alkyl or cyclohexyl group and (b) a heteroparaffinic amido, imidazole, or di-substituted amino group in which one substituent is methyl or ethyl and the other substituent is lower alkyl, phenyl-loweralkyl, furfuryl, tetrahydrofurfuryl, or 4-pyridyl-methyl, the imidazole radicals being optionally substituted with one member selected from lower alkyl and phenyl. These compounds are useful as fungicides.

3,637,733

2-BENZIMIDAZOLECARBAMIC ACID ESTERS FROM o-PHENYLENEDIAMINES, CYANAMIDE AND DIALKYL CARBONATES

Rudolf Schlatter, Chadds Ford, Pa., and Charles D. Adams, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 674,739, Oct. 12, 1967, which is a continuation-in-part of application Ser. No. 594,384, Nov. 15, 1966. This application Nov. 21, 1968, Ser. No. 777,919

Int. Cl. C07d 49/38

U.S. Cl. 260—309.2

3 Claims

A process for making 2-benzimidazolecarbamic acid, alkyl esters by reacting cyanamide or a cyanamide salt with a dialkyl carbonate at a temperature between 30° C. and 120° C. to form an alkyl cyanocarbamate salt, then reacting the alkyl cyanocarbamate salt with an o-phenylenediamine at a temperature between 40° and 130° C. to

form the desired product and recovering it from the reaction mixture.

The 2-benzimidazolecarbamic acid, alkyl esters, are useful as intermediates in the preparation of dialkyl esters of 2-aminobenzimidazole-1-carboxylic acids, which are excellent fungicides.

3,637,734

BENZIMIDAZOLYL FURAN COMPOUNDS
 Horst Harnisch, Cologne, Buchheim, and Roderich Raue, Leverkusen-Wiesdorf, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

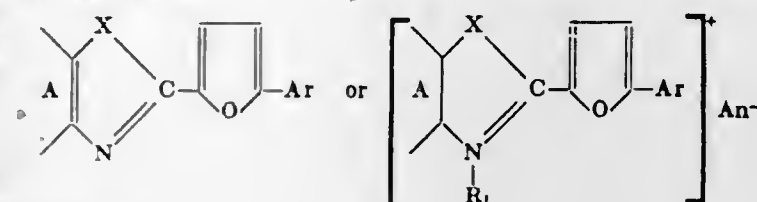
No Drawing. Continuation of application Ser. No. 517,062, Dec. 28, 1965. This application June 17, 1969, Ser. No. 838,011

Claims priority, application Germany, Dec. 31, 1964, F 44,856; Aug. 4, 1965, F 46,812
 Int. Cl. C07d 49/38, 85/48

U.S. Cl. 260—309.2

1 Claim

Optical brightening composition and method of brightening synthetic materials such as polyacrylonitrile and polyamides by applying as active component a compound of the formula:



wherein

A is a residual member of an aromatic ring system condensed with the heterocyclic ring;

X is



wherein R stands for a member selected from the group consisting of hydrogen, alkyl, chloroalkyl, cyanoalkyl, alkenyl, cycloalkyl and aralkyl;

Ar is an aromatic radical;

R₁ is a member selected from the group consisting of an alkyl, alkenyl, cycloalkyl and aralkyl radical; and An⁻ is an anion.

3,637,735

SILYLMETHYL THIOPSEUDOURA SALT
 Sandor Barcza, West Orange, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Feb. 24, 1970, Ser. No. 13,819
 Int. Cl. C07d 49/39; C07f 7/10

U.S. Cl. 260—309.6

3 Claims

The compounds are tri-substituted silylmethyl thiopseudourea salts, e.g., 1,3-dimethyl-2-trimethylsilylmethylthiopseudourea hydrochloride, and are useful as anti-inflammatory agents and analgesics. Said compounds are obtainable by reacting a suitable trisubstituted halomethylsilane with a thiourea.

3,637,736

N'-SUBSTITUTED-6-NITROINDAZOLES
 Pasquale P. Minieri, Woodside, N.Y., assignor to Tenneco Chemicals, Inc.

No Drawing. Filed Oct. 25, 1966, Ser. No. 589,235
 Int. Cl. C07d 49/18

U.S. Cl. 260—310 C

2 Claims

N'-Substituted-6-nitroindazoles are useful in the control of the growth of undesirable fungi, bacteria, plants and insects. Among the most active of these compounds are N'-thiocyanatomethyl-6-nitroindazole and N'-chloromethyl-3-chloro-6-nitroindazole.

3,637,737

3-AMINOMETHYLPYRAZOLINONES
 Bernard Loev, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Jan. 24, 1969, Ser. No. 793,890

Int. Cl. C07d 49/14

U.S. Cl. 260—310 A

2 Claims

3-aminomethylpyrazoles having anti-hypertensive activity are prepared from the reaction of a lower alkyl aminoacetate with a hydrazine.

3,637,738

CYCLOALKANO[c]PYRAZOLE ETHERS
 Heinz Werner Gschwend, Millburn, and Neville Finch, West Orange, N.J., assignors to Ciba Corporation, Summit, N.J.

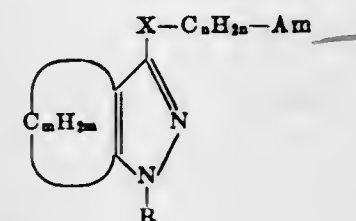
No Drawing. Continuation-in-part of application Ser. No. 762,338, Sept. 16, 1968. This application Feb. 12, 1969, Ser. No. 798,801

Int. Cl. C07d 49/18

U.S. Cl. 260—311

7 Claims

Basic 3-ethers of cycloalkano[c]pyrazoles, e.g. those of the formula



R=aralkyl or aryl

Am=an amino group

X=O or S

m=3-7

n=2-7

acyl derivatives, quaternaries and salts thereof are antidepressants.

3,637,739

TETRAHYDROTETRAAZAPORPHINE DYESTUFFS
 Bernard Lamure, Lyon, France, assignor to Societe Rhodaceta, Paris, France

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,584

Claims priority, application France, Mar. 29, 1968, 146,471

Int. Cl. C07d 27/76

U.S. Cl. 260—314

5 Claims

The invention provides novel tetrahydrotetraazaporphine dyestuffs containing carboxylic ester groups which can be used to colour polyamides and polyesters by incorporation in the polymer molecule.

3,637,740

AMINOBENZOCYCLOALKANE COMPOUNDS

Reinhard Sarges, Mystic, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,056
 Int. Cl. C07c 87/100; C07d 27/02

U.S. Cl. 260—326.5 M

18 Claims

Substituted 1,2,3,4-tetrahydro-1-naphthylamines and substituted 1-aminoinndanes, their acid addition salts and their racemic and d- and l-forms are useful in the field of mental health as anti-anxiety agents and/or as antidepressants. N,N-dimethyl-5-methoxy-8-chloro-1,2,3,4-tetrahydro-1-naphthylamine and 1-(5-methoxy-8-acetyl-1,2,3,4-tetrahydro-1-naphthyl)pyrrolidine are preferred embodiments.

3,637,741

TETRACYCLINE DERIVATIVES

Takeshi Mayama, Kawasaki-shi, Taro Miura, Yokohama-shi, and Kazuo Saito, Fujisawa-shi, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

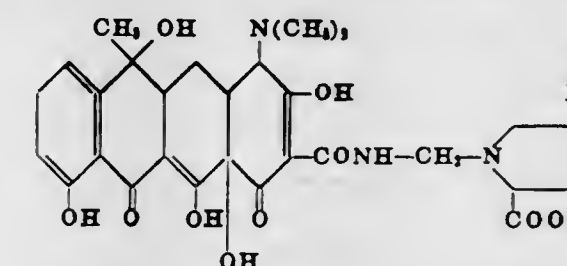
Filed July 28, 1969, Ser. No. 845,183

Int. Cl. C07c 103/19

U.S. Cl. 260—326.3

4 Claims

New tetracycline derivatives of the general formula



and the acid-addition salts and base salts thereof, wherein X is selected from the group consisting of hydrogen and hydroxyl.

3,637,742

PYRROLIDINE COMPOUNDS WITH UNSATURATED SUBSTITUENT

Ian Moyle Lockhart, Egham, England, assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,988
 Claims priority, application Great Britain, Feb. 7, 1969, 6,880/69

Int. Cl. C07d 27/04

U.S. Cl. 260—326.5 M

6 Claims

m-(3-alkyl-3-pyrrolidinyl)phenol compounds substituted at the 1-position of the pyrrolidine ring by an unsaturated hydrocarbon or an unsaturated chlorohydrocarbon substituent; esters thereof; and salts of the foregoing compounds. These compounds are pharmacological agents and have analgesic and morphine antagonist properties. The phenols can be prepared by cleavage of the corresponding phenolic ethers or by reduction of a 1-(unsaturated acyl) derivative. The esters can be prepared by esterification of the phenols.

3,637,743

PRODUCTION OF 2-PYRROLIDONES

Frank R. Prince, Los Angeles, Calif., assignor to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed Aug. 28, 1968, Ser. No. 755,813

Int. Cl. C07d 27/08

U.S. Cl. 260—326.5 FN

6 Claims

2-pyrrolidone (γ-butyrolactam) and N-substituted-2-pyrrolidones are produced in one step by the carbonylation of allyl chloride in the presence of ammonia in a two-phase solvent system, e.g., benzene and water.

3,637,744

INDOLEAZOCINES

John P. Yardley, King of Prussia, and Herchel Smith, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Apr. 4, 1969, Ser. No. 813,712

Int. Cl. C07d 27/54

U.S. Cl. 260—326.9

6 Claims

This invention is concerned with 2,3,4,5,6,7-hexahydro-1H-indolo[5,4-b]azocines, derivatives thereof and their acid addition salts which are useful as central system depressants. Further, some of these compounds are useful intermediates in the preparation of other such compounds.

3,637,745

N-(β -CYANOVINYL)-INDOLINES

Karl-Helz Heller, Moers, Manfred Kreuder, Krefeld, and Karl Merz, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 29, 1967, Ser. No. 642,132

Claims priority, application Germany, June 15, 1966, F 49,471

Int. Cl. C07d 27/38

U.S. Cl. 260—326.11

4 Claims

This invention relates to ultraviolet absorbers based on a series of substituted N-phenylaminoethylene compounds.

3,637,746

PROCESS FOR PREPARING N-ARYL- α -OXOCYCLOPOLYMETHYLENE AMINES AND RELATED COMPOUNDS

Peter H. L. Wel, Upper Darby, and Stanley C. Bell, Penn Valley, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed June 10, 1968, Ser. No. 735,540

Int. Cl. C07d 27/08

U.S. Cl. 260—326.5

1 Claim

The invention is directed to N-aryl- α -oxocyclopolymethylene amines and N-aryl- α -oxo- α' -iminocyclopolymethylene amines which are central nervous system depressants.

3,637,747

3-(2-AMINOPHENYL) INDOLE DERIVATIVES

Jules Freedman, Thilensville, and Claude I. Judd, Mequon, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Apr. 30, 1969, Ser. No. 820,675

Int. Cl. C07d 25/76

U.S. Cl. 260—326.13 R

9 Claims

The compounds are 3-(2-aminophenyl) indoles which are useful as anticonvulsant agents and central nervous system depressants. The compounds may also be used as intermediates in the preparation of pickling agents, mothproofing agents and wood preservatives. Representative of the compounds disclosed is 3-(2-acetamido-5-chloro)-phenylindole.

3,637,748

HETERYL-METHANE COMPOUNDS

Hubertus Psar and Roderich Raue, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 5, 1968, Ser. No. 719,222

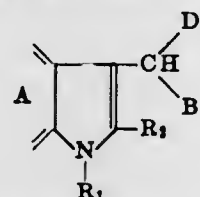
Claims priority, application Germany, Apr. 14, 1967, F 52,123

Int. Cl. C07d 27/56

U.S. Cl. 260—326.15

7 Claims

A heteryl methane compound of the formula



wherein R_1 and R_2 stand for members selected from the class consisting of hydrogen, lower alkyl, cycloalkyl,

aralkyl and aryl, A stands for the residual part of an aromatic ring system, B stands for a carbocyclic or heterocyclic ring system being linked with the CH group via a cyclic carbon atom of said carbocyclic or heterocyclic ring system, D stands for a carbocyclic or heterocyclic ring system being linked with the CH group via a cyclic carbon atom of said carboxylic or heterocyclic ring system, said heteryl methane compound being free of sulfonic acid groups and are valuable dyestuff intermediates.

3,637,749

 α -CYANO-1,3-DITHIOLANE- $\Delta^{2,3}$ -THIONOACETIC ACID DERIVATIVES AND PROCESS FOR PREPARING THE SAME

Brian Russ O'Connor, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 13, 1968, Ser. No. 752,131

Int. Cl. C07d 71/00, 73/00

U.S. Cl. 260—327 M

3 Claims

Halocycloethylene reacts with alkylene trithiocarbonates to form α -cyano-1,3-dithiolane- $\Delta^{2,3}$ -thionacetyl halides and α -cyano-1,3-dithiane- $\Delta^{2,3}$ -thionacetyl halides. Further products can be made by interchange of the halogen or by reacting the halogen with an active hydrogen compound such as an alcohol, thiol or amine. The products are useful as dyestuffs for acetate, acrylic and polyamide fibers.

3,637,750

 α,α' -TRIMETHYLSILYL BUTYL, TRIMETHYLBUTYRYLTHIOPHENE

Edward V. Wilkus, Albany, and Abe Berger, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Division of application Ser. No. 753,328, Mar. 29, 1968, now Patent No. 3,489,781, which is a division of application Ser. No. 591,117, Nov. 1, 1966, now Patent No. 3,410,822, which in turn is a continuation-in-part of application Ser. No. 408,367, Nov. 2, 1964, now Patent No. 3,301,817. Divided and this application Oct. 20, 1969, Ser. No. 871,238

Int. Cl. C07d 63/12

U.S. Cl. 260—332.3 C

1 Claim

The present invention relates to carbonyl-containing organosilicon materials useful for making elastomers having improved resistance to swell in fluid hydrocarbons. More particularly, the present invention relates to a method of acylating an aryl nucleus with certain carboxylic acid halides and to the resulting silicon containing materials obtained therefrom.

3,637,751

PRODUCTION OF TRIOXANE

Hugo Fuchs and Heinrich Sperber, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Apr. 15, 1970, Ser. No. 28,958

Claims priority, application Germany, Apr. 17, 1969, P 19 19 495.7

Int. Cl. C07d 19/00

U.S. Cl. 260—340

1 Claim

Manufacture of trioxane from formaldehyde with the aid of an acid catalyst in the presence of an oily phase which is capable of preventing the separation of paraformaldehyde and which consists of a phthalic ester.

3,637,752

METHYLENEDIOXY BENZENE ETHERS

John B. Siddall, Palo Alto, Calif., assignor to Zeecon Corporation, Palo Alto, Calif.

No Drawing. Filed May 18, 1970, Ser. No. 38,503

Int. Cl. C07d 13/10

U.S. Cl. 260—340.5

5 Claims

Method for the control of bugs of the family Miridae using methylenedioxyphenyl ethers and compositions therefor.

3,637,753

MONOCARBAMATES AND N-LOWER ALKYL OR N-PHENYL MONOCARBAMATES OF SUBSTITUTED AND UNSUBSTITUTED 1-PHENYL-2,2-DIALKYL-1,3-DIHYDROXYPROPANES

Kurt Kulka, New York, N.Y., assignor to Fritzsche Dodge & Olcott Inc., New York, N.Y.

No Drawing. Division of application Ser. No. 423,327, Jan. 4, 1965, now Patent No. 3,415,844, which is a continuation-in-part of applications Ser. No. 282,549, May 23, 1963, and Ser. No. 284,331, May 31, 1963. This application Sept. 23, 1968, Ser. No. 761,797

Int. Cl. C07d 13/10

U.S. Cl. 260—340.5

25 Claims

The monocarbamates of this invention manifest tranquilizing effects in animals. When administered to animals they produce narcosis that emphasizes relaxation. The monocarbamate and N-lower alkyl monocarbamates are produced by the utilization of 1-phenyl-2,2-dialkyl-1,3-dihydroxypropanes, 1-substituted phenyl-2,2-dialkyl-1,3-dihydroxypropanes or certain derivatives of such dihydroxypropanes. The monocarbamates may be primary or secondary monocarbamates or mixtures of them, depending upon the method employed to produce them.

3,637,754

9,10-SECOGONA-1,3,5(10),8(14)-TETRAENE-9-ONES

Robert Bucourt, Clichy-sous-Bois, Michel Vignau, Neuilly-sur-Seine, and Jean Raynal, Paris, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Original application Aug. 21, 1967, Ser. No. 661,786, now Patent No. 3,506,693, dated Apr. 14, 1970. Divided and this application Jan. 21, 1970, Ser. No. 8,119

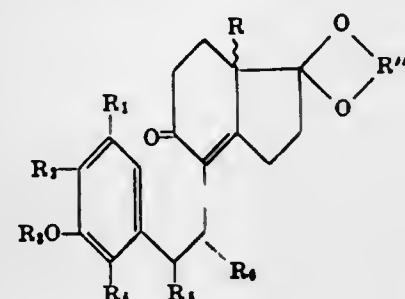
Claims priority, application France, Aug. 25, 1966, 74,179; Nov. 25, 1966, 85,043; July 7, 1967, 113,579

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

3 Claims

This invention relates to an optically active seco-gona-tetraene of the formula



where R is an alkyl having 1 to 3 carbon atoms, R'' is a lower alkylene having 2 to 4 carbon atoms, R_1 , R_2 and R_4 are substituents selected from the group consisting of hydrogen, lower alkyl and lower alkoxy, R_3 is lower alkyl, R_5 and R_6 are substituents selected from the group consisting of hydrogen, α -lower alkyl and β -lower alkyl and the wavy line indicates either the α -configuration or the β -configuration, which are used as intermediates in the preparation of optically active 13-alkyl gonapentaenes.

3,637,755

PYRANOCYCLOPENTENEDIONE KETAL

Robert Bucourt, Clichy-sous-Bois, Michel Vignau, Neuilly-sur-Seine, and Jean Raynal, Paris, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Original application Aug. 21, 1967, Ser. No. 661,786, now Patent No. 3,506,693, dated Apr. 14, 1970. Divided and this application Jan. 21, 1970, Ser. No. 8,120

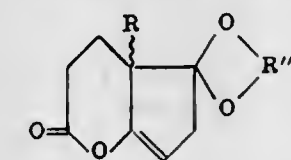
Claims priority, application France, Aug. 25, 1966, 74,179; Nov. 25, 1966, 85,043; July 7, 1967, 113,579

Int. Cl. C07d 15/10

U.S. Cl. 260—340.3

3 Claims

This invention relates to an optically active lactone of the formula



where R is alkyl having 1 to 3 carbon atoms, R'' is a lower alkylene having 2 to 4 carbon atoms and the wavy line indicates either the α or β configuration, which may be used in the preparation of 13-alkyl gonapentaenes.

3,637,756

DIOXASPIROALKANONE PROPIONIC ACIDS, ESTERS AND NITRILES THEREOF

Robert Bucourt, Clichy-sous-Bois, Michel Vignau, Neuilly-sur-Seine, and Jean Raynal, Paris, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Original application Aug. 21, 1967, Ser. No. 661,786, now Patent No. 3,506,693, dated Apr. 14, 1970. Divided and this application Feb. 6, 1970, Ser. No. 13,217

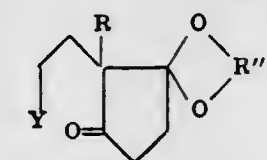
Claims priority, application France, Aug. 25, 1966, 74,179; Nov. 25, 1966, 85,043; July 7, 1967, 113,579

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

9 Claims

This invention relates to a cyclopentylpropionyl ketal of the formula



wherein R is an alkyl having 1 to 3 carbon atoms, Y is a substituent selected from the group consisting of —COO— lower alkyl —COOH and —C=N and R'' is a lower alkylene having 2 to 4 carbon atoms, which is used as intermediates in the preparation of 13-alkyl gonapentaenes.

3,637,757

DIETHYLAMINO FLUORANS

Chao-Han Lin, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

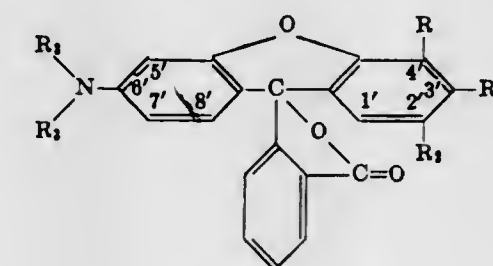
Filed Jan. 21, 1969, Ser. No. 792,325

Int. Cl. C07d 21/00

U.S. Cl. 260—343.3

3 Claims

A chromogenic material of normally colorless form is disclosed, having a structural formula:



wherein one of R, R₁ and R₂ represents a chemical radical from a group comprising —CO—R₄, —O—R₄, and —CO—O—R₄ wherein R₄ represents hydrogen, aryl radicals, and alkyl radicals; the remaining others of R, R₁ and R₂ represent hydrogen, halogen, and alkyl radicals; and R₃ represents hydrogen and alkyl radicals having less than five carbon atoms—said materials assuming a colored form upon reactive contact with a Lewis acid molecule. Examples include 2'-benzyloxy-6'-diethylamino-fluoran; 6'-diethylamino-2'-formylfluoran; 2'-carbomethoxy-6'-diethylamino-fluoran; and 2'-benzoyl-6'-diethylamino-4'-methylfluoran.

3,637,758

AROMATIC CARBOXYANHYDRIDES

Herward A. Vogel, Oakdale Township, Washington County, and Hans T. Olen, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

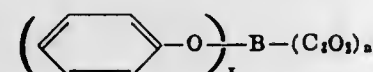
No Drawing. Original application Apr. 8, 1966, Ser. No. 541,124, now Patent No. 3,431,240, dated Mar. 4, 1969. Divided and this application Dec. 23, 1968, Ser. No. 819,501

Int. Cl. C07d 7/00

U.S. Cl. 260—345.2

13 Claims

Aromatic carboxyanhydrides of the formula



wherein x is 1-2, B is aromatic and contains from 6 to 13 carbon atoms, C₂O₂ is an anhydride group of which the carbonyl carbon atoms are bonded directly to aromatic carbon atoms in B and n is 1-2.

3,637,759

CHROMANES

Jaroslav Weichet, Ludvik Blaha, Jarmila Hodorova, Antonin Diabac, and Václav Trčka, Prague, Czechoslovakia, assignors to Spofa United Pharmaceutical Works, Prague, Czechoslovakia

No Drawing. Filed July 30, 1969, Ser. No. 846,235

Claims priority, application Czechoslovakia,

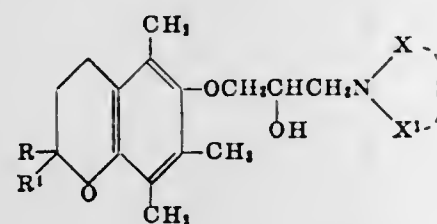
Aug. 1, 1968, 5,609/68

Int. Cl. C07d 7/20

U.S. Cl. 260—345.5

7 Claims

Novel chromane derivatives characterized by cardiovascular activity having the following formula:



wherein R represents hydrogen or straight or branched chain alkyl having from 1 to 16 carbon atoms, R¹ represents hydrogen or methyl, X¹ represents hydrogen, alkyl having 1 to 8 carbon atoms or aralkyl having up to 8 carbon atoms, X represents hydrogen, alkyl having 1 to 12 carbon atoms, aralkyl having up to 12 carbon atoms, or cycloalkyl having up to 12 carbon atoms, wherein X¹ and X, possibly together with a —C—C—C—, —C—O—C— or —C—N—C—

linkage can, taken together with the nitrogen atom to which they are attached form a heterocyclic ring, and the pharmaceutically acceptable acid addition salts.

3,637,760

COMPOUNDS OF FIVE AND SIX-MEMBERED CYCLIC ALPHA, BETA-UNSATURATED ETHERS

Rostyslaw Dowbenko, Gibsonia, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 671,990, Oct. 2, 1967. This application Jan. 19, 1970, Ser. No. 4,120

Int. Cl. C07d 7/04, 5/02

U.S. Cl. 260—345.8

7 Claims

Compounds containing 2-tetrahydropyranyloxy groups or 2-tetrahydrofuranyloxy groups are formed by reacting carboxylic acid esters containing hydroxyl groups with 2,3-dihydrofuran or 2,3-dihydrofuran. Preferred embodiments include 2-(2-tetrahydropyranyloxy)ethyl acrylate, 2-(2-tetrahydropyranyloxy)ethyl methacrylate, and butyl 2-(2-tetrahydropyranyloxy)ethyl fumarate. Homopolymers and interpolymer of the 2-tetrahydropyranyloxy and 2-tetrahydrofuranyloxy compounds with other ethylenic monomers are useful as films and coatings which cure very rapidly at low temperatures and are solvent resistant.

3,637,761

PROCESS FOR THE PREPARATION OF HIGH PURITY TRIMELLITIC ANHYDRIDE FROM TRIMELLITIC ACID BY THE CHEMICAL REDUCTION OF NITRO-COMPOUND IMPURITIES PRIOR TO DEHYDRATION AND DISTILLATION

Tsutomu Kuwata, Tokyo, and Syoichi Nagato and Tadashi Yamada, Iruma-gun, Japan, assignors to Dalcet Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,831

Claims priority, application Japan, Mar. 14, 1968,

43/16,990

Int. Cl. C07c 63/02

U.S. Cl. 260—346.3

9 Claims

An impure trimellitic acid solution containing nitro compounds as impurities is subjected to a reduction treatment, following which it is dehydrated and distilled to obtain highly pure trimellitic anhydride.

3,637,762

CYCLOALIPHATIC SULFIDES CONTAINING EPOXIDE GROUPS

Hanswilli von Brachel, Offenbach am Main, and Karl Hintermeier, Frankfurt am Main, Fechenheim, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main, Fechenheim, Germany

No Drawing. Filed Nov. 21, 1967, Ser. No. 684,618

Claims priority, application Germany, Nov. 26, 1966,

C 40,814

Int. Cl. C07d 1/18

U.S. Cl. 260—348 R

2 Claims

Cycloaliphatic sulfides containing epoxide groups, lower alkyl homologues thereof and a process for their production useful as intermediates and stabilizers.

3,637,763

PREPARATION OF (CIS-1,2-EPOXYPROPYL) PHOSPHONATES FROM SUBSTITUTED IMINO COMPOUNDS

Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Jan. 2, 1969, Ser. No. 789,060

Int. Cl. C07f 9/38

U.S. Cl. 260—348

4 Claims

A process for the preparation of a (cis-1,2-epoxypropyl)-phosphonic acid diester which comprises cyclizing a [1-hydroxy-2-methyl-3-(substituted imino)-pentyl]-phosphonic acid diester or a [1(1-hydroxyethyl)-2-(substituted imino)] phosphonic acid diester in the presence of base. The (cis-1,2-epoxypropyl)-phosphonic acid diesters can be converted to (cis-1,2-epoxypropyl)-phosphonic acid and its salts. (Cis-1,2-epoxypropyl)-phosphonic acid and its salts are active antibacterial agents.

3,637,764

α-NITROEPOXIDES AND METHOD OF PREPARING SAME

Howard Newman, Monsey, and Robert Bruce Angier, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,802

Int. Cl. C07d 1/00, 1/06

U.S. Cl. 260—348

1 Claim

This disclosure describes compounds of the class of α-nitroepoxides useful as chemical intermediates and antifungal agents.

3,637,765

METHOD FOR THE PREPARATION OF (CIS-1,2-EPOXYPROPYL)-PHOSPHONIC ACID AND DERIVATIVES

Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 796,173, Feb. 3, 1969. This application Jan. 16, 1970, Ser. No. 3,515

Int. Cl. C07f 9/38, 9/40, 9/42, 9/44

U.S. Cl. 260—348 R

12 Claims

A method for the preparation of (cis-1,2-epoxypropyl) phosphonic acid and the salt, ester and amide derivatives thereof, which comprises treating a 1-propenylphosphonate, 1-propenylphosphonic dihalide or 1-propenylphosphonic diamide which is substituted by a leaving group, with a base. Suitable leaving groups include, for example, the sulfonium, sulfoxonium, ammonium or phosphonium cation. The (cis-1,2-epoxypropyl)phosphonic acid product thus obtained and its salts are antibiotics which have utility as antibacterials in inhibiting the growth of gram-negative and gram-positive pathogenic bacteria.

3,637,766

METHOD FOR THE PREPARATION OF (CIS-1,2-EPOXYPROPYL)PHOSPHONIC ACID AND DERIVATIVES THEREOF

Edward J. Glankowski, 681 E. Front St., and Meyer Sletzing, 135 Rockview Ave., both of North Plainfield, N.J. 07060

No Drawing. Filed May 15, 1968, Ser. No. 729,446

Int. Cl. C07f 9/38, 9/40

U.S. Cl. 260—348

11 Claims

A method for the preparation of (cis-1,2-epoxypropyl) phosphonic acid and the salts and ester derivatives thereof which comprises treating a [(1-haloethoxy)halomethyl]phosphonic acid or a salt or ester thereof with (1) a reagent which releases iodide ion in solution and/or with (2) a metallic coupling agent capable of effecting epoxide-type ring closure. The (cis-1,2-epoxypropyl)phosphonic acid product thus obtained and its salts are antibacterial agents which have utility as antimicrobials in inhibiting the growth of gram-positive and gram-negative pathogenic bacteria.

3,637,767

2-(6'-METHOXYNAPHTH-2'-YL)PROPYLENE OXIDE AND 5'-HALO DERIVATIVES

Francisco S. Alvarez, Sunnyvale, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed July 30, 1968, Ser. No. 748,603

Int. Cl. C07d 1/18

U.S. Cl. 260—348 R

4 Claims

New compounds, 2-(6'-methoxynaphth-2'-yl)propylene oxide, 2-(6'-methoxynaphth-2'-yl)propionaldoxime, 2-hydroxy-2-(6'-methoxynaphth-2'-yl)propionitrile, 2-(6'-methoxynaphth-2'-yl)acrylonitrile, 2-(6'-methoxynaphth-2'-yl)acrylic acid, the corresponding 5'-halo compounds and 2-(5'-halo-6'-methoxynaphth-2'-yl)propionaldehyde are useful intermediates in producing 2-(6'-methoxynaphth-2'-yl)propionic acid and the corresponding 5'-halo acids from 6-methoxy-2-acetylnaphthalene and the corresponding 5-halo compounds. The 2-propionic acids are anti-inflammatory, analgesic, anti-pyretic and anti-pruritic

agents. The 2-propionaldehydes, obtained from the 2-acetyl compounds by way of the 2-propylene oxide, can be converted directly to the 2-propionic acids by way of the 2-propionaldoximes and the 2-propionitriles or more directly by Jones oxidation. Alternatively the 2-acrylonitriles, obtained from the 2-acetyl compounds by way of the 2-hydroxy-2-propionitrile, can be converted to the 2-propionic acid by way of the 2-acrylic acid or 2-propionitrile.

3,637,768

EPOXIDATION OF OLEFIN WITH AN OXOLANE

Richard D. Smetana, Beacon, N.Y., assignor to Texaco Development Corporation, New York, N.Y.

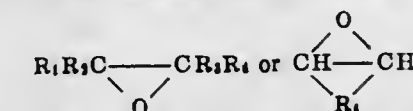
No Drawing. Filed Mar. 18, 1969, Ser. No. 808,348

Int. Cl. C07d 1/08

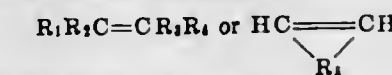
U.S. Cl. 260—348.5 L

8 Claims

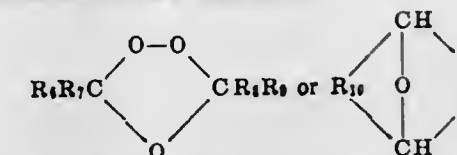
A method of producing an epoxide of the formula:



where R₁, R₂, R₃ and R₄ are hydrogen, alkyl, alkylaryl, arylalkyl or aryl and R₅ is α,β-alkylene comprising contacting an olefin of the formula:



with an oxolane of the formula:



where R₆, R₇, R₈ and R₉ are hydrogen, alkyl, aryl, alkylaryl and arylalkyl and R₁₀ is α,β-alkylene in the presence of a molybdenum, tungsten or vanadium epoxidation catalyst.

3,637,769

QUINONEDIIMONIUM SALTS

Peter Vincent Susi, Middlesex, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 333,729, Dec. 26, 1963, which is a continuation-in-part of application Ser. No. 281,059, May 16, 1963. This application Dec. 21, 1967, Ser. No. 692,312

Int. Cl. C07c 119/12

U.S. Cl. 260—396 N

10 Claims

A defined class of N,N,N',N'-tetraarylquinonediimonium as salts useful infrared absorbers is disclosed; especially the N,N,N',N'-tetrakis(p-dialkylaminophenyl)-p-benzoquinonediimonium salt, such as N,N,N',N'-tetrakis(p-diethylaminophenyl)-p-benzoquinonebis(imonium-hexafluoroantimonate). The diimonium salts are obtained by oxidation of N,N,N',N'-tetraarylarylethylenediamines with silver salts or by electrolytic methods.

3,637,770

PROCESS FOR THE PRODUCTION OF 16α,17α-DIHYDROXY-19-NOR-PROGESTERONE

Julien Warnant, Neuilly-sur-Seine, Jean Jolly, Cllichy-sous-Bois, and Robert Joly, Montmorency, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Original application May 23, 1967, Ser. No. 640,507. Divided and this application Dec. 31, 1969, Ser. No. 1,920

Claims priority, application France, Sept. 1, 1966,

74,982

Int. Cl. C07c 169/32

U.S. Cl. 260—397.4

8 Claims

A process for the production of 16α,17α-dihydroxy-19-nor-progesterone from a 3,5-diketal of 4,5-seco-estrane-3,5,17-trione by 17-cyanation, 16-dehydration, methylation, hydrolysis of the ketals, cyclization of the A ring and

hydroxylation of the Δ^{16} bond. The intermediates are also part of the disclosure.

or by passing droplets of the reaction products against air cooled below its dew point is increased by reacting the chloride or sulfate salts of sodium, potassium or lithium

3,637,771

7 α -METHYL- $\Delta^{4,9}$ -GONADIENES

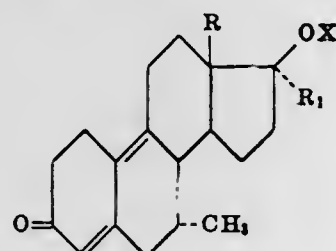
Lucien Nedelec, Clichy-sous-Bois, and Jean-Claude Gasc, Bondy, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 602,112, Nov. 29, 1966. This application July 7, 1969, Ser. No. 839,711

Claims priority, application France, Dec. 2, 1965, 40,659

Int. Cl. C07c 169/20, 169/22

U.S. Cl. 260—397.4 5 Claims
7 α -methyl-13 β -alkyl- $\Delta^{4,9}$ -gonadienes of the formula



wherein R is an alkyl of 1 to 4 carbon atoms, R₁ is selected from the group consisting of hydrogen and saturated and unsaturated hydrocarbon which may be substituted and X is selected from the group consisting of hydrogen, acyl of an organic carboxylic acid of 1 to 18 carbon atoms, acyl of a substituted carbonic acid of 1 to 18 carbon atoms and aliphatic, 5 to 6 member cyclic and heterocyclic hydrocarbons which may be substituted and to novel processes for their preparation. The invention also relates to novel anabolic and/or androgenic compositions having reduced or no estrogenic activity.

3,637,772

ANTIOXIDANT COMPOSITIONS

Heinrich Klau and Wolfgang Schlegel, Riehen, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Oct. 14, 1968, Ser. No. 767,474
Claims priority, application Switzerland, Oct. 27, 1967, 15,134/67

Int. Cl. A23d 3/04; B01j 1/16

U.S. Cl. 260—398.5 5 Claims
Antioxidant compositions containing a mixture of colamine and/or a higher fatty acid salt thereof and a higher fatty acid ester of ascorbic acid are disclosed.

3,637,773

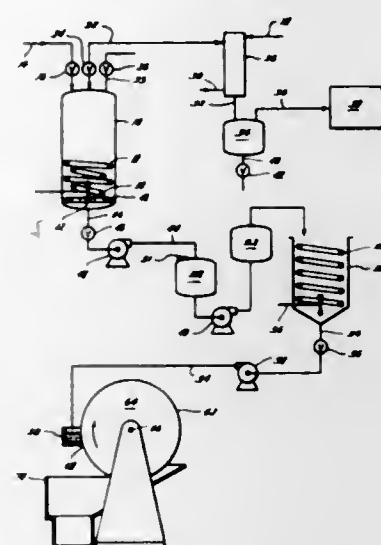
PROCESS FOR MAKING MONOGLYCERIDES RESISTANT TO THE FORMATION OF FREE FATTY ACIDS

Paul Gibson, Robert L. Campbell, Jr., and Guan Smith, Sherman, Tex., assignors to Anderson, Clayton & Co., Houston, Tex.

Filed Sept. 4, 1969, Ser. No. 855,254
Int. Cl. C11b 5/00; C11c 3/06

U.S. Cl. 260—398.5 18 Claims
Monoglycerides are made by a conventional process of (i) reacting a normally solid fat and glycerol in the presence of a calcium hydroxide or calcium oxide catalyst, (ii) neutralizing the catalyst with phosphoric acid, and (iii) removing unreacted glycerol leaving reaction products containing monoglycerides. The resistance to the later formation of free fatty acids in the reaction products when the reaction products are solidified on a flaking roll

The present invention is directed to polyglycerols and derivatives thereof and to novel compositions containing these compounds. It includes a novel procedure for decolorizing and deodorizing the polyglycerols and fatty acid esters thereof. More particularly, this invention relates to processes for the preparation of polyglycerols and derivatives thereof and to the use of these compounds over a broad spectrum of industrial and edible applications.



(I) in an aqueous solution with the reaction products after the neutralization of the catalyst and thereafter distilling off the water contained in the aqueous solution.

3,637,774

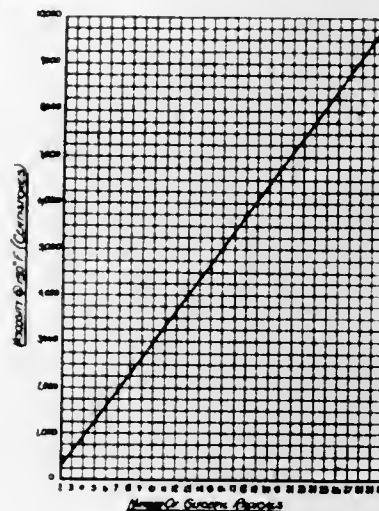
PROCESS FOR PREPARATION AND PURIFICATION OF POLYGLYCEROLS AND ESTERS THEREOF

Vigen K. Babayan, 374 W. Northfield Road, Livingston, N.J. 07039, and Henry Lehman, 51 Longview Road, Cedar Grove, N.J. 07009

Continuation of application Ser. No. 610,454, Jan. 19, 1967, which is a continuation of application Ser. No. 363,755, Apr. 29, 1964, which in turn is a continuation-in-part of applications Ser. No. 149,477, Oct. 5, 1961, and Ser. No. 357,258, Apr. 3, 1964. This application Nov. 3, 1969, Ser. No. 871,584

Int. Cl. C07c 4/12, 69/30, 67/06

U.S. Cl. 260—410.6 8 Claims



3,637,775

SOLUBLE COMPLEX ION METAL SILICATES
Paul C. Yates, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 8, 1969, Ser. No. 823,169
Int. Cl. C07f 3/06

U.S. Cl. 260—429.9 16 Claims
Silicates prepared from (i) a metal-containing cation coordinated to a polyamine ligand and (ii) a source of silica are useful as film-forming agents.

3,637,776

PROCESS FOR MAKING ANHYDROUS METAL ACETATES

Jay Y. Welsh, Catonsville, Md., assignor to Diamond Shamrock Corporation, Cleveland, Ohio
Filed Apr. 17, 1969, Ser. No. 816,927
Int. Cl. C07f 13/00, 15/02, 15/06

U.S. Cl. 260—429 5 Claims
Anhydrous acetate of manganese, iron, zinc, copper, cobalt or other heavy metal produced by vaporizing acetic acid from a body of substantially anhydrous liquid comprising acetic acid, condensing the vapor as a hot condensate, passing the hot condensate into and through a bed of pieces of the metal or metal oxide thereby forming some metal acetate, and returning the condensate together with dissolved acetate of the metal to said body of liquid. Because of the low level of solubility of the anhydrous metal salt the latter begins at an early stage to crystallize out of the returned solution of salt in acetic acid in the form of coarse crystals of the pure anhydrous salt. Finally, the salt crystals are separated from associated acid, and dried.

Said body of anhydrous liquid may include not only said acetic acid but also a higher-boiling acid which decomposes (upon heating) before it refluxes. In this event, the heating is effected under conditions to reflux acetic acid and to carry back to the body of liquid the acetate of the metal, whereupon a double exchange takes place in the body of liquid to obtain salt of said higher boiling acid.

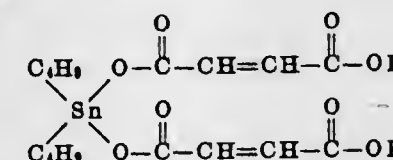
3,637,777

ORGANOTIN BIS(MONOORGANO MALEATES)

Samuel Hoch, Brooklyn, N.Y., assignor to Tenneco Chemicals, Inc.

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,900
Int. Cl. C07f 7/22; C08f 45/56

U.S. Cl. 260—429.7 4 Claims
Clear polyvinyl chloride resin compositions contain as stabilizer a liquid organotin compound having the structural formula



wherein each R represents a branched-chain alkyl group, an alkenyl group, or a hydroxy-alkenyl group, each of said groups having from 16 to 18 carbon atoms.

3,637,778

SYNTHESIS OF TETRAMETHYL LEAD

Ronald S. Bartlett, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Sept. 23, 1969, Ser. No. 860,311
Int. Cl. C07f 7/24

U.S. Cl. 260—437 R 8 Claims
A process for making tetramethyl lead in good yields using an aluminum-mercury catalyst is shown. The mixtures of aluminum-mercury or aluminum amalgams shown contain varying quantities of mercury, generally 0.2 to

50 percent by weight. The conventional methyl halide and sodium lead alloy feeds are employed. Temperatures are typically 100 to 120° C. and reactions are conducted in conventional autoclaves.

3,637,779

PREPARATION OF BETA-SILATHIURONIUM SALTS

Gary E. Le Grow, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Apr. 23, 1970, Ser. No. 31,349
Int. Cl. C07f 7/02, 7/04

U.S. Cl. 260—448.2 E 3 Claims
Isothiuronium salts in which the sulfur is beta to silicon having the formula



are prepared by reacting beta-halo compounds of the formula $XCHR''CH_2SiR_n(OR')_m$ with thiourea or methyl thiourea in the absence of a polar solvent. For example, beta-chloroethylmethyldimethoxysilane is reacted with thiourea in the absence of a solvent at 105° C. for 3 hours to give the corresponding isothiuronium salt of the silane.

3,637,780

PROCESS FOR THE PRODUCTION OF ARYL-PHENYLMETHYLCHLOROSILANES

Andre Bazouin, Luzinay, and Marcel Lefort, Caluire, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Mar. 24, 1970, Ser. No. 22,374
Claims priority, application France, Mar. 26, 1969, 6908928

Int. Cl. C07f 7/12

U.S. Cl. 260—448.2 P 7 Claims
Phenylarylmethylchlorosilanes (in which the aryl group is phenyl or C₁-C₆ alkylphenyl) are made by reaction of the corresponding aryl dimethylchlorosilane with phenylmethyldichlorosilane in the liquid phase in the presence of aluminum chloride and at a temperature of 10–100° C., with the formation as by-product of dimethyldichlorosilane which is removed as vapour as it is formed.

3,637,781

PROCESS FOR THE PURIFICATION OF MIXTURES OF ORGANOCHLOROSILANES

Andre Bazouin, Luzinay, and Marcel Lefort, Caluire, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Mar. 13, 1970, Ser. No. 19,507
Claims priority, application France, Mar. 17, 1969, 6907553

Int. Cl. C07f 7/20

U.S. Cl. 260—448.2 E 7 Claims
Mixtures of organosilicon compounds containing at least one chlorinated organosilicon compound are separated by adding an aprotic compound, or a precursor thereof, and either water or an alcohol to the mixture and then fractionally distilling the compound containing the smallest number of chlorine atoms bonded to the same silicon atom.

3,637,782

1-SILANAPHTHALENES

Sandor Barcza, West Orange, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Original application May 13, 1968, Ser. No. 728,802, now Patent No. 3,529,005, dated Sept. 15, 1970. Divided and this application Apr. 10, 1970, Ser. No. 31,448

Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 3 Claims
This invention relates to 1,2,3,4-tetrahydro 1-silanaphthalenes useful as intermediates in the preparation of tetracyclic silicon derivatives which are estrogenic agents.

3,637,783

COMPOSITION AND PROCESS FOR PREPARING FLEXIBLE POLYESTER BASED POLYURETHANE FOAMS

Loren A. Haluska, % Dow Corning Corp., Midland, Mich. 48640

No Drawing. Filed Sept. 25, 1968, Ser. No. 762,612
Int. Cl. C07f 7/08

U.S. Cl. 260—448.2 B 8 Claims

A composition is disclosed which consists essentially of a mixture of trimethylsilyl endblocked methylpolyoxyethylene siloxanes which composition is useful in the preparation of flexible polyester based polyurethane foams. Use of this composition minimizes problems of splitting and shrinkage of the foams, promotes uniformity of cell size, promotes compatibility of the reactants and catalyst, and allows wider processing and formulation latitude.

3,637,784

NOVEL AROMATIC PEROXY ESTERS

Desmond Sheehan, Hamden, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Original application Sept. 23, 1965, Ser. No. 489,748, now Patent No. 3,470,103, dated Sept. 30, 1969. Divided and this application Oct. 11, 1968, Ser. No. 766,989

Int. Cl. C07c 73/10, 63/10; C09k 1/00

U.S. Cl. 260—453 R 6 Claims

New 9,10-substituted anthracenes which are useful in a chemiluminescent reaction.

3,637,785

CATALYTIC PREPARATION OF AROMATIC ISOCYANATES

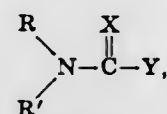
Eric Smith, Madison, and Ehrenfried H. Kober, Hamden, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,105

Int. Cl. C07c 119/04

U.S. Cl. 260—453 P 23 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprising a halide of a noble metal and an amine compound of the formula:



where R and R' are hydrogen, alkyl, aralkyl, aryl, alkaryl, and alkoxy aryl; X is sulfur, oxygen or NR·A, wherein A is an inorganic acid and Y is hydrogen, alkyl, aryl, alkaryl, alkoxyaryl, halogen, NRR' or SR. Preferred amine compounds include N,N-diphenyl formamide, N,N-dimethyl formamide, N,N-ditolyl formamide, N-tolyl-N-naphthyl formamide, N,N-diphenyl acetamide, N,N-ditolyl acetamide, N-phenyl-N-xylyl acetamide, thiocarbonyl, N-xylyl-N'-phenyl thiourea, N-tolyl-N'-phenyl thiourea, diphenyl carbamyl chloride, 2-methyl-1,3-diphenyl-2-thiopseudo urea. The noble metal halide is preferably a halide of palladium, rhodium, iridium, rhenium, platinum, and mixtures thereof. The catalyst system may also include molybdenum trioxide or another metal oxide.

3,637,786

PREPARATION OF AROMATIC ISOCYANATES BY CATALYTIC CARBONYLATION OF CORRESPONDING NITRO COMPOUND

Eric Smith, Madison, Conn., assignor to Olin Mathieson Chemical Corporation

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,177

Int. Cl. C07c 119/04

U.S. Cl. 260—453 P 19 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monox-

ide in the presence of a catalyst system comprising a halide of a noble metal and a nitroso compound.

Preferred nitroso compounds include 1-nitroso-2-naphthol, 2-nitroso-1-naphthol, nitrosobenzene, and isonitroso acetophenone. The noble metal halide is preferably a halide of palladium, rhodium, iridium, rhenium, platinum, and mixtures thereof. The catalyst system may also include molybdenum trioxide or another metal oxide.

3,637,787

METHOD FOR THE PREPARATION OF ARYL ISOTHIOCYANATES

Antoine Theofiel Rasschaert and Gaston Jacob Benoy, Berchem, and Jan Frans Van Besouw, Brasschaat, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,659

Int. Cl. C07c 161/04

U.S. Cl. 260—454 3 Claims

Monoarythiureas are heated in an inert solvent while introducing hydrogen chloride to produce aryl isothiocyanates. The process is simple and provides good yields.

3,637,788

PROCESS FOR PRODUCING ISOTHIOCYANATES

Peter J. Werth, Jr., Orange, and Anthony R. Di Napoli, Cheshire, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed July 19, 1968, Ser. No. 745,995

Int. Cl. C07c 161/04

U.S. Cl. 260—454 4 Claims

A novel process is described for converting a primary amine to the corresponding isothiocyanate via the intermediate ammonium dithiocarbamate. The latter is prepared by reacting the amine with carbon disulfide in the presence of ammonium hydroxide in accordance with conventional methods and the dithiocarbamate is reacted with nitrous acid, advantageously formed in situ, at a pH not less than 5.0 to obtain the desired isothiocyanate. Advantages of the novel process are high yield, use of low cost reactants, and ease of operation.

3,637,789

PROCESS FOR THE PRODUCTION OF ALKENYL THIOESTERS

Pierre Legendre, Pau, France, assignor to Societe Nationale des Petroles d'Aquitaine, Paris, France

No Drawing. Continuation of application Ser. No. 644,750, May 16, 1967. This application May 8, 1970, Ser. No. 33,175

Claims priority, application France, Apr. 21, 1967, 103,639

Int. Cl. C07c 153/07

U.S. Cl. 260—455 C 1 Claim

This invention relates to a process for the production of alkenyl thioesters of the general formula



by reacting compounds of the formula $\text{R}-\text{COSH}$ and a base MOH with a compound of formula



wherein R₁, R₂, R₃, and R₄ are members selected from hydrogen, chlorine, bromine, an alkyl group having 1-6 carbon atoms, and a phenyl group; wherein R represents an alkyl group having 1-6 carbon atoms, an alkenyl group having 1-16 carbon atoms, an aryl group from the group consisting of phenyl, tolyl, and cinnamyl; wherein X is halogen and wherein M represents a cation selected from sodium, potassium, calcium, ammonium, and the amine group of an organic base.

3,637,790

DIPHENYL THIOCARBONATES

Walter Traber, Riehen, and Anton G. Weiss, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed July 26, 1968, Ser. No. 747,801
Claims priority, application Switzerland, Aug. 1, 1967, 10,856/67

Int. Cl. C07c 154/00, 154/02

U.S. Cl. 260—455 B 8 Claims

Certain diphenyl thiocarbonates in which one alcohol moiety consists of an optionally substituted phenoxyphenyl radical and the other alcohol moiety consists of an optionally substituted phenyl or phenoxyphenyl radical, are disclosed as useful antimicrobial agents.

3,637,791

FLUORINATED ESTERS AND PREPARATION THEREOF

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Division of application Ser. No. 704,206, Dec. 28, 1967, now Patent No. 3,465,050, which is a division of application Ser. No. 623,483, Jan. 9, 1967, now Patent No. 3,419,602, which in turn is a division of application Ser. No. 398,129, Sept. 21, 1964, now Patent No. 3,384,628. Divided and this application May 21, 1969, Ser. No. 826,655

Int. Cl. C07c 69/62, 69/54; D06c 27/00

U.S. Cl. 260—456 R 23 Claims

Fluorine-containing esters are prepared by reacting a fluorinated ketone with an alkali metal fluoride, and reacting the resulting alcoholate intermediate with an acyl halide.

3,637,792

POLYHALOALKYLPOLYTHIOALKYL SULFATE ESTERS

Joseph E. Moore, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Division of application Ser. No. 588,009, Oct. 20, 1966, now Patent No. 3,519,672, which is a continuation-in-part of application Ser. No. 414,876, Nov. 30, 1964. Divided and this application Apr. 1, 1969, Ser. No. 834,188

Int. Cl. C07c 141/02

U.S. Cl. 260—458 5 Claims

Esters and ethers of the formula



where R' represents a polyhaloalkyl group having 1 to 2 carbon atoms and 3 to 5 halogens of atomic number 17 to 35, at least one of said halogens being bonded to the alpha carbon atom, X is alkylene of 1 to 4 carbon atoms and m is an integer varying from 2 to 3, and R is an organic radical which forms an ester or ether with the remainder of the molecule. Typical R groups are hydrocarbyl, phosphoro, carbonyl, oxycarbonyl, sulfate and sulfonate groups. These esters and ethers are useful as fungicides.

3,637,793

PROCESS FOR THE PREPARATION OF ETHIONIC ACID

August B. M. van Gysel and Jan E. F. Colle, Ostende, Belgium, assignors to UCB Societe Anonyme, Brussels, Belgium

No Drawing. Filed Jan. 15, 1968, Ser. No. 697,628
Claims priority, application Great Britain, Jan. 18, 1967, 2,598/67

Int. Cl. C07c 141/02

U.S. Cl. 260—458 2 Claims

Preparation of ethionic acid from sulfur trioxide and ethanol in a proportion of 2 moles: 1 mole at a temperature between 40 and 100° C. using ethionic acid as a reaction medium. In a preferred embodiment, ethanol

is introduced below the surface level and the sulfur trioxide above the level of the reaction medium.

3,637,794

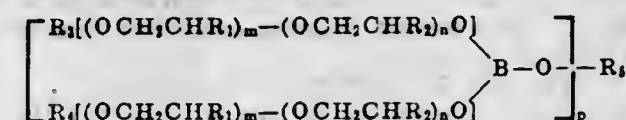
BORATE ESTERS PREPARED BY SUCCESSIVE REACTIONS OF BORIC ACID WITH GLYCOL MONOETHERS AND POLYOLS

Arthur W. Sawyer, Hamden, and David A. Csejka, Orange, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Filed July 14, 1967, Ser. No. 653,337
Int. Cl. C07f 5/04; C09k 3/02

U.S. Cl. 260—462 7 Claims

Borate esters of the formula:



where R₁ and R₂ are hydrogen or methyl; R₃ and R₄ are each an independently selected alkyl group having from 1 to 20 carbon atoms; R₃ is the organic residue exclusive of reactive hydroxyl groups of a polyol, p is an integer of from 2 to 6 inclusive and n and m are positive integers independently selected in each chain and whose sum in each chain is from 2 to 20, are prepared by successively reacting boric acid with a glycol monoether and a polyol. These esters are useful as stabilizers and corrosion inhibitors for lubricants and non-aqueous hydraulic fluids.

3,637,795

N-CYCLOALKYLOXYCARBONYLOXY-SUBSTITUTED N-PHENYLUREAS

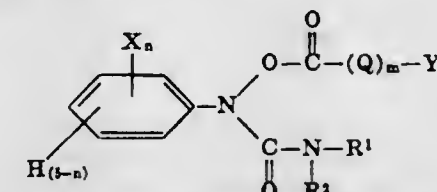
John Krenzer, Oak Park, and Sidney B. Richter, Chicago, Ill., assignors to Veliscol Chemical Corporation, Chicago, Ill.

No Drawing. Filed Dec. 5, 1968, Ser. No. 781,584

Int. Cl. C07c 69/00, 154/00

U.S. Cl. 260—463 4 Claims

This invention discloses new chemical compounds of the formula



wherein X is selected from the group consisting of alkyl, alkenyl, halogen, haloalkyl, alkoxy, alkylthio, nitro and dialkylamino; n is an integer from 0 to 5; R¹ and R² are independently selected from the group consisting of hydrogen and alkyl; Q is selected from the group consisting of oxygen, sulfur and alkylene; m is an integer from 0 to 1; and Y is cycloalkyl, optionally substituted with halogen or alkyl. This invention further discloses new herbicidal compositions comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to weeds, a compound of the above description.

3,637,796

TRIMESONITRILES

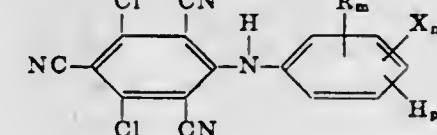
Robert D. Battershell, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Filed Oct. 30, 1968, Ser. No. 772,052

Int. Cl. C07c 121/64

U.S. Cl. 260—465 E 20 Claims

Trimesonitriles of the formula



where R is methyl, ethyl, trifluoromethyl, methoxy, nitro, cyano, and hydroxyl, X is halogen and H is hydrogen with m and n varying from 0 to 3, p from 0 to 5 and the sum of m , n , and p being 5 with the proviso that when methyl and chloro radicals are both present, m is 1 and n is 1 or 2 and when methyl and nitro radicals are both present, m is 2 and n is 0. The compounds are active fungicides, viricides, and bactericides.

3,637,797

PRODUCTION OF AROMATIC NITRILES

Martin Decker and Hanns-Helge Stechl, Ludwigshafen (Rhine), Christof Palm, Mannheim, and Gert Buerger, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed July 19, 1968, Ser. No. 746,076

Claims priority, application Germany, July 19, 1967, P 16 43 630.9

Int. Cl. C07c 121/02

U.S. Cl. 260—465 C

10 Claims

A process for the production of aromatic nitriles, in particular of phthalonitriles, from suitably alkyl-substituted aromatic hydrocarbons by catalytic oxidation with oxygen or oxygen-containing gases in the presence of ammonia at elevated temperature in the vapor phase using an aluminum oxide catalyst activated by metal oxide additives and containing 2 to 10% by weight vanadium (V) oxide, 1 to 10% by weight antimony(III) oxide, 0.02 to 2% by weight alkali metal oxide and, if desired, 0.1 to 4% by weight iron(III) oxide and/or 1 to 8% by weight tungsten(VI) oxide, the catalyst having been obtained by heating aluminum hydroxides or hydrated oxides to temperatures between 600 and 900° C.

3,637,798

CARBOXY 9-DICYANOMETHYLENE NITROFLUORENE

Theodore Sulzberg, South Piscataway, and Robert J. Cotter, Bernardsville, N.J., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Sept. 23, 1968, Ser. No. 761,845

Int. Cl. C07c 121/66

U.S. Cl. 260—465

15 Claims

Fluorenes have been prepared containing a dicyanomethylene group in the 9 position. In addition, the 2, 4, 5, and 7 positions contain carboxyl, carboxyl derivatives, nitro, or hydrogen substituents with the proviso that there is at least one carboxyl or carboxyl derivative in one of these positions. The electron accepting properties of these compounds and derived polymers make them useful for traps or filters for electron-rich compounds and as ultra-violet absorbers. These fluorene acceptor monomers and derived polymers, readily form charge-transfer complexes with a wide variety of Pi or Lewis bases which are useful as coloring agents, as electrical conducting materials and as ultra-violet absorbers.

3,637,799

SUSPENSION MEDIUM FOR NITRILOPOLY- ACETONITRILE

Jack L. Herz, Scarsdale, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,573

Int. Cl. C07c 121/02

U.S. Cl. 260—465.5 A

3 Claims

A suspension medium for forming a homogeneous slurry of nitrilopolyacetonitrile during manufacture thereof is described herein. The suspension medium may be described as an aqueous solution of an alkali metal inorganic phosphate compound present in an amount ranging between 0.1 and about 15% by weight. The presence

of the alkali metal inorganic phosphates aids in maintaining a homogeneous slurry of the nitrilopolyacetonitriles.

3,637,800

POLYCHLORO- OR BROMOMUCONONITRILE

Dennis Ernest Burton, Saffron Walden, England, assignor to Fisons Pest Control Limited, Harston-Cambridgeshire, England

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,305

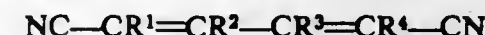
Claims priority, application Great Britain, Jan. 26, 1967, 3,912/67

Int. Cl. C07c 121/30

U.S. Cl. 260—465.7

4 Claims

Compounds of the formula



wherein R^1 , R^2 , R^3 , and R^4 are identical or different and represent hydrogen, bromine or chlorine provided that no more than one of the said groups is hydrogen. The compounds are active pesticides and are useful as fungicides, bactericides, insecticides and herbicides, and particularly as seed dressings, soil fungicides, etc.

3,637,801

CYCLOALIPHATIC COMPOUNDS

Robert C. Kuder, Excelsior, Minn., assignor to General Mills, Inc.

No Drawing. Continuation-in-part of application Ser. No. 570,772, Aug. 8, 1966. This application Mar. 13, 1969, Ser. No. 807,111

Int. Cl. C07c 69/74

U.S. Cl. 260—468 B

2 Claims

The compounds disclosed herein, which are useful in perfumes, flavor additives, odor ingredients, etc., are esters of alpha-[C₁₀-terpenyl]-alkanoic acid which are derived by esterification of alpha-[C₁₀-terpenyl] anhydride adducts.

3,637,802

HYDROXY-DIALKYL-BENZYLTHIOALKANOATES

Heinz Eggensperger, Gaderndorf over Bensheim, Volker Franzen, Heidelberg, Horst Muller, Furth-Odenwald, and Hans Stephan, Bensheim, Bergstrasse, Germany, assignors to Deutsche Advance Produktion G.m.b.H., Lautern am Odenwald, Germany

No Drawing. Filed Aug. 17, 1967, Ser. No. 661,213

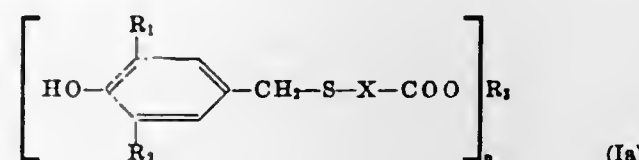
Claims priority, application Germany, Aug. 18, 1966, D 50,874

Int. Cl. C07c 149/40

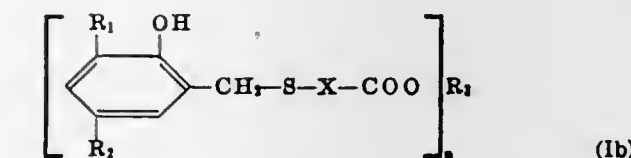
U.S. Cl. 260—470

7 Claims

Compounds of the formula



and



are used as stabilizers for organic compositions. In the formulae:

n is an integer from 1 to 4

R_1 and R_2 are alkyl

R_3 for $n=1$ is a member of the group consisting of thioether, ether, and alkyl radicals and for $n=2-4$ an alkylene group, and

X is alkylene.

3,637,803

ALKYL METHYLSULFONYLALKYL BENZOATES

Tsung-Ying Shen and Clifford H. Shunk, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Application Aug. 1, 1966, Ser. No. 569,039, which is a continuation-in-part of application Ser. No. 458,435, May 24, 1965. Divided and this application

May 22, 1969, Ser. No. 827,494

Int. Cl. C07c 147/06

U.S. Cl. 260—470

1 Claim

Benzyl methyl sulfones having anti-inflammatory, antipyretic and analgesic activity and processes for their preparation. Also included are pharmaceutical compositions containing said benzyl methyl sulfones and methods of treating inflammation by administering these particular compositions to patients.

3,637,804

PHENYLALANINE DERIVATIVES AND PREPARATION THEREOF

Balthasar Hegedus, Binningen, and Paul Zeller, Allschwil, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 684,623, Nov. 21, 1967. This application Feb. 12, 1968, Ser. No. 704,506

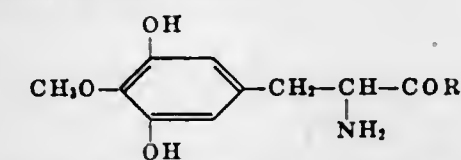
Claims priority, application Switzerland, Dec. 1, 1966, 17,197/66

Int. Cl. C07c 101/08

U.S. Cl. 260—471 A

6 Claims

Compounds of the formula



in which R_1 is hydroxy, alkoxy, or a substituted or unsubstituted amino group, optical isomers (preferably the L-antipodes) thereof and pharmaceutically acceptable salts thereof, useful as hypotensive agents, along with methods for their preparation from the appropriate phenylalanine precursor, are disclosed.

3,637,805

2-AMINO-5-ALKOXYTEREPHTHALIC DERIVATIVES

Gottfried Burkhardt, Ludwigshafen (Rhine), and Erwin Hahn, Viernheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 14, 1968, Ser. No. 752,482

Claims priority, application Germany, Aug. 18, 1967, P 16 43 645.6

Int. Cl. C07c 103/24

U.S. Cl. 260—471 R

3 Claims

New 2 - acylamino - 5 - alkoxyterephthalic derivatives which are useful as comonomers for optical brightening and light stabilization.

3,637,806

PROCESS FOR PRODUCING 3-DIMETHYLAMINO 4-PHENYL-4-CARBETHOXY-Δ¹-CYCLOHEXENE

Gerhard Satzinger, Gundelfingen, Freiburg, Germany, assignor to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Oct. 22, 1968, Ser. No. 769,718

Int. Cl. C07c 101/36

U.S. Cl. 260—471 A

6 Claims

A process is described for producing 3-dimethylamino-4-phenyl-4-carbethoxy-Δ¹-cyclohexene by the reaction, at an elevated temperature, of crotonaldehyde and ethyl α-phenyl-β-dimethylamino propionate in the presence of a water-absorbing agent.

3,637,807

CATALYTIC PROCESS FOR THE PREPARATION OF PHENOXYBENZOATES, PHENYL ETHERS AND DERIVATIVES THEREOF

Warren W. Kaeding, Westfield, N.J., and Joseph J. Ligi, La Porte, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 9, 1969, Ser. No. 814,812

Int. Cl. C07c 69/78

U.S. Cl. 260—473

13 Claims

When benzoic acid or a monosubstituted benzoic acid is subjected to air oxidation in the liquid phase in the presence of dissolved copper and magnesium or other promoter metal to produce the corresponding phenol, the phenoxybenzoic acid is also produced as a significant coproduct when a concentration of at least 0.1 mole of the phenol per mole of benzoic acid or its equivalent is maintained in the reaction mixture. The phenoxybenzoic acid is largely the ortho isomer. This product is chiefly useful as a chemical intermediate for making plasticizers or other known derivatives. Phenyl ethers are also formed by decarboxylation of the phenoxybenzoic acid.

3,637,808

BENZOIC ACID ESTERS OF 1-PHENYL-1-BENZYL- 2-METHYL-3-DIMETHYLAMINO-PROPANOL

Luigi Fontanella, Milan, Italy, Emilio Testa, Ticino, Switzerland, and Giulio Maffei, Milan, Italy, assignors to Lepetit S.p.A.-Gruppo per la Ricerca Scientifica e la Produzione Chimica Farmaceutica, Milan, Italy

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,312

Claims priority, application Great Britain, Feb. 17, 1967, 7,774/67

Int. Cl. C07c 93/00

U.S. Cl. 260—477

4 Claims

Esters of 1-phenyl-1-benzyl-2-methyl-3-dimethylamino-propanol with benzoic acid and derivatives thereof. These compounds are useful as coronary-vasodilators.

3,637,809

ANTIOXIDANTS

Eduard K. Kleiner, Dobbs Ferry, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed July 5, 1968, Ser. No. 742,701

Int. Cl. C07c 149/00

U.S. Cl. 260—479 S

9 Claims

Organic materials, particularly synthetic polymers such as polypropylene are protected against oxidation in air, thermal degradation or deterioration by including, in such substances, a stabilizing amount of antioxidant. The antioxidant is obtained by reacting (a) an α,β-unsaturated ester of a hindered hydroquinone and (b) hydrogen sulfide or a mercaptan.

3,637,810

ARYL N-SUBSTITUTED N-(1-CHLORO-1- ALKENYL) CARBAMATES

Henri Ulrich, Northford, and Benjamin W. Tucker, Bethany, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Oct. 22, 1968, Ser. No. 769,719

Int. Cl. C07c 125/06

U.S. Cl. 260—479 C

9 Claims

Novel aryl N-substituted N-(1-chloro-1-alkenyl)carbamates are disclosed. These compounds are prepared by the condensation of substituted or unsubstituted phenols with N-substituted-N-(1-chloro-1-alkenyl)carbamoyl chlorides in the presence of a tertiary amine and an inert organic solvent. The aryl N-substituted-N-(1-chloro-1-alkenyl)carbamates so obtained are useful (1) as insecticides against a variety of insects typical of which are the Mexican bean beetle, the housefly, the housecricket, the boll weevil, and the confused flour beetle and (2) as chemical intermediates for the preparation of known insecticides and of thermoplastic polymers.

3,637,811

PRODUCTION OF ORGANIC ISOCYANATES
Karl-Friedrich Zenner and Günter Oertel, Cologne-Flittard, and Hans Holtschmidt, Leverkusen-Steinbuechel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Nov. 21, 1967, Ser. No. 684,638
Claims priority, application Germany, Nov. 30, 1966, F 50,801

Int. Cl. C07c 125/06

U.S. Cl. 260—482 C

5 Claims

N-hydrocarbyl - N - isocyanatomethyl-carbamic acid esters and their preparation by reaction of N-hydrocarbyl-N-halomethylcarbamic acid esters with metal cyanates.

3,637,812

ACYLATION OF REACTIVE ORGANIC ACID ESTERS

Roger J. Tull, Metuchen, Edward W. Tristram, Cranford, and Avery Rosegay, Union, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Oct. 2, 1967, Ser. No. 671,937
Int. Cl. C07c 69/66

U.S. Cl. 260—484 P

9 Claims

Salts of di-loweralkyl hydroxymethylenemalonates are prepared by acylation of diloweralkyl malonate with loweralkyl formate. The reaction is carried out in the presence of a strong base and under reaction conditions where the loss of alkyl formate reactant is either compensated for or minimized.

3,637,813

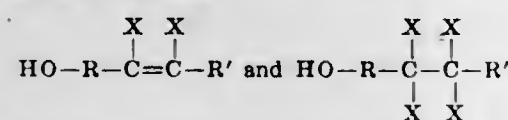
UNSATURATED ESTER OF HALOGENATED ALKENES

Gaetano F. D'Alello, 2011 E. Cedar St., South Bend, Ind. 46617
No Drawing. Filed Dec. 19, 1968, Ser. No. 785,336
Int. Cl. C07c 69/54

U.S. Cl. 260—486 H

15 Claims

This invention deals with new unsaturated esters of α,β -unsaturated carboxylic acids derived from halogenated alcohols of the formulas



wherein R is a divalent hydrocarbon moiety having at least one and no more than 10 carbon atoms, X is a member selected from the class of bromine and chlorine, and R' is a member selected from the class of hydrogen, X and a monovalent hydrocarbon containing at least one and no more than 20 carbon atoms. Typical esters are the acrylates, methacrylates, maleates, fumarates, itaconates and cinnamates. These monomers possess fire-retardant properties and are useful for the synthesis of polymers and copolymers.

3,637,814

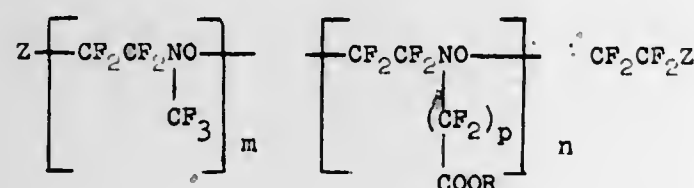
LIQUID NITROSO RUBBER PREPOLYMERS

Nathan Mayes, Ironia, and Ronald Michaels, Boonton, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.
No Drawing. Filed Mar. 27, 1968, Ser. No. 716,360
Int. Cl. C07c 81/081, 3/24

U.S. Cl. 260—487

9 Claims

Liquid nitroso rubber prepolymers are disclosed having a molecular weight below about 20,000 and the general formula:



wherein R is selected from hydrogen and alkyl groups of 1 to 6 carbon atoms, Z is selected from chlorine, bromine, iodine and $-\text{NO}_2$, p is 2 to 6 and the ratio m:n is from 1:1 to 50:1. The liquid prepolymers may be prepared by copolymerizing perfluoronitrosomethane, tetrafluoroethylene and a nitrosoperfluoro acid or ester in the presence of a terminator which may be chlorine, bromine, iodine or nitrogen dioxide. The polymers can be cured with such curing agents as epoxides, metal oxides and chromium perfluoroacetate to produce rubbers having good physical properties and chemical resistance.

3,637,815

MICROBICIDES: BIS(ALKANOYLOXYMETHYL) SULFIDES AND SULFOXIDES

Charles H. Tieman, Modesto, Calif., assignor to Shell Oil Company, New York, N.Y.
No Drawing. Filed May 23, 1968, Ser. No. 731,645
Int. Cl. C07c 69/16, 69/28, 147/02

U.S. Cl. 260—488 J

6 Claims

Bis(alkanoyloxymethyl) sulfides and sulfoxides, useful as microbicides.

3,637,816

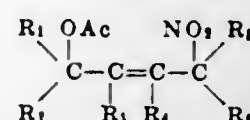
ACETATE DERIVATIVES OF 4-NITRO-1-HYDROXY OLEFINS AND PROCESS FOR THE PREPARATION THEREOF

Masao L. Honjoh and Stylianos Sifniades, Parsippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Sept. 11, 1969, Ser. No. 857,195
Int. Cl. C07c 67/04, 69/14

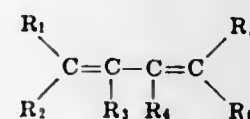
U.S. Cl. 260—488 H

6 Claims

Compounds of the structure:



wherein R_1 , R_2 , R_3 , R_4 , R_5 , and R_8 are independently hydrogen, a C_1 to C_6 alkyl radical, or a monocyclic or C_1 to C_4 alkyl-substituted aromatic moiety are readily prepared by reaction of acetyl nitrate with conjugated dienes of the structure:



Compounds of structure (I) can be readily transformed into the corresponding aminoalkanol derivative.

3,637,817

PRODUCTION OF ETHERS AND ESTERS OF 4-HYDROXYTIGLALDEHYDE

Horst Pommer, Ludwigshafen (Rhine), Herbert Mueller, Frankenthal, Dietrich Mangold, Neckargemund, and Christof Palm, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Oct. 18, 1968, Ser. No. 768,927
Claims priority, application Germany, Oct. 21, 1967, P 16 43 681.0

Int. Cl. C07c 45/00, 67/00

U.S. Cl. 260—491

10 Claims

The production of ethers and esters of 4-hydroxytiglaldehyde by oxidation of ethers or esters of 3-methyl-but-2-en-1-ol with oxygen or gas containing oxygen in liquid phase at temperatures of 20° to 200° C. in the presence of catalytic amounts of heavy metal salts and bromine or

bromine compounds. The products of the process are important compounds for organic syntheses, particularly for the production of carotenoids.

3,637,818

PROCESS FOR PREPARING MIXTURES OF ACETALDEHYDE, ACETIC ACID AND VINYL ACETATE

Hans Krekeler, Wiesbaden, Hans Fernholz, Bad Soden, Taunus, and Günter Jacobsen, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Continuation-in-part of abandoned application Ser. No. 460,817, June 2, 1965. This application Apr. 16, 1968, Ser. No. 721,632

Claims priority, application Germany, June 5, 1964, F 43,089

Int. Cl. C07c 67/04

U.S. Cl. 260—497 A

3 Claims

Preparation of mixtures of acetaldehyde, acetic acid and vinyl acetate by reacting ethylene with molecular oxygen at 20 to 200° C. and 5 to 150 atmospheres in the liquid phase in the absence of mineral acids and anions other than acetate ions and in the presence of a Group VIII noble metal, manganese and/or cobalt acetate, and water.

3,637,819

PROCESS FOR THE MANUFACTURE OF UNSATURATED ESTERS OF CARBOXYLIC ACIDS

Kurt Sennwald and Wilhelm Vogt, Knapsack, near Cologne, Heinz Erpenbach, Surth, near Cologne, Hermann Glaser, Knapsack, near Cologne, and Helmut Dyrschka, Kottlingen, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany
No Drawing. Filed Dec. 5, 1968, Ser. No. 781,626

Claims priority, application Germany, Dec. 30, 1967, P 16 68 352.6

Int. Cl. C07c 67/04

U.S. Cl. 260—497 A

10 Claims

Production of unsaturated esters of carboxylic acids by reaction of an olefinic compound and an aliphatic or aromatic carboxylic acid, which each contain from 2 to 20 carbon atoms, with molecular oxygen, or air, in the gas phase, at elevated temperature and in contact with a carrier catalyst, the reaction being carried out in contact with a carrier catalyst containing palladium acetate, alkali metal acetate and one or more vanadium compounds as its active constituents, the dry, powdery carrier catalyst being irradiated with ultraviolet and/or visible light, prior to using it.

3,637,820

REDUCTION OF AROMATIC NITRO COMPOUNDS TO AROMATIC PRIMARY AMINES

David Dodman and John Mathers Woolley, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Nov. 14, 1968, Ser. No. 775,894

Claims priority, application Great Britain, Nov. 24, 1967, 53,636/67

Int. Cl. C07c 85/10, 143/56, 143/58

U.S. Cl. 260—508

13 Claims

A process for the manufacture of an aromatic primary amine by reacting in the presence of a catalyst an aro-

matic nitro compound and a reducing agent selected from the class consisting of:

- hydrogen and
- carbon monoxide and water or aliphatic alcohol, at a temperature in the range of 100° to 200° C.,

the improvement which comprises utilizing as the catalyst, one consisting essentially of two or three heavy metals selected from the group consisting of manganese, iron, cobalt, nickel, copper, silver and cerium as their oxides, hydroxides or carbonates, the catalyst being prepared by either co-precipitation from solution or a heating together of the said heavy metals as their hydroxides or heat-unstable salts or mixtures thereof.

3,637,821

PROCESS FOR THE PRODUCTION OF SUBSTITUTED ACETIC ACIDS

Kaspar Bott, Marl, Germany, assignor to Chemische Werke Huls A.G., Marl, Germany
No Drawing. Filed Aug. 11, 1966, Ser. No. 571,714

Claims priority, application Germany, Aug. 21, 1965, P 15 18 668.2

Int. Cl. C07c 61/12

U.S. Cl. 260—514 B

12 Claims

To produce substituted acetic acids vinylidene chloride is reacted in 80–90% sulfuric acid at -5 to $+20^\circ$ C. with a carbonium ion-forming compound, e.g. a tertiary alcohol, a secondary alcohol, sulfates, halogenides and esters of such alcohols. The reaction can also be conducted in the presence of a Friedel-Crafts catalyst, such as boron trifluoride. The process facilitates production of complex acids, such as 3-methyl and 3,5-dimethyl adamantanyl-acetic acids.

3,637,822

PROCESS FOR PREPARING IMPROVED FURFURAL EXTRACTS

Calvin F. Rueping and Robert T. Daniel, Beaumont, Tex., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Nov. 21, 1968, Ser. No. 777,905

Int. Cl. C07c 61/00

U.S. Cl. 260—514 N

8 Claims

A process for preparing neutralized and dehydrated furfural extracts having improved heat transfer properties.

3,637,823

PREPARATION OF CARONIC ACID FROM DELTA-3-CARENE

Lloyd Berg and James H. Jarrett, Bozeman, Mont., assignors to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Oct. 20, 1969, Ser. No. 867,942

Int. Cl. C07c 51/32

U.S. Cl. 260—514 P

3 Claims

Pure-cis-caronic acid is obtained by oxidizing delta-3-carene with a permanganate in acetone, separating the manganese dioxide and absorbed oxidation products formed in the oxidation reaction from the acetone, slurring the manganese dioxide and oxidation products in an aqueous medium, removing the manganese dioxide from the aqueous solution by filtration, extracting oxidation products at a pH of 3 from the aqueous solution with ether, extracting cis-caronic acid from the remaining aqueous solution at a pH of 1 and drying the extract solution, and evaporating the ether to form crystals of pure cis-caronic acid.

3,637,824

3-(N-METHYL)-LOWERALKANOYLAMIDO-5-AMINO-2,4,6-TRIODOBENZOIC ACIDS

Hugo Holtermann, Baerum, Lef Gunnar Haugen, Oslo, and Knut Wille, Baerum, Norway, assignors to Nye-gaard & Co. A/S, Oslo, Norway

No Drawing. Original application Dec. 8, 1960, Ser. No. 74,485, now Patent No. 3,476,802, dated Nov. 4, 1969. Divided and this application July 18, 1969, Ser. No. 843,179

Claims priority, application Norway, Nov. 17, 1960, 138,044

Int. Cl. C07c 103/32

U.S. Cl. 260—518 A

2 Claims

There are provided 3-(N-methyl)-loweralkanoylamido-5-amino-2,4,6-triiodobenzoic acids, particularly the 3-(N-methyl)-acetamido-compound. These compounds are valuable intermediates for the preparation of 3-(N-methyl)-loweralkanoylamido-5-lower alkanoylamido-2,4,6-triiodobenzoic acids which are useful as X-ray contrast agents.

3,637,825

3-(CARBOXYALKANOYLAMINO)-2,4,6-TRIODO-HYDROCINNAMIC ACIDS

James H. Ackerman, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 715,584, Mar. 25, 1968. This application Aug. 29, 1969, Ser. No. 854,291

Int. Cl. C07c 103/32

U.S. Cl. 260—518 A

6 Claims

3-amino-2,4,6-triiodohydrocinnamic acid and α -alkyl or α -phenyl derivatives thereof react with dibasic acid anhydrides to give the corresponding 3-cyclic imides (A), which can be hydrolyzed to the corresponding anilic acids (B). The latter can be further alkylated on the nitrogen atom. Compounds A and B are useful as cholecystographic agents.

3,637,826

TETRACYCLINE DERIVATIVE

Gianfranco Intelisano, Sesto San Giovanni, Italy, assignor to Italcem s.r.l. Istituto Chimico Farmaceutico, Milan, Italy

No Drawing. Filed July 5, 1968, Ser. No. 742,528

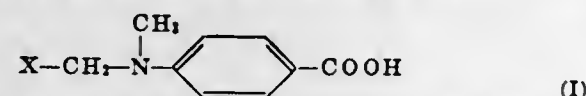
Claims priority, application France, July 10, 1967, 113,714

Int. Cl. C07c 103/30

U.S. Cl. 260—519

1 Claim

New antibiotic tetracycline derivatives of formula



wherein X represents a tetracycline nucleus, derived from the tetracycline base or from an antibiotic derivative thereof, attached by its amino nitrogen atom.

Said derivatives are prepared by reacting tetracycline base or a derivative thereof with p-methylaminobenzoic acid and formaldehyde.

3,637,827

BENZHYDRYLOXY-CYCLOPROPANECARBOXYLIC ACIDS AND AMIDES

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Original application Jan. 6, 1966, Ser. No. 519,012, now Patent No. 3,462,491, dated Aug. 19, 1969. Divided and this application Apr. 22, 1969, Ser. No. 818,384

Int. Cl. C07c 63/00, 103/30

U.S. Cl. 260—520

5 Claims

Benzhydryloxy-cyclopropanecarboxylic acids and amides wherein the benzhydryl moiety may be halogen, lower alkyl, lower alkoxy, lower alkylthio, lower alkylsulfonfyl or trifluoromethyl substituted and the amides are N-mono- or N,N-disubstituted by lower alkyl or include a cyclic

amido moiety, are useful as intermediates for the preparation of corresponding aminocyclopropane derivatives. The latter have mild tranquilizing and antidepressant activity.

3,637,828

2-HYDROXY - 3,5,6 - TRICHLOROMANDELIC ACID AND A PROCESS FOR THE MAKING THEREOF

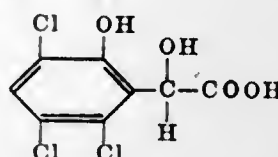
Ulrich Holtschmidt and Eberhard Hofmann, Essen, Germany, assignors to Th. Goldschmidt A.G., Essen, Germany

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,097. Claims priority, application Switzerland, May 6, 1968, 6,726/68

Int. Cl. C07c 65/02

U.S. Cl. 260—521 A

7 Claims

 α -(2-hydroxy-, 3,5,6-trichloro-) phenylglycol-acid of the structural formula

The new acid has pronounced biocidal activity.

3,637,829

LIQUID PHASE OXIDATION OF MONONUCLEAR AROMATIC COMPOUNDS

Ralph O. Kerr, Houston, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed May 8, 1968, Ser. No. 727,668

Int. Cl. C07c 63/02

U.S. Cl. 260—524 R

17 Claims

A process for the oxidation of mononuclear aromatic compounds having at least one oxidizable group selected from methyl, hydroxymethyl, and aldehyde, in the presence of oxygen, cobaltous or cobaltic ions and selenium at an elevated temperature, and at atmospheric pressure or greater.

3,637,830

CATALYTIC PROCESS OF NO OXIDATION OF DIALKYLNAPHTHALENES

William D. Vanderwerff, West Chester, Pa., and Henry J. Peterson, Wilmington, Del., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Nov. 25, 1968, Ser. No. 778,803

Int. Cl. C07c 47/52, 63/02

U.S. Cl. 260—524 R

32 Claims

Useful partial oxidation products of dialkyl-naphthalenes, such as the naphthalenedicarboxaldehyde and the naphthalenedicarboxylic acid are prepared by using molecular oxygen and a catalytic amount of nitric oxide or nitrogen dioxide, that is, substantially less than the stoichiometric amount of nitrogen dioxide necessary to oxidize the dialkyl-naphthalenes. The catalyst is a combination of 0.01 moles to 0.6 mole of the nitrogen oxide per mole of dialkyl-naphthalene and 0.1 to 6 weight percent of selenium. The oxidations are carried at superatmospheric pressures in a closed system at temperatures of about 160–275° C. Oxygen is added in at least the stoichiometric amount needed for the oxidations. In the temperature range of about 160–225° C. the dialdehyde is the predominant product; at about 225 to 275° C. the diacid predominates.

3,637,831

CATALYTIC TREATMENT OF VAPORIZED ACIDS

Albert L. Rensberg, Silsbee, Tex., assignor to

Mobil Oil Corporation

Filed Sept. 25, 1967, Ser. No. 671,535

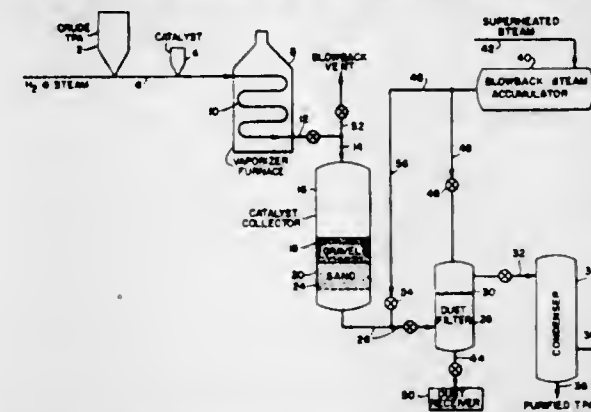
Int. Cl. C07c 51/42

U.S. Cl. 260—525

22 Claims

Continuous purification of aromatic polycarboxylic acids (e.g., crude terephthalic acid) by treatment of the

vaporized acid in the presence of a suspended finely divided solid hydrogenation catalyst (e.g., palladium-on-carbon) and hydrogen at elevated temperatures wherein more effective utilization of the catalyst is obtained by filtering most of the suspended catalyst out of the vapor stream onto one or more catalyst retention beds of particles of inert refractory material (e.g., sand and gravel) and thereafter condensing the purified acid vapor to the



solid state in the substantial absence of extraneous solids; much of the very fine ash which is also usually present is similarly retained by the beds with a substantial reduction in the load on the usual final surface or membrane filters and the small amount of catalyst particles passing through the retention beds serves as a filtering assistant that facilitates clearing the surface filters of the cementitious layer of finer ash particles.

3,637,832

PREPARATION OF STRAIGHT CHAIN DICARBOXYLIC ACIDS

Jesse Oris White, Orange, and Darwin Darrell Davis, Victoria, Tex., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 12, 1968, Ser. No. 712,542

Int. Cl. C07c 51/28, 55/02, 55/20

U.S. Cl. 260—531 R

5 Claims

A C₈–C₁₂ dicarboxylic acid which can be readily refined to high purity is produced by conducting an oxidation of an alcohol and a ketone with all of the reactants in the liquid phase and after substantially all of the alcohol and ketone have been oxidized maintaining the oxidate in the liquid phase under oxidizing conditions at a temperature in the range 90 to 110° C. for a time in the range 3 to 60 minutes.

3,637,833

PREPARATION OF CARBOXYLIC ACIDS

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,262

Int. Cl. C07c 53/22

U.S. Cl. 260—533 A

10 Claims

A process for preparation of carboxylic acids comprising reacting an olefin, carbon monoxide and water in the presence of hydrogen and a catalyst comprising rhodium.

3,637,834

OXIDATION OF OLEFINS TO UNSATURATED ALDEHYDES AND UNSATURATED ACIDS

Gianfranco Pregaglia, Milan, Marco Agamennone, Novara, Nicola Santangelo, Milan, and Mauro Croci, Novara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed May 14, 1968, Ser. No. 728,915

Claims priority, application Italy, May 16, 1967, 16,134/67, Patent 796,268

Int. Cl. C07c 57/04

U.S. Cl. 260—533 N

7 Claims

Propylene and isobutene are oxidized in the vapor phase to unsaturated aldehydes and unsaturated acids, with the

3,637,835

METHOD OF OXIDIZING OLEFINS

Joseph W. Nemec, Rydal, Pa., and Francis W. Schlaefer, Pennsauken, N.J., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of applications Ser. No. 555,247, June 6, 1966, and Ser. No. 615,880, Feb. 6, 1967. This application Dec. 13, 1968, Ser. No. 783,641

Int. Cl. C07c 57/04, 47/22

U.S. Cl. 260—533 N

4 Claims

A catalyst, a method for its preparation, a method for preparing catalytic cobalt molybdate, and a process for the oxidation of olefins to the corresponding unsaturated aldehydes and unsaturated carboxylic acids are provided. A mixture comprising the olefin and oxygen is contacted in the vapor phase at a temperature within the range of from about 300° C. to about 500° C. in the presence of water and solid catalyst particles, each particle comprising a fluxed mixture of (a) calcined cobalt molybdate particles, (b) a telluride of arsenic, bismuth or antimony and (c) a molybdenum compound, such as molybdenum trioxide, which is volatile to an extent that slow migration within the pellet occurs at elevated temperatures. The volatile molybdenum compound, non-catalytic in itself, surprisingly gives a much longer productive life to the catalyst, the catalyst, in spite of the diluent, is more productive per unit of time, and the added physically soft compound does not make the particles fragile. In use, the tellurium content diminishes, and the composition of the catalyst changes slowly in other ways.

3,637,836

CHLORO-PHOSPHINE-m-CARBORANE AND A METHOD OF MAKING THEM

Roy P. Alexander, Killingworth, and Hansjuergen A. Schroeder, Hamden, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Original application Feb. 25, 1966, Ser. No. 529,944, now Patent No. 3,444,272, dated May 13, 1969. Divided and this application July 31, 1968, Ser. No. 761,381

Int. Cl. C07f 9/52

U.S. Cl. 260—543 P

10 Claims

Chlorophosphine-m-carboranes are prepared by reacting di(alkali-metal)-m-carboranes with chlorophosphines. These compounds are useful as flame retardants in plastics and coated paper.

3,637,837

 γ -ALKYLTHIOLYSINES

Yasuo Fujimoto and Shinsuke Koshimoto, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1968, Ser. No. 768,134

Int. Cl. C07c 149/20, 149/24

U.S. Cl. 260—534 S

14 Claims

 γ -Alkylthiolysines and a process for producing them which comprises reacting γ -chlorolysine or an acid salt thereof with an alkylmercaptan, or an alkali metal or alkaline earth metal salt thereof. The reaction is preferably conducted in an inert solvent with heating. The resultant lysine derivatives are useful as anti-oxidants, as topical agents for the treatment of wounds and burns and as anti-tumor agents.

3,637,838

PROCESS FOR THE PREPARATION OF D,L-LYSINE

Marvin T. Tetenbaum and Edward R. Degginger, Convent, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 2, 1969, Ser. No. 812,864
Int. Cl. C07c 99/00, 101/24

U.S. Cl. 260—534 L 1 Claim
Trans-diethyl-4-chloro-2-butenyl-acetamidomalonate, a new composition of matter, readily undergoes amination in liquid ammonia to form diethyl-4-amino-2-butenyl-acetamidomalonate which can be transformed by known methods into lysine, a valuable dietary supplement. The trans-diethyl-4-chloro-2-butenyl-acetamidomalonate is formed by reaction of trans 1,4-dichloro-butene-2 with the alkali metal salt of diethyl acetamidomalonate.

3,637,839

PROCESS FOR THE PREPARATION OF ϵ -AMINOCAPROIC ACID, ϵ -AMINOCAPROAMIDE, OR MIXTURES THEREOF

Ikuzo Tanaka, Hideo Uehara, and Masayuki Yamagata, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan

No Drawing. Filed June 23, 1969, Ser. No. 835,796
Claims priority, application Japan, June 25, 1968, 43/44,106; June 29, 1968, 43/45,463; Oct. 7, 1968, 43/73,016; Oct. 16, 1968, 43/75,422
Int. Cl. C07c 99/00, 103/02

U.S. Cl. 260—534 R 13 Claims
Process for the preparation of ϵ -aminocaproic acid, ϵ -aminocaproamide, or mixtures thereof in high yield which can be converted into ϵ -caprolactam, by contacting 2-nitrocyclohexanone, 2-nitrocyclohexen-1-ol or mixtures thereof with hydrogen in an aqueous medium of pH 4.5–13 at a temperature ranging from 5 to 220° C. in the presence of an active hydrogenation catalyst, preferably in the presence of an ammonium ion, such as ammonia and ammonium salts of organic or inorganic acids.

3,637,840

PROCESS FOR PRODUCING BIS-(DIMETHYLAMINO)-PHOSPHORYL FLUORIDE

Gerhard Kunstle, Hellmuth Spes, and Alfred Trommet, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany
No Drawing. Filed Apr. 3, 1969, Ser. No. 813,331
Claims priority, application Germany, Apr. 24, 1968, P 17 68 278.9
Int. Cl. C07f 9/34

U.S. Cl. 260—543 F 3 Claims
Process for producing bis-(dimethylamino)-phosphoryl fluoride by reacting bis-(dimethylamino)-phosphoryl chloride with an aqueous alkali fluoride solution or an ammonium fluoride solution, the reaction being performed at a temperature of 60–110° C. in a reaction-inert water-insoluble solvent for bis-(dimethylamino)-phosphoryl chloride, and the reaction mixture containing 30 to 75% water referred to the water-free alkali or ammonium fluoride and a phosphate buffer solution of primary and secondary phosphates and dimethylamine hydrochloride.

3,637,841

PROCESS FOR CARBOXYLIC ACID HALIDE MANUFACTURE

Brian Martin, Erie, Pa., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 29, 1967, Ser. No. 686,710
Int. Cl. C07c 51/58

U.S. Cl. 260—544 M 13 Claims
Carboxylic acid halides are made by a new process comprising contacting the vapors of the corresponding carboxylic acid and a hydrogen halide at a temperature between 100° and 600° C., adding the vapor of an inert,

water-insoluble solvent, condensing the resulting vaporous mixture and removing the desired acid halide from the solvent phase. While not necessary to the invention, a wide range of catalysts may be used to improve yields.

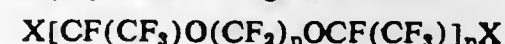
3,637,842

PERFLUORO POLYETHER ACYL FLUORIDES

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of Eugene C. Stump and Stephen Eugene Rochow, Gainesville, Fla.

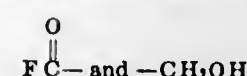
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,425
Int. Cl. C07c 5/58

U.S. Cl. 260—544 F 2 Claims
Perfluoro polyethers having the formula:



where

n is an integer of from 2 to 12,
 p is an integer of from 2 to 23, and
 X is selected from the group consisting of



3,637,843

SYNTHESIS OF DICYANOFORMAMIDES HAVING AN AROMATIC ORGANIC MOIETY

Tad L. Patton, Baytown, Tex., assignor to Esso Research and Engineering Company

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,288
Int. Cl. C07c 125/08

U.S. Cl. 260—545 R 4 Claims
Dicyanoforamides having aromatic moieties as novel composition of matter are prepared by the reaction of a diisocyanate having an aromatic moiety with two (2) moles of hydrogen cyanide in the presence of a catalyst which will not promote further polymerization.

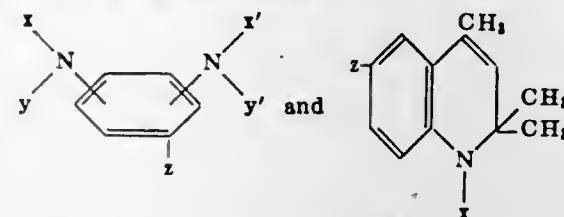
3,637,844

THIOPHENYLENEDIAMINES

Chester D. Trivette, Jr., St. Albans, W. Va., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Jan. 10, 1966, Ser. No. 519,408, now Patent No. 3,382,219, dated May 7, 1968. Divided and this application Sept. 20, 1967, Ser. No. 679,952
Int. Cl. C07c 145/00

U.S. Cl. 260—551 S 7 Claims
Thioamines of the formulas



wherein each compound is the N-thio derivative of phenylene diamine or 2,2,4-trimethyl-1,2-dihydroquinoline which are useful as premature vulcanization inhibitors and antidegradants for diene rubber.

3,637,845

FLUOROALKANESULFONAMIDES

George G. I. Moore, White Bear Lake, and Alvin C. Conway, North St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Apr. 14, 1969, Ser. No. 816,041
Int. Cl. C07c 143/74

U.S. Cl. 260—556 F 6 Claims
This invention relates to certain N-acylfluoroalkanesulfonamides which are active anticonvulsants. Processes for the preparation of the compounds are described.

3,637,846

CARBOSTYRIL DERIVATIVES

Janis Plostnieks, Philadelphia, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Original application Mar. 30, 1967, Ser. No. 626,982. Divided and this application Mar. 27, 1970, Ser. No. 24,472
Int. Cl. C07c 103/30

U.S. Cl. 260—558 P 1 Claim
The compounds herein are 3,4-dihydro-4-methyl-4-phenyl-6-chloro-carbostyryl derivatives, useful for their various pharmacological activities, such as anti-inflammatory, hypotensive and central nervous system depressant activities. Also included herein is 4'-chloro- β -methyl-cinnamamide, useful in the synthesis of the subject carbostyryls.

3,637,847

N-HALOALKYL-ANILIDES

John F. Olim, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 705,031, Feb. 13, 1968, which is a continuation-in-part of application Ser. No. 535,664, Mar. 21, 1966, which in turn is a continuation-in-part of application Ser. No. 329,279, Dec. 9, 1963. This application Sept. 3, 1969, Ser. No. 855,030

The portion of the term of the patent subsequent to May 6, 1986, has been disclaimed
Int. Cl. C07c 103/33

U.S. Cl. 260—562 B 18 Claims

N-haloalkylanilides and their preparation by the reaction of acyl halides with aromatic azoalkine.

These compounds possess herbicidal activity and are valuable intermediates for the preparation of compounds having herbicidal activity.

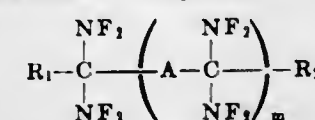
3,637,848

CERTAIN DIFLUORAMINO COMPOUNDS

Kurt Baum, Los Angeles, Calif., assignor to the United States of America as represented by the Secretary of the Navy

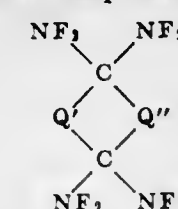
No Drawing. Filed Sept. 6, 1962, Ser. No. 223,576
Int. Cl. C07c 85/00

U.S. Cl. 260—563 R 33 Claims
1. Gem-difluoramino compounds of the formula:



wherein A is an alkylene radical having at least 2 carbon atoms; R_1 and R_2 are selected from the group consisting of hydrogen, alkyl, haloalkyl, and alkylene radicals which join together to complete a carbocyclic compound containing from 5 to about 8 carbon atoms in the ring; and m is selected from zero and an integer of from 1 to about 4 except in the case where R_1 and R_2 join to form a carbocyclic compound, m is selected from the group consisting of zero and 1.

5. Gem-difluoramino compounds of the formula:



wherein Q' is an alkylene radical containing from 1 to about 3 carbon atoms and Q'' is an alkylene radical containing from 2 to about 3 carbon atoms.

3,637,849

SUBSTITUTED BENZYLIDENEAMINO GUANIDINES

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Aug. 16, 1968, Ser. No. 765,739
The portion of the term of the patent subsequent to July 6, 1988, has been disclaimed
Int. Cl. C07c 133/10

U.S. Cl. 260—564 F 3 Claims

Substituted benzylideneamino-3-hydroxy-3-lower-alkyl-guanidines, e.g., 1-(2,6-dichlorobenzylideneamino)-3-hydroxy-3-methyl guanidine, are useful as hypotensives.

3,637,850

SUBSTITUTED BENZYLIDENEAMINO GUANIDINES

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Apr. 4, 1969, Ser. No. 813,719
The portion of the term of the patent subsequent to July 6, 1988, has been disclaimed
Int. Cl. C07c 133/10

U.S. Cl. 260—564 F 2 Claims

Substituted benzylideneamino-3-hydroxy guanidines, e.g., 1-(m-trifluoromethylbenzylideneamino)-3-hydroxy-guanidine hydrochloride, are useful as hypoglycemics-antihyperglycemics.

3,637,851

N-CYCLOALKYL-CHLOROBENZYLIDENIMINES AND HERBICIDAL COMPOSITIONS CONTAINING SAME

Edmund J. Rumanowski, Dover, N.J., assignor to Tenneco Chemicals, Inc.

No Drawing. Filed Oct. 18, 1967, Ser. No. 676,052
Int. Cl. C07c 119/00

U.S. Cl. 260—566 F 8 Claims

N-cycloalkyl-chlorobenzylidenimines are effective selective herbicides. Illustrative of these herbicidal compounds are N-cyclohexyl-2,3,6-trichlorobenzylidenimine, N-cyclohexylmethyl-2,3,6-trichlorobenzylidenimine, and N-cycloheptyl-2,3,6-trichlorobenzylidenimine. These compounds are prepared by the reaction of equivalent amounts of a chlorobenzaldehyde and a cycloalkyl amine at about 60° to 100° C.

3,637,852

1-PHENOXY-2-HYDROXY-3-ISOPROPYLAMINO-PROPANES AND SALTS THEREOF

Herbert Köppe, Ingelheim, Albrecht Engelhardt, Mainz, Gerhard Ludwig, Wedel, and Karl Zelle, Ingelheim, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany

No Drawing. Continuation-in-part of application Ser. No. 391,012, Aug. 20, 1964. This application Feb. 28, 1967, Ser. No. 619,191

Claims priority, application Germany, Aug. 26, 1963, B 73,262; Feb. 6, 1967, B 91,070
Int. Cl. C07c 93/00, 93/02

U.S. Cl. 260—570.7 3 Claims

1-substituted phenoxy-2-hydroxy-3-N-isopropyl-amino-propanes and acid addition salts thereof, possessing bradycardia activity and N-isopropyl-nor-adrenaline antagonistic activity.

3,637,853

O,O'-BIS(γ -DIMETHYLAMINO-PROPYL)-DIISO-EUGENOL AND SALTS THEREOF

Jenő Körösi, István Pataky, and Tibor Láng, Budapest, Hungary, assignors to Egysélt Gyógyszer-es Társaság, Budapest, Hungary

No Drawing. Filed Nov. 20, 1967, Ser. No. 684,504

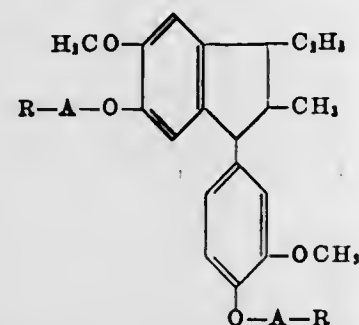
Claims priority, application Hungary, Nov. 26, 1966, EE-1,312

Int. Cl. C07c 93/06

U.S. Cl. 260—570.7

1 Claim

New compounds of hypertensive and spasmolytic activity having the formula



wherein R is a dimethylamino, diethylamino, piperidino, morpholino or N'-benzoyl-piperazino groups, and A is a straight or branched chain alkylene group having from 2 to 4 carbon atoms, and the dihydrochloric, maleic and tartaric acid salts thereof.

3,637,854

1-HALO-5-(3-N-HYDROXY-N-METHYL-AMINO-PROPYL OR PROPYLIDENE)-5H-DIBENZO[a,d]CYCLOHEPTENES AND THE SALTS THEREOF

Emilio Kyburz, Reinach, and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,699

Claims priority, application Switzerland, Mar. 20, 1968, 4,203/68

Int. Cl. C07c 87/28

U.S. Cl. 260—570.8 TC

15 Claims

1-halo-5-(3-N-hydroxy-N-methylaminopropyl or propylidene)-5H-dibenzo[a,d]cycloheptenes, prepared, inter alia, by the oxidation of the corresponding dehydroxy cycloheptene, are described. The end products are useful as antidepressants.

3,637,855

PREPARATION OF AMINES FROM N-SUBSTITUTED AMIDES

Harlan E. Tiefenthal, Western Springs, and Eugene J. Miller, Wheaton, Ill., assignors to Armour Industrial Chemical Company, Chicago, Ill.

No Drawing. Filed July 1, 1968, Ser. No. 741,291

Int. Cl. C07c 85/12

U.S. Cl. 260—583

12 Claims

A process for preparation of primary and secondary amines comprising reacting an N-substituted amide with alkyl amines at an elevated temperature. The reaction may be carried in the vapor phase with the lower alkyl amines. The amines formed by this reaction are useful as mineral flotation agents, biocides, and as intermediates to form surface active chemicals such as diamines, quaternary ammonium compounds and the like.

3,637,856

TRANS-1-p-(DIALKYLAMINOALKYL) PHENYL-1,2-DIPHENYL-ALK-1-ENES AND SALTS THEREOF

Justus Kenneth Landquist and Dora Nellie Richardson, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed June 22, 1966, Ser. No. 559,409

Claims priority, application Great Britain, July 12, 1965, 29,436/65

Int. Cl. C07c 87/28

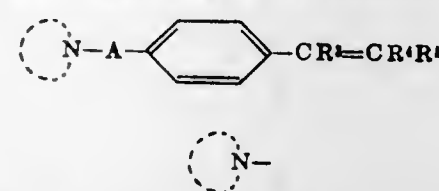
U.S. Cl. 260—570 R

11 Claims

A trans isomer of an alkene derivative selected from the group consisting of compounds of the formula:



wherein R¹ and R² are alkyl of 1-2 carbon atoms, A is alkylene of up to 4 carbon atoms, R³ and R⁴ are selected from the group consisting of phenyl, halophenyl, methylphenyl and methoxyphenyl, and R⁵ is alkyl of 1-4 carbon atoms, and compounds of the formula:



wherein

is selected from the group consisting of N-piperidino, N-morpholino and N-pyrrolidino, and A, R³, R⁴ and R⁵ have the meanings stated above, and the pharmaceutically-acceptable salts thereof said compounds exhibit oestrogenic and antioestrogenic activity.

3,637,857

METHOD OF OXIDIZING 1,2-DIARYL ETHANOLS WITH NITRIC ACID TO CORRESPONDING KETONES

Jan Magnus Bakke and Christer Lennart Hakansson, Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

No Drawing. Continuation-in-part of abandoned application Ser. No. 747,068, July 24, 1968. This application May 4, 1970, Ser. No. 34,575

Int. Cl. C07c 49/76, 49/80, 41/82

U.S. Cl. 260—590

3 Claims

1,2-diaryl-ethanols of the formula



where Ar and Ar¹ are phenyl or substituted phenyl are converted to the corresponding ketones with nitric acid in the presence of an organic solvent which is immiscible with and resistant to oxidation by nitric acid.

3,637,858

STABILISED MONOMERIC GLYOXAL SOLUTIONS

Andrew Harper Dinwoodie, Dalry, and George Gourlay, Stevenston, Scotland, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Apr. 19, 1968, Ser. No. 722,567

Claims priority, application Great Britain, May 3, 1967, 20,612/67

Int. Cl. C07c 47/02

U.S. Cl. 260—601

1 Claim

Stabilised monomeric glyoxal solutions comprise anhydrous monomeric glyoxal, a free-radical inhibitor and an anhydrous organic solvent.

3,637,859

FRAGRANCE MATERIALS AND PROCESSES

Jack H. Blumenthal, Oakhurst, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.
 No Drawing. Filed Aug. 14, 1968, Ser. No. 752,465
 Int. Cl. C07c 47/20

U.S. Cl. 260—601

1 Claim

The novel aldehyde 3,7-dimethyl-3-ethyl-6-octenal, perfume and fragrance compositions containing such aldehyde, and processes for producing same.

3,637,860

PROCESS OF PREPARING GLYOXAL

William P. Keaveney, Pompton Plains, and James J. Pappas, Parsippany, N.J., assignors to Inmont Corporation, New York, N.Y.

No Drawing. Filed May 22, 1968, Ser. No. 731,308

Int. Cl. C07c 45/04

U.S. Cl. 260—604 R

11 Claims

A process of preparing glyoxal by reductive ozonolysis of benzene in a participating solvent.

3,637,861

METHOD FOR PRODUCING NOVEL STABILIZERS FOR AQUEOUS FORMALDEHYDE SOLUTIONS AND PRODUCT

Frederic J. Shelton, Tacoma, Wash., assignor to Reichhold Chemicals, Inc., White Plains, N.Y.

No Drawing. Filed Mar. 11, 1970, Ser. No. 18,706

Int. Cl. C07c 47/04

U.S. Cl. 260—606

5 Claims

Novel stabilizers for concentrated aqueous formaldehyde solutions are produced by reacting an organic halogenated silane and a long chain carbohydrate in pyridine. These stabilizers are effective over the temperature range from about 20° C. to about 90° C. The stabilizers of this invention do not exhibit any appreciable foaming and prevent polymer formation at room temperature.

3,637,862

ANETHOLE MERCAPTAN

Paul F. Warner, Phillips, Tex., and James W. Stanley, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Feb. 9, 1967, Ser. No. 614,815

Int. Cl. C07c 149/00; C09g 1/00

U.S. Cl. 260—609 D

1 Claim

Anethole mercaptan, which has a mild odor and is suitable as a copper polish, is made by reacting anethole and hydrogen sulfide.

A process for producing anethole mercaptan by contacting anethole with hydrogen sulfide in the presence of ultraviolet light. The mol ratio of the hydrogen sulfide to anethole is 100:1 to 1:1 and the rate of reaction can be increased by using triphenyl phosphite and/or acetone as a promoter. The product recovered is anethole mercaptan.

3,637,863

3,5-DI-t-BUTYL-4-HYDROXYBENZYL PHENYL SULFIDES

Harry Braus, Springdale, and Jay R. Woltermann, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

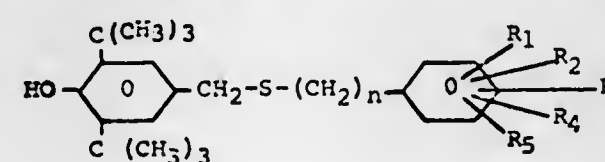
No Drawing. Filed Nov. 22, 1967, Ser. No. 684,918

Int. Cl. C07c 149/36

U.S. Cl. 260—609 F

3 Claims

Compound having the formula



n is a positive integer ranging from 0 to 22; and R₁, R₂, R₃, R₄ and R₅ is each H or an alkyl radical having 1 to 22 carbon atoms which may be straight chain or branched. These compounds are useful for stabilizing organic materials.

3,637,864

BIS-(HYDROXYALKYL)-SULFIDES AND PREPARATION THEREOF

Wilfried Umbach, Langenfeld, Rhineland, Rainer Mehren, Neuss, Rhineland, and Werner Stein, Erkrath-Unterbach, Germany, assignors to Henkel & Cie, G.m.b.H., Dusseldorf, Germany

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,441

Claims priority, application Germany, Apr. 23, 1968, P 17 68 266.5

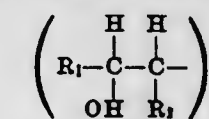
Int. Cl. C07c 149/18

U.S. Cl. 260—609 A

5 Claims

A process for the preparation of bis-(hydroxyalkyl)-sulfides which comprises the steps of reacting an epoxide selected from the group consisting of mono-vicinal-epoxy compounds and poly-vicinal-epoxy compounds with substantially the stoichiometric amount of hydrogen sulfide, in the absence of solvents at a temperature of between about 40° C. and 200° C. and normal pressures in the presence of from about 0.01% to 10% by weight, based on said epoxide, of a strongly basic catalyst, and recovering said bis(hydroxyalkyl)-sulfides.

Bis-(hydroxyalkyl)-sulfides of the formula



wherein R₁ is a member having from 1 to 22 carbon atoms selected from the group consisting of alkyl and alkylol, R₂ is a member selected from the group consisting of hydrogen, alkyl having from 1 to 21 carbon atoms and alkylol having from 1 to 21 carbon atoms with the proviso that the sum of the carbon atoms in R₁ and R₂ is between 6 and 22 are disclosed. The compounds are useful as antioxidants, insecticides, fungicides and intermediates.

3,637,865

POLYETHERS STABILIZED WITH MIXTURE OF BUTYLATED HYDROXY TOLUENE AND p,p'-DIOCTYL DIPHENYL AMINE

Robert C. Haring, Woodbridge, Conn., assignor to Olin Mathieson Chemical Corporation

No Drawing. Continuation-in-part of application Ser. No. 540,806, Apr. 7, 1966. This application Oct. 15, 1968, Ser. No. 767,849

Int. Cl. C07c 41/12

U.S. Cl. 260—611.5

17 Claims

Polyether polyols stabilized against oxidation comprised of polyether polyols admixed with a stabilizing mixture of 2,6-ditertiary-butyl-4-methyl phenol and a p,p'-dialkyl diphenyl amine. Polyurethane foams can be inhibited against scorching when the same stabilizing mixture is utilized in the foam preparation.

3,637,866

SUBSTITUTED PERFLUORO DIPHENYL ETHERS

Ralph J. De Pasquale and Christ Tamborski, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the United States Air Force

No Drawing. Filed Feb. 13, 1968, Ser. No. 705,024

Int. Cl. C07c 43/02, 65/00, 69/76

U.S. Cl. 260—612 R

7 Claims

Novel perfluorinated diphenyl ethers have at least 8 fluorine substituents and at least one selected substituent, other than fluorine, in the diphenyl ether nucleus. Preferably, the selected substituent is positioned para to the ether linkage. The selected substituents, preferably, are

H, Br, Cl, CF₃, CN, COOC₂H₅, COOH, C₆F₅, C₆F₅-O-C₆F₄, and C₆F₄-O-C₆H₄. The products are useful as intermediates for the preparation of monomers for the synthesis of thermally stable polymers containing a fluorophenylether structure. A novel method for making such ethers involves the reaction of an alkali metal fluorophenolate with hexafluorobenzene or a derivative thereof at a temperature of about 100-150° C. and in a solvent selected from the group consisting of dimethylformamide and dimethylacetamide.

3,637,867

PROCESS FOR THE PRODUCTION OF ETHYLENIC COMPOUNDS

Duncan Clark and Percy Hayden, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 507,685, Nov. 15, 1965. This application Mar. 7, 1968, Ser. No. 711,206

Claims priority, application Great Britain, Nov. 19, 1964, 47,173/64

Int. Cl. C07c 41/10, 43/20

U.S. Cl. 260-614 AA 8 Claims

A transesterification process in which a vinyl ether such as methyl vinyl ether is reacted with an alkanol containing 1 to 20 carbon atoms or a phenol containing up to 8 carbon atoms in the presence of a Group VIII noble metal, preferably palladium, compound. The temperature is maintained between -50° C. and 200° C. and the water concentration in the reaction medium is kept below 10%.

3,637,868

PROCESS FOR COUPLING IODOPERHALO COMPOUNDS

Henry R. Nychka, Dover, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,107

Int. Cl. C07c 43/00

U.S. Cl. 260-615 R 14 Claims

This invention relates to a method for coupling various iodoperhalo compounds particularly iodoperfluoroalkanes and iodoperfluoroalkyl ethers, by reaction in the presence of a metal fluoride selected from the group consisting of CsF, RbF, KF and BaF₂ at a temperature of at least about 275° C.

3,637,869

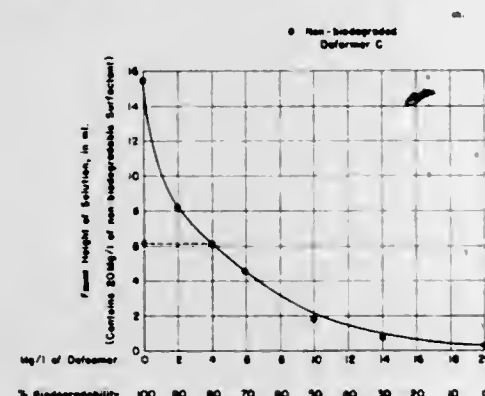
NONIONIC BIODEGRADABLE FOAM CONTROL AGENT

Reinhold K. Seizinger, Trenton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed June 2, 1969, Ser. No. 829,484

Int. Cl. C07c 43/04

U.S. Cl. 260-615 B 6 Claims



• Foam height produced with biodegradable Detergent C, based on an average of daily observations conducted over a thirty day period.

Disclosed herein are nonionic biodegradable foam control agents prepared from the specific sequential reaction

of (a) a polyfunctional initiator and an alkylene oxide having from ten to twenty carbon atoms, and (b) the product of (a) and mixtures of lower alkylene oxides, each having from two to four carbon atoms to yield a substantially hydrophobic final product having a molecular weight of from 1,000 to 2,000 which exhibits sufficient hydrophilic characteristics to be partially water-soluble.

3,637,870

PROCESS OF MANUFACTURING PARA-PHENYL-PHENOLS

Jean Berthou, Declines, and Robert Gac, Caluire, France, assignors to Progil, Paris, France

No Drawing. Filed Jan. 22, 1969, Ser. No. 793,172

Claims priority, application France, Jan. 26, 1968, 49,573

Int. Cl. C07c 39/12

U.S. Cl. 260-620 5 Claims

A process of manufacturing para-phenylphenols by heating a 1,1-bis (4-hydroxy-phenyl) cyclohexane to a temperature of between 200° C. to 350° C. in the presence of a platinum metal catalyst under atmospheric pressure, the reaction continuing until hydrogen release stops.

3,637,871

POLYFLUOROTRICYCLOALKENES

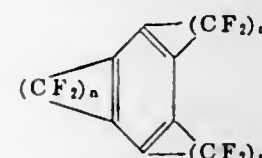
Joseph D. Park and Sam Kwon Chol, Boulder, Colo., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Feb. 4, 1970, Ser. No. 8,691

Int. Cl. C07c 25/18

U.S. Cl. 260-649 F 5 Claims

Polyfluorotricycloalkenes having the formula:



wherein *n* is 2, 3, or 4 are prepared by subjecting certain fluoroalicyclic halide compounds to high temperature in the presence of metallic copper. The compounds are useful as cryogenic lubricants in equipment intended for the preparation and use of liquid oxygen.

3,637,872

DEHYDROCHLORINATION PROCESS

Sidney Berkowitz, Highland Park, N.J., assignor to FMC Corporation, New York, N.Y.

No Drawing. Filed June 3, 1968, Ser. No. 733,787

Int. Cl. C07c 21/04

U.S. Cl. 260-654 D 3 Claims

Polychlorinated hydrocarbons are dehydrochlorinated by being contacted with one or both of sodium chloride and potassium chloride in particulate form and in the presence of a trace amount of chlorine or oxygen at a temperature of 300° C. to 600° C., to provide unsaturated, chlorinated hydrocarbons.

3,637,873

PROCESS FOR PREPARING ISOCHLOROPRENE

Virgil Dean Hemphill, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,685

Int. Cl. C07c 21/20

U.S. Cl. 260-655 4 Claims

A process of making isochloroprene by reacting monovinylacetylene with hydrochloric acid in the presence of

an aqueous catalyst solution being 0.1 to 4 weight percent cuprous chloride, and 3 to 32 weight percent of at least one chloride from chlorides of the Group I-A metals, Group II-A metals or ammonium chloride.

3,637,874

PREPARATION OF 1,2-DIBROMO-1,1,2-TRICHLOROETHANE

Terry C. Neubert, Kent, Ohio, assignor to The General Tire & Rubber Company

No Drawing. Filed May 3, 1968, Ser. No. 726,546

Int. Cl. C07c 17/04

U.S. Cl. 260-658 R 3 Claims

1,2-dibromo-1,1,2-trichloroethane is prepared by reacting bromine with trichloroethylene in the presence of a catalytic amount of a monocarboxylic acid. The product is useful as a solvent, as a lachrymator and as an intermediate in chemical reactions.

3,637,875

PROCESS FOR OBTAINING TETRACHLORO-ETHANES

Yves Correia and Jean-Claude Strini, Saint-Auban, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Dec. 24, 1968, Ser. No. 786,736

Claims priority, application France, Dec. 29, 1967, 134,293

Int. Cl. C07c 17/04

U.S. Cl. 260-658 R 4 Claims

A process for the simultaneous preparation of symmetrical and unsymmetrical tetrachloroethanes by chlorination of dichloroethylenes in the liquid phase in the absence of light and catalyst.

3,637,876

METHOD OF PRODUCING ALKYLADAMANTANES

Evgeny Ignatievich Bagry, Ulitsa Nagatinskaya 38, kv. 8, and Pafnuty Ivanovich Sanin, Ulitsa Dm. Ulyanova 3, kv. 116, both of Moscow, U.S.S.R.

No Drawing. Filed Mar. 18, 1970, Ser. No. 20,805

Int. Cl. C07c 5/24

U.S. Cl. 260-666 M 6 Claims

The present invention relates to methods of production of alkyladamantanes.

The method according to the invention consists in isomerization of tricyclic saturated condensed hydrocarbons at a temperature of 180-320° C. in the presence of aluminum oxide or silicon oxide treated with a mineral acid or in the presence of natural or synthetic aluminium silicates.

The alkyladamantanes are used in the field of petrochemical synthesis, in production of pharmaceutical preparations and as a thermally stable hydrocarbon fuel.

3,637,877

MODIFIERS FOR SELECTIVE HYDROGENATION CATALYSTS FOR CYCLIC POLYENES

Gerhard P. Nowack and Marvin M. Johnson, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed June 3, 1970, Ser. No. 43,204

Int. Cl. C07c 5/06, 5/14, 5/16

U.S. Cl. 260-666 A 10 Claims

A method of modifying iron, cobalt and nickel-containing catalysts employed for the hydrogenation of diolefins and triolefins to monoolefins which involves introducing into contact with the reactants a material selected from the group consisting of organic acids, aldehydes, ketones, anhydrous ammonia, amines and methanol.

3,637,878

HYDROGENATION PROCESS AND CATALYST

Rowland C. Hansford, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Continuation-in-part of application Ser. No. 754,483, Aug. 21, 1968. This application Apr. 13, 1970, Ser. No. 28,115

Int. Cl. C07c 5/10

U.S. Cl. 260-667 11 Claims

Unsaturated hydrocarbons, particularly aromatic hydrocarbons, are hydrogenated to corresponding saturated hydrocarbons, using a novel, highly active catalyst comprising platinum and/or palladium deposited by ion exchange via aminohydroxide complexes thereof (in aqueous solution) upon certain relatively non-acidic, high pore volume alumina-silica composites or cogs.

3,637,879

HYDROGENATION OF AROMATIC HYDROCARBONS

John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Application July 7, 1969, Ser. No. 839,643, which is a continuation-in-part of application Ser. No. 828,762, May 28, 1969. Divided and this application Aug. 7, 1970, Ser. No. 62,179

Int. Cl. C07c 5/10

U.S. Cl. 260-667 7 Claims

A process for hydrogenating hydrocarbons and mixtures of hydrocarbons utilizing a catalytic composite of a porous carrier material, a Group VIII noble metal component and a germanium component. A specific example of one such process is the hydrogenation of benzene to produce cyclohexane.

3,637,880

ISOMERIZATION OF PSEUDOCUMENE

George T. Burrell, Beaumont, Tex., assignor to Mobil Oil Corporation

No Drawing. Filed June 4, 1970, Ser. No. 43,602

Int. Cl. C07c 5/24

U.S. Cl. 260-668 A 7 Claims

Pseudocumene is isomerized to mesitylene in the presence of a xylene diluent and a crystalline aluminosilicate catalyst.

3,637,881

ALKYLAROMATIC ISOMERIZATION PROCESS

Archibald H. Williams, Justice, Dallas, Texas, assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 25, 1968, Ser. No. 762,634

Int. Cl. C07c 5/24

U.S. Cl. 260-668 A 9 Claims

Transalkylation of alkylaromatics, occurring during the isomerization of such alkylaromatics, is suppressed by the addition of a basic nitrogen compound to the isomerization reaction. The process is especially adaptable to the isomerization of C₈ aromatics.

3,637,882

ISOMERIZATION OF HYDRINDACENES

Ronald D. Bushick, Glen Mills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,868

Int. Cl. C07c 15/20

U.S. Cl. 260-668 F 10 Claims

The conversion of s-hydrindacene to as-hydrindacene, or the reverse conversion, is effected by contacting a feed rich in one of these isomers with HF-BF₃ or HF-BCl₃ to form the other isomer by isomerization. These isomers are

useful as intermediates for the preparation of benzene tetracarboxylic acids or their anhydrides, which products have known utility as monomers in polymer manufacture.

3,637,883

ALKYLATION OF AROMATIC COMPOUNDS
Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Apr. 20, 1970, Ser. No. 30,353
Int. Cl. C07c 3/56

U.S. Cl. 260—671

12 Claims

Aromatic compounds, and particularly aromatic hydrocarbons, may be alkylated with olefinic hydrocarbons at relatively low operating temperatures by utilizing a catalyst comprising a mixture of zinc chloride and a higher valence halide of a metal which possesses at least two valences.

3,637,884

HF ALKYLATION OF NAPHTHALENE
Jerome A. Vesely, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed May 8, 1970, Ser. No. 35,946
Int. Cl. C07c 3/54

U.S. Cl. 260—671

5 Claims

In the HF alkylation of naphthalene, greater than 90% of the 2-isomer is produced by effecting the alkylation at a temperature greater than 25° C.

3,637,885

SEPARATION OF ALUMINUM ALKYL FROM OLEFINS
Gifford G. McClaffin, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed Oct. 21, 1969, Ser. No. 868,214
Int. Cl. C07c 11/02

U.S. Cl. 260—677 A

6 Claims

It is disclosed that particulate vulcanized natural or synthetic rubber is an effective means for removing metal alkyls from hydrocarbons and is particularly useful for separating aluminum triethyl from dodecene.

3,637,886

PYROLYSIS PROCESSES
Kenneth J. Frech, 480 Greenfield Circle, Tallmadge, Ohio 44278
No Drawing. Filed Sept. 22, 1967, Ser. No. 669,723
Int. Cl. C07c 3/58

U.S. Cl. 260—680 C

7 Claims

There is disclosed a method to improve the selectivity of a process whereby certain olefins which are diolefin precursors, are demethanated or de-ethanated by pyrolysis to produce certain diolefins. The improvement consists of adding to the diolefin precursors small amounts of diolefins, containing the same number of carbon atoms and side chains in the same position, if any, as the diolefin precursors, prior to the pyrolysis.

3,637,887

METHOD FOR PRODUCING ISOPRENE
Kazumi Takagi and Teruo Matsuda, Niihama-shi, Ehime-ken, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka-fu, Japan
No Drawing. Filed Jan. 30, 1970, Ser. No. 7,216
Claims priority, application Japan, Jan. 30, 1969, 44/7,107
Int. Cl. C07c 1/20, 41/12

U.S. Cl. 260—681

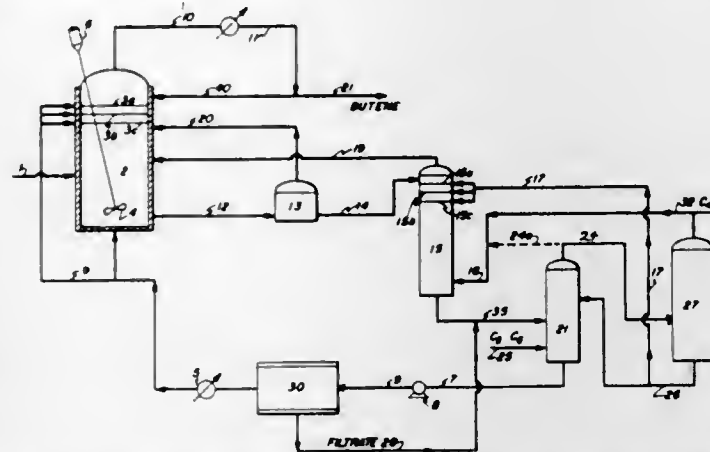
12 Claims

Method for producing isoprene which comprises contacting isobutene with glycol methylene ether in the gas phase in the presence of a solid catalyst. Since glycol methylene ether is highly stable under the reaction conditions, the yield of isoprene based thereon is excellent.

3,637,888

RECOVERY OF HIGH PURITY BUTADIENE BY CUPROUS SALT PARTICLES IN ALL SLURRY PROCESS

Robert P. Cahn, Millburn, N.J., and Richard J. De Feo and James H. Taylor, Jr., Baton Rouge, La., assignors to Esso Research and Engineering
Filed Feb. 26, 1970, Ser. No. 14,408
Int. Cl. C07c 7/00, 7/16, 11/16
U.S. Cl. 260—681.5 C 11 Claims



Recovery of high purity butadiene by liquid phase slurry complexing is conducted with an active cuprous halide sorbent slurried in a paraffin-containing organic diluent, coupled with slurry stripping and desorption of complexed butadiene in the presence of the diluent. The pressures and temperatures are carefully controlled during the complexing step in order to provide a high driving force so as to obtain a high rate of butadiene complexing with the cuprous halide, and to achieve a high loading of the sorbent with complexed butadiene. In addition, other novel and improved techniques for recovering the high purity butadienes are disclosed.

3,637,889

PROCESS FOR SEPARATING A TERTIARY OLEFIN

Yoshihiro Watanabe, Hyogo, and Jiro Kobayashi and Tooru Tokumaru, Osaka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan
No Drawing. Filed Mar. 9, 1970, Ser. No. 17,984
Claims priority, application Japan, Mar. 12, 1969, 44/19,114
Int. Cl. C07c 1/20, 7/00, 11/08

U.S. Cl. 260—682

11 Claims

A process for separating a tertiary olefin present in C₄-C₅ cracked petroleum fractions by (1) reacting the C₄-C₅ fraction with a C₁ to C₄ primary aliphatic alcohol at 70 to 150° C. in the presence of a small amount of sulfuric acid catalyst to selectively convert a tertiary olefin, such as isobutylene, to a tertiary butyl alkyl ether, (2) separating the ether from the unreacted olefins and passing it over a metal sulfate catalyst maintained at 150 to 250° C. to recover the isobutylene and the alcohol. The alcohol may then be recycled to the first reaction.

Both reactions can be performed with high reactivity and selectivity.

3,637,890

PROCESS FOR THE PREPARATION OF OLEFINS
Brian Patrick McGrath, Chowthorne, Berkshire, and Keith Vaughan Williams, Shepperton, Middlesex, England, assignors to The British Petroleum Company Limited, London, England
No Drawing. Filed Feb. 6, 1968, Ser. No. 703,264
Claims priority, application Great Britain, Feb. 14, 1967, 6,915/67, Patent 1,159,055
Int. Cl. C07c 5/62

U.S. Cl. 260—683 D

21 Claims

Olefins are prepared by coreacting a mixture of an acyclic olefin of formula R(R₁)C=CR₂(R₃) where the R

substituents represent hydrogen atoms, alkyl or aryl groups, and an easily polymerisable olefin e.g. isobutene, in the presence of a catalyst prepared by heating rhenium heptoxide in a stream of carrier gas whereby it is sublimed onto alumina located downstream. The catalyst thus prepared catalyses the coreaction of the olefins without polymerising the easily polymerisable olefin to any great extent.

3,637,891

PROCESS FOR THE PREPARATION OF OLEFINS
Brian Patrick McGrath, Crowthorne, Berkshire, and Christopher Patrick Cadman Bradshaw, Sunbury-on-Thames, Middlesex, England, assignors to The British Petroleum Company Limited, London, England
No Drawing. Filed Feb. 6, 1968, Ser. No. 703,265
Claims priority, application Great Britain, Feb. 13, 1967, 6,750/67, Patent 1,159,054
Int. Cl. C07c 3/62

U.S. Cl. 260—683 D

17 Claims

Olefins are prepared by coreacting an acyclic olefin of formula R(R₁)C=CR₂(R₃) where the R substituents represent hydrogen atoms, alkyl or aryl groups, and an easily polymerisable olefin e.g. isobutene, in the presence of a catalyst comprising molybdena supported on alumina, the catalyst also containing a minor proportion of alkali or alkaline earth metal ions. Catalysts modified in this way catalyse the coreaction of the olefins without polymerising the easily polymerisable olefin to any great extent.

3,637,892

PROCESS FOR THE PREPARATION OF OLEFINS
Brian Patrick McGrath, Crowthorne, Berkshire, and Christopher Patrick Cadman Bradshaw, Sunbury-on-Thames, Middlesex, England, assignors to The British Petroleum Company Limited, London, England
No Drawing. Filed Feb. 6, 1968, Ser. No. 703,266
Claims priority, application Great Britain, Feb. 13, 1967, 6,749/67, Patent 1,159,053
Int. Cl. C07c 3/62

U.S. Cl. 260—683 D

17 Claims

Olefins are prepared by coreacting an acyclic olefin of formula R(R₁)C=CR₂(R₃) where the R substituents represent hydrogen atoms, alkyl or aryl groups, and an easily polymerisable olefin e.g. isobutene, in the presence of a catalyst comprising a carbonyl of molybdenum, tungsten or rhenium supported on alumina, silica or silica-alumina, the support having been modified by the addition of alkali or alkaline earth metal ions thereto. Catalysts modified in this way catalyse the coreaction of the olefins without polymerising the easily polymerisable olefin to any great extent.

3,637,893

OLEFIN DISPROPORTIONATION

David M. Singleton, Richmond, Calif., assignor to Shell Oil Company, New York, N.Y.
No Drawing. Filed July 22, 1969, Ser. No. 843,765
Int. Cl. C07c 3/62, 11/02, 13/00

U.S. Cl. 260—683 D

8 Claims

Olefins are disproportionated with a catalyst produced by contacting (a) a molybdenum or tungsten oxide supported on an inorganic refractory oxide and (b) a per-chlorohydrocarbon at elevated temperatures.

3,637,894

SYNTHESIS OF PROPYLENE FROM ETHYLENE
John C. Crano, Akron, and Elizabeth K. Fleming, Doylestown, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Aug. 22, 1969, Ser. No. 852,495
Int. Cl. C07c 3/18, 11/06

U.S. Cl. 260—683 R

12 Claims

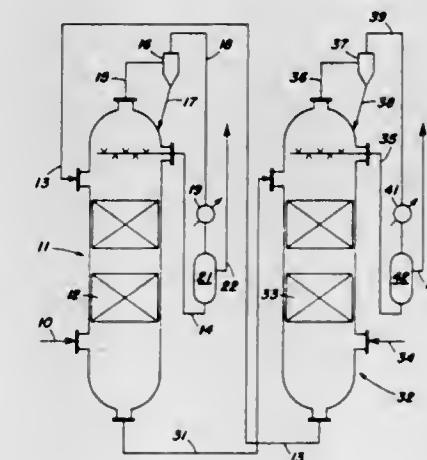
Ethylene is converted to propylene by intimately contacting the former with a mixture of a palladous halide,

e.g., palladous chloride, fluoride salt of sodium, e.g., sodium fluoride, in a nitrilic reaction medium, e.g., benzonitrile.

3,637,895

DEHYDROGENATION PROCESS USING MOLTEN COPPER CHLORIDES AND OXYCHLORIDE MIXTURES

Herbert Riegel, Palisades Park, N.J., Harvey D. Schindler, New York, N.Y., Morgan C. Sze, Upper Montclair, N.J., and Maurice E. Brooks, Great Neck, N.Y., assignors to The Lummus Company, Bloomfield, N.J.
Filed Oct. 23, 1968, Ser. No. 769,811
Int. Cl. B01j 11/78; C07c 5/20, 11/04
U.S. Cl. 260—683.3 12 Claims



Process for dehydrogenating a feed containing either an alkane, cycloalkane, mono-halo substituted derivative thereof, or alkyl substituted aromatic hydrocarbon wherein the feed is contacted with a melt containing a multi-valent metal halide in both its higher and lower valence state, such as a mixture of cupric and cuprous chloride. In accordance with a preferred embodiment, the melt is previously contacted with an oxygen containing gas to produce the corresponding oxyhalide of the metal, whereby the reaction may be effected on a continuous basis.

3,637,896

COPOLYMERISATION PROCESS

John Robert Jones, Walton-on-Thames, Surrey, and James Keith Hambling, Frimley, near Aldershot, Hampshire, England; said Jones assignor to The British Petroleum Company Limited, London, England
No Drawing. Continuation-in-part of application Ser. No. 558,588, June 20, 1966, now Patent No. 3,483,268.
This application Apr. 16, 1968, Ser. No. 721,602
Claims priority, application Great Britain, May 2, 1967, 20,170/67

The portion of the term of the patent subsequent to Dec. 9, 1986, has been disclaimed

Int. Cl. C07c 3/10

U.S. Cl. 260—683.15 D

6 Claims

A mixture of olefins at least one of which is an alpha olefin is copolymerised in the presence of a catalyst comprising a complex organic compound of a metal of Group VIII of the Periodic Table according to Mendeleef e.g. nickel acetyl acetonate and an activating agent at a temperature in the range -40° C. to +200° C., under such conditions of pressure that the reactants are maintained in the liquid or partially condensed phase. The activating agent may be a Grignard reagent or metal alkyl e.g. an aluminium alkyl alkoxide.

3,637,897

PROCESS FOR PRODUCING LINEAR ALPHA OLEFINS

Neville L. Cull, Baker, and Roby Bearden, Jr., and Joseph K. Mertzweiler, Baton Rouge, La., assignors to Esso Research and Engineering Company, Linden, N.J.
No Drawing. Filed Mar. 3, 1969, Ser. No. 804,006
Int. Cl. C07c 3/10

U.S. Cl. 260—683.15 D

5 Claims

An improved process for catalytic polymerization, or oligomerization, of ethylene to obtain a reaction product mixture consisting essentially of C₄ to C₃₀₀ olefins, including especially linear alpha olefins. The oligomerization reaction is conducted by adding ethylene to a diluent at pressures to maintain an ethylene concentration in the liquid phase sufficient to suppress copolymerization reactions involving the product olefins. It is found that higher catalyst activity and stability can be maintained if the transition metal halide and organo aluminum halide catalytic mixture is modified, prior to initiation of the reaction, with a strong Lewis acid (or agent which will generate such acid in situ), added in small but effective critical concentrations. Modification of the catalytic mixture also permits operation at temperatures ranging, e.g., about 20 to 60 centigrade degrees higher than permitted by use of an unmodified catalyst and hence refrigeration needs are reduced, or eliminated.

3,637,898

THERMOPLASTIC POLYESTER MOULDING COMPOSITIONS CONTAINING PHOSPHORUS COMPOUNDS

Walter Herwig, Frankfurt am Main, and Rudolf Uebe, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany
No Drawing. Filed June 24, 1970, Ser. No. 49,565
Claims priority, application Germany, July 10, 1969, P 19 34 903.2
Int. Cl. C08g 39/04

U.S. Cl. 260—75 P

9 Claims

Thermoplastic compositions having excellent injection moulding properties are obtained from linear saturated polyesters and alkali metal salts of organic phosphonic acids, the monoesters thereof, of organic phosphonous acids or of organic phosphinic acids, the organic radicals being saturated or unsaturated alkyl, cycloalkyl, aryl, or aralkyl groups having up to 15 carbon atoms.

3,637,899

ELASTOMERIC BLOCK COPOLYMERS AND METHODS OF PRODUCING THE SAME

Nikolai Sergeevich Nametkin, Ulitsa Vavilova 37a, kv. 10; Sergei Garievich Durgarian, Ulitsa Garibaldi 21, korpus 3, kv. 67; Evgeny Vladimirovich Solovlev, B. Cherkizovskaya ulitsa 12, korpus 4, kv. 41; and Viktor Maxovich Piryatinsky, 5 Tverskaya-Yamskaya ulitsa 6, kv. 101, all of Moscow, U.S.S.R.
No Drawing. Filed Apr. 8, 1969, Ser. No. 814,464
Claims priority, application U.S.S.R., Apr. 9, 1968, 1,232,460
Int. Cl. C08f 29/12, 35/02

U.S. Cl. 260—827
A method of producing elastomeric block copolymers of the type A-B-A, wherein block A is a polymer of vinyltriorganosilanes having a molecular weight of 5,000 to 200,000 and block B is a polymer of a conjugated diene having a molecular weight of 15,000–500,000, by anionic block copolymerization of vinyltriorganosilanes or a mixture of the same with styrene or a derivative of styrene, and conjugated dienes in an organic solvent in the presence of a lithium-based catalyst.

POLYAMIDE FIBERS WITH ALIPHATIC SULFONIC ACID CONTAINING ANTISTATIC AGENTS

Isao Kimura and Fumimaro Ogata, Osaka, and Koichiro Ohtomo, Settsu, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Apr. 20, 1970, Ser. No. 30,212
Claims priority, application Japan, Apr. 22, 1969, 44/31,415
Int. Cl. C08g 41/04, 45/12

U.S. Cl. 260—830 P

10 Claims

A fiber having durable anti-electrostatic and hydrophilic properties to withstand repeated launderings, which comprises a polymer composition consisting of 99.95–60% by weight of a thermoplastic synthetic linear polymer such as polyamides, polyesters, polyesterethers, polyolefins, polyurethanes, polyvinylchloride and polystyrene, and 0.05–40% by weight of at least one sulphonic acid containing compound which is synthesized by sulphonating an epihalohydrin homopolymer or an alkyleneoxide/epihalohydrin block copolymer.

3,637,901

EPOXY RESIN COMPOSITION CONTAINING A PREPOLYMER OF AN N,N'-BIS-IMIDE AND A DIAMINE

Michel Bargain, Lyon, and Max Gruffaz, La Mulatiere, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed May 28, 1970, Ser. No. 41,583
Claims priority, application France, May 30, 1969, 6917862
Int. Cl. C08g 45/06, 45/12

U.S. Cl. 260—830 P

9 Claims

Cured epoxy resins of good heat resistance are made by heating an epoxy resin with a prepolymer melting below 200° C. made from an N,N'-bis-imide, e.g. N,N'-4,4'-diphenylmethane-bis-maleimide, and a diamine.

3,637,902

EPOXIDE RESINS CURED WITH AMINE-GLYCIDYL ESTER ADDUCTS IN ADMIXTURE WITH A PHENOLIC ACCELERATOR

Clifford F. Dukes, Jeffersonton, and George B. Scott, Louisville, Ky., assignors to Celanese Coatings Company, New York, N.Y.
No Drawing. Filed Aug. 26, 1969, Ser. No. 853,204
Int. Cl. C08g 45/06

U.S. Cl. 260—830 TW

8 Claims

Room temperature curable compositions useful in coatings, floor topping, moldings, encapsulations and other plastics applications are prepared from a blend of an epoxide resin, an amine-glycidyl ester adduct and a phenolic accelerator.

3,637,903

DIIMINE CATALYZED REACTION PRODUCTS HAVING IMPROVED ADHESIVE PROPERTIES

Bernardas Brizgys, Southgate, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Continuation-in-part of application Ser. No. 738,772, June 21, 1968. This application Sept. 15, 1969, Ser. No. 858,122
Int. Cl. C08g 41/04, 45/12

U.S. Cl. 260—830 P

10 Claims

Adhesive coating compositions are prepared by mixing and reacting in the presence of certain diimine compounds (1) an organic polyol, (2) an epoxy resin, (3) an organic polyisocyanate, and (4) various fillers and pigments. Such coatings exhibit excellent adhesion to concrete, asphalt and the like.

3,637,904

MONOANHYDRIDE, OLEFIN-MALEIC ANHYDRIDE COPOLYMER, POLYEPOXIDE CASTING RESINS

Walter P. Barle, Jr., Shaler Township, Allegheny County, and Norman W. Franke, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed Dec. 18, 1969, Ser. No. 886,391
Int. Cl. C08g 45/04

U.S. Cl. 260—836

11 Claims

New compositions of matter for forming castings made from a polyepoxide, a monoanhydride and a solid poly-anhydride wherein the polyanhydride has at least three anhydride groups and the monoanhydride is soluble in the polyepoxide. The compositions are prepared by first mixing the monoanhydride and the polyepoxide and then adding the polyanhydride in a second stage to produce a clear homogeneous casting liquid.

3,637,905

HYDANTOIN-FORMALDEHYDE RESIN MODIFIED POLYPROPYLENE

Patrick W. Ager, West Chester, Pa., assignor to FMC Corporation, Philadelphia, Pa.
No Drawing. Filed Feb. 27, 1969, Ser. No. 803,092
Int. Cl. C08g 37/32; D06p 3/04

U.S. Cl. 260—854

9 Claims

Polypropylene compositions comprising a highly polymeric polypropylene resin containing a minor amount of a hydantoin-formaldehyde resin.

3,637,906

ORIENTED THERMOPLASTIC FILMS AND METHOD OF PRODUCING SAME

Rene Le Parathoën, Saint-Maurice-de-Beynost, France, assignor to La Cellophane, S.A., Paris, France
No Drawing. Filed Feb. 9, 1968, Ser. No. 704,266
Claims priority, application France, Feb. 17, 1967, 95,359
Int. Cl. D01f 1/02; C08g 41/04

U.S. Cl. 260—857 L

4 Claims

Oriented thermoplastic films are produced by stretching a film of a thermoplastic polymer to which has been added at least one other thermoplastic polymer having a different crystalline melting point. An oriented thermoplastic film having an opalescent effect is achieved.

3,637,907

POLYOLEFINS STABILIZED WITH DIPHOSPHINES

Ronald D. Mathis, Bartlesville, Okla., and Leslie T. Netherton, Fayetteville, Ark., assignors to Phillips Petroleum Company
No Drawing. Filed Feb. 26, 1969, Ser. No. 802,660
Int. Cl. C08f 29/10, 45/58

U.S. Cl. 260—857 L

6 Claims

The stability of polyolefins is improved by adding a small amount of an alkylene diphosphine.

3,637,908

PRODUCTION OF POLYACRYLONITRILE FILAMENTS

Heinz Pohlemann, Limburgerhof, Rolf Wurmb, Heidelberg, Joachim Kunde, Frankenthal, and Bernd Stanger, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed July 9, 1969, Ser. No. 840,515
Claims priority, application Germany, July 9, 1968, P 17 69 762.0
Int. Cl. C08g 41/04

U.S. Cl. 260—857 R

4 Claims

Production of antistatic filaments, threads or fibers based on acrylonitrile polymers by spinning solutions of these polymers in organic solvents, the solutions containing oxyalkylated synthetic linear polyamides.

3,637,909

POLYURETHANES PROCESS AND PRODUCT PREPARED FROM ALIPHATIC POLYCARBONATES CONTAINING IN SITU POLYMERIZED UNSATURATED COMPOUNDS

Wulf von Bonin, Erwin Müller, and Kuno Wagner, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 9, 1969, Ser. No. 840,474
Claims priority, application Germany, July 15, 1968, P 17 69 795.9
Int. Cl. C08f 29/10; C08g 39/10, 22/08, 41/00

U.S. Cl. 260—859 R

7 Claims

Polyurethanes and a process for preparing them in which polyisocyanates are reacted with aliphatic polycarbonates containing at least two hydroxyl groups and having a molecular weight of 800 to 3000, which polycarbonates have been prepared by polymerizing unsaturated compounds in situ, if desired with formation of graft polymers.

The hydrolytically stable polyurethanes of this invention are highly advantageous for use in any application in which hydrolytic conditions may be encountered such as, for example, bathtub mats, kitchen aids, gears, molded parts, gaskets, O-rings, shoe heels, shock absorbers and so on.

3,637,910

PROCESS FOR THE PREPARATION OF FIBER-FORMING AROMATIC POLYESTERS OF LOW FREE CARBOXYL GROUP CONTENTS

Takeo Shima, Takanori Urasaki, and Isao Oka, Iwakuni-shi, Japan, assignors to Teijin Limited, Osaka, Japan
No Drawing. Filed Sept. 5, 1969, Ser. No. 855,778
Claims priority, application Japan, Sept. 9, 1968, 43/64,831; Apr. 12, 1969, 44/28,526
Int. Cl. C08g 17/04, 17/08, 39/10

U.S. Cl. 260—860

24 Claims

High molecular fiber-forming aromatic polyesters having a low free carboxyl content and a high resistance to wet heat are prepared by adding a compound such as diglycol esters of oxalic acid, substituted or unsubstituted malonic acid, or polymers of such diglycol esters, and substituted or unsubstituted cyclic glycol esters of oxalic acid to a molten mass of an aromatic polyester derived from an aromatic dicarboxylic or its lower aliphatic esters such as terephthalic acid and a dihydric alcohol such as ethylene glycol, such molten mass of the polyester having an intrinsic viscosity of at least 0.3, and subjecting the molten mass of aromatic polyester to which conditions as will allow further progress of the polycondensation reaction.

3,637,911

CHEMICALLY THICKENED POLYESTER RESIN

Melvin E. Baum, Monroeville, Pa., and John A. Hatton, Jr., Madeira, Ohio, assignors to Koppers Company, Inc.
Filed Apr. 15, 1970, Ser. No. 28,600
Int. Cl. C08f 1/60, 21/02

U.S. Cl. 260—865

4 Claims

The viscosity of unsaturated polyester resins formed by mixing the condensation polymers of unsaturated dicarboxylic acids and dihydric alcohols in ethylenically unsaturated copolymerizable monomers may be greatly increased by adding (1) a mixture of calcium oxide and either calcium hydroxide or magnesium oxide, and (2) an organic acid selected from the group consisting of benzoic acid, cyclohexane carboxylic acid, cinnamic acid and p-hydroxybenzoic acid to the unsaturated polyester resins.

The viscosity of the composition is initially low enough so that fibrous reinforcements can be impregnated with the resin composition and the low viscosity permits the resin to wet the fibers, thereafter the viscosity of the resin increases and the fibrous reinforced mass loses its tackiness and can be easily stored and handled.

ELECTRICAL

ERRATUM

For Class 424—270 see:
Patent No. 3,637,707

3,637,912

FURNACE FOR GLASS PROCESSES

Claude E. Bernard, Neuilly-sur-Seine, France, assignor to
Compagnie De Saint-Gobain-Pont-A-Mousson, Neuilly-sur-
Seine, France

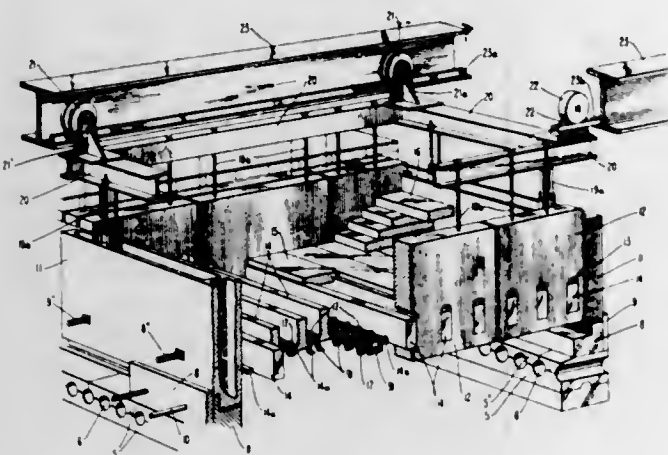
Filed Apr. 2, 1970, Ser. No. 25,172

Claims priority, application France, Apr. 3, 1969, 6910300

Int. Cl. F27b 9/28

U.S. Cl. 13—6

21 Claims



A tunnel furnace comprising a floor, sides, and a vault composed of refractory material, the vault being comprised of independently movable sections suspended from carriage means aligned transversely to the longitudinal axis of the furnace whereby each section may be removed independently from the furnace, each sec movable section of the vault comprising refractory walls and a floor suspended from the carriage means and constituting a bin adapted to the reception of refractory, heat-retaining material.

3,637,913

TONE GENERATOR EMPLOYING ASYMMETRICAL WAVE GENERATOR RECTANGULAR

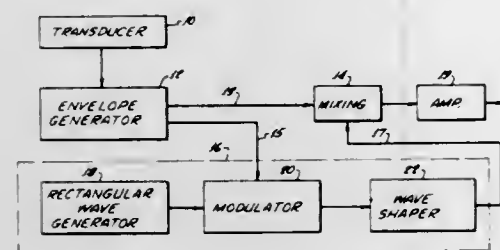
Chauncey R. Evans, Costa Mesa, Calif., assignor to Columbia
Broadcasting System, Inc., New York, N.Y.

Filed July 27, 1970, Ser. No. 58,239

Int. Cl. G10h 1/00

U.S. Cl. 84—1.01

24 Claims



A tone generator for an individual note of an electronic piano comprises an oscillator that provides an asymmetrical rectangular wave having a duty cycle of at least four to one. The rectangular wave is fed to a clipping diode gate where it is amplitude modulated in accordance with a signal envelope generated by the player of the piano. A capacitor is connected across the modulator output or, alternatively, con-

nected within the modulator, to provide a modulated rectangular wave with a substantially sawtooth wave form.

Other instrument sounds may be provided and a tone control is achieved by duty cycle variation. Performance of a power amplifier is enhanced by driving it with a rectangular wave.

3,637,914

AUTOMATIC RHYTHM SOUND PRODUCING DEVICE WITH VOLUME CONTROL

Ryu Hiyama, Hamamatsu, Japan, assignor to Nippon Gakki
Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken,
Japan

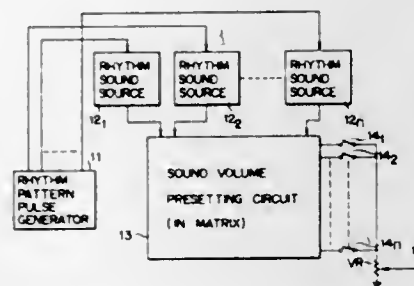
Filed Mar. 15, 1971, Ser. No. 124,257

Claims priority, application Japan, Mar. 16, 1970, 45/24808

Int. Cl. G10f 1/00

U.S. Cl. 84—1.03

5 Claims



Device includes a rhythm pattern pulse generator to generate a set of rhythm pattern pulses selected from plural sets of rhythm patterns. Each rhythm pattern pulse of the selected set triggers each individual rhythm sound source so as to constitute, by the combination of the outputs of the triggered sources, a predetermined rhythm sound performance. The outputs of the rhythm sound sources are supplied to a sound volume presetting circuit the respective inputs of which are selectively connected to respective rhythm output lines through resistors having predetermined values in accordance with the kinds of the rhythms to be played, and the output lines are connected to an output terminal through respective rhythm selector switches to be closed upon selection of the kind of rhythm performances.

3,637,915

SUSTAIN KEYS CIRCUITRY WITH SUSTAIN TIME CONTROL CIRCUIT IN ELECTRONIC MUSICAL INSTRUMENT

Katsuhiko Hirano, Hamakita, Japan, assignor to Nippon
Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-
ken, Japan

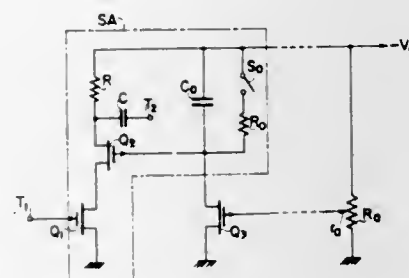
Filed Apr. 9, 1970, Ser. No. 27,027

Claims priority, application Japan, Apr. 14, 1969, 44/33943

Int. Cl. G10h 1/02

U.S. Cl. 84—1.13

13 Claims



A sustain key circuitry in electronic musical instrument having two field effect transistors connected in series to each

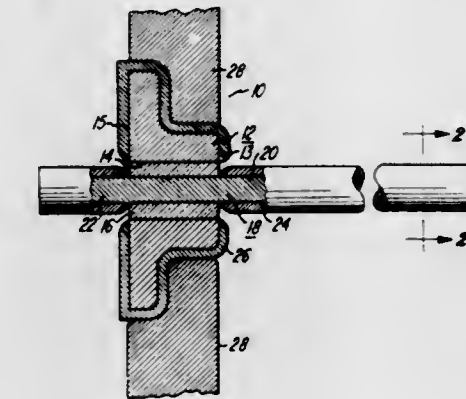
JANUARY 25, 1972

ELECTRICAL

1543

other, the source electrode of the first FET being grounded and the gate electrode thereof being adapted to receive tone signals, the drain electrode thereof being connected to the source electrode of the second FET whose drain electrode is connected to the power source via a load resistor, the gate electrode of said second FET being connected to keying means having a key-operated switch and capable of keying the control voltage to be applied to the gate electrode of said second FET, so that, by the keying operation of said key-operated switch, said tone signal is derived across the load resistor, said circuitry being arranged so that the on-off ratio, i.e., the conducting to nonconducting level ratio of the tone signal, is increased substantially whereas, accordingly, the load in a tone generator is reduced. By incorporating, in said sustain keyer circuitry, a sustain time control circuit, i.e., an envelope-forming circuit, which is formed by the use, in a charging and discharging circuit which is employed as the time constant circuit for determining the sustain time of said electronic musical instrument, of a capacitor of a relatively low capacitance and a third FET having an extremely high inner impedance and being used as a variable resistance element, said circuitry can be easily integrated.

coefficient closely matching that of the insulating material. A



relatively thick copper layer is disposed only on the outer end portions of the conductor.

3,637,918

FUSE AND ARRESTER INSERT BRACKET

Randolph A. Pasen, Dearborn Heights, Mich., assignor to The
Detroit Edison Company, Detroit, Mich.

Filed Mar. 20, 1970, Ser. No. 21,420

Int. Cl. H01b 17/16

U.S. Cl. 174—158 R

10 Claims

3,637,916 ELECTRONIC MUSICAL INSTRUMENT EMPLOYING DIFFERENTIAL TRANSFORMER FOR SIGNAL COUPLING

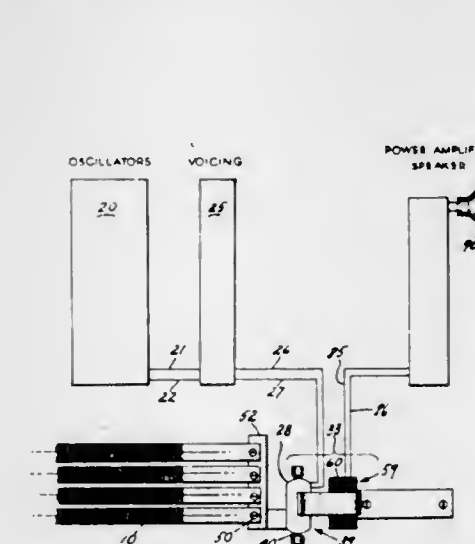
Alvin S. Hopping, Nolan's Point, Lake Hopatcong, N.J.

Filed Apr. 15, 1970, Ser. No. 28,570

Int. Cl. G10c 3/20

U.S. Cl. 84—1.15

3 Claims



An electronic musical instrument in which electronically generated tones are coupled from a generating system to a power amplifier by a differential transformer in which primary and secondary windings are normally disposed transversely to each other on respective open cores which are normally disposed in parallel, proximate relationship to effect null transfer of signal, and which are moved with respect to each other to effect desired transfer of signal.

A bracket for attachment to a standoff insulator bracket having a generally horizontally upper arm, a downwardly and slightly outwardly inclined insulator support portion, and a downwardly and inwardly inclined lower brace arm. The insert bracket extends laterally of the insulator bracket and provides extending arms to which electrical components such as fuse and lightning arrester devices may be mounted. The insert bracket is designed to support the electrical components generally within an area limited by the outer ends of insulators carried by the insulator brackets.

3,637,919

COLOR TELEVISION EQUIPMENT

David S. McVoy, Gainesville, Fla., assignor to Coaxial Scientific Corporation, Alachua, Fla.

Filed July 13, 1970, Ser. No. 54,411

Int. Cl. H04n 9/34

U.S. Cl. 178—5.2 R

10 Claims

Color television equipment includes a system in which a frame of video information is transmitted by sequentially transmitting the video signals so that for successive lines being scanned the transmitted signal will be representative of red, green and blue light, respectively. At the end of the frame the phase of the sequence shifts so that for each line in the next frame the transmitted signal will represent a color that is different for that line in the previous frame. At the end of the third frame the red, green and blue video outputs for each line will have been transmitted. Counters and related circuitry in the transmitter and in a compatible receiver are

3,637,917 HERMETIC HIGH-CURRENT THERMIONIC FOR ELECTRONIC DEVICES

William Lee Oates, Bernardsville, N.J., assignor to RCA Corporation

Filed Mar. 10, 1971, Ser. No. 122,672

Int. Cl. H01b 17/26

U.S. Cl. 174—152 GM

6 Claims

A metallic conductor extends through an insulating material disposed in an opening of a sleeve and has an expansion

source of fields of first or general viewer information and a source of at least one field of second special viewer information. Means superimposed at least a portion of the field of second viewer information on a field of first viewer information to create at least one superimposed field. The fields of first viewer information are transmitted with the superimposed field or fields interposed therein. The television receiver receives the transmitted fields. Included in the receiver are means for separating out from the superimposed field or fields the field of second viewer information or portion thereof and for displaying that field of second viewer information.

3,637,927

COMPARING TELEVISION SIGNALS WITH VARIED THRESHOLD AND PRODUCING BINARY SIGNALS

Gerhard Krause, Ebersberg B. Munchen, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

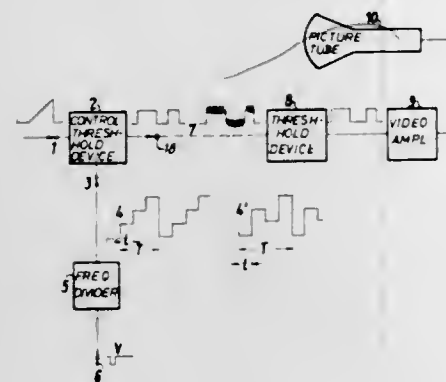
Filed Nov. 12, 1969, Ser. No. 875,771

Claims priority, application Germany, Nov. 16, 1968, P 18 09 357.7

Int. Cl. H04h 7/10

U.S. Cl. 178-6

20 Claims



A reference voltage is cyclically varied within a range of dark and bright television picture signals. Binary one signals are produced when an instantaneous picture brightness signal voltage is higher, i.e. brighter, than the instantaneous level of the cyclically varied reference voltage. Zeros indicate that the instantaneous value of the television signal is below the corresponding instantaneous level of the reference voltage. The binary signals are amplified when necessary, and are stored or transmitted to a receiver. The binary inputs are used directly in a conventional receiver, permitting the eye to integrate closely adjacent signals to distinguish levels of brightness.

3,637,928

METHOD AND APPARATUS FOR RECORDING AND REPRODUCING TELEVISION OR OTHER BROADBAND SIGNALS WITH AN ALTERED TIME BASE EFFECT

Anthony Poulett, Menlo Park, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Mar. 18, 1968, Ser. No. 713,732

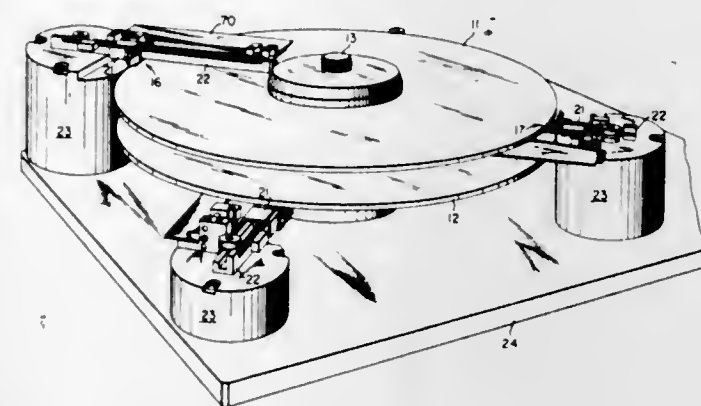
Int. Cl. H04n 5/78

U.S. Cl. 178-6.6 FS

7 Claims

A method and apparatus is provided for recording and reproducing television or other broadband signals with an altered time base effect so as to provide, for example, in the case of television signals, slow motion, faster than normal motion, stop motion or reverse motion. To provide slow motion replay of television signals, successive fields of the signal are recorded separately on a plurality of magnetic mediums, and at predetermined head-to-medium writing speeds, and are played back at substantially the same head-to-medium

writing speeds. On playback, each field is repeated a number of times depending upon the time base effect desired.



Reverse motion is provided by reversing the order of replay of the fields.

3,637,929

OPTICAL SCANNING APPARATUS UTILIZING A RE-ENTRANT LASER BEAM

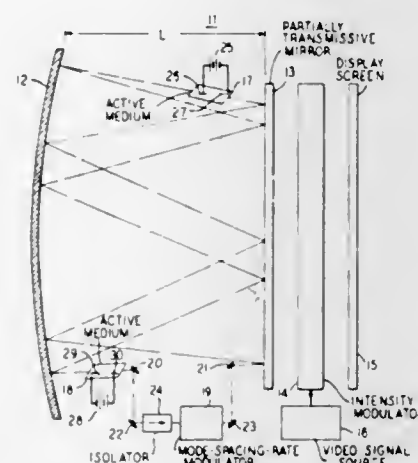
Ivan P. Kaminow, New Shrewsbury, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Sept. 30, 1968, Ser. No. 763,778

Int. Cl. H04n 3/02; H01s 3/08; H04b 9/00

U.S. Cl. 178-7.3

5 Claims



In the synchronous scanning display device disclosed, the laser active medium and means for mode-locking multiple-mode laser oscillations are disposed in a resonator adapted to provide a folded optical path yielding a large plurality of resolvable spots at a reflector of stepped transmissivity and reflectivity. The intensity of the output from the resonator at each spot is selectively controlled by a video signal applied to a broad area modulator disposed just outside the stepped-reflectivity reflector. Typically, an isolator is employed to produce unidirectional propagation of the laser radiation along the folded path.

3,637,930

YOKE-RETAINING DEVICE

James L. Meier, Des Plaines, Ill., assignor to Admiral Corporation, Chicago, Ill.

Filed Nov. 6, 1969, Ser. No. 874,528

Int. Cl. H01j 29/70; H01f 7/00

U.S. Cl. 178-7.8

11 Claims

A device for positioning a deflection yoke about the gun portion of a cathode-ray tube. The yoke-retaining device is formed of a molded plastic material and has a collar or ring portion which is supported against the rear envelope of the

3,637,932

TELEVISION SET CHASSIS HAVING VERTICAL PLUG IN CIRCUIT BOARDS

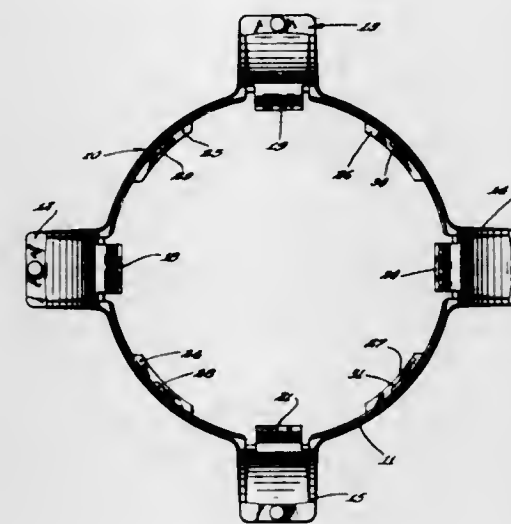
Patrick A. Wigley, Scarborough, Ontario, Canada, assignor to Clairstone Sound Corporation Limited, Rexdale, Ontario, Canada

Filed July 7, 1969, Ser. No. 839,356

Claims priority, application Canada, June 13, 1969, 054,257 Int. Cl. H01j 29/02

U.S. Cl. 178-7.9

11 Claims



A series of flanges are provided at the leg side of the collar portion to confine the yoke within the retaining device. Each of the flanges has a guide rib associated therewith extending in the axial direction at spaced points along the inner surface of the collar portion. These ribs prevent substantial pivoting of the yoke as it is being positioned within the yoke retainer.

3,637,931

OPTIC RELAY FOR USE IN TELEVISION

Jacques Donjon, Yerres; Auguste Raymond Le Pape, Vitry Chatillon, and Gerard Joseph Marcel Marie, L'Hay les Roses, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

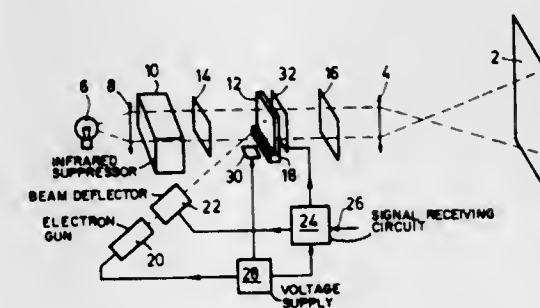
Filed Dec. 2, 1969, Ser. No. 881,463

Claims priority, application France, Dec. 20, 1968, 179505

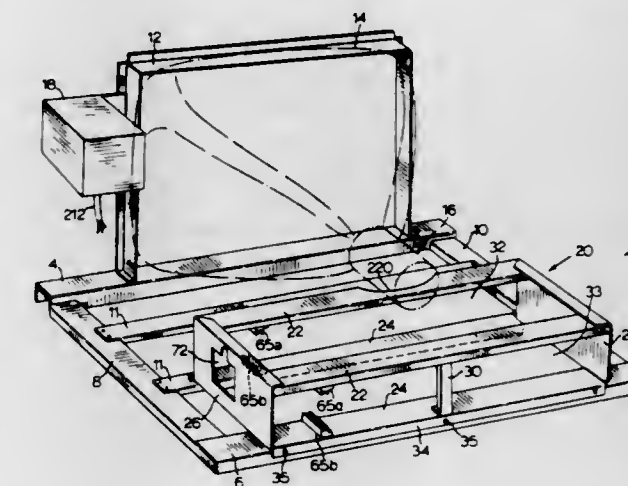
Int. Cl. H04n 5/38

U.S. Cl. 178-7.5 BD

6 Claims



An optical relay device with an insulating plate which is ferroelectric below its Curie temperature. The plate is scanned by an electron beam. The plane of polarization of light incident on the plate is variably rotated in dependence upon the electric field created by means of the interaction between the electron beam and a signal voltage applied to the plate, due to the Pockels effect. The temperature of the plate is stabilized in the proximity of its Curie temperature. This stabilizing device uses a capacitor as a temperature sensing element. The dielectric of the capacitor is formed by a material having a Curie temperature differing from that of the plate by between 1° and 20°.



A color television set chassis extending across the rear edge of the set and containing plug-in circuit boards oriented in a vertical plane and extending in a front to rear direction. The boards are inserted and removed from the rear and plug into an interconnecting board across the front of the chassis, with controls on the boards projecting through the rear cover of the set. The chassis is open at its top and bottom for ventilation. The tuner assembly is located at one side of the chassis, and the boards contain components arranged in a specific order which both separates the functions as between the boards and also simplifies the wiring needed.

3,637,933

ALPHA-NUMERIC PRINT SYSTEM USING THREE PRINTING WHEELS

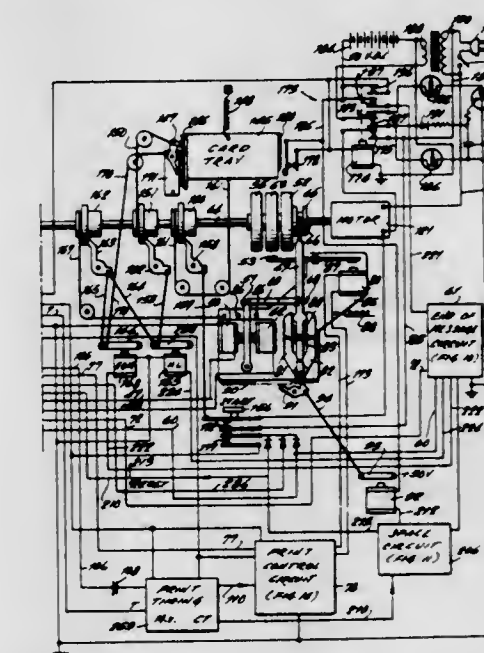
Arnold M. Wolf, Brooklyn, and John G. Richter, Yonkers, both of N.Y., assignors to Electrospace Corporation, Glen Cove, N.Y.

Filed Nov. 12, 1969, Ser. No. 875,794

Int. Cl. H04l 17/24

U.S. Cl. 178-39

7 Claims



A printing system is described having three continuously rotating print wheels slidably mounted adjacently each other

on a splined shaft. A record sheet, which may be a card or a sheet of paper is mounted adjacent the peripheries of the wheels and an electromagnetic hammer is mounted on the other side of the record sheet. The printing operation includes the actuation of the hammer in timed relationship to the position of the wheels. The wheels are shifted together by a single yoke to move a desired wheel into printing position. Three wheels are used in order to include all the alphabet characters, all the numerals from 0 to 9, and various other punctuation marks.

3,637,934

FACSIMILE DEVICE WITH PROVISIONS FOR DIRECT VIEWING OF AN INTERMEDIATE RECORD

Arthur Edward Brewster, Cheshunt, England, assignor to International Standard Electric Corporation, New York, N.Y.

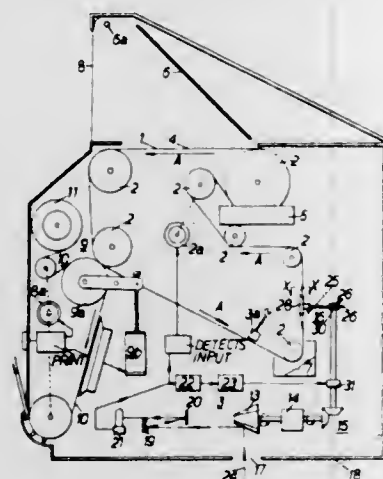
Filed Dec. 13, 1968, Ser. No. 783,638

Claims priority, application Great Britain, Jan. 25, 1968, 3,894/68

Int. Cl. H04n 1/28; G01d 15/12; G11b 5/52

U.S. Cl. 178-6.6 A

26 Claims



The invention provides apparatus for displaying and printing information applied thereto via an image conversion system which forms part of the apparatus and which involves the mechanical scanning of a primary image by a detector unit. A magnetic recording head assembly mechanically coupled to the detector unit and electrically coupled to the image conversion system scans a magnetic recording surface in synchronism with the scanning action of the detector unit to build up a magnetic image subsequently displayed by dusting with magnetic powder which adheres to the magnetic image and which is wholly transferable therefrom to a permanent record. The primary and permanent images as viewed are the same way round.

3,637,935

KEYED SUBSTRATE FIELD EFFECT TRANSISTOR FREQUENCY-SELECTIVE CIRCUITS

Tomoki Sacki, Kawasaki, Japan, assignor to RCA Corporation

Filed May 7, 1970, Ser. No. 35,463

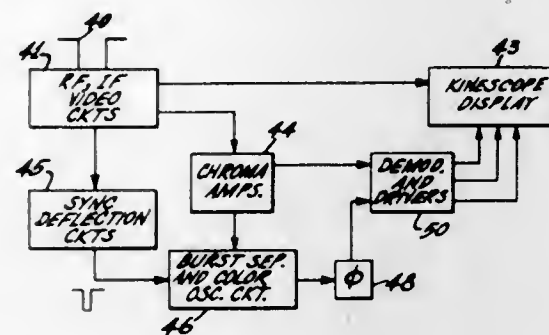
Int. Cl. H04n 9/44

U.S. Cl. 178-5.4 R

8 Claims

A frequency-selective circuit utilizes a field effect transistor of FET which is operated in a saturation mode by the application of a biasing potential to the substrate. The potential saturates the FET during a signal information containing interval. During a synchronizing interval the substrate bias is altered to enable the field effect device to operate as an active amplifier. The FET then serves to amplify a signal of a predetermined frequency applied to the gate electrode and occurring during the synchronizing interval. The drain

electrode of the field effect transistor is coupled to a high quality factor circuit which is responsive to the amplified out-



put signal to provide an extended version of said signal synchronized in frequency and phase thereto.

3,637,936

AUTOMATIC FINE TIME-CORRECTING CIRCUIT FOR TIME CORRECTING THE OUTPUT OF A COARSE TIME CORRECTOR IN A COLOR TV SYSTEM

Gerhard Krause, Darmstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

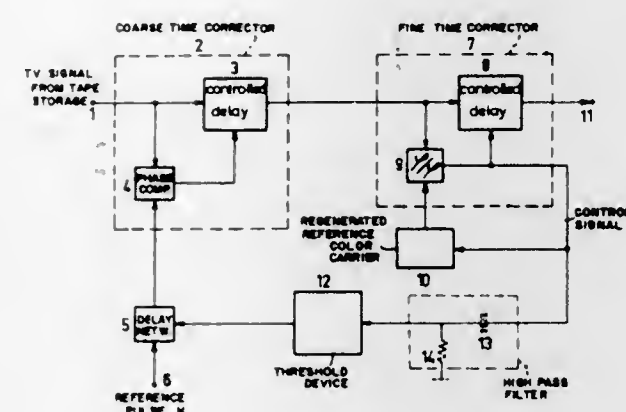
Filed Apr. 7, 1969, Ser. No. 813,865

Claims priority, application Germany, Apr. 13, 1968, P 17 62 131.7

Int. Cl. H04n 9/46

U.S. Cl. 178-69.5 CB

5 Claims



An automatic fine time-correcting circuit coupled to the output of the coarse time corrector in which the reference signal used in the phase comparator circuit is taken off a color carrier regenerator circuit, and the output of the fine time corrector is fed back to the coarse corrector circuit through a threshold device including a pair of antiparallel connected diodes.

3,637,937

A TELECINE SYSTEM FOR PRODUCING VIDEO SIGNALS FROM FILM

John Harwood Deveson, and Anthony John Butt, both of Essex, England, assignors to The Marconi Company Limited, London, England

Filed Sept. 10, 1969, Ser. No. 856,531

Claims priority, application Great Britain, Sept. 18, 1968, 44,273/68

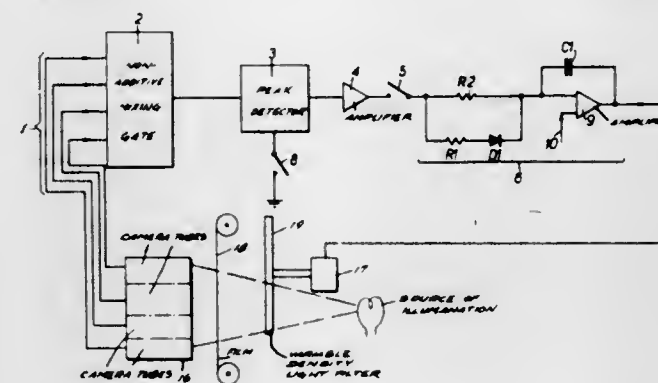
Int. Cl. H04n 5/54

U.S. Cl. 178-7.2

12 Claims

In a telecine equipment variations in exposure of the film can be disturbing to viewers. This invention provides a compensation for such variations which may be effected within the time of a small number of television field scans and employs a peak signal detector for determining during operation peak signal amplitude occurring during a predetermined

number of television fields and control means, which may vary the gain of the camera or video signal processing ampli-



fier, operable for a subsequent predetermined number of fields for applying correction for any departure from a desired peak signal level.

3,637,938

STEREO SPEAKER ARRANGEMENT AND CIRCUIT

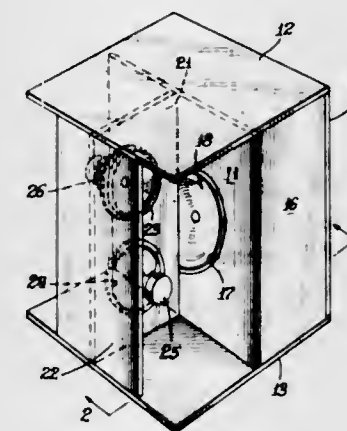
Herbert F. Kuhlow, Cleveland, Ohio; James F. Novak, La Grange Park, and John F. Henley, Country Club Hills, both of Ill., assignors to Pemcor, Inc.

Filed Aug. 6, 1969, Ser. No. 847,961

Int. Cl. H04r 5/02; G10k 13/00

U.S. Cl. 179-1 G

9 Claims



A sum speaker is placed behind a panelboard opening in an enclosure. Across the front of the opening and normal to the panel is divider means having speaker apertures therethrough. A baffle member at least as wide as the opening extends across the distal edge of the divider means and parallel to the panel board. Difference speakers are positioned on opposite sides of the divider means, facing in opposite directions. The sum speaker produces sound corresponding to the sum of the left and right stereo channels, while the difference speakers produce sound corresponding to the difference between the left and right channels, with the diaphragms of the difference speakers moving simultaneously in the same direction. This is achieved by a matrixing means comprising an autotransformer. The ends of the transformer coil are connected respectively to the ungrounded output terminal of the left and right channel amplifiers respectively. The difference speakers are connected across the ends of the autotransformer. The sum speaker is connected between the transformer center tap and the grounded output terminals of the two amplifiers. In one embodiment the sum speaker panelboard and the divider are vertical. In another embodiment the sum speaker panelboard is horizontal and the divider means comprises four wings positioned as a Greek cross, with different speakers on each of the wings.

3,637,939

LINE STATUS CONTROL FOR ELECTRONIC KEY TELEPHONE SYSTEM

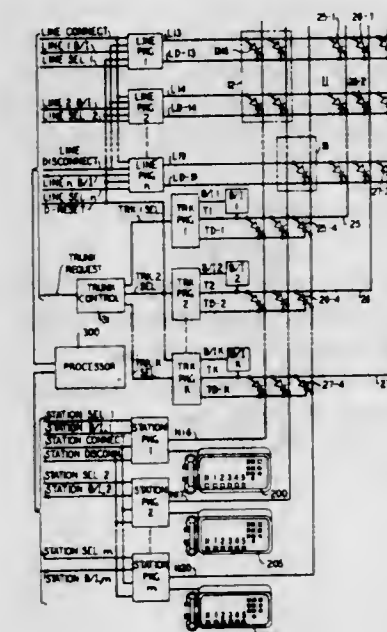
Lucian Philip Fabiano, Jr., Denver, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 7, 1970, Ser. No. 35,435

Int. Cl. H04q 3/54

U.S. Cl. 179-18 ES

10 Claims



A key telephone system is disclosed in which switching functions are carried out in a central switching network instead of at the telephone set to reduce the amount of cabling in the system. The network is controlled by a processor associated with a memory unit containing a translation word for each station, each translation word containing the equipment location of the station and each of the lines accessible to the station. The processor employs the line equipment location to access the location in memory in which line activity need be stored only once in memory instead of repetitively in the translation word of each station having access to that line. The line activity word is protected against mistaken alteration by a phase bit.

3,637,940

MONOCHANNEL AUDIO TEACHING DEVICE

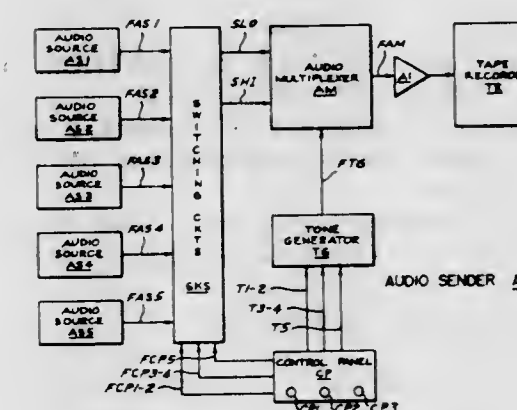
Charles A. Morchand, New York, and Don J. Dudley, Brightwaters, both of N.Y., assignors to Data-Plex Systems, Inc., New York, N.Y.

Filed May 18, 1970, Ser. No. 38,133

Int. Cl. H04j 9/00

U.S. Cl. 179-15 BM

10 Claims



A monochannel audio teaching device comprises an audio sender which multiplexes several audio signals into a single

composite signal for transmission over single channel audio circuits for recording on the single channel magnetic tape, and an audio receiver which recovers the various audio signals from the single composite signal received. The sender provides inputs for two or more sources of audio information, related to, for example, multiple choice questions. Two frequency-multiplexed channels are provided and into each of these channels one or more audio signals can be fed on a time-multiplexed basis. Control signals precede each unit of information being time multiplexed. The control signals and Frequency/Time-multiplexed audio signals are combined to form a single composite signal or recording for subsequent use at the receiver. At the audio receiver the signals are demultiplexed and their control signals cooperate with student operated switches to select which unit of information is to be heard.

3,637,941

INTEGRATED SWITCHING AND TRANSMISSION NETWORK FOR PULSE CODE MODULATED SIGNALS

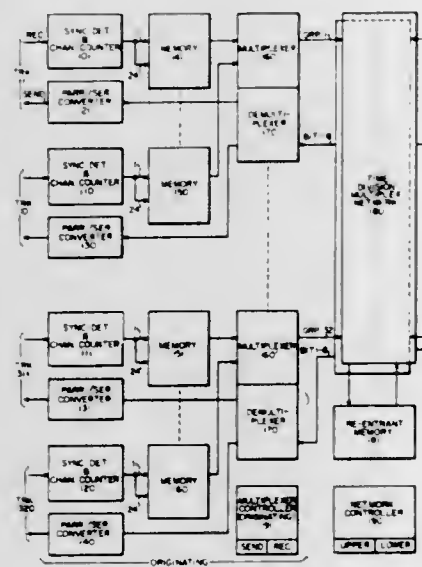
Bernard J. Reklere, Addison, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed July 13, 1970, Ser. No. 54,481

Int. Cl. H04j 3/00

U.S. Cl. 179-15 Aq

8 Claims



A time-division multiplex switching network and associated control. The network is capable of accepting digitally multiplexed carrier signals, performing the necessary functions of frame aligning, channel switching and channel reassigning required by an integrated switching and transmission system. To overcome blocking, time slot interchange capability is provided by allowing selective access to common storage locations via the switching network.

3,637,942

CONSTANT QUANTIZING SCALE METHOD OF TRANSMITTING A SIGNAL

Burghardt Vollmer, Vendelso, and Ulf Lindback, Tyreso, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Continuation-in-part of application Ser. No. 644,223, June 7, 1967, now abandoned. This application Jan. 14, 1970, Ser. No. 2,815

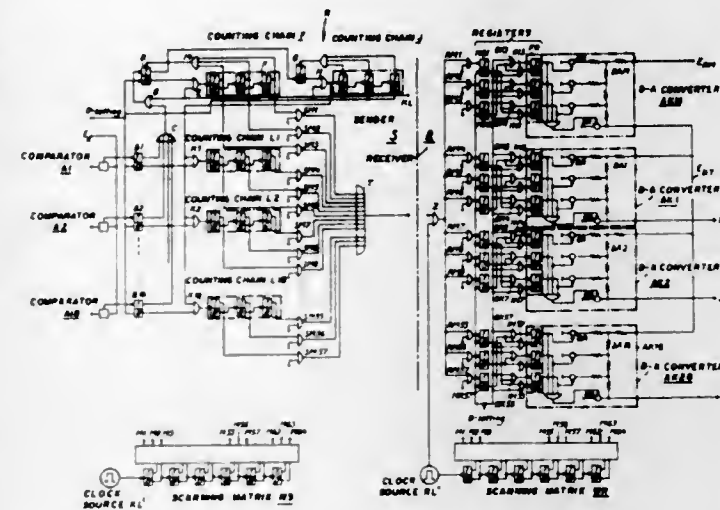
Int. Cl. H04b 1/66

U.S. Cl. 179-15.55 R

5 Claims

A method of transmitting a voice frequency spectrum which comprises a plurality of frequency channels wherein in each channel there is a voltage signal whose amplitude represents the intensity of a different discrete frequency component of the spectrum. The voltage signals of all channels are simultaneously compared against an exponentially

decreasing reference voltage until an equality is obtained between the reference voltage and the voltage signal of the channel having the greatest intensity. A binary-coded representation of this intensity is recorded. Thereafter, bi-



3,637,943

TELEPHONE-SIGNALING UNIT

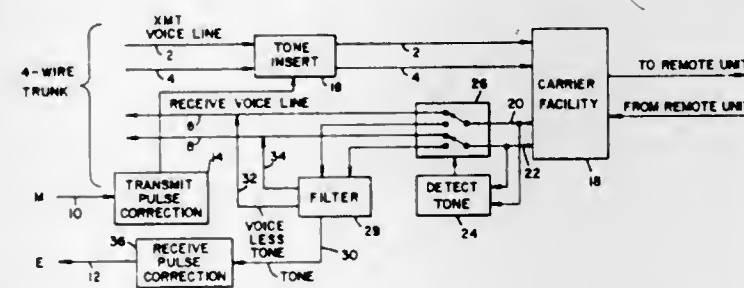
Klaus Ernst Funke, Novato, Calif., assignor to Digital Telephone Systems, Inc.

Filed June 24, 1970, Ser. No. 49,399

Int. Cl. H04m 7/16

U.S. Cl. 179-16 EC

14 Claims



An in-band telephone-signaling unit of the type useful in carrier trunk systems is disclosed having receive and transmit pulse correction circuits and a band stop/band-pass filter for using an idle channel for supervisory purposes. The transmit pulse correction circuit provides constant length pulses in response to varying length pulses; the receive pulse correction circuit looks for pulses longer than a predetermined length and generates pulses having a constant duty cycle. The bandstop/band-pass filter employs a resonant arm in an active resistance bridge configuration.

3,637,944

PATH-FINDING SYSTEM FOR RELAY-TYPE CROSS-POINT MATRIX NETWORKS

Klaus Gueldenpfennig, Penfield, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.

Continuation-in-part of application Ser. No. 782,078, Dec. 9, 1968, now Patent No. 3,585,309. This application Nov. 25, 1970, Ser. No. 92,566

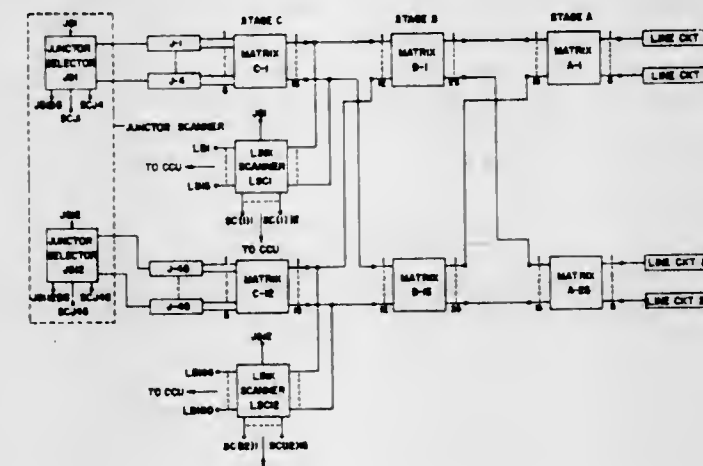
Int. Cl. H04q 3/49

U.S. Cl. 179-18 GE

6 Claims

A path-finding system for interconnection of circuits through a switching network, wherein the network includes a

plurality of matrix stages interconnected to provide plural paths between circuits connected to opposite ends of the network and wherein each stage is divided into separate matrix groups. The matrix groups comprise cross-point relays having control and hold coils. The mark coils are interconnected between adjacent stages by mark leads for controlling the actuation of the cross-point relays and the hold coils are interconnected by hold leads for maintaining the relays actuated.



Guard relays are included in the mark leads between two of the matrix stages. The circuits at opposite ends of the network to be connected are marked. The busy-free conditions of the individual hold leads connected to a selected one of the matrix groups between two of the network stages are scanned to locate a free path. A circuit responsive to the detection of a free hold lead completes the connection through the network and interconnects the marked circuits.

3,637,945

SWITCHING NETWORK PATH RESERVATION ARRANGEMENT

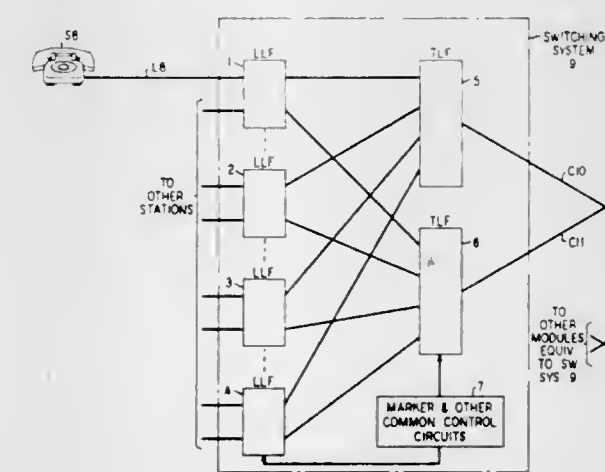
Kenneth F. Glesken, Westerville, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 26, 1969, Ser. No. 879,995

Int. Cl. H04q 3/495

U.S. Cl. 179-18 E

11 Claims



A switching system is arranged with control circuitry operative to identify a switching network link which will be required for a subsequent linkage path and to attempt to use the identified link as part of a preliminary linkage path and, in the alternative, to partially enable this link and thus render it "busy" simultaneously with the enabling of the preliminary linkage path. The arrangement thus insures the later availability of the identified link for use in the subsequent linkage path.

3,637,946

EQUIPMENT FOR CONTROLLING INTEROFFICE SIGNALING DURING A GLARE CONDITION

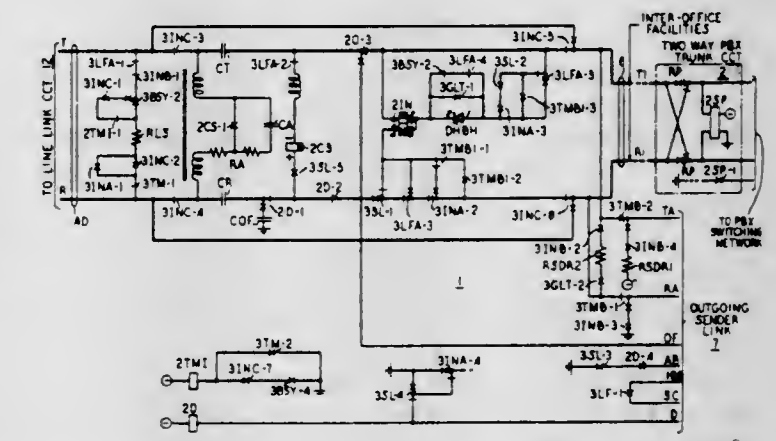
Harold E. Hamrick, Columbus, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Jan. 7, 1970, Ser. No. 1,136

Int. Cl. H04m 7/10

U.S. Cl. 179-18 AH

10 Claims



This pertains to equipment which is activated when automatic call switching circuitry at different offices simultaneously seize the same two-way interoffice trunk to complete different call requests. Included in this equipment is detection circuitry which causes one office to withdraw its call request enabling the other office to complete the call. A particular aspect of the invention concerns apparatus responsive to supervisory signals on the trunk for automatically converting the seizure signal forwarded by one office to an on-hook signal to prevent transmission of a premature acknowledgment signal to the other office.

3,637,947

CALL FORWARDING ARRANGEMENT FOR TELEPHONE ANSWERING SERVICE SYSTEMS

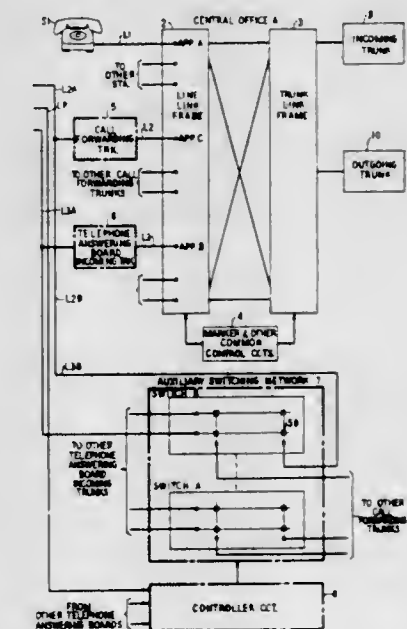
Charles Breen, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 22, 1969, Ser. No. 886,944

Int. Cl. H04m 5/50, 3/60

U.S. Cl. 179-27 FH

11 Claims



A central office, comprising a main switching network and control circuitry for interconnecting line circuit appearances

and trunk circuit appearance in the normal manner, is modified by the addition of an auxiliary switching network upon which are terminated telephone answering board incoming trunks and call forwarding trunks. These trunks also appear at respective remote telephone answering switchboards and each has a line circuit appearance in the main switching network. The system is arranged so that an incoming connection via a telephone answering board incoming trunk may be extended to a remote destination via a selected call forwarding trunk under control of the telephone answering board. A controller circuit associated with the auxiliary switching network is responsive to control signals from the remote telephone answering switchboard to enable a connection between the activated telephone answering board incoming trunk and the selected call forwarding trunk via the auxiliary switching network located at the central office.

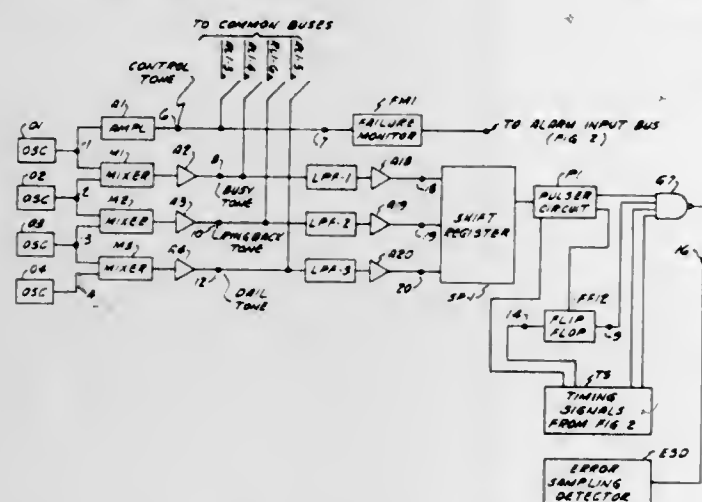
3,637,948

CIRCUITS FOR SUPPLYING SUPERVISORY TONES, TUNING SIGNALS, LAMP BLINKING CONTROL AND REDUNDANT CIRCUIT SWITCHOVER FOR AN EPABX
Morris Ribner, Chicago, and Timothy J. Keough, Woodridge, both of Ill., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 13, 1970, Ser. No. 36,927
Int. Cl. H04m 1/26

U.S. Cl. 179-84 R

9 Claims



Integrated circuits are used to generate or form the tone supply for an electronic EPABX. Included are the supply of tones for line supervision and for ringing signal as well as internal DC timing signals. Signal failure detection and redundant circuit switchover are provided in the event of failure.

3,637,949

MOUNTING OF THE DIAL SWITCH

Heinz Ruster, and Gunter Schwanck, both of Berlin, Germany, assignors to International Standard Electric Corporation, New York, N.Y., by said Schwanck

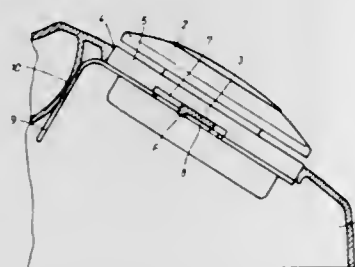
Filed Sept. 15, 1969, Ser. No. 9,463

Claims priority, application Germany, May 29, 1969, P 19 27 441.0

Int. Cl. H04m 1/23

U.S. Cl. 179-100 R

2 Claims



A dial switch is mounted inside a subset housing with the aid of a bayonet lock. Engagement in the end position is ef-

fected by means of a flexible latch detachably snapping into a groove of the housing.

3,637,950

RECORDING SYSTEM FOR SIMULTANEOUSLY PROJECTING PHOTOGRAPHIC IMAGES WITH A RECORDED COMMENTARY

Claude, Ansbert, Gaston, Gustave, Pierre Halley, Colombes, France, assignor to Paul, Claude, Marie Touvier-Berthet, Lyon, France, a part interest

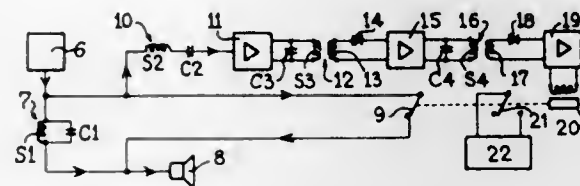
Filed Aug. 27, 1968, Ser. No. 755,702

Claims priority, application France, Sept. 4, 1967, 119825

Int. Cl. G11b 23/30, 27/30, 31/00

U.S. Cl. 179-100.2 S

4 Claims



Method and system for a simultaneous projection of photographic images associated with a recorded commentary. Electrical signals coming from the audio spectrum representing the commentary are recorded and a series of control pulses having a given carrier frequency and occurring at predetermined intervals are superimposed on the signals. The pulses are modulated with a signal having a frequency different from the carrier frequency. A switching means is actuated by detected and amplified modulating signals for actuating a photographic image changing device and short-circuiting a filter connecting a reading device to a loudspeaker.

3,637,951

RECORDING HEAD DRIVER WHICH AVOIDS SATURATION

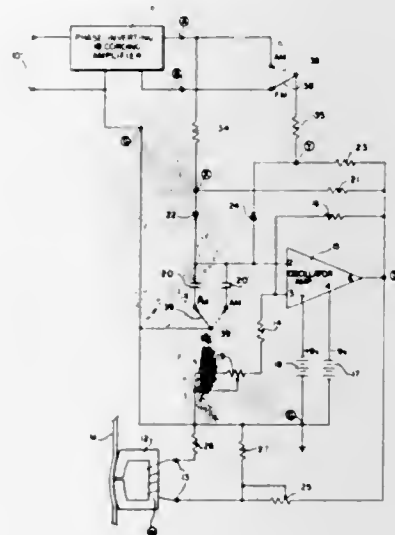
Robert F. Brown, Jr., Dallas, Tex., assignor to Teledyne Industries-Geotech Division

Original application July 22, 1968, Ser. No. 746,546, now Patent No. 3,530,257, dated Sept. 22, 1970. Divided and this application Feb. 17, 1970, Ser. No. 12,051

Int. Cl. G11b 5/06

U.S. Cl. 179-100.2 R

1 Claim



An oscillatory circuit for driving a magnetic recording head to record analog intelligence signals in either one of two selectable modes, i.e., frequency modulation of a carrier supplied by the oscillator, or amplitude modulation resembling signals recorded by ordinary AC-biased techniques, the latter also being claimed as a method. The system employs the same oscillatory circuit in both cases, this circuit operating in

one mode as a voltage-controlled oscillator wherein both half-cycles of the oscillations are either lengthened or shortened depending upon the polarity of said analog input signal, and operating in the other mode in such a way that the analog input, depending upon its polarity, either shortens or lengthens one half-cycle of oscillation with respect to the other, whereby the zero axis of the oscillations is shifted up or down with changes in amplitude and polarity of the analog input signal to produce in the magnetic recording head a single oscillation signal resembling the composite of an analog signal plus AC-bias which is normally introduced into a recording head by prior art recording techniques. The mode of recording is conveniently determined by simple switch means.

3,637,952

VOICE CLOCK APPARATUS

Yukio Hataya, Neyagawa-shi; Isao Kozu, Osaka, and Yasutaka Nakashima, Neyagawa-shi, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma-shi, Osaka, Japan

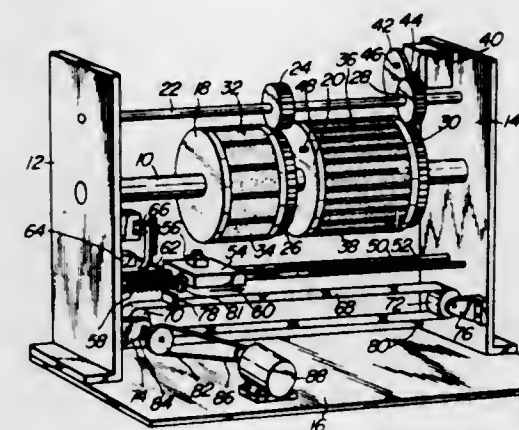
Filed Dec. 22, 1969, Ser. No. 887,041

Claims priority, application Japan, Dec. 25, 1968, 44/282

Int. Cl. G11b 3/36, 27/14

U.S. Cl. 179-100.2MD

2 Claims



An apparatus for vocally indicating the time of day through a speaker, which comprises medium means having a magnetic layer applied thereover and formed with a plurality of tracks storing voices corresponding to various points of time, a clock mechanism for driving the medium means to shift the tracks in accordance with the lapse of time, a magnetic head for scanning at least one of the tracks to reproduce the time signal stored therein, driving means receiving the drive from a motor for driving the magnetic head, an amplifier for amplifying the reproduced output of the magnetic head, and switch means for connecting the magnetic head with the amplifier.

3,637,953

CRADLE SWITCH

Heinz Ruster, and Gunter Schwanck, both of Berlin, Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Sept. 15, 1969, Ser. No. 9,462

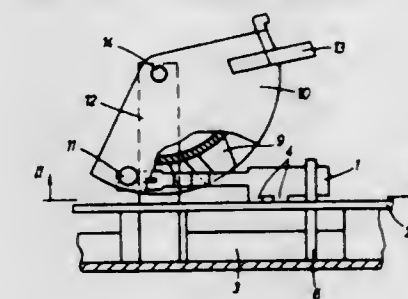
Int. Cl. H04m 1/08

U.S. Cl. 179-164

6 Claims

A cradle switch is formed by a rocker having the shape of a cylinder section which, on its bent jacketing surface, is pro-

vided with switching cams which are capable of being moved



between contact springs mounted to move horizontally on a printed circuit board, and thus to actuate these contacts.

3,637,954

METHOD AND APPARATUS FOR DYNAMIC TESTING OF ECHO SUPPRESSORS IN TELEPHONE TRUNK SYSTEMS

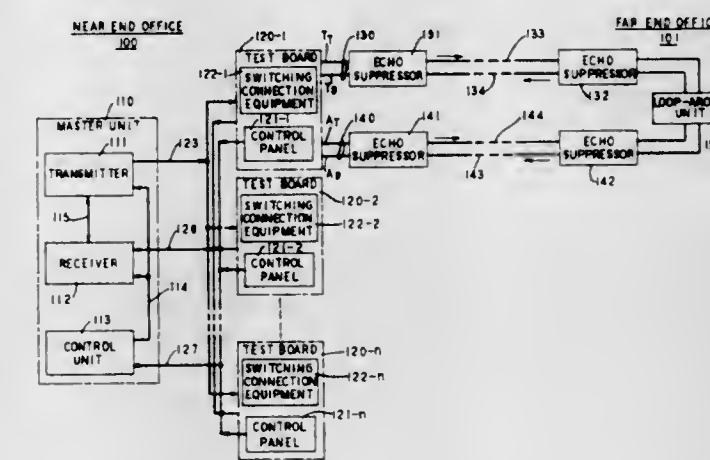
Theodore C. Anderson; Roger D. Baum, both of Middletown; David L. Favin, Little Silver, and John J. Rugo, Middletown, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 22, 1969, Ser. No. 826,893

Int. Cl. H04b 3/46, 3/20

U.S. Cl. 179-175.31E

22 Claims



Functional characteristics of echo suppressors in a telephone trunk system are dynamically evaluated by propagating selected test signals, in a predetermined format tailored to the characteristic being evaluated, through the trunk system and selectively through echo suppressors in the system. An auxiliary trunk is utilized in conjunction with the trunk-under-test to facilitate transmission and reception of the test signals. Test signals are supplied from and evaluated by a master test unit, which is preprogrammed in accordance with the test being performed and the type echo suppressor being evaluated.

3,637,955

SUPERVISORY SYSTEM FOR UNATTENDED REPEATERS

John Frederick Tilly, and Ian Johnson Hirst, both of Kent, England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,360

Claims priority, application Great Britain, Jan. 2, 1969, 219/69

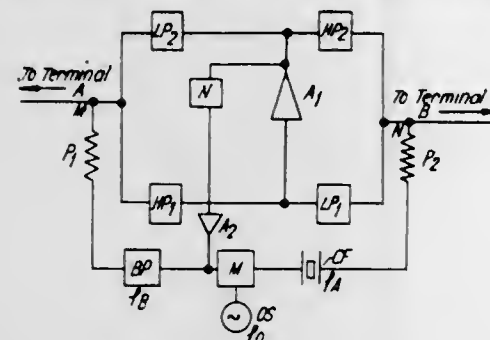
Int. Cl. H04b 3/46

U.S. Cl. 179-175.31R

4 Claims

A supervisory system for intermediate repeaters enables the gain of a repeater to be determined from either terminal station, and the noise produced by a repeater to be measured from one station without interrupting service. To test for

gain, terminal station A(B) transmits a test signal lying in a 1st(2nd) frequency band not used for traffic. At the repeater this signal is converted by a modulator into a signal lying in a



2nd(1st) frequency band, this signal being returned to the A(B) terminal. The repeaters are identified by the frequency of a crystal filter included in the path of the test signals. The circuit can be used with single or double amplifier repeaters.

3,637,956

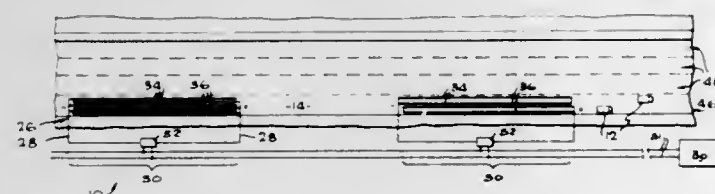
ELECTRICAL AUTOMOBILE TRANSPORTATION SYSTEM

Robert D. Blackman, 4242 Hazeltine St., Sherman Oaks, Calif.

Filed Jan. 27, 1970, Ser. No. 6,259
Int. Cl. B60 9/02; H02J 7/00

U.S. Cl. 191-4

4 Claims



An electrically powered automotive transit system including an automotive vehicle having electrical propulsion means and an electrical power system for supplying electrical energy to the vehicle while on the road. The power system embodies exposed electrified conductors on the road and electrical current collectors on the vehicle for contacting the road conductors to effect transmission of electrical energy from the conductors to the vehicle propulsion means. The electrical energy thus supplied to the vehicle may be utilized periodically to charge a battery in the vehicle which powers the vehicle propulsion motor during normal cruising operation continuously or to power the motor directly during cruising operation.

3,637,957

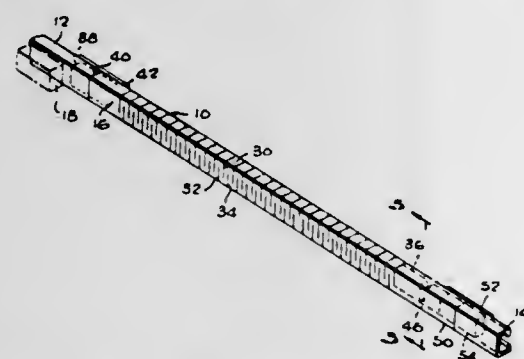
EXPANSION JOINT

Lester G. Janzow, Los Angeles, and Ronald D. Lipke, Sherman Oaks, both of Calif., assignors to The Dashaveyor Company, Venice, Calif.

Filed Oct. 14, 1968, Ser. No. 767,297
Int. Cl. B60m 1/02, 1/26

U.S. Cl. 191-29

6 Claims



An expandable track section particularly useful for joining sections of an electrical signal or power track. The expandable

ble section comprising a track portion with numerous lateral slots on either side forming a zigzag member.

3,637,958

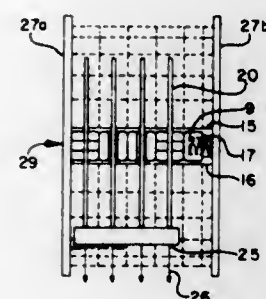
CAM-OPERATED ELECTRIC TIMING MECHANISM WITH IMPROVED ADJUSTABLE PIN CODING AND RETAINING STRUCTURE

Lester W. Haerther, and Joseph J. Earley, both of Cedar Rapids, Iowa, assignors to Collins Radio Company, Cedar Rapids, Iowa

Filed Mar. 1, 1971, Ser. No. 119,723
Int. Cl. H01h 7/08, 43/10

U.S. Cl. 200-38 CA

11 Claims



A mechanical memory of the code pin switch activating type employs a plurality of compression loaded code pin members arranged in a containing means which permits lateral translation of each of the pins in a row orientation while constraining the pins from translation transverse the pin row. The pins are substantially square headed and are formed with a head slot which may be selectively oriented so as to be coextensive with or transverse of the pin row axis. Cooperating switch activating members are loaded against the pinheads such that selected pin slot orientations define respective first and second positions of the actuator member.

3,637,959

CIRCUIT DISCONNECT APPARATUS FOR OVERHEAD ELECTRIC LINES

Ronald P. Bridges, c/o Bridges Electric Inc., 2451 Wisconsin St., Downers Grove, Ill.

Filed Oct. 22, 1970, Ser. No. 83,063
Int. Cl. H01h 31/00; H02b 5/02

U.S. Cl. 200-48

25 Claims



Electric circuit disconnect apparatus for an overhead electric line carried on poles, including a line-mounted circuit disconnect means having a disconnect member pivoted on a

horizontal axis to move its free end between an elevated closed position and a lower open position, and a crank and linkage system mounted on a pole for manually operating said disconnect means from ground level. Conveniently three disconnect means on three parallel electric lines are gang operated by a single crank and linkage mechanism.

3,637,960

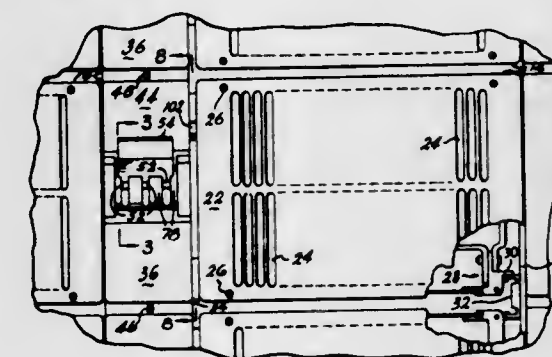
CIRCUIT BREAKER AND SAFETY INTERLOCK FOR MODULAR POWER SUPPLY

Robert G. Plantholt, Rochester, and Michael A. Koltuniak, Warren, both of Mich., assignors to Controlled Power Corporation, Farmington, Mich.

Filed Feb. 6, 1970, Ser. No. 9,179
Int. Cl. H01h 9/22

U.S. Cl. 200-50 A

15 Claims



A circuit breaker assembly with a pivotally mounted indicator flag and latch member adapted to engage and releasably lock a manual control handle of the circuit breaker in an open position. The handle in the closed position shields from view the indicator flag and in the open position exposes the indicator flag to view, thereby providing a visual indication of when the circuit breaker is open. An output terminal strip of the circuit breaker has a cover positioned with respect to the handle so that it can be removed only when the handle is in the open position. The circuit breaker is mountable adjacent to a power supply module and mechanically interlocks therewith so that the module cannot be removed from the frame in which it is carried prior to removal of the terminal cover and thus prior to opening of the circuit breaker.

3,637,961

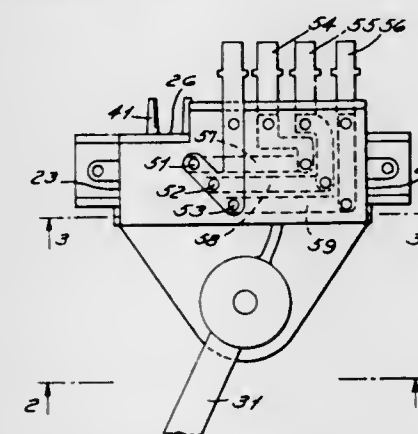
A CONTROL DEVICE FOR ACTUATING A SWITCH AND DIRECTING A FLUID PRESSURE FORCE

Theodore E. Fiddler, 1268 Suffield Drive, Birmingham, Mich., and Arnold G. Adams, Troy, Mich., assignors to said Fiddler, by said Adams

Filed Dec. 2, 1970, Ser. No. 94,283
Int. Cl. H01h 9/06

U.S. Cl. 200-61.86

5 Claims



A control device having one moving body for actuating application of both electromotive force (e.m.f.) and fluid-pressure-force (FPF) in a system such as vehicular heating, ven-

tillating, and/or air-conditioning having a case with a first wall equipped with selectively positioned FPF supply ports and use ports located between supply and use in the system and a second wall equipped with e.m.f. selectively positioned switch arms and contacts located between EMF supply and use in a system; a movable body having a first surface equipped with a grooved maze lying against the ported wall of the case forming a plurality of selective FPF channels relative to the FPF supply and use ports and having a second surface equipped with cam ramps for actuating the EMF switch arms selectively relative to the contacts; and means for selectively moving the body relative to the case to change the maze channels relative to the ports and change the cams relative to the switch arms to selectively and simultaneously control the application of e.m.f. and FPF in the system.

3,637,962

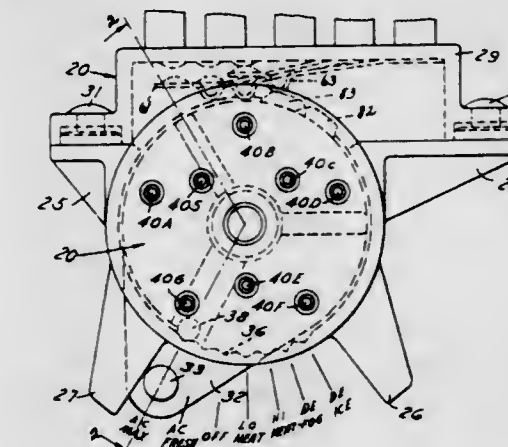
A ROTARY CONTROL DEVICE FOR ACTUATING A SWITCH AND DIRECTING A FLUID PRESSURE FORCE

Theodore E. Fiddler, 1268 Suffield Drive, Birmingham, Mich., and Arnold G. Adams, Troy, Mich., assignors to said Fiddler, by said Adams

Filed Mar. 29, 1971, Ser. No. 128,823
Int. Cl. H01h 9/06

U.S. Cl. 200-61.86

2 Claims



A control device having one moving body or portion for actuating application of both electro-motive force (EMF) and fluid-pressure-force (FPF) in a system such as vehicular heating, ventilating, and/or air-conditioning having a case with a first wall equipped with selectively positioned FPF supply ports and use ports located between supply and use in the system and a second wall equipped with EMF selectively positioned switch arms and contacts located between EMF supply and use in a system; an angularly movable body or portion having a first surface equipped with a grooved maze lying against the ported wall of the case forming a plurality of selective FPF channels relative to the FPF supply and use ports and having a second surface equipped with cam ramps for actuating the EMF switch arms selectively relative to the contacts; and means for selectively angularly moving the body relative to the case to change the maze channels relative to the ports and change the cams relative to the switch arms to selectively and simultaneously control the application of EMF and FPF in the system.

3,637,963

BRAKE WARNING SWITCH WITH BYPASS

Ellis M. Wellman, Erie, Pa., assignor to The Weatherhead Company, Cleveland, Ohio

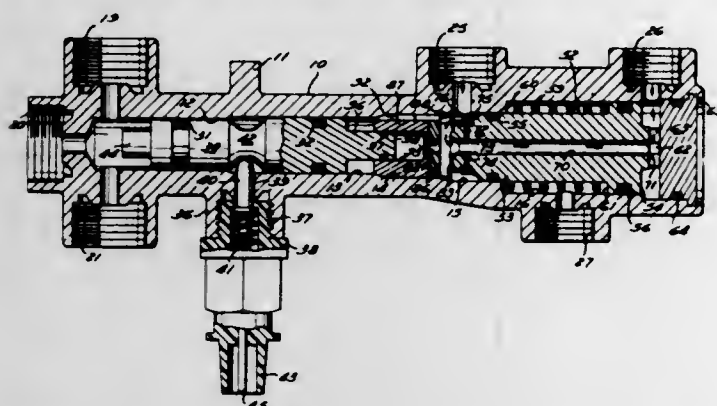
Filed Mar. 2, 1970, Ser. No. 15,457
Int. Cl. H01h 35/38; B60t 13/12

U.S. Cl. 200-82 D

8 Claims

A fluid pressure switch is disclosed which includes a switch housing, an axial bore in the switch housing, and a switch piston slidably disposed in the axial bore and arranged to ac-

uate a switch mechanism and complete an electrical circuit in response to a predetermined pressure differential between the fluid pressures acting on the opposed end faces of the piston. A modulating piston is also disposed in the axial bore for modulating the pressure of fluid flowing from an inlet



passage to an outlet passage. Movement of the switch piston to complete the electrical circuit renders the modulating means inoperable so that the fluid pressure in the fluid inlet passage substantially equals the fluid pressure in the fluid outlet passage.

3,637,964

MOTOR VEHICLE CONTROL PANEL

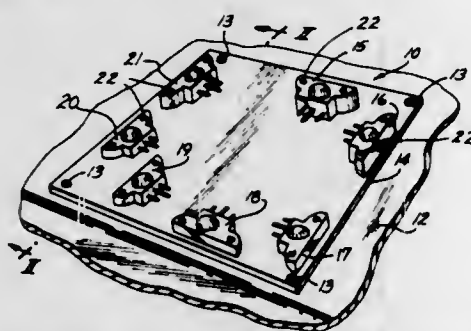
Joseph J. Ivko, 403 Las Olas Drive, Crown Point, Ind.

Filed Dec. 1, 1969, Ser. No. 881,176

Int. Cl. H01h 3/14

U.S. Cl. 200—86.5

9 Claims



A motor vehicle control panel is described which is foot operated. The panel contains a plurality of switching means mounted in strategically disposed relationship to each other to permit the selective operation of one of said switching means while preventing the inadvertent operation of another of said switching means. The switches are each connected to a different safety accessory of said vehicle to selectively control the operation thereof. The panel is especially useful to allow individuals having impairment or dismemberment of one or both arms to safely operate a motor vehicle.

3,637,965

ELECTRICAL SWITCH UTILIZING COMPRESSED GAS FOR ARC EXTINCTION

Wolfgang Schmitz, Birkenau, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Mar. 19, 1970, Ser. No. 21,021

Claims priority, application Germany, Apr. 1, 1969, P 19 16 560.7

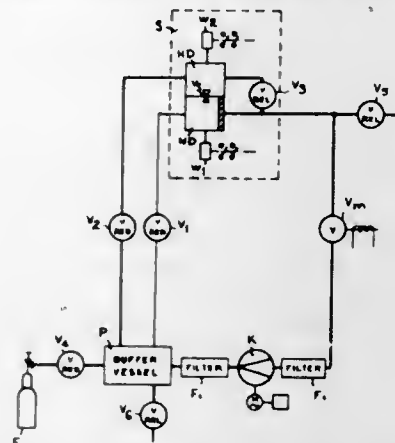
Int. Cl. H01h 33/80

U.S. Cl. 200—148 E

5 Claims

An electrical switch structure utilizing a compressed gas such as SF_6 for arc extinction comprises a high-pressure section, a low-pressure section and a switching point controlled by a blast valve located intermediate the high- and low-pressure sections. The gas flows in a closed circuit from the high-pressure section through the switch contacts to the low-pressure section, thence to a compressor which recompresses the gas and thence back to the high-pressure section. Included in the gas circuit between the compressor outlet and the high-

pressure section is a buffer vessel which operates at a pressure higher than that of the high-pressure section, and the necessary pressure reduction is attained by means of an inter-



posed reducing valve. Another reducing valve is located in a line extending from the buffer vessel to the low-pressure section. Operation of the compressor is controlled solely as a function of the pressure level in the low-pressure section.

3,637,966

FLUIDIZED BED OF SOLID PARTICLES, AND METHOD OF USING IT

Werner Moller, Dubendorf, Switzerland, assignor to Oerlikon Engineering Company

Filed May 3, 1968, Ser. No. 726,598

Claims priority, application Switzerland, May 12, 1967, 6816/67

Int. Cl. H01h 33/22

U.S. Cl. 200—148 G

4 Claims

Fluidized bed comprises discrete particles of alumina trihydrate, and a gas such as air or sulfur hexafluoride is directed through particles to fluidize them. Fluidized bed may be used as a cooling medium for electrical apparatus, such as transformers, and as a medium to assist in extinguishing the arc between switch contacts.

3,637,967

SWITCH OF THE REVERSING-TYPE

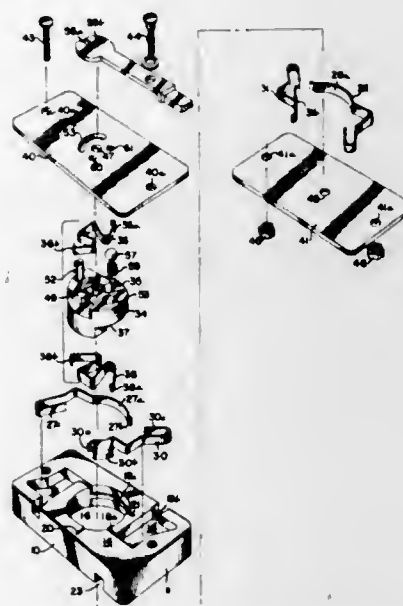
Hermann E. Braun, Chicago, Ill., assignor to Skill Corporation, Chicago, Ill.

Continuation of application Ser. No. 748,271, July 29, 1968, now abandoned. This application June 26, 1970, Ser. No. 56,074

Int. Cl. H01h 21/30, 21/10, 23/12

U.S. Cl. 200—155 R

14 Claims



The switch includes a base or block mounting first and second pairs of fixed contacts, with each of these contacts

having a portion thereof adjacent the wall of a bore formed in the base centrally thereof. A cylinder is rotatably received in this bore, the cylinder carrying first and second movable contacts. An actuating arm is provided to move the cylinder back and forth between a first position wherein the first and second movable contacts respectively connect the contacts of the first and second pairs of fixed contacts with each other and a second position wherein the first and second movable contacts respectively connect different ones of the first pair of contacts with the contacts of the second pair of contacts.

3,637,968

HOLDING ARRANGEMENT FOR REED CONTACTS

Werner Knigge, Wolfach/Schw., Germany, assignor to International Standard Electric Corporation, New York, N.Y.

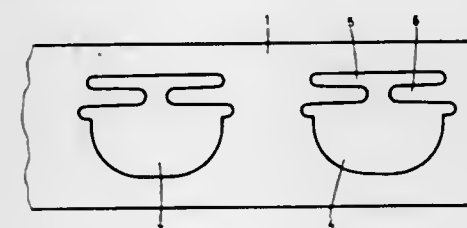
Filed Mar. 5, 1970, Ser. No. 16,671

Claims priority, application Germany, Mar. 11, 1969, P 19 12 297.5

Int. Cl. H01h 9/02

U.S. Cl. 200—168 R

4 Claims



This device relates to a holding arrangement for reed contacts in a plastic body provided with oblong hole-shaped recesses into the upper half of which each time two oppositely directed flexible remaining portions project, of which respectively one is cut off.

3,637,969

FLUID METAL ELECTRICAL SWITCH

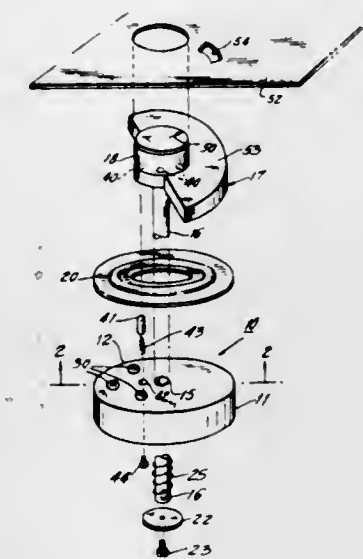
Walter R. Vignali, Peekskill, N.Y., assignor to Sonotone Corporation, Elmsford, N.Y.

Filed Nov. 13, 1970, Ser. No. 89,310

Int. Cl. H01h 29/00

U.S. Cl. 200—203

5 Claims



A fluid metal electrical switch wherein the volume of fluid metal, which may engage or bridge complementary contacts, is confined in an elastomeric channel and a cam engaging and compressing the channel is provided with a recess defining the volume of fluid metal. Movement of the cam thereby moves the body of fluid metal to selected contact positions. The position of the fluid metal contact is therefore indepen-

dent of position, orientation or acceleration of the device in which the switch is mounted.

3,637,970

INDUCTION HEATING APPARATUS

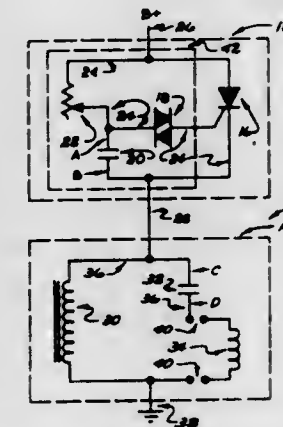
Ronald J. Cunningham, 4360 Eagle Rock View Drive, Los Angeles, Calif.

Filed July 6, 1970, Ser. No. 52,186

Int. Cl. H05b 5/00

U.S. Cl. 219—10.75

13 Claims



A circuit for supplying a series of current pulses to an output coil, such as a coil used for induction heating, can be constructed utilizing a timing circuit adapted to be connected to a DC power supply and a resonant circuit including the output coil connected to the timing circuit. The timing circuit used includes a current discharge or release means such as an SCR (silicon-controlled rectifier) and a trigger means such as a trigger diode (bidirectional diode thyristor) for actuating or firing the release means in response to current supplied by the power supply so that the release means will supply current to the resonant circuit. The current supplied to the resonant circuit results in the development of a resonant current in opposition to the supplied current. Such resonant current feeds back to the timing circuit so as to render the release means no longer operative to supply current to the resonant circuit until such time as thereafter the trigger means, as a result of power supplied to it from the power supply, actuates the release means so that it will again supply current to the resonant circuit.

3,637,971

FLASH WELDING PROCESSES

James C. Needham, Saffron Walden; Keith I. Johnson, and John A. Wright, both of Cambridge, all of England, assignors to The Welding Institute, Cambridge, England

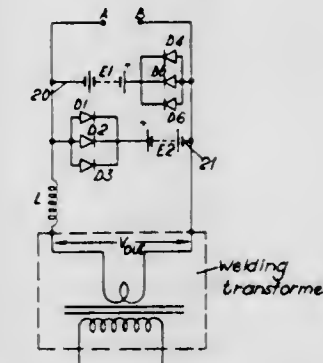
Filed June 8, 1970, Ser. No. 44,170

Claims priority, application Great Britain, June 10, 1969, 29,403/69

Int. Cl. B23k 9/10, 11/04

U.S. Cl. 219—97

2 Claims



The invention relates to flash welding processes, and stems from the discovery that craters in the plane of the weld are

due to the formation of unexpectedly large arcs. A voltage-limiting circuit is connected across the gap between the two workpieces being welded, and is arranged so that arcing at voltages above a predetermined level is suppressed, but arcing at lower voltages is permitted.

3,637,972

METHOD AND APPARATUS FOR FORMING AN OHMIC CONTACT TO HIGH-RESISTIVITY SILICON

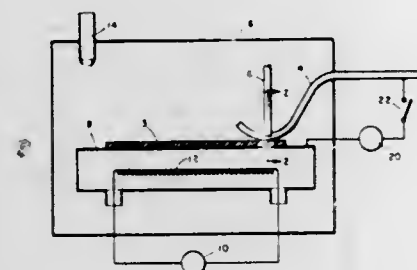
Arno K. Hagenlocher, Melville, N.Y., assignor to GTE Laboratories Incorporated

Filed Apr. 1, 1970, Ser. No. 24,489

Int. Cl. B23k 1/102

U.S. Cl. 219-107

6 Claims



A method of forming an ohmic contact between a conductor and a silicon substrate having a resistivity greater than 5 ohm-cm. by etching the substrate, heating it in an atmosphere of inert gas, pressing the conductor into contact with the substrate, and allowing sufficient current to flow through the conductor and the substrate to form the contact.

3,637,973

ARC WELDING APPARATUS

Jun Ukai, and Masaki Hiramatsu, both of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

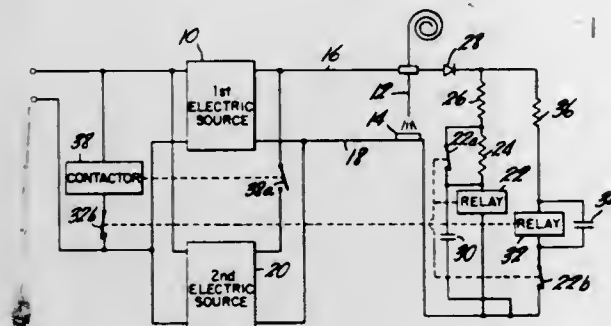
Filed Feb. 17, 1970, Ser. No. 12,094

Claims priority, application Japan, Feb. 19, 1969, 44/12392

Int. Cl. B23k 9/10

U.S. Cl. 219-131 R

5 Claims



Upon initiating a welding operation, a relay is operated to connect two electric sources of alternating current in parallel circuit relationship through a contactor to fuse a welding electrode away from a workpiece striking an arc between them. Then another relay is operated to keep one of the sources disabled while the operation proceeds with the other source. Upon short circuiting, the contactor is operated to repeat the above process.

3,637,974 SWITCHING ARRANGEMENT FOR THE STABILIZATION AND IGNITION OF WELDING ARCS AND THE LIKE

Franz Tajbl, Pullach, and Max Gillitzer, Munich, both of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

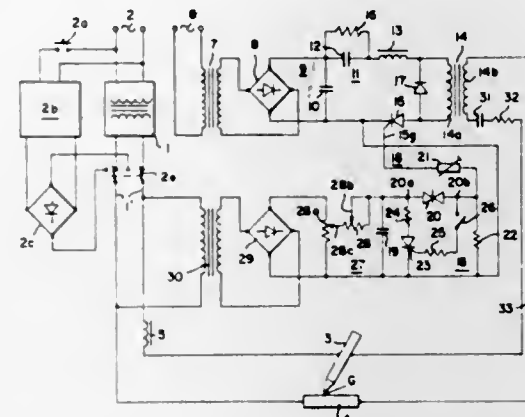
Continuation-in-part of application Ser. No. 741,065, June 28, 1968, now Patent No. 3,551,741. This application May 13, 1970, Ser. No. 36,809

Claims priority, application Germany, June 6, 1969, P 19 28 757.1

Int. Cl. B23k 9/10

U.S. Cl. 219-135

19 Claims



A switching system for the stabilization of alternating-current welding arcs and for the ignition of alternating-current or direct-current welding arcs in which the ignition or stabilization current pulse between electrode and workpiece or between two electrodes is transmitted through a capacitor and at least one semiconductive controlled rectifier (SCR or thyristor) is provided in the discharging circuit of the capacitor. The gate of the controlled rectifier is triggered by a control circuit synchronized with the current source and including a voltage-responsive switching element in circuit with a control capacitor. The voltage-responsive switching element is a DIAC-type trigger diode whose output is connected directly i.e., via only ohmic impedance) with the control electrode or gate of the controlled rectifier.

3,637,975

AREAL HEATING ELEMENT

Bernd Eilhardt, Brandriede, and Gerhard Ziemek, Hannover, both of Germany, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany

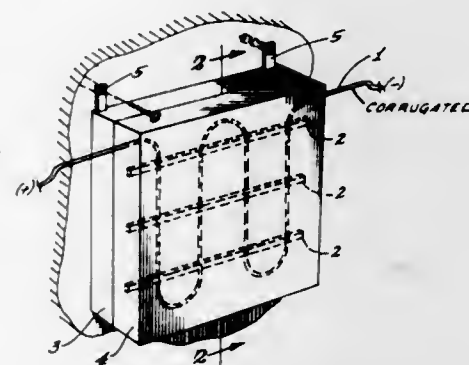
Filed Mar. 2, 1970, Ser. No. 15,812

Claims priority, application Germany, Mar. 14, 1969, G 69 10 254.1

Int. Cl. H05b 1/00

U.S. Cl. 219-213

2 Claims



An areal heating element, having a polyurethane backing member with an embedding and sealing layer thereon in which is embedded a meandering heating conductor.

3,637,976

FIXING DEVICE OF TONER IMAGES

Wasaburo Ohta, Yokohama, and Kazuhiko Kasuya, Kawasaki, both of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

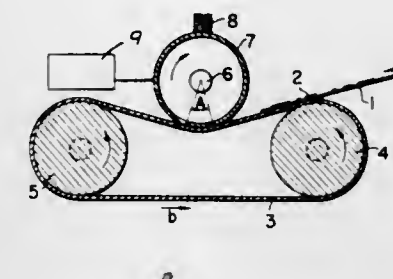
Filed June 15, 1970, Ser. No. 46,371

Claims priority, application Japan, June 14, 1969, 44/47203

Int. Cl. G03g 13/20

U.S. Cl. 219-216

9 Claims



Device for fixing toner images developed by a powder development method, comprising a cylindrical heating roller having heating means incorporated therein and a nonadhesive layer of heat-resistant material, such as a synthetic resin, applied over the surface thereof, and a heat resisting and insulating endless belt wrapped over a pair of spaced drive and driven rollers in such a manner that the belt contacts an extended part of the periphery of the rotating heating roller, so that when a recording medium bearing thereupon a toner image is conveyed by the belt and makes contact with the heated peripheral surface of the heating roller, the toner is heated and fused to the recording medium during passage over the entire extended part of the periphery. The heating roller may further include preheating means and fixing at high speed may be attained.

3,637,977

VAPORIZER FOR DISINFECTION CHAMBERS

Carl Tage Evert Folke, Hagersten, Sweden, assignor to AB Vibrasug, Johanneshov, Sweden

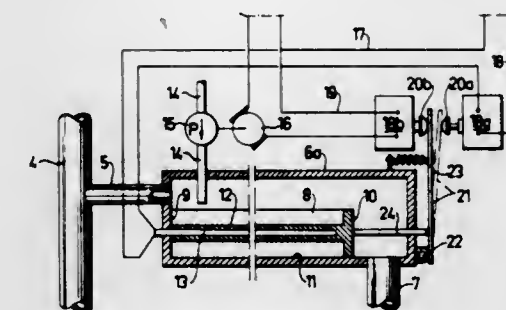
Filed Apr. 8, 1970, Ser. No. 26,601

Claims priority, application Sweden, Apr. 9, 1969, 5003/69

Int. Cl. H05b 1/02

U.S. Cl. 219-272

7 Claims



This invention relates to means for vaporizing disinfection liquid such as formation by mixing air with said liquid or vapor therefrom. Said vaporizing means comprises a feed-back air conduit defining an elongate vaporizing channel secured at one end to a vaporizing chamber and being free to expand at its opposite free end as a result of electrical heating of said channel so as to actuate electric switch means for breaking and closing the electric heating current, respectively, at a predetermined temperature of said channel.

3,637,978

ELECTRIC STEAM VAPORIZER

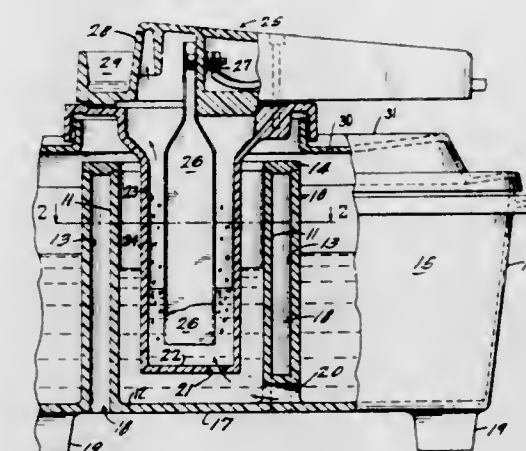
William H. Corbett, Albert D. Brunell, and George A. Koharchik, all of Somerset, Pa., assignors to Champion Spark Plug Company, Toledo, Ohio

Filed June 30, 1970, Ser. No. 51,158

Int. Cl. H05b 3/60; A61m 15/00

U.S. Cl. 219-284

4 Claims



The invention is an electric steam vaporizer having an insulating chamber open to atmosphere. One embodiment includes a water receptacle insulated against heat transfer from a boiling chamber by relatively cooler liquid in a housing and by an open-bottomed air-filled insulating chamber in contact with outside atmosphere adjacent said housing and said receptacle. The boiling chamber has a cover, a continuous sidewall and a base wall with a fluid passage. The chamber is mounted within the housing. The housing has an impervious inner wall, a bottom wall, and an impervious outer skirt spaced at a substantial distance from the inner wall by an impervious top wall. An air-filled insulating chamber, defined by the inner wall, the outer skirt, and the top wall, is in contact with outside atmosphere through an opening in the water receptacle. Fluid flows from the receptacle through a restricted supply port into the chamber housing and from there through the fluid passage into the boiling chamber where it is vaporized by two spaced-apart electrodes. The vapor passes through a steam discharge port in the cover, over a liquid medicant well portion and into atmosphere. The second embodiment is of a safe electric steam vaporizer identical to the first embodiment except that the open-to-atmosphere, air-filled insulating chamber in contact with outside atmosphere is contiguous with the boiling chamber and the water receptacle.

3,637,979

EDUCATIONAL APPARATUS

Karl Moeglich, Deerfield Beach, Fla., assignor to Automatic Sprinkler Corporation of America, Cleveland, Ohio

Filed Jan. 16, 1969, Ser. No. 791,571

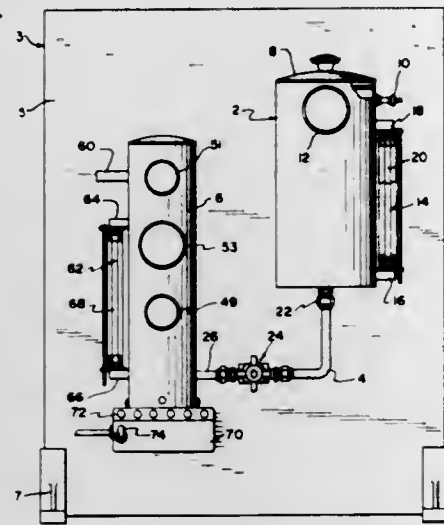
Int. Cl. F22b 1/28

U.S. Cl. 219-271

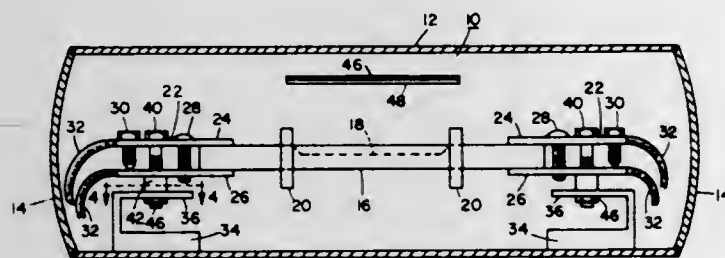
9 Claims

An educational phase heat exchanger, primarily a functional device, which is arranged as an educational aid. The apparatus consists of two major components: a boiler and a liquid-feed reservoir. Both of these components are ordinarily constructed of a corrosion-resistant material and can be used for the production of wet or dry steam and for the production of wet or super-heated vapors from primary alcohols or mixed liquids of various viscosities. By attaching

thermocouples at predetermined points in the system, studies of heat transfer through component walls, enthalpies of the heating element. The space heater includes a protective grill positioned in front of the heating element, which grill is



3,637,980
ELECTRICAL AND MECHANICAL CONNECTIONS AND SUPPORT FOR EVAPORATING BOATS
Phillip J. Fox, and John W. Wright, both of Scottsdale, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.
Filed July 13, 1970, Ser. No. 54,135
Int. Cl. C23c 13/12
U.S. Cl. 219-271 2 Claims



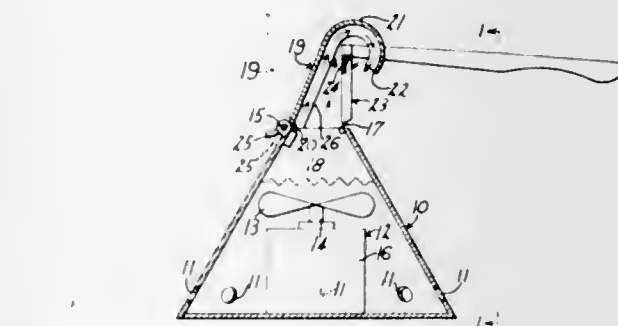
Evaporating boats which are heated by passing electrical current therethrough are made of material which exhibits high resistance and is refractory. Such material is very brittle. Nonarcing means are provided to connect the electrical supply to the boat and at the same time to permit the boat to expand and contract as it is heated and cooled without so confining the boat or so bending the boat as to cause breakage thereof. The nonarcing means includes tight electrical connections to the ends of the boat and the support means for the electrical connections permit linear motion thereof.

3,637,981
ELECTRIC SPACE HEATER
James A. Swimmer, Highland Park, Ill., assignor to Berns Air King Corporation
Filed Apr. 6, 1970, Ser. No. 25,780
Int. Cl. H05b 3/06
U.S. Cl. 219-347 8 Claims

An electric space heater having a sinusoidal heating element connected to mirror image portions of a reflector formed of sheet metal and having a substantially uniform parabolic cross-sectional configuration throughout its length. The central portion of the reflector is connected to the space heater housing while the top and bottom mirror image portions of the reflector are free to flex in response to heating of

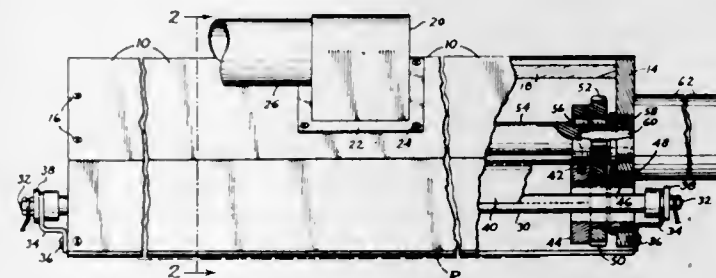
vapors, heat balance of systems and other similar investigations can be conducted.

3,637,982
APPARATUS FOR HEATING THERMOPLASTIC FRAMES FOR GLASSES
John E. Reaves, 1029 Christine Ave., Anniston, Ala.
Filed July 16, 1970, Ser. No. 55,390
Int. Cl. F24h 3/04
U.S. Cl. 219-368 6 Claims

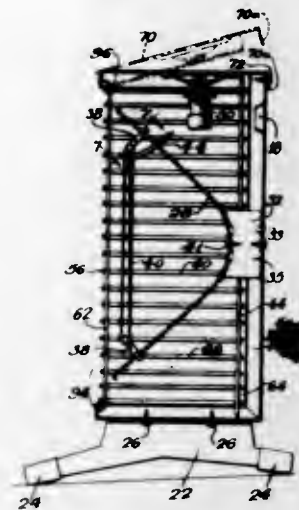


Heating apparatus for thermoplastic frame for glasses where heated air is discharged from a housing and directed by an arcuate baffle around specific portion of frame. Air supplied by blower which forces air past heat element in housing.

3,637,983
DRIER FOR SHEET MATERIAL
Victor R. Nelson, 2700 S.W. Summit Drive, Lake Oswego, Oreg.
Filed June 1, 1970, Ser. No. 41,785
Int. Cl. F27b 9/06
U.S. Cl. 219-388 4 Claims

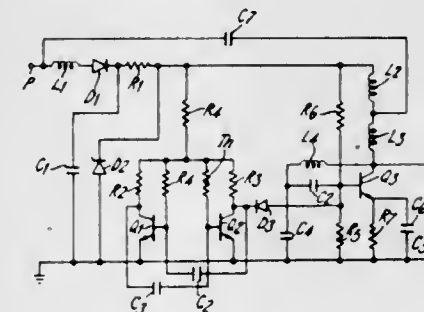


An elongated suction hood has an open side adapted to face continuously moving sheet material to be dried by one



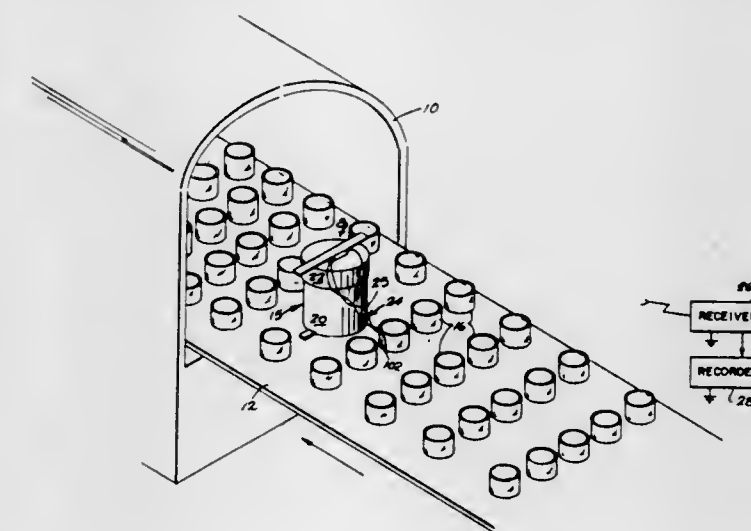
or more elongated electrical heaters disposed in the hood. An elongated combination reflector and shield is mounted in the hood for rotational adjustment about each heater between a reflecting position on the side of the heater opposite the open side of the hood and a shielding position interposed between the heater and open side of the hood.

3,637,984
TEMPERATURE CONTROL APPARATUS
John Anderson Irvine, Penkulk, Midlothian, Scotland, assignor to Molins Machine Company Limited, London, England
Filed Nov. 25, 1969, Ser. No. 879,705
Claims priority, application Great Britain, Nov. 27, 1968, 56,373/68
Int. Cl. H05b 1/02
U.S. Cl. 219-471 12 Claims



A rotatable drum has a heating element which is supplied with heating current through sliprings and brushes, a temperature sensor being located in the drum and coupled to an oscillator to modulate the pulse width or frequency of the generated oscillations in accordance with temperature, the modulated oscillations being fed outside the drum through the same sliprings and brushes to a controller to regulate the heating current.

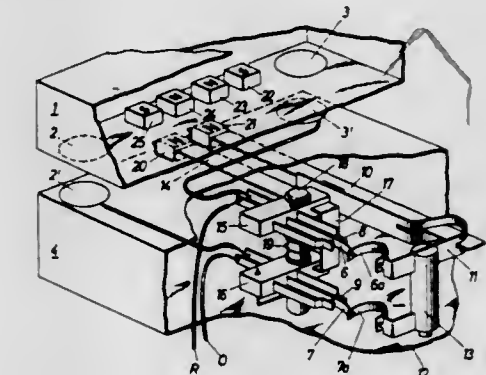
3,637,985
PORTABLE REMOTE LOCATION MEASURING SYSTEM
David S. Stacey, Carbondale, Colo., assignor to Ball Corporation, Muncie, Ind.
Filed Jan. 21, 1969, Ser. No. 792,395
Int. Cl. H05b 1/02
U.S. Cl. 219-490 9 Claims



A portable system for measuring a condition, particularly temperature, and indicating this measurement at a remote location. A portable insulating and protective container adapted for use in extreme temperature environments, such as occasioned within a furnace or oven, houses a small transmitter. The transmitter is connected to a transducer respon-

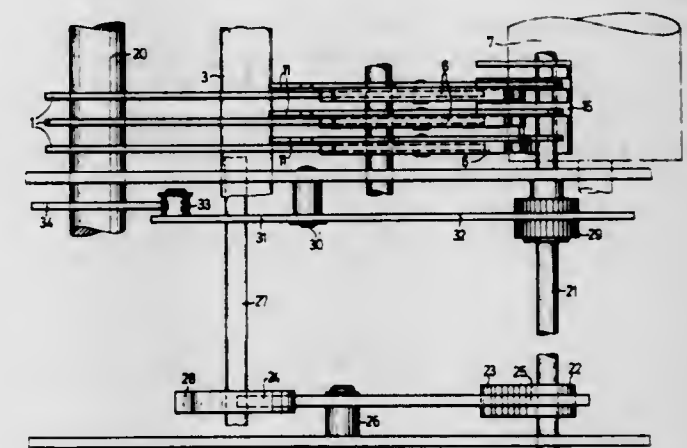
sive to the condition to produce a signal that is transmitted to a remote receiving and monitoring location.

3,637,986
ELECTRICAL UNIT HAVING A MAGNETIC SWITCH CONNECTING A CORDLESS ELECTRIC POWER APPLIANCE TO A CHARGING APPLIANCE
Kikolaus Laing, Hofener Weg 35-37, 7141 Aldingen Bei Stuttgart, Germany
Filed Jan. 27, 1970, Ser. No. 6,269
Claims priority, application Austria, Feb. 3, 1969, A 1070/69
Int. Cl. H05b 1/02
U.S. Cl. 219-519 6 Claims



An electrical unit having a connecting means for a cordless electric power appliance whose terminals are brought into contact with the corresponding terminals of a charging appliance, having a magnetically operated electric switch whose switching mechanism has a magnetic arrangement on which a magnetic force closing the switch contacts is exerted by a further magnetic arrangement located in the electric appliance.

3,637,987
ZERO-PRINTING DEVICE FOR CALCULATING MACHINES
Werner Rauch, Nurnberg, Germany, assignor to Diehl, Nurnberg, Germany
Filed June 3, 1970, Ser. No. 42,935
Claims priority, application Germany, June 4, 1969, P 19 28 396.6
Int. Cl. G06c 19/00, 19/04
U.S. Cl. 235-60.28 5 Claims



The specification discloses a printing-type calculating machine having movable-type carriers coupled to the value transfer racks of the machine. A feeler member in the machine feels the racks when advanced into value positions prior to the printing and operates a stop device which prevents the printing of digits leftwardly of the highest valued

rack, which is advanced from the zero position thereof. The machine also comprises a device adjusted in conformity with the selection of the decimal point position for controlling the stop device so that at least all of the carriers positioned rightwardly of the decimal point position will print regardless of the position of the respective value transfer racks.

3,637,988

PUNCHED CARD READING SYSTEM

Sakae Yanagawa, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

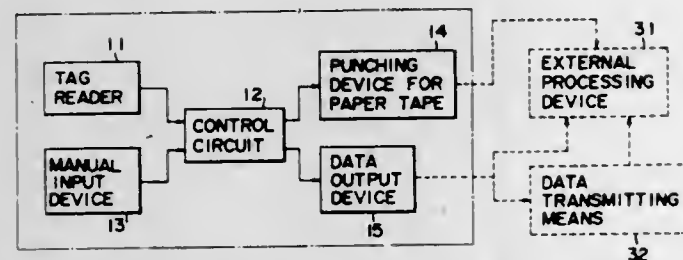
Filed Apr. 8, 1970, Ser. No. 26,740

Claims priority, application Japan, Apr. 14, 1969, 44/28386

Int. Cl. G06k 17/00

U.S. Cl. 235—61.6 J

3 Claims



A punched card reading device which comprises a tag-reading device for reading a tag cut off from a commercial article including a selector for selecting an error tag from normal tags and a keyboard for entering the data of a tag unadapted to be read out, a control circuit for performing the parity, validity and order count check readout of the tag, a selector circuit actuated when there is detected the erroneous reading of the tag, a control switch for stopping, where the tag is found to travel in an abnormal condition, the operation of the reading device so as to eliminate such abnormalities, and transforming circuitry, if necessary, for transforming readout signals representing the data recorded in the tag or supplied by the hand-feed device; a paper tape punching device for punching a paper tape according to the data signals drawn out of the control circuit; and an output device for supplying the data drawn out of the control circuit to an external processing device in an online connection.

3,637,989

AUTOMATIC PRICING AND INVENTORY CONTROL APPARATUS

Joseph D. Howard, 657 Blair Ave., Piedmont, Calif., and William M. Brobeck, Orinda, Calif., assignors to said Joseph D. Howard, by said Brobeck

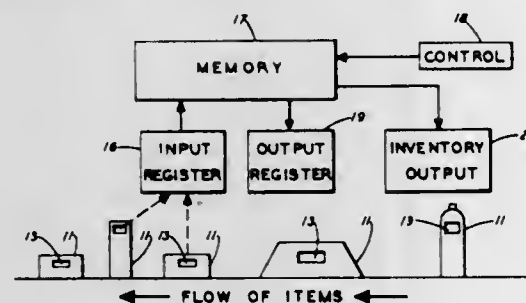
Continuation-in-part of application Ser. No. 749,815, Aug. 2, 1968, now abandoned, Continuation-in-part of application Ser. No. 820,670, June 16, 1959, now abandoned. This

application July 14, 1969, Ser. No. 841,209

Int. Cl. G06k 7/14; G06m 1/22; G06k 3/00

U.S. Cl. 235—61.7 R

1 Claim



This relates to an apparatus for indicating the price and amount on hand of any specific item of a number of items in a warehouse or store. Every item has a code marking with identical items carrying identical code markings. A memory unit is provided in the apparatus, with space for every coded marking in stock. Associated with the space of each such

marking in the memory is a price and an inventory counter, so that, as each coded marking on a particular item is registered, the associated price is displayed, as well as, the new inventory count of the item.

3,637,990

CREDIT CARD VALIDATOR WITH TRANSDUCER-READOUT

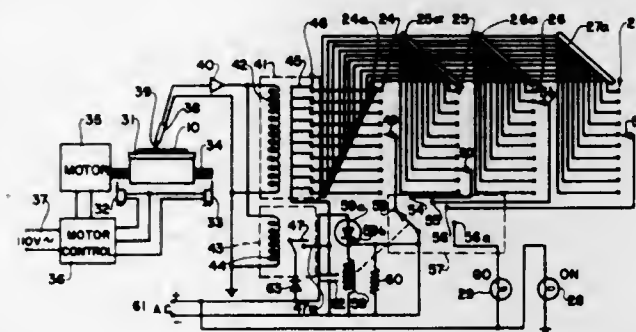
Jack E. Bayha, 11753 Sperry Road, Chesterland, Ohio, and John W. Dixon, 9886 Fairmount Road, Newbury, Ohio

Filed Oct. 31, 1969, Ser. No. 873,029

Int. Cl. G06k 5/00; H04q 3/00

U.S. Cl. 235—61.7 B

6 Claims



An identification number is encoded on a card in the form of a number of areas of closely spaced variations in the planar configuration of the card, the spacing of the variations in a particular area being determined by the digit encoded on that region. The encoded number is read by a device which moves the card at a uniform speed with the variation bearing areas in contact with an electromechanical transducer. As each area passes the transducer a tone, whose frequency is determined by the spacing of the variations of the area and, therefore, identified with the digit encoded in that area, is produced, amplified, and then drives the coil of a resonant-reed relay. The contact of the relay which has a resonant period equal to the generated frequency and corresponding to the encoded digit closes. The reading device compares the number determined by the relay with one manually supplied to it and indicates the identity or nonidentity of the two numbers.

3,637,991

PHOTOELECTRIC READOUT APPARATUS

Sakae Yanagawa, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

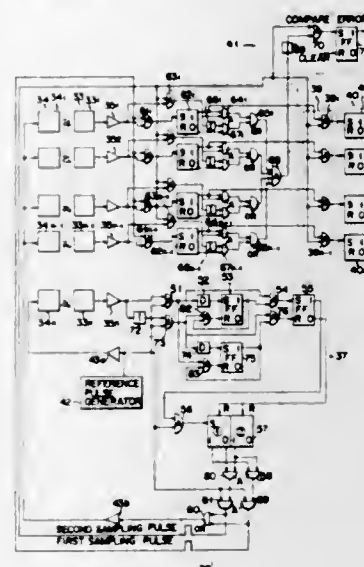
Filed Apr. 9, 1970, Ser. No. 27,026

Claims priority, application Japan, Apr. 14, 1969, 44/28387

Int. Cl. G06k 7/10

U.S. Cl. 235—61.11 E

5 Claims



A photoelectric readout apparatus to photoelectrically read out punched data in a medium such as paper tape hav-

ing a column of sprocket holes, comprising means to produce sprocket hole detection signals by forming the initiation of a sprocket hole detection signal when two successive pulses from a light-receiving element to receive light flux from an illuminating element corresponding to the sprocket hole are detected and by forming the termination of the sprocket hole detection signal when two successive pulses from the light-receiving element are missed, means to sample data twice by rendering illuminating elements corresponding to data holes twice in succession during the presence of the sprocket hole detection signal, and means to check whether the data contents in the first and second samplings are identical or not.

3,637,992

METHOD AND APPARATUS FOR CHECKING THE PRESENCE OF A SET OF INFORMATION-BEARING CARDS

Ferdinand Ruesch, St. Gall, Switzerland, assignor to Gretag Aktiengesellschaft, Regensdorf, Switzerland

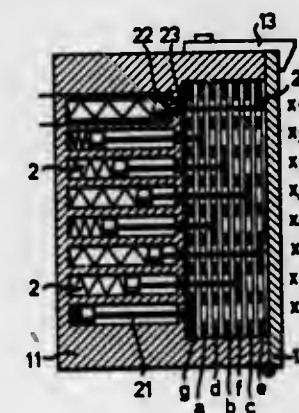
Filed July 2, 1970, Ser. No. 51,953

Claims priority, application Switzerland, July 8, 1969, 10515/69

Int. Cl. G06k 5/00

U.S. Cl. 235—61.11 R

8 Claims



A method and apparatus is disclosed for checking the presence of all the cards of a set of punched cards required for a program of a data processing apparatus, the cards each bearing a different code word and the cards being stacked so that all the code words combine to produce a completion code word indicating that all the cards are present. The code words are each represented by holes and one blank space in the cards and each card has a hole in a predetermined position, the completion code word being provided when the hole positions are sensed and only that hole in the predetermined position passes completely through the stack, the other hole positions being obstructed by a blank in a card.

3,637,993

TRANSITION CODE RECOGNITION SYSTEM

John B. Christie; Dzintars Abuls, both of Kettering, and Wilfridus G. Van Breukelen, Centerville, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed June 30, 1969, Ser. No. 837,514

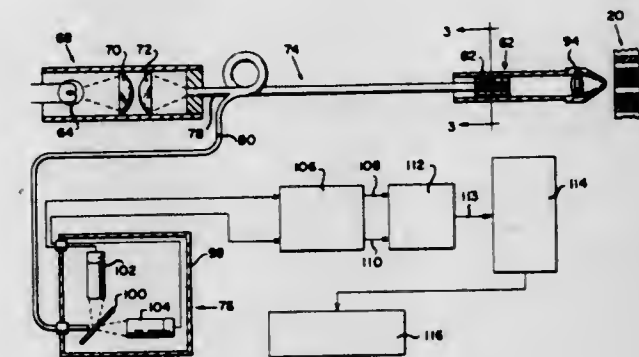
Int. Cl. G06k 7/10; G01n 21/30

U.S. Cl. 235—61.11 E

37 Claims

An electronic identification system for obtaining information from data-encoded labels in which a plurality of contiguous colored bars are printed on the data-encoded labels, each colored bar being of a color different from the color of its neighboring colored bars, is disclosed. The data-encoded label is scanned by a probe which images a spot of light on the label and which receives, from the label, reflected light signals that are supplied to the identification system. The identification system is constructed to receive and to decode a predetermined number of data bits according to a "size code" that is contained on the label, to perform a parity

check of the data bits that are encoded on the label, and to transmit the decoded data to a data utilization device re-



gardless of whether the probe traversed the label in a forward direction or in a reverse direction.

3,637,994

ACTIVE ELECTRICAL CARD DEVICE

Jules K. Ellingboe, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.

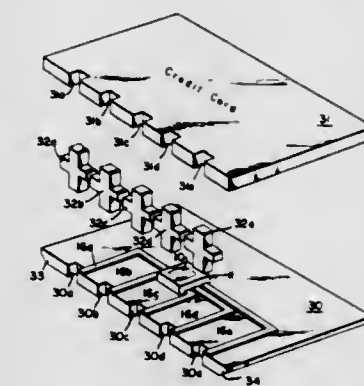
Continuation of Ser. No. 678,607, Oct. 29, 1967, abandoned

Filed Oct. 19, 1970, Ser. No. 82,202

Int. Cl. G06k 19/00; H03k 23/22

U.S. Cl. 235—61.12 N

5 Claims



This invention relates to data-processing and information-handling equipment, and more particularly, to a card of the type now commonly used as a credit card but having therein circuits including active electrical components connected to terminals adapted to be mated detachably to contacts in larger stationary equipment such as computer input devices, accounting machines, computer-controlled vending machines, coin telephones, etc. The active electrical components are preferably in the form of microelectronic information-handling circuits contained inside the plastic or other material from which the card is made so as to permit the construction of unique identification systems which are not readily counterfeitable by external analytical means and to permit the inclusion of information storage and data-processing capability so that the card, when connected to the apparatus by the individual user, becomes an integral part thereof and upon inquiry from the apparatus can respond with the user's identity, account status, current purchase request, and the like. The card is intended for use as a "key card" and for use in automatic verification of identity, accounting, posting, billing, and transfer of funds in order to reduce either the amount of cash which the user is required to carry or the number of checks or other banking or billing transactions which must be manually carried out.

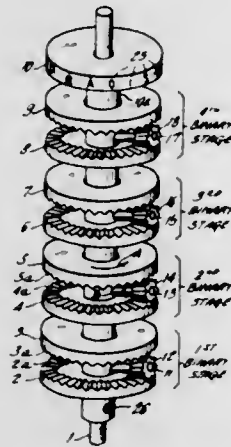
3,637,995

AGGREGATE MOTION MECHANISM

Kaoru Segawa, Tokyo-to, Japan, assignor to Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan
Filed Oct. 19, 1970, Ser. No. 81,800
Claims priority, application Japan, Oct. 25, 1969, 44/85359
Int. Cl. G06m 1/22

U.S. Cl. 235-92 C

12 Claims



An aggregate motion mechanism capable of receiving information, preferably in binary form, presented in either serial or parallel fashion for accumulating or adding the information and converting the information into a visually observable output. In a multibit binary form of the aggregate motion device, each bit position is comprised of a pair of gear members mounted in freewheeling fashion upon a common shaft. A third radially aligned satellite gear is secured to a collar mounted in a freewheeling fashion upon the common shaft, and is adapted to mesh with the pair of cooperating gears. The next adjacent bit position has one of its bevel gears secured to the collar to which the aforementioned satellite gear is secured so as to couple the binary input information from each stage to the next succeeding stage in accordance with its binary "weight." The final output stage may be provided with a print drum or other indicia-bearing drum for the purpose of either printing out or visually displaying a character or other symbol representative of the binary information impressed upon the aggregate motion mechanism, enabling its use as either a converter or selector device for converting binary information into alpha-numeric form or for selecting a particular symbol for display or printout or may, alternatively, be employed as an adder or accumulator device in which binary data may be accumulated.

3,637,996

NAVIGATIONAL DISTANCE COMPUTER

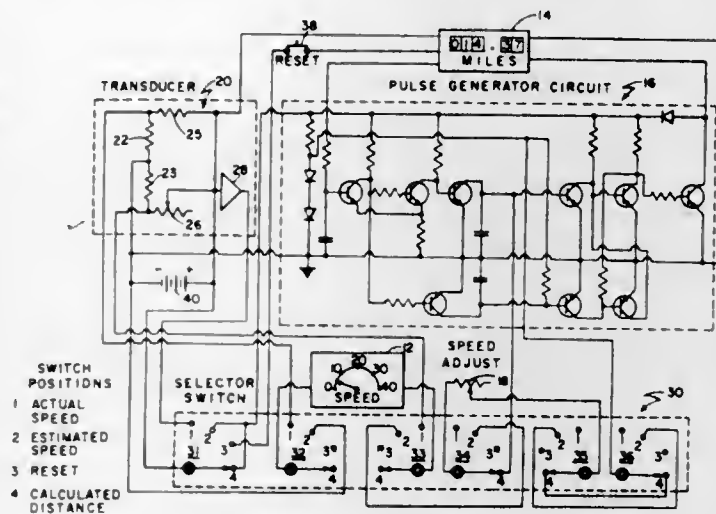
Malcolm Seymour, South Bristol, Maine, assignor to Prototypes, Inc., South Bristol, Maine
Filed Oct. 20, 1969, Ser. No. 867,772
Int. Cl. H03k 21/00

U.S. Cl. 235-92 FQ

2 Claims

A manually presettable speed, continuously indicating, computed distance navigational computer for vessels comprising an electrical preset speed display meter, an electromechanical digital computed mileage indicator, a pulse generator for operating the mileage indicator to provide a continuous digital display of computed distance travelled at a preset rate with the passage of time and a manually adjustable electrical resistor common to the pulse generator and meter for establishing the pulse generator frequency and operating the meter to display the estimated preset speed

needed to product the computed distance travelled with time at said preset speed for setting a desired speed into the com-



puter. Actual speed through the water may also be displayed on the meter.

3,637,997

GRAPHIC DISPLAY SYSTEM

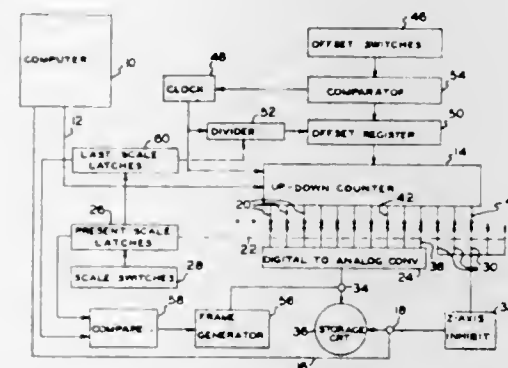
Walter A. Petersen, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Dec. 6, 1968, Ser. No. 781,777

Int. Cl. H03k 23/20

U.S. Cl. 235-92 N

38 Claims



Incremental plotting instructions are received from a computer for bringing about a point-plotting display on a cathode-ray tube. Plotting inputs increment a counter means for accumulating a total representing cathode-ray tube deflection, with the cathode-ray tube being coupled to the counter means via a digital-to-analog converter means. Inputs to the digital-to-analog converter means are positionable relative to the counter stages for changing the scale of the display. Also, a write-through frame is positionable relative to a stored image for selecting a portion of a given display for subsequent presentation. The offset position of the frame is stored in an offset register by means of a digital servomechanism system. A function of the complement of the offset is added to the aforementioned counter means for offsetting a subsequent display.

3,637,998

SPEED RATIO MEASURING SYSTEM

Robert A. Sylvester, Coraopolis, and Ronald W. Young, Beaver, both of Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

Filed Mar. 26, 1969, Ser. No. 810,655

Int. Cl. B21c 51/00

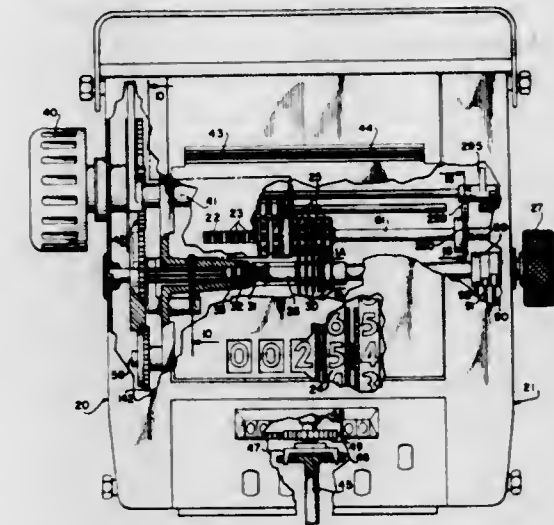
U.S. Cl. 235-92 DN

3 Claims

A ratio counter provides a measure of the speed ratio of a cooperative pair of work rolls on a reversing roughing mill by

counting a preset number of pulses generated by a first pulse tachometer attached to the motor drive shaft of one of the rolls and the number of pulses generated during the same period of time by a second pulse tachometer attached to the motor drive shaft of the other work roll. The output of the ratio counter is applied to the input of a digital printer. The ratio counter supplies the printer with a print command after each ratio measurement, but the printer remains inert until activated by an alarm system. The alarm system functions to activate the printer only when the roll speed ratio falls outside a predetermined range. The alarm system includes a first counter means for counting up to the same preset number of pulses from the first tachometer as does the ratio counter and a second counter means for counting a preselected number

Also included are a plurality of variable ratio gear trains adjustable through a translatable and rotatable selector shaft



for changing one or more of the gear ratios to select the desired tax rate and price per quantity unit.

3,638,000

METHOD AND APPARATUS FOR CONTINUOUSLY DETERMINING THE QUANTITIES OF THE QUALITATIVELY KNOWN RADIOACTIVE NUCLIDES CONTAINED IN A PHYSICAL SYSTEM

Gianfranco Franco; Carlo Mancini, and Angiolo Pulacci, all of Rome, Italy, assignors to Comitato Nazionale per l'Energia Nucleare, Rome, Italy

Filed Oct. 3, 1967, Ser. No. 672,539

Claims priority, application Italy, Oct. 7, 1966, 787056

Int. Cl. G06g 7/34

U.S. Cl. 235-151.35

3 Claims

of pulses from the second pulse tachometer which number is less than that preset number of pulses. The system also includes a third counter means for counting the number of pulses generated by the second pulse tachometer between the time the second counter reaches said preselected number of pulses and the first counter reaches said preset number of pulses. Means are provided for developing in response to the count present in the third counter at the time the first counter reaches said preset number of pulses an output constituting a representative measure of the ratio of the number of pulses generated by the first pulse tachometer to the number of pulses generated by the second pulse tachometer during the period the first counter is counting up to the preset number; and when that output is outside a predetermined range, the printer is activated.

3,637,999

VARIABLE RATE COMPUTING AND RECORDING REGISTER

Michael Pappas, Irvington, N.J., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

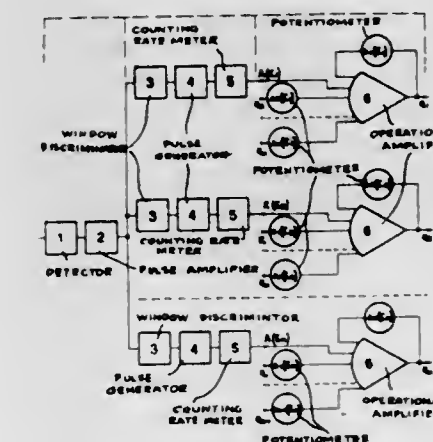
Filed May 25, 1970, Ser. No. 40,003

Int. Cl. B67d 5/22

U.S. Cl. 235-94 A

23 Claims

A computing and recording register wherein integrating digital counters are driven by an input shaft to perform quantity, price and tax computations. The price and tax counters are driven by computer gearing coupled to the quantity counter drive gearing through a clutch. A two-stage advance mechanism rounds off the least significant digit of each of the counters and aligns the digits for printing quantity, price and tax data on a recording sheet at the conclusion of each transaction to be recorded. During the first stage, the quantity counter is advanced to align the digits while the clutch is engaged so that the price and tax counters are driven as the quantity counter advances. During the second stage, the clutch is disengaged and the price and tax counters advance independently of the quantity counter.



A computer of the analog-type adapted for the solution of a system of n linear equations with n unknown quantities is associated with a multichannel analyzer (particularly an analyzer with n channels) the output of which represents the counting rates related to n energy levels E_k suitably chosen from the resultant spectrum of the n nuclides N_k .

3,638,001

METHOD AND APPARATUS FOR AVERAGING THE DIGITAL DISPLAY FOR A FLUCTUATING DIGITAL MEASUREMENT AND IMPROVING THE RESOLUTION OF THE MEASUREMENT

Gary B. Gordon, Cupertino, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 4, 1970, Ser. No. 16,301

Int. Cl. G01r 23/02; G01b 9/02

U.S. Cl. 235-152

19 Claims

A digital display system in which fluctuations in the last one or two numbers of a repetitive display value are removed

3,638,009

MINIATURE LIGHTING DEVICE

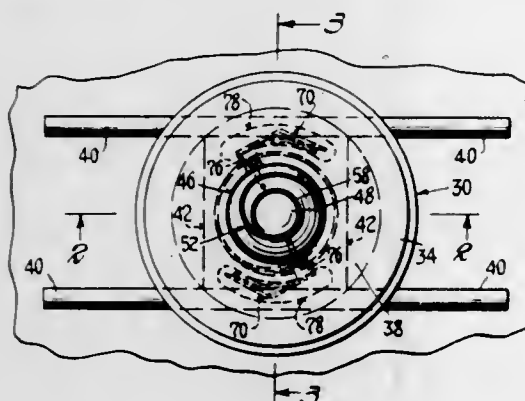
Bernard V. Strianese, Manhasset, N.Y., assignor to Ackerman Engravers Inc., Long Island City, N.Y.

Filed Feb. 24, 1970, Ser. No. 14,263

Int. Cl. F21v 33/00

U.S. Cl. 240-2 W

13 Claims



A miniature lighting device comprising a receptacle cup of insulating material which has two conductor bars passing through its sidewalls in spaced parallel relation to constitute the contactors of the receptacle. Insertable in the receptacle cup is a miniature incandescent lamp assembly comprising a lamp proper which has a glass envelope and lead wires extending from one end of the envelope, and a base disk of insulating material having a flattened portion at one side, adapted to fit into the receptacle cup between the conductor bars thereof. The flattened portion has a recess in which one end of the glass envelope is disposed, and has oppositely disposed side recesses adapted to receive central portions of the conductor bars when the base disk is turned while in the cup. Carried in the side recesses of the flattened portions are contactor elements which engage the conductor bars of the receptacle, said contactor elements being electrically connected respectively to the lead wires of the lamp envelope, thereby to conduct current to and from the filament in the envelope. The side recesses of the flattened portion when accommodating the parallel conductor bars of the receptacle function to lock the lamp assembly in the receptacle after it has been turned therein. The action, however, is different from that of bayonet pins and slots of conventional lamps and receptacles, which also function to retain the lamps.

3,638,010

LIGHT FIXTURE

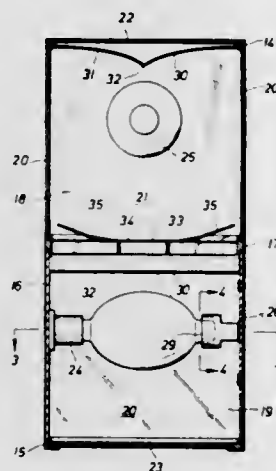
Buell Moore, Houston, Tex., assignor to Esquire, Inc., New York, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,004

Int. Cl. F21p 5/00

U.S. Cl. 240-3

5 Claims



A light fixture comprising a housing adapted to be mounted in an upright position and having upper and lower

lamp compartments. There is a window in each of a first pair of opposite sidewalls of each lamp compartment, with the windows in one compartment being vertically intermediate the windows in the other compartment. An electrical socket is mounted on a sidewall of each compartment intermediate the windows therein to receive the electrical end of the lamp for extension generally horizontally within the compartment. A reflector on the inner side of the top of each compartment includes a pair of portions intersecting one another along a line generally vertically aligned with the axis of the lamp in said compartment and curving upwardly and outwardly from the intersection to the first pair of sidewalls. There is a reflector on the inner side of the bottom of the upper compartment having opposite ends which curve downwardly and inwardly from near the windows in said compartment. When the lower compartment is on the lower end of the housing, there is a window in the bottom thereof; otherwise, there is a reflector on the inner side of the bottom thereof similar to the reflector on the inner side of the bottom of the upper reflector.

3,638,011

HAND GLOVE AND LIGHT SIGNAL ATTACHMENT THEREFOR

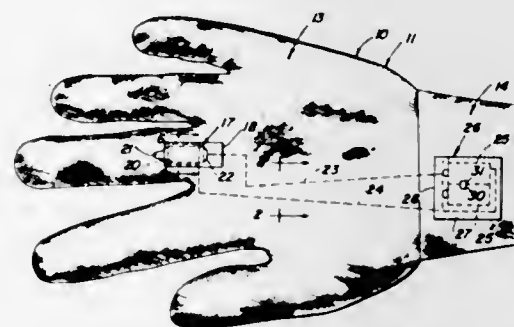
Merril H. Bain, 10333 South 74th Ave., Palos Hills, Ill., and Michael R. Bucher, 8250 West 90th St., Hickory Hills, Ill.

Filed June 1, 1970, Ser. No. 42,073

Int. Cl. A41d 19/00; G08b 5/00; F21v 33/00

U.S. Cl. 240-6.4 W

1 Claim



A combination hand glove and electric light signal attachment in which the electric light signal is mounted on the hand or finger portion of the glove and an electric battery and a manually operated switch unit for the electric light signal unit are mounted in the wrist portion of the glove as worn on one hand of the user. The switch unit is arranged in an electrical circuit which interconnects the light signal and the electric battery switch unit and when the wearer of the glove wishes to illuminate the electrical light signal he may do so by manually actuating the switch unit with his free hand, thereby closing the electrical circuit to the electric light signal.

3,638,012

LIGHTING FIXTURE

Robert E. Lenz, Snyder, and Stephen J. Wargo, Buffalo, both of N.Y., assignors to Forsyth Industries, Inc., East Aurora, N.Y.

Filed Dec. 1, 1969, Ser. No. 881,086

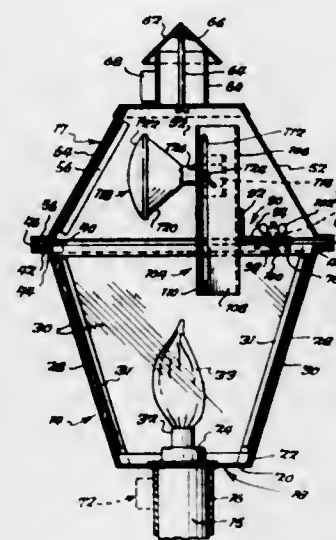
Int. Cl. F21s 1/00, 3/00

U.S. Cl. 240-25

9 Claims

A lighting fixture housing having a lower portion for mounting a light source therein. A spot light assembly is mounted in the upper portion of the housing and is concealed by a housing cover having a plurality of opaque sidewalls and an opening in one of the sidewalls. The spot-light assembly is adjustably mounted for linear and pivotal

movement in both a vertical and a horizontal plane to permit the passage of an optimum amount of light rays through the



opening onto an intended object located at various elevations and angular positions.

3,638,013

DENTAL APPARATUS UTILIZING FIBER OPTICS

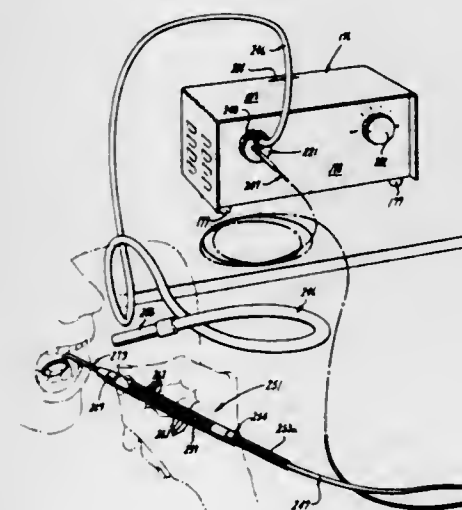
Ronald F. Keller, Aptos, Calif., assignor to Fiber-Optics, Inc., Santa Cruz, Calif.

Continuation of application Ser. No. 674,706, Oct. 9, 1967, now abandoned. This application Apr. 2, 1969, Ser. No. 812,823

Int. Cl. A61b 1/06

U.S. Cl. 240-41.15

16 Claims



Dental apparatus having a case with a lamp mounted in the case and producing a focused source of light at a predetermined focal point. A socket assembly is mounted in the case in the vicinity of the lamp. The socket assembly has at least first and second openings therein with the first opening being substantially larger than the second opening. A first large fiber optics cable is provided and has one end mounted in the first opening in the socket assembly so that it faces the focused source of light. The other end of the large fiber optics cable is adapted to be positioned to provide general illumination of a predetermined area. A second small fiber optics cable is provided and has one end mounted in the second opening in the socket assembly and also facing the focused source of light. A tool is mounted on the other end of the second cable so that the second cable provides a beam of light to provide localized illumination for use of the tool. The tool can be in the form of a hand dental mirror having a headlike substrate with a reflecting surface thereon and han-

dle means secured to the substrate and connected to the second fiber optics cable. The hand dental mirror includes means for causing substantially all the light passing from the fiber optics cable connected to the handle means to pass from the substrate in a direction generally perpendicular to the reflecting surface and from a generally localized area with respect to the substrate.

3,638,014

VEHICLE TRACK BLOCK SIGNAL APPARATUS

Gunnar Alexis Wallgard, Huskvarna, Sweden, assignor to SAAB Aktiebolag, Linköping, Sweden

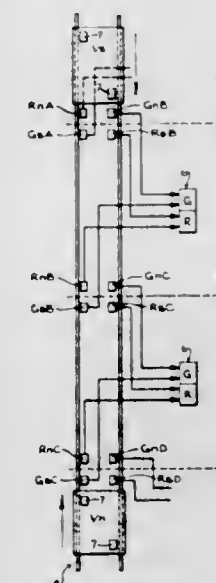
Filed Sept. 22, 1969, Ser. No. 859,970

Claims priority, application Sweden, Sept. 27, 1968, 13129/68

Int. Cl. B61l 13/00

U.S. Cl. 246-91

4 Claims



The condition of a signal for each block of vehicle track corresponds to that of a bistable memory unit placed in one condition by momentary output of an arrival detector and in its other condition by momentary output of a departure detector. All detectors are actuated by a single type of vehicle-carried exciter. An arrival detector is located near each end of each block. A departure detector is spaced along the track from each arrival detector, in the direction away from the other arrival detector.

3,638,015

APERTURE PLATE CONTROL MECHANISM FOR ELECTRON MICROSCOPES

George William Browning, and John Lewis Williams, both of Saffron Walden, England, assignors to Associated Electrical Industries Limited, London, England

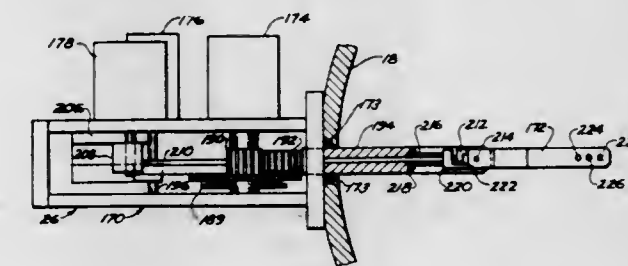
Filed Mar. 31, 1970, Ser. No. 24,355

Claims priority, application United Kingdom, Apr. 2, 1969, 17,343/69

Int. Cl. H01j 37/26

U.S. Cl. 250-49.5 A

12 Claims



An electron microscope comprising a microscope chamber having an aperture plate control mechanism mounted

thereon and including an aperture support arm extending into the microscope chamber and mounted for movement along a longitudinal axis of said arm, and an aperture plate having at least one aperture, or passage, extending therethrough and being pivotably mounted on the support arm. First and second drive means are coupled to the support arm and the aperture plate, respectively, for varying the position of the aperture plate with respect to a beam of electrons.

3,638,016

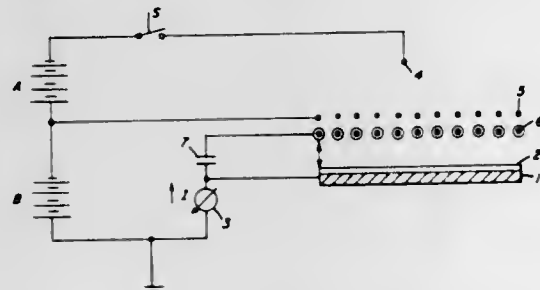
SELF-BIASING GRID CONTROL CORONA SYSTEMS
Lee Fitzpatrick Frank, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 24, 1970, Ser. No. 31,717

Int. Cl. G03g 13/04

U.S. Cl. 250—65 ZE

5 Claims



Contrast control in two-electrode electrographic apparatus is achieved by sensing changes in the charging current and automatically correcting the bias voltage or terminating the charge deposition on the receiver sheet. For bias voltage correction, a capacitor is connected between the photoconductive grid and the xerographic backing plate. For charge deposition termination, a signal indicative of charge buildup is compared with an external contrast control signal and the electrical circuit to the backing plate is disconnected when the charge buildup signal equals the external contrast signal.

3,638,017

THERMOLUMINESCENT DOSIMETER ENCODING AND READOUT METHOD

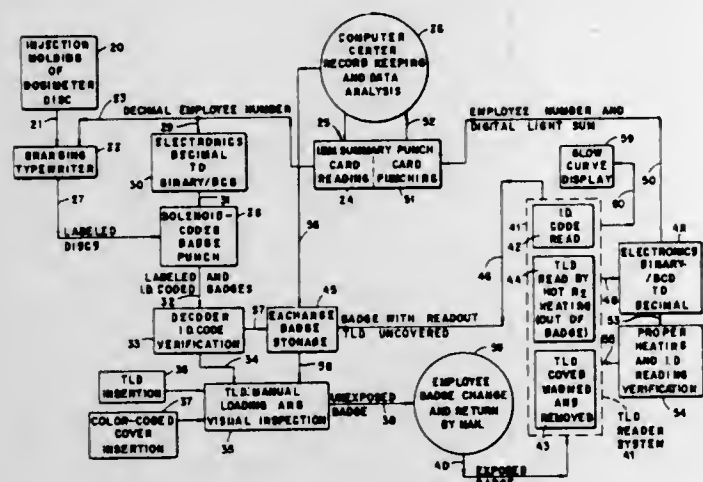
Donald E. Jones, Livermore, and Kermit F. Petrock, Walnut Creek, both of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 23, 1969, Ser. No. 887,694

Int. Cl. G01t 1/11, 7/08

U.S. Cl. 250—71.5 R

5 Claims



A system and method for encoding personnel or other type of identification data from a computer center on a holder for dosimetric material, and automatically removing from the holder the material and reading out radiation dosage thereon while decoding the identification data on the holder, and transmitting the readout and decoded data to the computer

center. The encoding is accomplished in such a manner as to substantially eliminate accidental or intentional errors, while the dosimetric material is removed by vacuum means and readout in a hot oxygen-free gas, such as nitrogen.

3,638,018

MEANS OF MEASURING TEMPERATURE AND NEUTRON FLUX

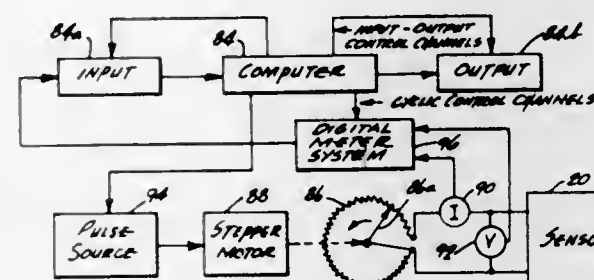
Kenneth A. Gasper, Richland, Wash., assignor to McDonnell Douglas Corporation

Filed July 14, 1969, Ser. No. 841,423

Int. Cl. G01t 3/04

U.S. Cl. 250—83.1

15 Claims



Temperature-sensing device including an emitter capsule containing a radioisotope fuel, a collector housing enclosing the emitter capsule, emitter capsule support means which produces a dominant thermal conduction loss in the heat balance of the device and which maintains the external emitter surface at a predetermined spacing from the internal collector surface, a cesium vapor source communicating with the interelectrode space, and emitter and collector connections providing an electrical output from the device. In this device, collector temperature is directly coupled to emitter temperature and allows determination of ambient (collector) temperature from emitter temperature which can be accurately derived from the device's output curve. Neutron-flux-sensing device is obtained by fueling the device with a material which undergoes an exothermic reaction under neutron bombardment. Heat produced is directly proportional to neutron flux present and is directly proportional to emitter temperature in a thermal conduction dominated device, for a given collector temperature. Thus, the neutron flux can be determined from the emitter temperature which can be derived from the device's output curve. Alternately, in this device or a device where the thermal conduction loss is not dominant, the neutron flux can be determined from the maximum power point of the output curve.

3,638,019

LIGHTING DEVICE COMPRISING TWO OPTICAL SYSTEMS AND A RADIATION SENSITIVE DETECTOR
Francois Desvignes, Bourg la Reine, and Jean Jacques Hunzinger, Paris, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

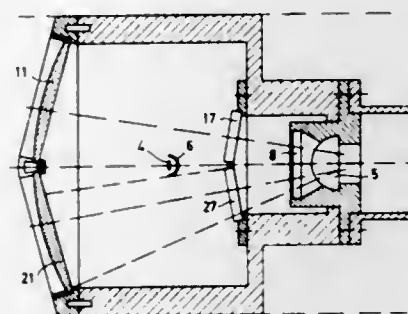
Filed Apr. 14, 1970, Ser. No. 28,324

Claims priority, application France, Apr. 4, 1969, 6910560

Int. Cl. G01j 1/42

U.S. Cl. 250—83.3 H

9 Claims



A sighting device equipped with two optical systems which each comprise an optical modulator and a lens and the opti-

cal axes of which intersect at an acute angle and with a radiation-sensitive detector is described. It is shown that by inserting auxiliary radiation sources between the lenses of the optical systems and the radiation-sensitive detector and by using the lenses as catadioptric systems for imaging the auxiliary radiation sources asymmetrical errors can be eliminated.

3,638,020

MINERAL-DETECTION APPARATUS

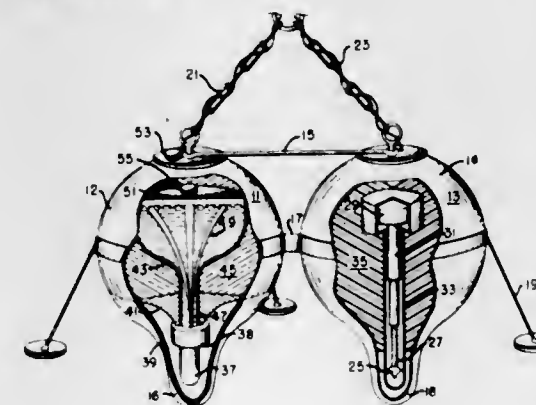
Dick Duffey, Adelphi; Peter F. Wiggins, Annapolis, and Frank E. Senville, Chevy Chase, all of Md., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed May 26, 1970, Ser. No. 40,644

Int. Cl. G01t 4/16

U.S. Cl. 250—83.3 R

4 Claims



A marine mineral-detection apparatus is described including a ^{252}Cf source of neutrons and a lithium-drifted germanium radiation detector shielded from the neutron source. The neutron source is mounted on an extensible member supported within a mass of neutron-shielding material. The source is extended outside the neutron shield to bombard surrounding mineral values with neutrons. Elements capturing neutrons give off prompt gamma radiation with discrete energies. The radiation detector resolves the radiation into distinct energy peaks for identifying the elements present in the mineral values.

3,638,021

INFRARED HORIZON SENSOR FOR MEASURING SATELLITE PITCH AND ROLL

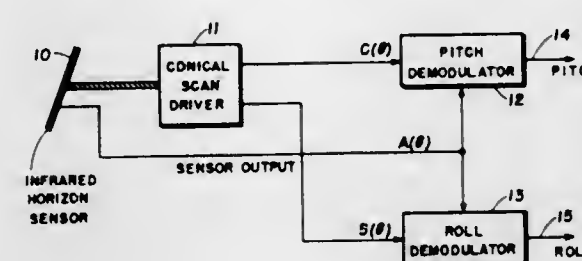
Robert L. Hickerson, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 19, 1969, Ser. No. 851,405

Int. Cl. G01j 1/20

U.S. Cl. 250—83.3 H

4 Claims



An infrared sensor carried aboard a satellite is driven to conically scan the horizon of the celestial body, such as the earth, about which the satellite is orbiting. The output of the sensor is a signal whose amplitude is constant when the satellite is in its nominal attitude and whose amplitude varies sinusoidally if the satellite attitude deviates from nominal. This output from the sensor is combined with signals respon-

sive to the scan drive mechanism uniquely defining the scan angle, so as to produce output signals indicating pitch and roll of the satellite.

3,638,022

LOW-ENERGY NUCLEAR RADIATION DETECTOR OF THE SEMICONDUCTOR TYPE

Stanislav Fedorovich Kozlov, B. Akademicheskaya ulitsa, 49, korpus, 1, kv. 18, Moscow, U.S.S.R.

Filed Sept. 22, 1969, Ser. No. 859,739

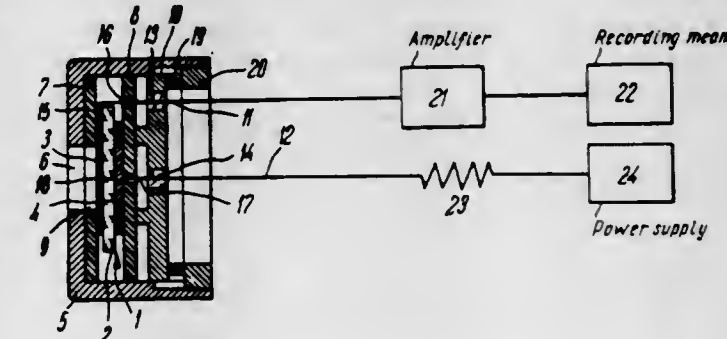
Claims priority, application U.S.S.R., Sept. 20, 1968,

1272308; Jan. 31, 1969, 1302862

Int. Cl. G01t 1/24

U.S. Cl. 250—83.3 R

4 Claims



A device for detecting low-energy nuclear radiations and nuclear radiations in corrosive (reactive) media with a detector on the basis of a diamond crystal plate with contacts formed at the opposite sides thereof, one of these contacts disposed on the plate side adapted to be irradiated is made blocking in relation to charge carriers, while the opposite contact disposed on the plate side not adapted to be irradiated is made of a material capable, in conjunction with a diamond, of injecting charge carriers under the influence of an applied electric field, the blocking contact being made of metal carbides.

3,638,023

RADIOISOTOPIC POWER SOURCE

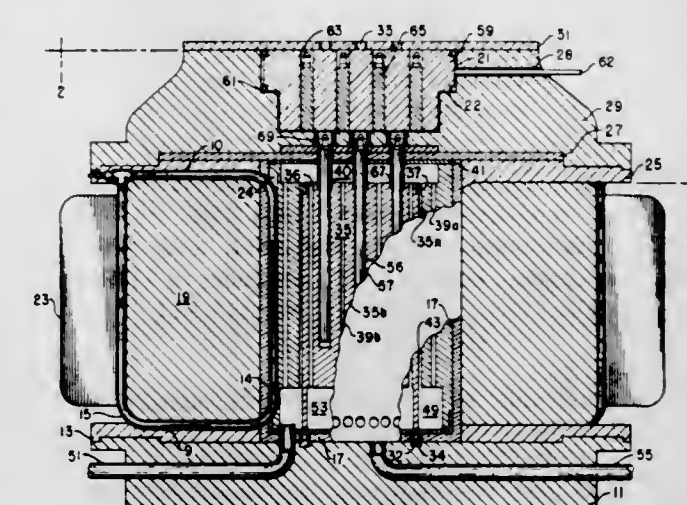
Alfred E. Cottam, Marianna; John W. H. Chi, Pittsburgh; Chang-Kyo Kim, McMurray, and Robert Flaherty, Pittsburgh, all of Pa., assignors to The United States of America as represented by the U.S. Atomic Energy Commission

Filed Nov. 7, 1969, Ser. No. 874,750

Int. Cl. G21h 1/00

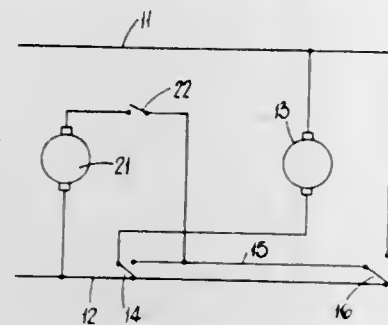
U.S. Cl. 250—106

7 Claims



A power source adapted for refueling during operation including a core structure having longitudinal openings for holding radioisotopic fuel elements and longitudinal passageways for passing process fluid flow. Each fuel element

manually operable switch for controlling the wiper motor and a parking switch operable in synchronism with the wiper motor and serving when the manually operable switch is in its off position to complete a circuit to the wiper motor until the



wipers reach a parking position. The washer motor is connected in the circuit in such a way that when a switch in series with the washer motor is closed, the circuit to the washer motor is completed each time the parking switch moves to its parking position.

3,638,031

CENTRAL OIL FEEDING AUTOMATIC CONTROL DEVICE FOR VEHICLES

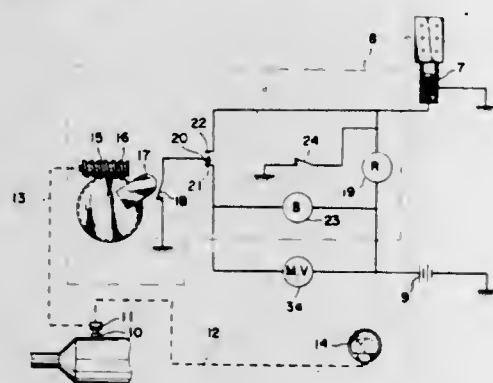
Takeo Honda, Kawagoe, and Toshifumi Tonegawa, Saitama-ken, both of Japan, assignors to Diesel Kiki Kabushiki Kaisha, Shibuya-ku, Tokyo, Japan

Filed July 27, 1970, Ser. No. 58,498

Int. Cl. F01m 1/00

U.S. Cl. 307-10 R

1 Claim



A central oil-feeding automatic control device, which can automatically operate every certain distance of running of vehicle, comprising an electric circuit including a switch opening and closing by a cam rotatable with a drive shaft, normally open and closed fixed contacts, a movable contact, electromagnetic coils of a valve and said relay, a bimetal coil, a hydraulic pressure responsive switch and a bimetal switch.

3,638,032

FAST-ACTING MAGNETIC SWITCHING DEVICE FOR HIGH-LEVEL ELECTRICAL SIGNALS AND DIVERTER INCORPORATING SAME

Dean O. Kippenhan, Castro Valley, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 4, 1970, Ser. No. 8,503

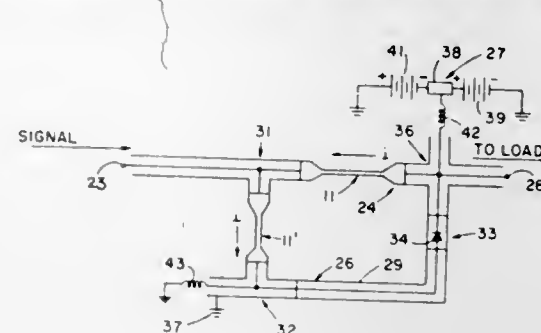
Int. Cl. H03k 17/80

U.S. Cl. 307-88 LC

4 Claims

A tubular element of magnetizable material is coaxially interposed between inner and outer coaxial conductors so as to be magnetizable to one of two oppositely polarized states depending upon the direction of flow of a low-level DC control current through the inner conductor. A high-level time varying signal applied at one end of the conductors is transmitted to the opposite end thereof, or blocked depending upon

whether the induced magnetic field of the signal reinforces the polarity of the magnetizable element or opposes same. A pair of the switching devices included in a pair of circuit paths coupled to a common signal input and arranged such



3,638,033

DISPLAY DEVICE AND ELECTRICAL CONDUCTORS THEREFOR

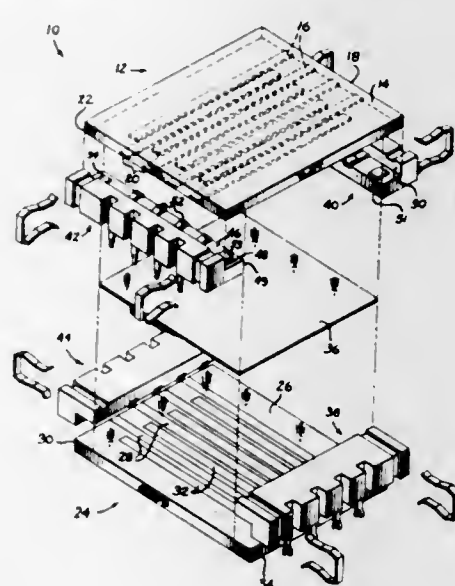
Richard E. Johnson, Sugar Grove, and Paul R. Natale, Warren, both of Pa., assignors to Sylvania Electric Products Inc.

Filed May 11, 1970, Ser. No. 36,183

Int. Cl. H01j 1/62, 63/04; H05k 1/02

U.S. Cl. 313-108B

10 Claims



A compact visual display device having crossed arrays suitable for flush mounting comprising a display assembly having a first light-transmitting grid structure and a second grid structure with an electrically luminescent medium therebetween, each grid structure having a base of electrically insulative material and a conductive side of the base containing two sets of parallel, elongated, electrical-conductive, electrical-individual elements, each set extending partially across the conductive side from opposing sides of said conductive side, the first and second grid structures are disposed such that the sets of elongated elements in the first grid structure is normal to the sets of elongated elements in said second grid structure, the electrical connection for the display device is provided by an electrical connector for each set of conductors that comprises a body of electrically insulative material having a rectangular contact surface and two rectangular bearing surfaces at right angles to and extending from opposite edges of the contact surface and in an opposite direction thereto. U-shaped clamps hold the connectors, grid members and the electrically luminescent medium in a fixed

relationship wherein edges of the grid members are in abutment with the appropriate bearing surface of the connector. The electrical connection is established by a resilient electrically conductive contact member bearing against each elongated member in said grid structures. The electrical connectors have a dimension that is normal to the contact surface that is equal to the sum of the thickness of each grid structure and the luminescent medium therebetween.

3,638,034

SKID DETECTOR FOR PULVERIZER

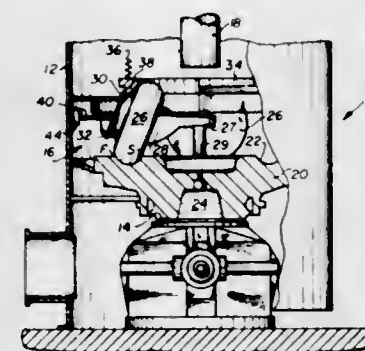
Chester J. Romanowski, Carteret, and Paul V. Guido, Cedar Grove, both of N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed Nov. 19, 1969, Ser. No. 877,991

Int. Cl. H01h 35/100

U.S. Cl. 307-119

11 Claims



Means are provided for detecting skidding of rollers. A limit switch is actuated at each rotation of a member which when no roller skidding occurs moves at the same linear speed as the rollers but which moves at a greater speed when such skidding occurs to energize an electrical circuit, which will indicate when the member is moving at a speed which indicates skidding of the rollers.

3,638,035

PRIMARY AND SECONDARY SHUNT PATHS FOR DISSIPATING AN ELECTRICAL CHARGE

John N. Murphy, Pittsburgh, and Merle L. Bowser, Bethel Park, both of Pa., assignors to The United States of America as represented by the Secretary of the Interior

Filed Mar. 23, 1971, Ser. No. 127,112

Int. Cl. F42d 5/00

U.S. Cl. 307-141

8 Claims



A permissible blasting machine employs a capacitive discharge circuit for electrically detonating an explosion in a hazardous environment. Protective circuitry prevents capacitor discharge until full charge is reached. After detonation, redundant circuitry dissipates any charge remaining in the circuit. A failure of the dissipating circuitry disables the discharge system.

3,638,036 FOUR-PHASE LOGIC CIRCUIT

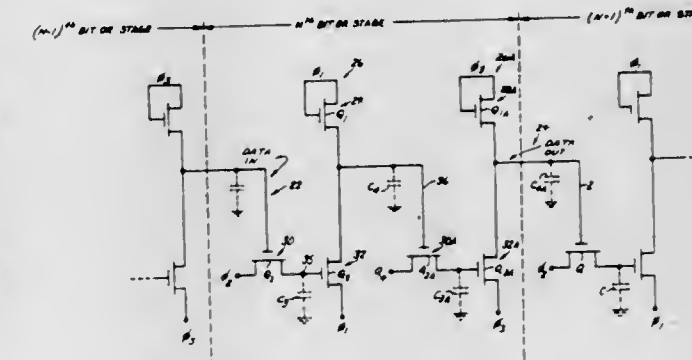
Henry Peter Zimbelmann, East Setauket, N.Y., assignor to General Instrument Corporation, Newark, N.J.

Filed Apr. 27, 1970, Ser. No. 31,944

Int. Cl. H03k 19/08; G11c 19/00

U.S. Cl. 307-205

18 Claims



A four-phase logic circuit characterized by a double inverter comprising a series of FETs utilizing unconditional charge and conditional discharge of the output node. Only one FET is interposed in the discharge path. The discharge FET is controlled by a clock pulse connected through a FET which is in turn controlled by the data signal.

3,638,037

AUTOMATIC TRACKING FILTER

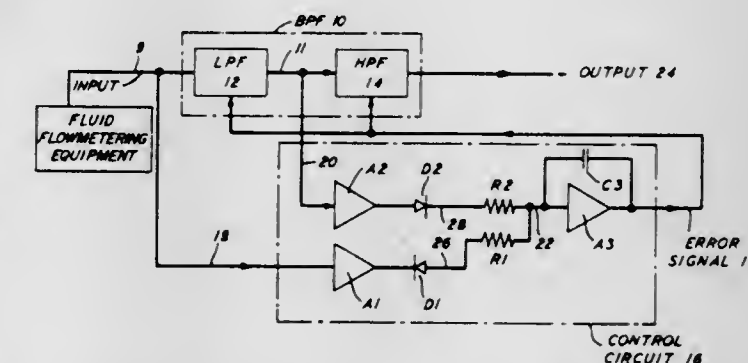
Charles Louis McMurtrie, North Plainfield, N.J., assignor to Eastech, Inc., South Plainfield, N.J.

Filed May 26, 1970, Ser. No. 40,630

Int. Cl. H03d 13/00

U.S. Cl. 307-233

19 Claims



An automatic tracking filter for use in conjunction with fluid flowmeters automatically locks onto the largest signal in a given frequency spectrum. The filter comprises a narrow band-pass filter having input and output filter circuits (e.g., a low-pass and a high-pass filter) connected in series. The output of the input filter circuit is combined in a control circuit with the input signal to generate an error signal which is used to tune each of the filter circuits to the input signal. In one embodiment disclosed the filter sections are two-pole active R-C filters in which a field-effect transistor is used as a voltage variable resistor.

3,638,038

TONE DETECTOR CONTROL CIRCUIT

Vernon F. Weber, Elmhurst, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Oct. 12, 1970, Ser. No. 80,001

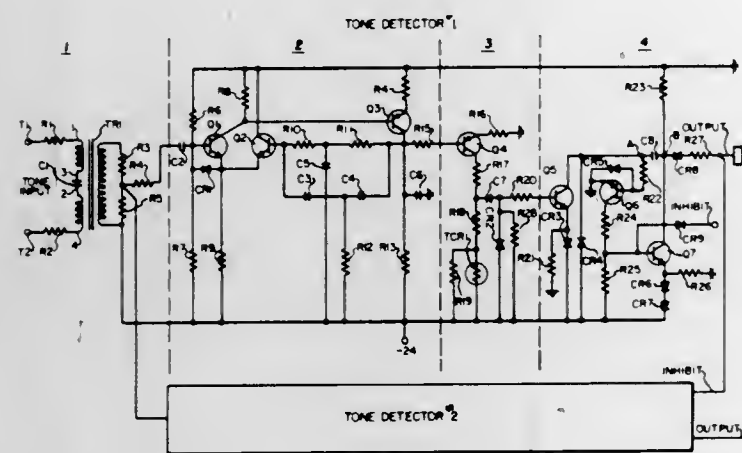
Int. Cl. H03k 5/20

U.S. Cl. 307-233

8 Claims

A tone detector control circuit arrangement for detecting a tone of a particular frequency and level. The circuit includes an input circuit, a twin "T" active filter, a buffer amplifier

and an alternating current level detector. The level detector is a form of monostable circuit with a feedback path includ-



ing a capacitor, and the signal is applied to one side of the capacitor whereby the circuit may be maintained in the conductive state during the presence of the tone.

3,638,039

OPERATION OF FIELD-EFFECT TRANSISTOR CIRCUITS HAVING SUBSTANTIAL DISTRIBUTED CAPACITANCE

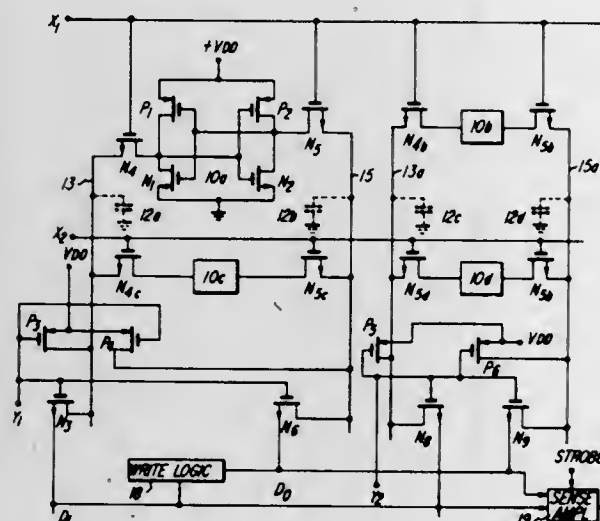
Vallon Wei-Loong Chen, Edison, N.J., and Hiroshi Amemlya, Morrisville, Pa., assignors to RCA Corporation

Filed Sept. 18, 1970, Ser. No. 73,507

Int. Cl. G11c 11/34

U.S. Cl. 307-238

11 Claims



The distributed capacitance at circuit nodes between conduction paths of interconnected field-effect transistors of a memory decoder is maintained charged to a fixed value during the major portion of the memory operating time. As one example, the distributed capacitance at a column of the memory may be connected to the charging source except for the brief intervals during which a location in that column is being accessed. Operation in this way improves both the speed and reliability of the decoder circuit.

3,638,040 SYSTEM FOR ASYNCHRONOUS SWITCHING OF A LOAD FROM ONE POWER SOURCE TO ANOTHER

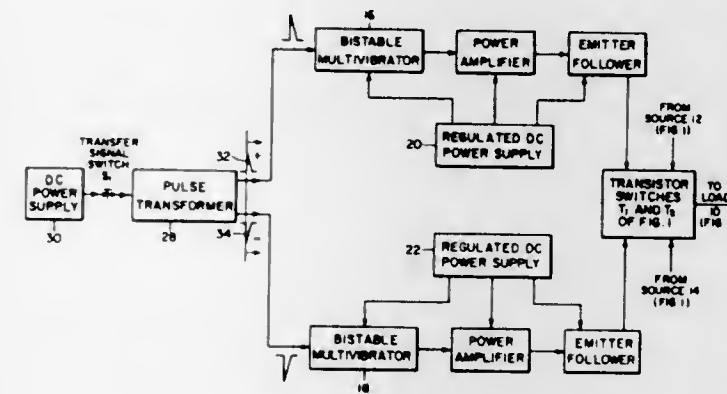
Aly A. Mahmoud, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 5, 1970, Ser. No. 61,162

Int. Cl. H03k 17/00

U.S. Cl. 307-243

4 Claims



A system employing power transistors for transferring a load between two independent power sources at any phase angle and in less than 20 microseconds. The system is unique in that it is extremely fast acting while at the same time does not require power source synchronization and produces no circulating currents during the switching interval.

3,638,041

SAMPLE AND HOLD TRIGGER CIRCUIT

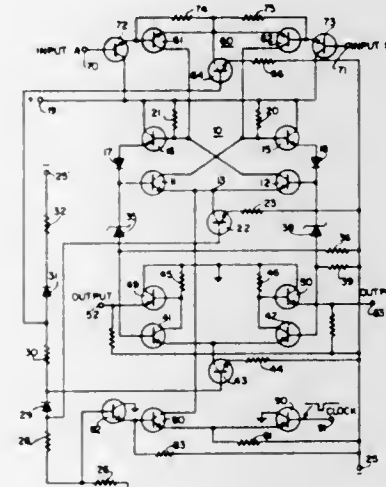
James E. Thompson, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Dec. 2, 1970, Ser. No. 94,287

Int. Cl. H03k 17/00

U.S. Cl. 307-247

11 Claims



An integrated bistable trigger or comparator circuit normally is provided with operating current from a first current source, and the state of the trigger circuit is changed by a differential input circuit operated with a second current source providing a greater current than the first current source for altering the current drawn by the load resistors of the trigger stage to change its balance and thereby change its state. A third current source is connected to the trigger circuit in parallel with the first current source and is operative to draw a greater predetermined current than that provided by the second current source, so that when the third current source

is operating, the input signals have no effect on the operation of the trigger circuit. A clock signal controlled switch is provided for disabling the third current source to permit the trigger circuit to be responsive to input signals.

3,638,042

THYRISTOR WITH ADDED GATE AND FAST TURN-OFF CIRCUIT

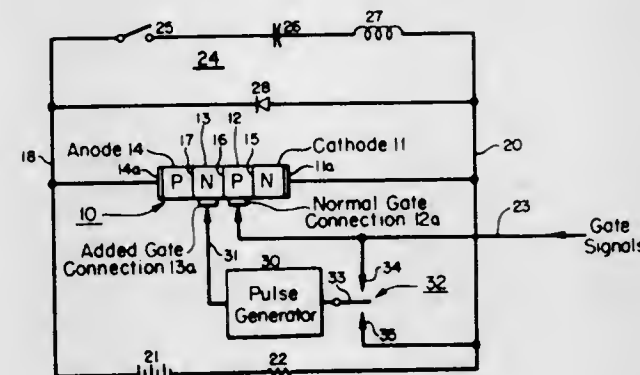
George H. Studtmann, Mount Prospect, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed July 31, 1969, Ser. No. 846,395

Int. Cl. H03k 17/00, 17/56

U.S. Cl. 307-252 G

16 Claims



A PNPN-thyristor has an extra gate connection added in the N-region adjacent the outer P-region. A pulse generator applies a turnoff control signal to the added gate when turnoff across the anode-cathode connections is initiated, to sweep out the carriers at the center junction rather than allow the carriers to normally recombine over a longer time period. The connection to the added gate can be extended in area, either in the operation by which the extra connection is added to a conventionally produced PNPN-thyristor, or by varying the manufacturing process by which the PNPN-thyristor is produced.

3,638,043

CURRENT CONTROL DEVICE

Robert Ronald Laupman, Wijchen, Netherlands, assignor to N. V. Auco, Wijchen, Netherlands

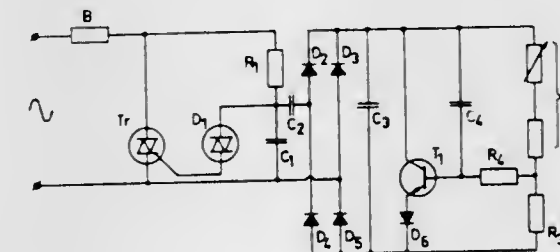
Filed Oct. 6, 1969, Ser. No. 863,891

Claims priority, application Netherlands, Oct. 9, 1968, 68/14,447

Int. Cl. H03k 17/00

U.S. Cl. 307-252 B

16 Claims



A device for controlling an electrical current through a load by means of a bilateral controlled rectifying element. Said element is fired periodically through a bilateral rectifier which in its turn receives a firing signal through a series capacitor included in the output circuit of a control amplifier, which at its input receives stimuli for firing said controlled rectifying element. Said series capacitor is effective to improve the symmetry of the waveform of the current through

3,638,044 HIGH-VOLTAGE SHORT-DURATION PULSE GENERATOR

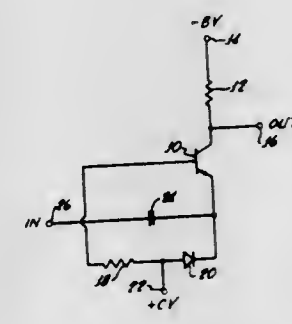
Cornelius P. Pittman, Garland, Tex., assignor to Beckman Instruments, Inc.

Filed Mar. 4, 1970, Ser. No. 16,279

Int. Cl. H03k 5/00

U.S. Cl. 307-264

17 Claims



An electronic circuit for producing high-voltage short-duration pulses including means for superimposing an input pulse on the voltage level of a first power supply and switching means for alternately placing on an output line the voltage of a second power supply and the output of the voltage superimposing means so that the total voltage rise of the output pulse is equal to the sum of the voltage of the input pulse and the total voltage differential between the first power supply and the second power supply. This circuit lends itself to cascading such that each additional stage will add to the output of the previous stage a voltage equal to the voltage differential between the first and second power supply, thus allowing the production of a high-voltage short-duration pulse without the necessity of high-voltage switching components or high-voltage power supplies.

3,638,045

PULSE STRETCHER

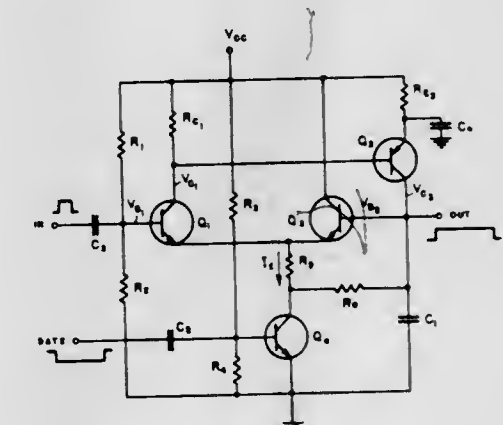
Richard Smith Hughes, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Apr. 14, 1969, Ser. No. 815,708

Int. Cl. H03k 5/04

U.S. Cl. 307-267

1 Claim



A follow-hold circuit wherein the output follows the input until an external gating trigger disables the circuit whereupon the output remains at the last input level until the gating trigger enables the circuit again wherein the circuit com-

prises a differential feedback video amplifier and transistorized switch.

3,638,046

FET SHIFT REGISTER STAGE

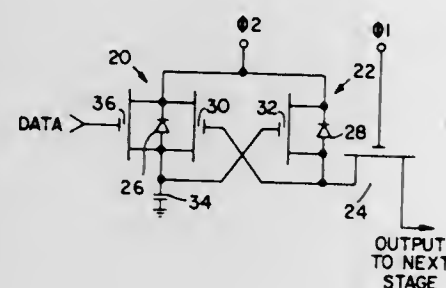
Alton O. Christensen, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Dec. 12, 1969, Ser. No. 884,397

Int. Cl. H03k 3/286; G11c 11/34

U.S. Cl. 307-279

5 Claims



In a shift register, a cross-coupled combination of an IGFET inverter and an IGFET NOR gate, each using a Schottky diode as a precharging device, is used in each stage to provide a fast, low-loss transfer of logic information from one stage of the shift register to the next.

3,638,047

DELAY AND CONTROLLED PULSE-GENERATING CIRCUIT

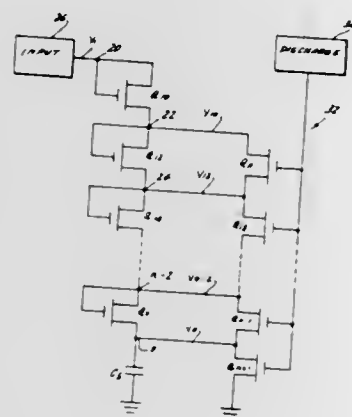
Leonard F. Klein, Rockville Center, N.Y., assignor to General Instrument Corporation, Newark, N.J.

Filed July 7, 1970, Ser. No. 53,041

Int. Cl. H03k 5/159, 17/28

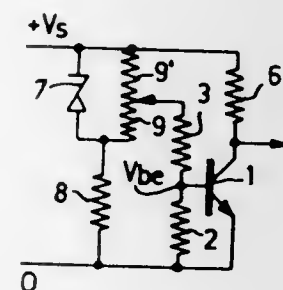
U.S. Cl. 307-293

20 Claims



A delay circuit comprising a plurality of MOSFETs connected in series with their gates tied to their drains. The input signal is delayed by each FET an interval equal to the time required to charge its gate terminal to the threshold voltage of the device. The signals generated at the junction of the output circuits of different FETs may be used to generate pulses of controlled width and phase relationship. Means to discharge the junction nodes are provided.

A temperature compensation network having a resistance that exhibits a temperature coefficient that is adjustable substantially independently of the voltage applied to the network. The network includes a resistive voltage divider connected in parallel with the emitter-collector path of a transistor. The base of the transistor is connected to a tapping on the voltage divider. A zener diode having a zero temperature coefficient relative to the transistor temperature coefficient is connected to the voltage divider, whereby the network exhibits a net negative temperature coefficient of resistance.

3,638,049
NETWORK HAVING A RESISTANCE THE TEMPERATURE COEFFICIENT OF WHICH IS VARIABLE AT WILL

Johannes Gerardus Wouterus Bom, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed May 19, 1969, Ser. No. 825,825

Claims priority, application Netherlands, May 17, 1968, 6806969

Int. Cl. H03k

U.S. Cl. 307-310

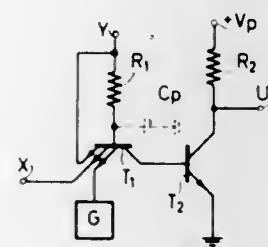
13 Claims

3,638,048
STORE READ UNITS
Ferdinand Camerik, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.
Filed Jan. 14, 1970, Ser. No. 2,825
Claims priority, application Netherlands, Jan. 16, 1969, 6900697

Int. Cl. H03k 17/00

U.S. Cl. 307-299

4 Claims



Read unit suitable for reading a storage element whose stored information is available in the form of a voltage at an information terminal, said unit comprising a second transistor controlled by a first transistor, the latter being rendered conducting when the former is cut off for conducting away the charge accumulated in the base of the second transistor.

3,638,050

PREAMPLIFICATION CIRCUITRY FOR PHOTOCONDUCTIVE SENSORS

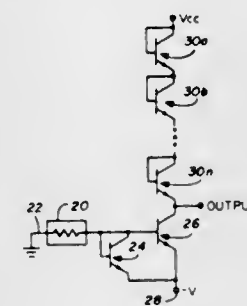
Edgar E. Harp, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 1, 1970, Ser. No. 24,606

Int. Cl. H03k 17/00

U.S. Cl. 307-311

10 Claims



A preamplifier circuit is disclosed for use with a photoconductive sensing device having a conductance linearly dependent upon incident photon flux. A forwardly biased diode, which in the preferred embodiment comprises a transistor having a commonly connected base and collector, is coupled to one terminal of the photoconductive sensing device. An output transistor is connected to the sensing device and the diode to provide an output signal dependent upon the magnitude of incident photon flux upon the sensing device. This output signal is not dependent upon the magnitude of conductance of the sensing device, and thus the present circuit may be used in a photoconductive sensor array to eliminate the requirement of sensor alignment. A plurality of series connected diodes are connected between a source of bias voltage and the output transistor to provide a selected constant gain to the output signal.

3,638,051

NUCLEAR THERMIONIC GENERATOR WITH COMPOSITE PARTICLE CATHODE

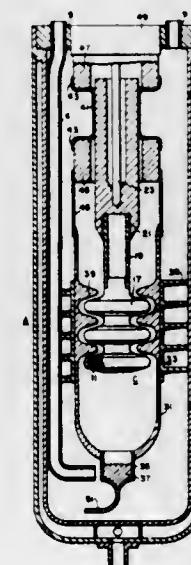
Arthur Martin Weis, Pittsburgh, Pa., assignor to Nuclear Materials and Equipment Corporation, Apollo, Pa.

Filed Feb. 10, 1964, Ser. No. 343,585

Int. Cl. G21d 7/00

U.S. Cl. 310-3

4 Claims



This invention relates to the art of generating power and has particular relationship to thermionic generators of electrical power.

3,638,052

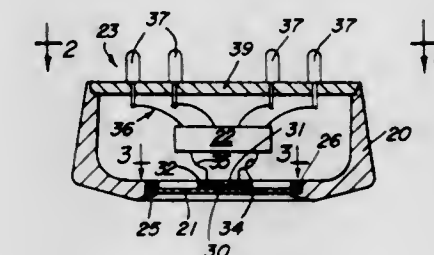
ELECTROACOUSTIC TRANSDUCERS OF THE BILAMINAR FLEXURAL VIBRATING TYPE

Frank Massa, Cohasset, Mass., assignor to Dynamics Corporation of America, Mass. Division, Hingham, Mass.
Continuation-in-part of application Ser. No. 859,677, Sept. 22, 1969, now Patent No. 3,578,995. This application Feb. 12, 1970, Ser. No. 10,748

Int. Cl. H04r 17/00

U.S. Cl. 310-8.2

7 Claims



A transducer includes a piezoelectric driven, vibratile diaphragm which acts as the closure for a circular opening in a rigid housing which encloses electronic components. The flexure mode of the diaphragm is controlled to give a sound pattern which is more uniform over a large area. The housing and diaphragm assembly is combined with a set of electrical terminals which serve as a plug for inserting the transducer assembly into a mating socket. The resulting structure provides an economical transducer design with improved sound radiation characteristics and controlled uniformity in large production quantities.

3,638,053

TERRAIN PROBE FOR SCANNING TIME BEHAVIOR OF STRESS WAVES IN A MEDIUM

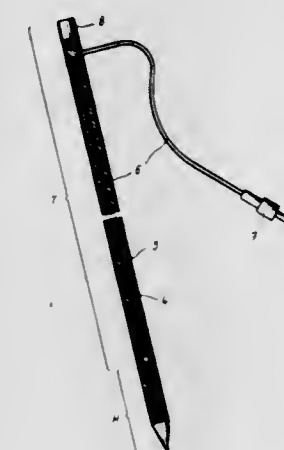
Vladimir Schenk; Zdenek Pros, and Ludvik Wanek, all of Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie ved, Prague, Czechoslovakia

Filed Apr. 13, 1970, Ser. No. 27,851

Int. Cl. H01v 7/00

U.S. Cl. 310-8.3

4 Claims



A terrain probe for scanning time behavior of stress waves in a medium by means of a piezoelectric element mounted in a hollow tubular pointed body. More particularly a constructional arrangement to locate measuring elements for evaluating the stress waves propagating in a medium to be examined. The tubular body includes moreover an electric conductor attached to the piezoelectric element and adapted for transmitting pulses corresponding to the wave characteristics.

to a recording apparatus. The scanning sensitivity of the piezoelectric element is enhanced in that the frequency of the latter oscillating between the walls of the tubular body is more than two digits higher than the frequency of the waves to be examined.

3,638,054

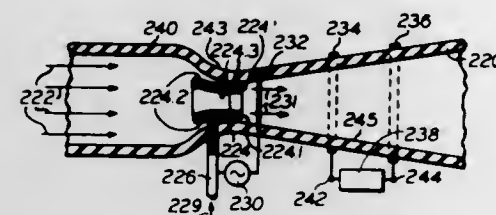
ALTERNATING CURRENT ELECTROFLUID DYNAMIC ENERGY CONVERSION DEVICE

Richard F. Honigsbaum, 21 A Barry Gardens, Passaic, N.J.
Filed Apr. 4, 1969, Ser. No. 813,517

Int. Cl. H02n 3/00; G01f 1/00

U.S. Cl. 310—10

30 Claims



An energy conversion device of the alternating current electrofluid dynamic type uses the electric field coupling between a spatio-temporally periodic charge distribution in a fluid stream and a plurality of electrodes at different points along the stream to interchange alternating current electrical energy at the electrodes with the flow energy of the stream. Energy can flow in either direction. If the device is used to supply an electrical load connected to the electrodes it is an alternating current electrofluid dynamic generator and can also be used as an amplifier, oscillator, flow meter, and the like. If the device is supplied alternating current electrical energy in order to accelerate the fluid it is an alternating current electrofluid dynamic pump and can also be used as a compressor, thrust engine, and the like. A nozzle and charging electrode arrangement is used to produce the spatio-temporally periodic charge distribution.

3,638,055

ELECTRICAL APPARATUS

Urs Zimmermann, Wildberg, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland

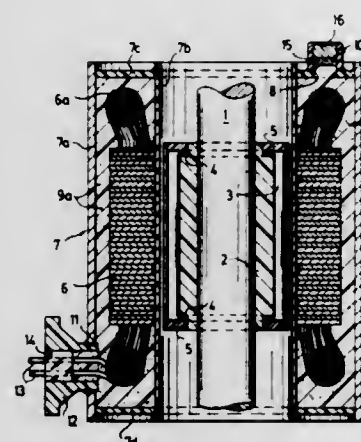
Filed June 29, 1970, Ser. No. 50,817

Claims priority, application Switzerland, July 4, 1969, 10225/69

Int. Cl. H02k 1/04

U.S. Cl. 310—43

5 Claims



The housing for the winding is provided with at least two openings, one for the conductors for the winding and one for

the pouring in of the hardenable mass. Each opening is sealed in sequence by first sealing the opening for the conductors by means of a glass plug and thereafter sealing the pour-in opening by means of a disk and plug or a seal ring and plug.

3,638,056

ELECTRICAL GENERATION APPARATUS

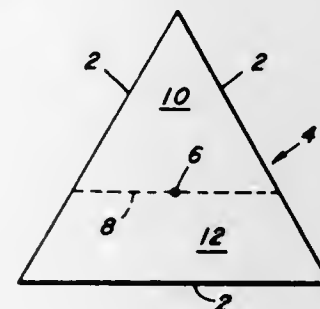
Paul Imris, West Shore Apts., Apt. 224-West Walk, West Haven, Conn.

Continuation-in-part of application Ser. No. 703,510, Jan. 22, 1968, now abandoned. This application June 24, 1970, Ser. No. 49,387

Int. Cl. H02k 1/24

U.S. Cl. 310—261

3 Claims



Electrical generation apparatus characterized in that the apparatus incorporates a rotating member comprising a rectangular prism, preferably having a base in the form of an equilateral triangle, which is rotated about an axis extending substantially through its center of gravity. In certain embodiments of the invention, the aforesaid axis is parallel to an applied field of force, either electrostatic or magnetic, through which the member passes as it rotates, the axis being at the edge of the field.

3,638,057

FIBER-OPTICAL PLATE COUPLING A LUMINESCENT SCREEN FOR THE DISPLAY OF AN IMAGE TO A PHOTOCONDUCTIVE LEAD MONOXIDE TARGET OF A TELEVISION CAMERA TUBE

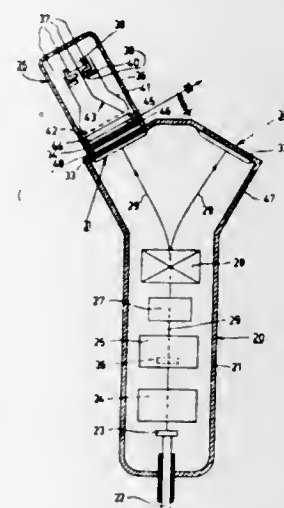
Peter Johannes Michiel Janssen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 7, 1969, Ser. No. 848,178

Claims priority, application Netherlands, Aug. 14, 1968, 6811521

Int. Cl. H01j 31/49, 31/00

1 Claim



An image transmission system for coupling a luminescent screen for displaying an image to a photoconductive lead

monoxide target of a television camera tube comprises a fiber-optical plate employing light-conducting fibers between the luminescent screen and the television camera tube. The luminescent screen luminesces principally in a spectral region below about 4,000 Å. and the fibers are coated with a material having a relatively high absorption at least in that region, and preferably the coating is opaque.

3,638,058

ION WIND GENERATOR

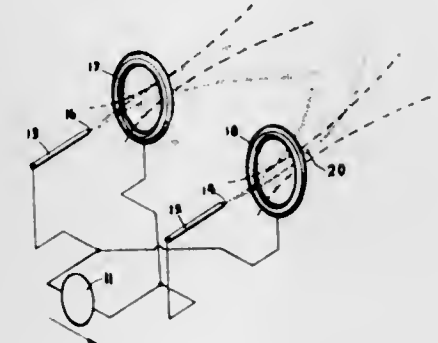
Robert S. Fritzluis, 3328 Cowley Way, #2, San Diego, Calif.

Filed June 8, 1970, Ser. No. 44,207

Int. Cl. H05h; H05b; H01j 7/24

U.S. Cl. 313—63

5 Claims



An ion wind generator in which a plurality of cathodes is disposed in operable proximity to a plurality of anodes forming an array with a high-voltage electric field on the order of 10 kilovolts per centimeter impressed between them causing the formation of ions which, in turn, are attracted by the anodes creating an ionic wind in the direction from the cathodes to the anodes, the adjacent anodes and cathodes being impressed with opposite polarity fields for neutralizing the ionic content of the combined windstreams.

3,638,059

EXTREME ULTRAVIOLET RADIATION PHOTOMETERS

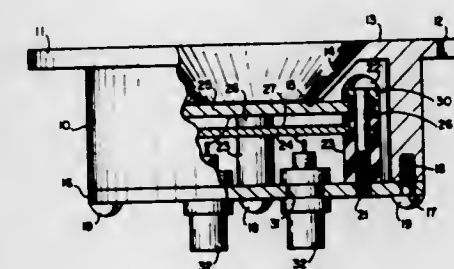
Randolph G. Taylor, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Navy

Filed Apr. 27, 1970, Ser. No. 31,891

Int. Cl. H01j 39/26, 39/00

U.S. Cl. 313—93

9 Claims



This disclosure is directed to an extreme ultraviolet radiation photometer which includes a special type window and cathode suitable for permitting radiation to penetrate the window which reacts with the cathode to produce electrons which are attracted to the window and produces a current flow which is measured to represent the radiation detected.

3,638,060

PHOSPHOR DISPLAY SCREEN AND FILTER INCLUDING PLATINUM AND MANGANESE CHLORIDE DERIVATIVES OF TETRAPHENYLPORPHIN

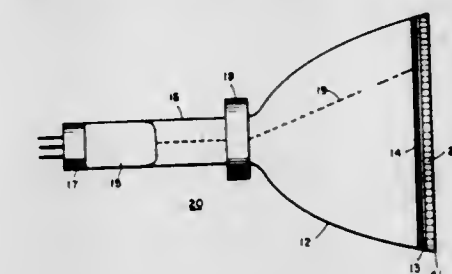
Paul Wachter, Bayside, N.Y., assignor to GTE Laboratories Incorporated

Filed May 25, 1970, Ser. No. 41,134

Int. Cl. H01j 5/16, 6/140; G01b 5/20

U.S. Cl. 313—112

9 Claims



A high-contrast display apparatus adapted for viewing in an environment of ambient light. A display screen is provided for producing an image consisting of a narrow band of wavelengths in the green region of the spectrum. Overlaying the display screen is a filter which consists of a layer of didymium glass coated with a layer of acrylic ester polymer. The polymer contains metal derivatives of tetraphenylporphyrin. The filter substantially absorbs the visible wavelengths incident upon it which are outside the spectral band emitted by the display screen.

3,638,061

MAGNETICALLY CONTROLLED CROSSED-FIELD INTERRUPTER AND SWITCH TUBE WITH PRESSURE CONTROL FOR LONG DURATION PULSES

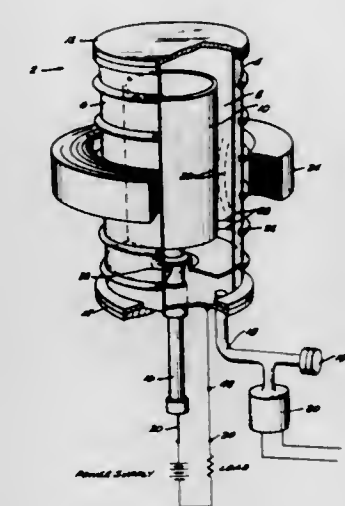
Michael A. Lutz, Los Angeles, and Ronald C. Knechtli, Woodland Hills, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of application Ser. No. 664,722, Aug. 31, 1967. This application July 15, 1970, Ser. No. 55,124

Int. Cl. H01j 7/16, 7/20

U.S. Cl. 313—161

8 Claims



In the absence of appropriate means for controlling the gas pressure, the time during which a crossed-field electrical switch can conduct is limited by the rapid pumping action of the discharge. The present invention discloses a crossed-field discharge switch in which pressure control is accomplished by selection of gas and electrode materials to minimize gas losses, and means is provided for adding additional gas, if

needed. This structure permits a crossed-field electrical switch device to conduct for reasonable lengths of time without off-switching due to gas losses.

3,638,062

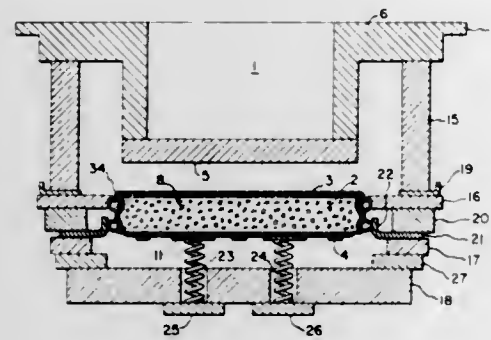
SUPPORT FOR COMPOSITE ELECTRODE STRUCTURE
James E. Beggs, Schenectady, N.Y., assignor to General Electric Company

Filed Oct. 23, 1970, Ser. No. 83,307

Int. Cl. H01j 1/20, 1/14, 1/46

U.S. Cl. 313-337

10 Claims



An electron discharge device of the planar electrode-type and having a bonded heater-cathode control electrode assembly, employs two garter springs which engage peripheral grooves in the assembly to support rigidly the assembly in the tube structure and at the same time provide low-inductance connections to the control and cathode electrodes. Springs for making contact to the heater of the assembly also force one of the garter springs into engagement with a stop to achieve desired positioning.

3,638,063

GRID STRUCTURE FOR COLOR PICTURE TUBES

Takui Tachikawa; Akio Ohgoshi; Yoshida Susumu; Akira Nakayama, and Eiji Ishii, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

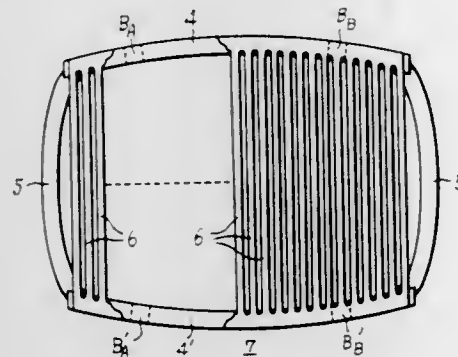
Filed Jan. 10, 1969, Ser. No. 790,350

Claims priority, application Japan, Jan. 11, 1968, 43/1658; 43/1659

Int. Cl. H01j 1/46

U.S. Cl. 313-348

9 Claims



A support for the grid structure of a cathode-ray tube in which the support is stressed to compensate for any expansion of the grid wires due to heating, the support having a pair of opposed parallel arms with the grid wires attached to and extending transversely between the arms, and a pair of braces supporting the arms at the Bessel points, the braces being stressed in a direction substantially parallel to the direction of the grid wires so that as the grid wires expand due to heat the braces will expand a corresponding amount to maintain a substantially constant tension of the grid wires.

3,638,064

CONVERGENCE DEFLECTION SYSTEM FOR A COLOR PICTURE TUBE

Mitsuru Hosoya, Kanagawa-ken; Hiroshi Sahara, Tokyo, and Minoru Morio, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

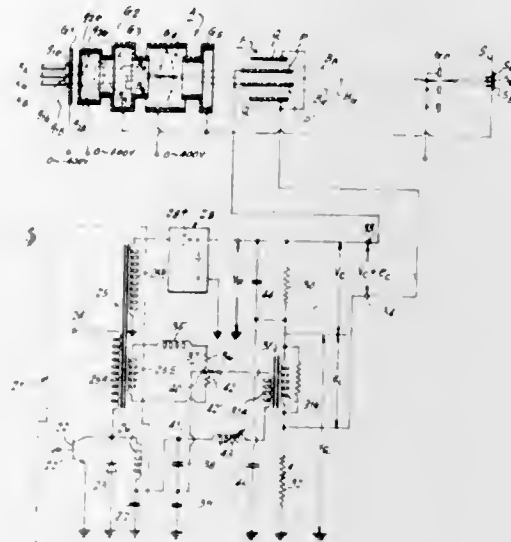
Filed June 13, 1969, Ser. No. 832,907

Claims priority, application Japan, June 15, 1968, 43/40975

Int. Cl. H01j 29/50

U.S. Cl. 315-13

16 Claims



In a color picture tube in which a plurality of beams are made to intersect each other at a location between the beam generating sources and the color screen and are focused on the latter by a main focusing lens positioned to dispose its optical center substantially at the location where the beams intersect so that beams emerge from such lens along divergent paths, first and second spaced plates are disposed at opposite sides of each of the divergent paths to electrostatically deflect the respective beam and cause convergence of all of the beams at a common area on the screen when the first and second plates are at different potentials, a high voltage is generated from a horizontal deflecting pulse provided for causing the beams to scan the screen and such high voltage is applied to an anode electrode of the tube and also to each first plate, and a static convergence deflecting voltage is obtained by dividing the aforementioned high voltage and is applied as the potential difference between the first and second plates by which the respective beam is to be deflected. Further, a dynamic convergence deflecting voltage, comprising both parabolic and sawtooth voltages is generated in response to the horizontal deflecting pulse and is superimposed on the static convergence deflecting voltage with provision being made for separately adjusting both deflecting voltages.

3,638,065

COLOR TELEVISION PICTURE-REPRODUCING DEVICE
Ichiro Ueno, Tokyo, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Dec. 22, 1969, Ser. No. 887,140

Claims priority, application Japan, Dec. 24, 1968, 43/94425

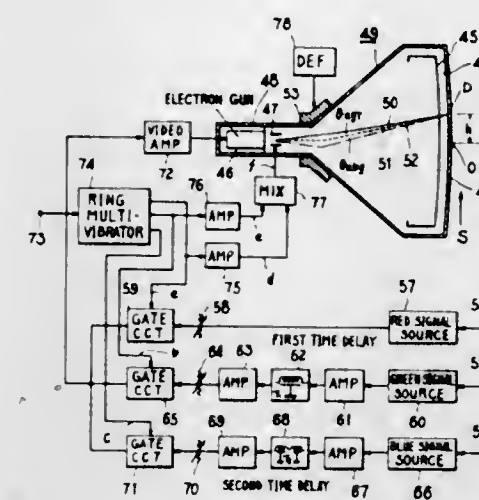
Int. Cl. H01j 29/50

U.S. Cl. 315-13

10 Claims

A color television picture reproducing device provides varying time lags to a plurality of color signals. These time lags cause an intensity modulation of a plurality of electron beams produced by at least one electron gun unit and not simultaneously concentrated on a particular point on a phosphor screen. Thus, a plurality of television pictures may

be reproduced on the phosphor screen by the electron beams striking phosphors on the phosphor screen. These pictures



can be made to coincide with one another in space to provide an acceptable reproduced color television picture.

3,638,066

CONTOUROGRAPH SYSTEM FOR MONITORING ELECTROCARDIOGRAMS

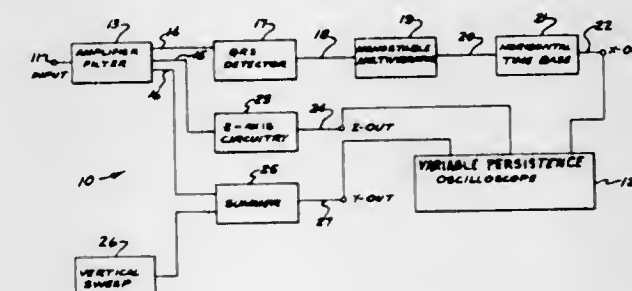
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Donald P. Golden, Jr., Webster; Donald G. Mauldin, Houston, and Roger A. Wolthuts, Seabrook, all of Tex.

Filed Aug. 21, 1970, Ser. No. 65,840

Int. Cl. H01j 29/70

U.S. Cl. 315-25

5 Claims



The system of the present invention processes semiperiodic electrical signals such as an electrocardiogram to produce a real time signal display on the face of a variable persistence cathode ray tube in an oscilloscope. Each cycle of the signal being processed is formed on a separate horizontal base line which is spaced vertically below the trace formed by the preceding cycle. Each of the waveforms is organized about a prominent cyclical event with all similar events aligning in approximately the same vertical plane. The system intensifies portions of each trace to produce a three-dimensional contour effect. The resultant display called a contourgram tends to suppress cycle-to-cycle redundancies and to emphasize cycle-to-cycle differences which increases the ability to visually detect any waveform anomalies representative of an abnormality associated with the signal source. Real time display of a single, full cycle of the signal on one horizontal base line, even where no prominent or detectable signal excursion marks the beginning on one cycle and the end of the preceding cycle is effected by keying the oscilloscope sweep trace for the beginning of the real time cycle to a dominant event in the preceding cycle with circuitry which provides a delay between the occurrence of the signaling event and the initiation of the sweep for forming the following, real time trace.

3,638,067

TRIGGERING CIRCUIT FOR CRT DEFLECTION SYSTEM UTILIZING AN SCR

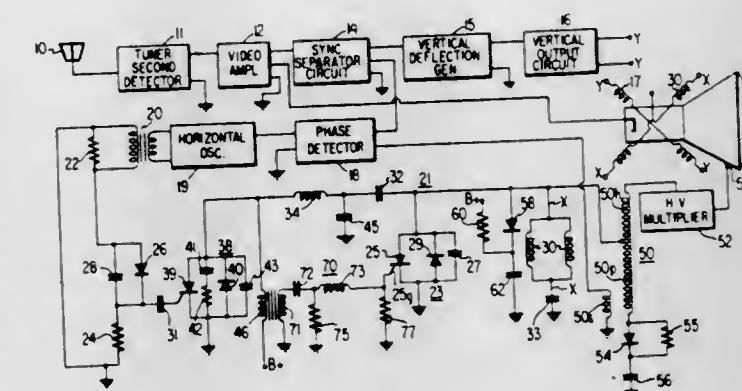
Wolfgang Friedrich Wilhelm Dietz, New Hope, Pa., assignor to RCA Corporation

Filed Aug. 25, 1969, Ser. No. 852,673

Int. Cl. H01j 29/70

U.S. Cl. 315-27 TD

10 Claims



In a television receiver employing a two SCR horizontal deflection circuit, a triggering waveform recurring at the horizontal or line deflecting rate is applied to a series resonant circuit having differentiating means coupled to the junction of the series resonant elements to provide gate signal to turn the trace SCR on and assist in turning it off during each horizontal deflection cycle.

3,638,068

DUAL INTENSITY SIGNAL LAMP

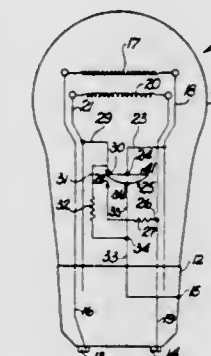
Hobert Earl Wilson, Las Vegas, Nev., assignor to Ralph C. Watson, Las Vegas, Nev., a part interest

Filed Jan. 8, 1970, Ser. No. 1,520

Int. Cl. B60q 1/38; H01k 1/64, 9/08

U.S. Cl. 315-67

10 Claims



A combination dual intensity signal lamp having a constant intensity control filament, a two-position switch actuated by the energization of the control filament to a second position and actuated by the deenergization of the first filament to a first position and a dual intensity signal lamp circuit containing the switch which connects the circuit for a high-intensity mode of operation in the first position and for a low-intensity mode of operation in the second position.

3,638,069

LIGHTING SYSTEMS FOR ROAD VEHICLES

Alfred Dickens Baker, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

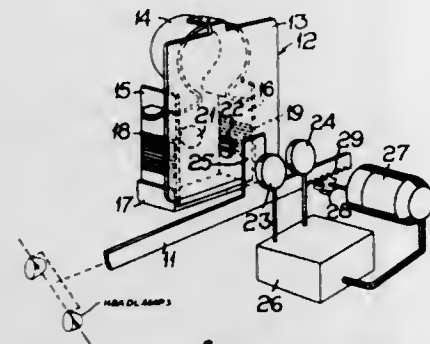
Filed Feb. 18, 1970, Ser. No. 12,169

Claims priority, application Great Britain, Feb. 24, 1969, 9,702/69

Int. Cl. B60q 1/02, 1/10

U.S. Cl. 315-82

4 Claims



A lighting system for a road vehicle includes a member which is movable longitudinally to adjust the inclination of the beams of the headlamps relative to the vehicle. Sensing means is provided on the vehicle for sensing the attitude of the body of the vehicle relative to the ground, and a light source is movable in response to the signal received from the sensing means. A pair of light-sensitive devices are positioned side-by-side, and control operation of an actuating device for moving the headlamp-adjusting member. The headlamp-adjusting member carries a mask which is movable between the light-sensitive devices and the light source, and which, when the headlamps are correctly inclined for a given attitude of the body of the vehicle relative to the ground, masks both of the light-sensitive devices from the light source. When both of the light-sensitive devices are masked then the actuating device is inoperative. However, if the attitude of the body of the vehicle relative to the ground changes the light source is moved accordingly, and light falls on one or other of the light-sensitive devices. When light falls on one of the light-sensitive devices the actuating device is operated to move the headlamp-adjusting member to adjust the inclination of the headlamp beams in the correct direction so that the stable position is reestablished where the mask blocks light from falling on both of the light-sensitive devices.

3,638,070

FLUORESCENT LAMP STARTING AND CONTROL CIRCUIT

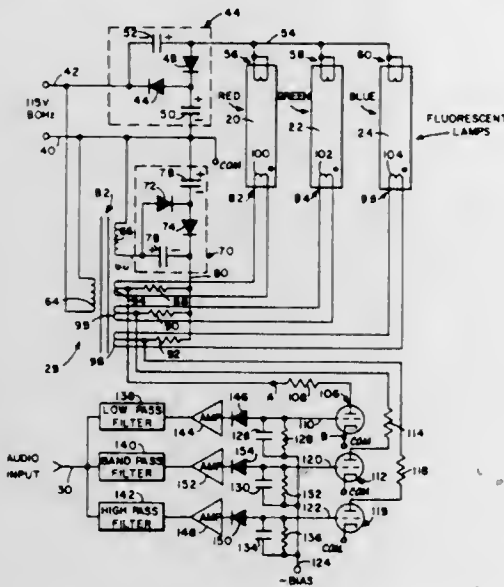
Richard W. Powell, 19147 Kinzie St., Northridge, Calif.

Filed Oct. 17, 1969, Ser. No. 867,239

Int. Cl. H05b 41/392, 41/44

U.S. Cl. 315-163

19 Claims



A fluorescent lamp starting and control circuit and a color display employing same. A pair of power supplies respective-

ly provide a high-positive voltage directly to the anode and a high-negative voltage via a large resistance to the cathode of a fluorescent lamp. Subsequent to starting, lamp current flows through a unidirectional, low-resistance path back to power supply neutral. Control of the fluorescent lamp brightness is accomplished by modulating the current through this low-resistance path. The circuit may be used in a display apparatus employing differently colored fluorescent lamps independently modulated in response to selected frequency range components of an externally supplied audio signal.

3,638,071

SHORTING DEVICE

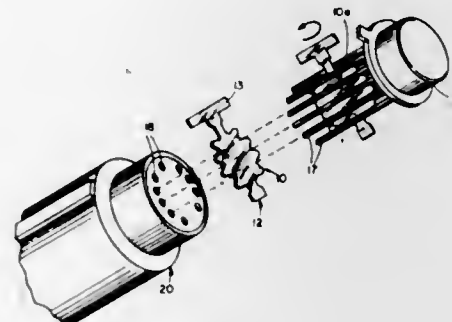
Wilhart Nillo Altonen, Jr., Cupertino, Calif., and Fred Vincent Auer, Phoenix, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Dec. 31, 1970, Ser. No. 103,052

Int. Cl. H05f 3/04

U.S. Cl. 317-2 R

10 Claims



There is disclosed a unitary conducting planar shorting member for use in transporting semiconductor devices such that all the leads from the semiconductor device are provided with an equipotential plane so as to eliminate damage from static electricity. The shorting member is in the form of a circle notched at its periphery, the notches corresponding in position to the position of the leads from the semiconductor device. The notched-circle portion is also provided with a handle portion and a guide portion disposed on an opposite side of the circle from the handle portion.

3,638,072

DETECTING DEVICE FOR ABNORMAL STATE IN ELECTRIC CIRCUIT

Kazuo Kobayashi; Yoshihiko Okuda, and Sadao Kawamoto, all of Kadoma-shi, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

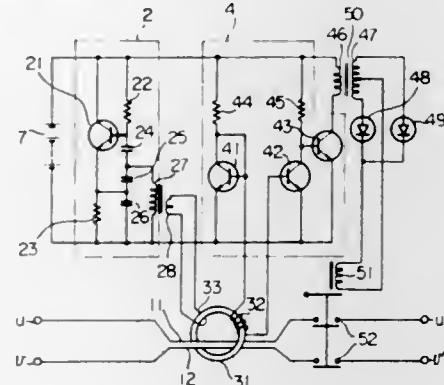
Filed Mar. 5, 1970, Ser. No. 16,854

Claims priority, application Japan, Mar. 19, 1969, 44/21002; Mar. 24, 1969, 44/22206; Mar. 26, 1969, 44/23332

Int. Cl. H02h 3/28

U.S. Cl. 317-27 R

4 Claims



The invention provides a detecting device for abnormal state in electric circuit. The device comprises an input terminal which varies depending on given situation, a high-

frequency oscillating circuit, and an amplifier having saturated input and output characteristics. Input signals from said input terminal are mixed with output signals from said high-frequency oscillating circuit, and thus mixed output is applied to the amplifier, an output from which actuates trip coil of an associated cutoff means for the electric circuit.

3,638,073

SEMICONDUCTOR ASSEMBLY WITH HEAT SINK AND CONNECTOR BODIES

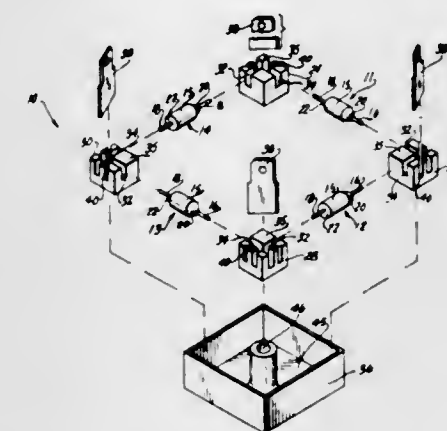
Bernard Bernstein, Brooklyn, N.Y., assignor to General Instrument Corporation, Newark, N.J.

Filed Feb. 19, 1970, Ser. No. 12,728

Int. Cl. H01l 1/16

U.S. Cl. 317-100

16 Claims



A semiconductor assembly comprises a plurality of semiconductor components each having a first and second terminal means operatively connected respectively to first and second parts of the components and extending outwardly therefrom, and a plurality of spaced-apart electrically conductive bodies each having a groove adapted to receive the terminals means of the semiconductor components. The bodies are heat sink blocks and the terminal means on the semiconductor components are flexible wires which are received in the grooves in the blocks, the components thereby being supported between blocks. Excellent heat dissipation results due to the large heat conducting mass provided by the plurality of blocks. The assembly is adapted for use in a number of circuit applications such as a bridge rectifier circuit in which the electrically conductive heat sink blocks receive a plurality of diode terminals at the circuit junctions.

3,638,074

FLUXGATE MAGNETOMETER DRIVE CIRCUIT INCLUDING A SENSOR DEMAGNETIZER

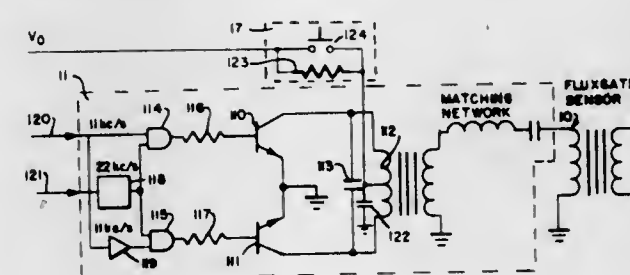
George T. Inouye, Palos Verdes Peninsula, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Continuation-in-part of application Ser. No. 700,396, Feb. 25, 1968, now Patent No. 3,509,424, dated Apr. 28, 1970. This application Apr. 27, 1970, Ser. No. 31,918

Int. Cl. G01r 33/02; H01f 13/00

U.S. Cl. 317-148.5

6 Claims



A drive circuit for a fluxgate magnetometer including a demagnetizing system for the fluxgate sensor. The drive cir-

cuit is arranged to minimize the second harmonic frequency of the drive frequency in the drive signal to reduce interference with the signal output from the magnetometer at the second harmonic frequency. The circuit draws current only half the time to conserve power and consequently reduce the weight of the power source. The drive voltage is derived from a crystal oscillator having a frequency four times that of the desired frequency and which is connected to the drive circuit through a pair of series connected divide-by-two flip-flops to develop a square wave. Demagnetization is achieved by momentarily increasing the current in the fluxgate sensor and then allowing it to decay back exponentially to a lower value.

3,638,075

COMMUNICATION LINE RELAY SYSTEM

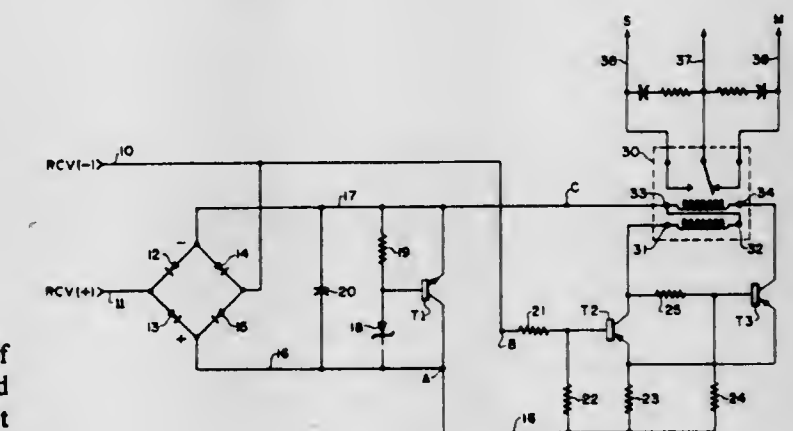
William H. Brown, Mahwah, N.J., assignor to The Western Union Telegraph Company, New York, N.Y.

Filed Nov. 3, 1970, Ser. No. 86,521

Int. Cl. H01h 47/32

U.S. Cl. 317-148.5 R

7 Claims



Disclosed is an improved communication line relay system for operating directly from line power including; an input-polarizing bridge circuit, a voltage-regulating circuit including a transistor and zener diode configured to bleed excess line current and to provide a regulated voltage. The system further includes a regenerative bistable circuit having a trigger input connected with the communication line for sensing the state of the received communication signal and a pair of regeneratively coupled transistors connected with the energizing coils of an output bipolar relay to apply the regulated power to the relay and to provide output states of the relay in accordance with the states of the received communication signal.

3,638,076

METAL-TO-GLASS-TO-CERAMIC SEAL

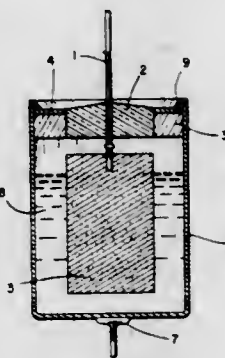
Edwin R. Koons, Whiteland, Ind., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Jan. 15, 1970, Ser. No. 3,158

Int. Cl. H01g 9/10

U.S. Cl. 317-230

11 Claims



A seal comprising a metal member bonded to a glass member, said glass member in turn bonded to a ceramic

member, said glass member and said ceramic member being resistant to corrosive materials in the device being sealed, said metal member, glass member and ceramic member having compatible coefficients of thermal expansion.

3,638,077

ELECTROLYTIC CAPACITORS

Bernard Francois Gustave Chesnot, Paris, France, assignor to Les Condensateurs Snc-Safco, Colombes, France
Continuation-in-part of application Ser. No. 701,075, Jan. 29, 1968, now Patent No. 3,546,119. This application Apr. 2, 1970, Ser. No. 24,994
Int. Cl. H01g 9/02

U.S. Cl. 317-230

4 Claims

The present invention relates to electrolytic capacitors containing an electrolyte which is substantially nonaqueous, in which said electrolyte contains a dissolved chemical compound capable, as a result of the high-operating temperatures of the capacitor, of decomposing while at the same time giving off water and leaving a residue which remains dissolved, both the proportion and the solvent of this compound being so chosen that the dehydration of the latter substantially compensates for the water loss in the capacitor without affecting the electrochemical functioning of the electrolyte at these temperatures.

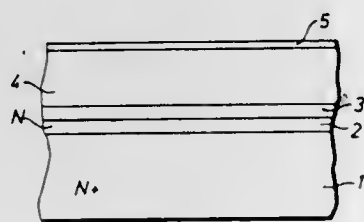
3,638,078

VOLTAGE-RESPONSIVE CAPACITANCE DEVICE AND A METHOD OF PRODUCING SUCH A DEVICE

John Torkel Wallmark, Goteborg, Sweden, assignor to Institutet for Halvledarforskning AB, Vallingby, Sweden
Filed Oct. 16, 1970, Ser. No. 89,819
Claims priority, application Sweden, Nov. 17, 1969, 15739/1969
Int. Cl. H01l 3/00

U.S. Cl. 317-234

9 Claims



A voltage-responsive capacitance device comprises a body of semiconducting material of one conductivity type. On one surface of the semiconductor body an insulating layer is applied. In this layer electric charges can be permanently stored to form a barrier in the semiconductor body. By providing different nonuniform charge distributions in the insulating layer the capacitance-voltage relationship can be modified as desired. It is for instance possible to obtain a linear relationship, so that the capacitance is directly proportional to the voltage.

3,638,079

COMPLEMENTARY SEMICONDUCTOR DEVICES IN MONOLITHIC INTEGRATED CIRCUITS

Tsiu C. Chan, Woburn, Mass., assignor to Sylvania Electric Products Inc.

Filed Jan. 28, 1970, Ser. No. 6,407

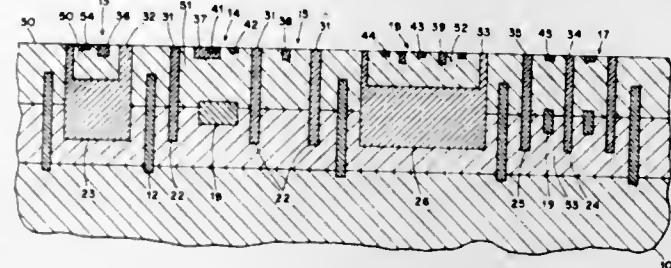
Int. Cl. H01l 19/00

U.S. Cl. 317-235 R

8 Claims

Monolithic integrated circuit structure having an N-type substrate, a first P-type epitaxial layer, and a second N-type epitaxial layer. N-type isolation barriers extend through the P-type epitaxial layer and P-type isolation barriers extend through the N-type epitaxial layer to provide sectors includ-

ing electrically isolated sections of the epitaxial layers. PNP and NPN-bipolar transistors of standard configuration, and



N-channel and P-channel junction field-effect transistors may each be fabricated in different sectors.

3,638,080

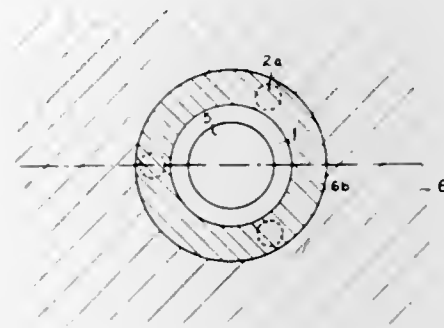
SEMICONDUCTOR ELEMENT FOR SWITCHING PURPOSES

Elmar Muller, Alzey, and Klaus Weimann, Lampertheim, both of Germany, assignors to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland

Continuation-in-part of application Ser. No. 640,729, May 23, 1967, now Patent No. 3,531,697, dated Sept. 29, 1970. This application Feb. 17, 1970, Ser. No. 11,959
Int. Cl. H01l 1/110

U.S. Cl. 317-235 R

1 Claim



A semiconductor device comprises a semiconductor element divided transversely into at least four zones which alternate in conductivity type. A control electrode is applied to a neighboring inner zone where this zone reaches to the outer surface of one of the outer zones through a perforation in the latter and metallizing is applied to this same surface but set back from the control electrode. The same outer zone has other perforations distributed therein and the neighboring inner zone extends as far as the metallizing. The perforations in the region of the vicinity of the control electrode are connected to the metallizing by a ring-shaped metallic layer which serves to short circuit the neighboring inner zone to the outer zone and also, upon a flow of anode current after firing, due to its relatively high resistance establishes a voltage drop sufficient for firing to spread rapidly at least regionally across the region of the outer zone not covered by metallizing.

3,638,081

INTEGRATED CIRCUIT HAVING LIGHTLY DOPED EPITAXIAL COLLECTOR LAYER SURROUNDING BASE AND EMITTER ELEMENTS AND HEAVILY DOPED BURIED COLLECTOR LARGER IN CONTACT WITH THE BASE ELEMENT

Robert H. F. Lloyd, Sunnyvale, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 13, 1968, Ser. No. 752,207

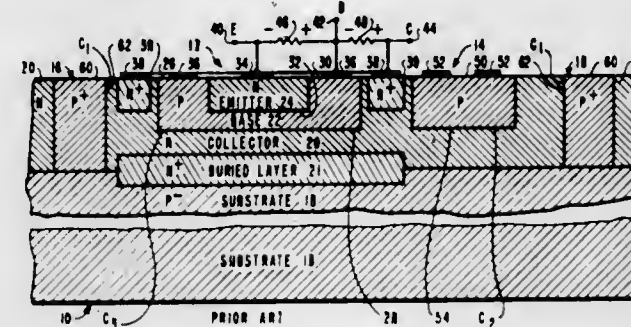
Int. Cl. H01l 19/00

U.S. Cl. 317-235 R

7 Claims

An integrated circuit is provided in which a heavily doped buried layer within the collector of a transistor extends into

contact with the base thereof to form the major portion of the collector-base junction. The buried layer enhances the current gain bandwidth by minimizing the width of the collector-base depletion region and the shift thereof into the



collector for high-current densities. The effects of capacitances at the collector-base junction and at the junctions of resistors and isolating walls adjacent the transistor are minimized by a lightly doped epitaxial layer within the collector of the transistor.

3,638,082

PNPN IMPATT DIODE HAVING UNEQUAL ELECTRIC FIELD MAXIMA

Yoshihiko Mizushima, and Kuniyasu Kawarada, both of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

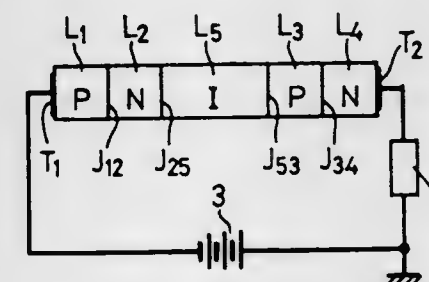
Filed Sept. 19, 1969, Ser. No. 859,260

Claims priority, application Japan, Sept. 21, 1968, 43/68123

Int. Cl. H01l 9/10, 9/12, 1/110

U.S. Cl. 317-235 R

8 Claims



This invention relates to a high-frequency semiconductor device wherein the internal built-in electric field distribution in a semiconductor is made to have two peak values under a DC bias condition and an avalanche multiplication effect in the semiconductor is used to obtain a high-efficiency oscillation in a high-frequency region.

3,638,083

FUSIBLE CERAMIC CAPACITOR

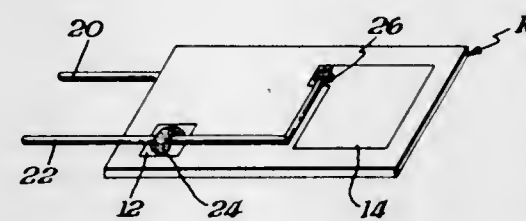
John E. Dornfeld, Mequon, and Sidney B. Williams, Cedarburg, both of Wis., assignors to Sprague Electric Company, North Adams, Mass.

Filed Aug. 14, 1970, Ser. No. 63,808

Int. Cl. H01g 1/11

U.S. Cl. 317-247

11 Claims



A fusible ceramic capacitor formed on a single dielectric substrate, having two capacitively coupled electrodes

disposed on opposing surfaces thereof and further including a resilient lead wire fixedly attached to the ceramic substrate with one end bent into contact with one of the capacitor electrodes and connected thereto by means of a low melting point solder.

3,638,084

ENERGY STORAGE CAPACITOR

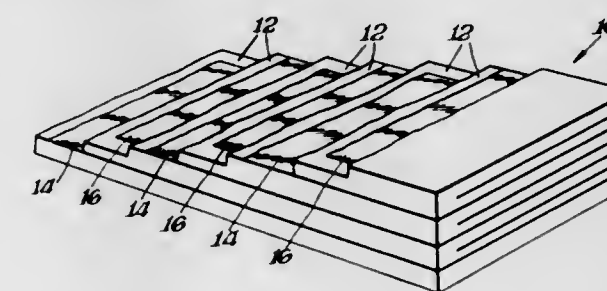
Ian Burn, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed May 14, 1970, Ser. No. 37,082

Int. Cl. H01g 1/01

U.S. Cl. 317-258

5 Claims



The capacitor includes at least one pair of electrodes separated by high-energy storage material consisting essentially of 85-95 percent by volume of an antiferroelectric ceramic and 5-15 percent by volume of nonreactive glass fired into a coherent body.

3,638,085

THIN FILM CAPACITOR AND METHOD OF MAKING SAME

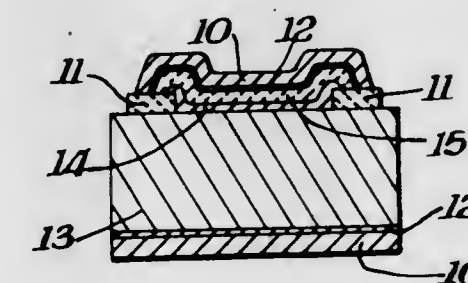
Melvin Tierman, North Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Nov. 13, 1970, Ser. No. 89,206

Int. Cl. H01g 1/02

U.S. Cl. 317-258

14 Claims



A thin film capacitor having a counterelectrode of chromium overlaid by gold that completely buries the dielectric layer and protects same from any atmospheric or environmental contamination.

3,638,086

WOUND FILM CAPACITOR

Charles C. Rayburn, Falls Church, Va., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Mar. 5, 1970, Ser. No. 16,834

Int. Cl. H01g 1/14, 3/17

U.S. Cl. 317-260

6 Claims

Wound film capacitor and method of making wherein at least two layers of shrinkable thermoplastic dielectric are sandwiched between two layers of metallized or, preferably, foil, electrodes. A pair of lead wires are then positioned against the outer surfaces of the foils and rotated together in the manner of mandrels to wind the film and foil layers into a capacitor body. Flat, or otherwise deformed portions formed

on a short portion of one end of each lead wire which is outside of the capacitor during winding are then drawn into the center of the capacitor by pulling on the other end of the wires. The capacitor body is then heated to shrink the dielectric and thereby cause the leads to be held in extremely firm engagement with the foil layers. Since the foils encircle at



least 270° of the periphery of the lead wires, a very firm, low resistance, pressure bond is made which renders the capacitor able to withstand substantial amounts of heat applied during a soldering operation. The elimination of mandrel holes allows the capacitor to be extremely compact and usable for many applications without the addition of additional thicknesses of sealing materials.

3,638,087

GATED POWER SUPPLY FOR SONIC CLEANERS

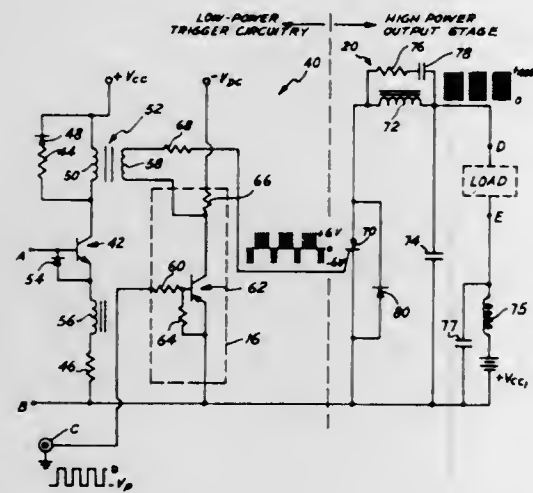
Henry Kevin Ratcliff, Davenport, Iowa, assignor to The Bendix Corporation

Filed Aug. 17, 1970, Ser. No. 64,545

Int. Cl. H01v 9/00

U.S. Cl. 318-118

3 Claims



A gated sonic power supply which permits selection of an optimum duty cycle and pulse repetition rate at which sonic energy must be pulsed to produce the most efficient degassing of tap water and/or uniform cavitation of a cleaning fluid. A pulse generator is used to trigger a gate within the sonic generator. The width of the pulse from the pulse generator determines the length of time that the sonic generator output signal is interrupted to give a pulse-modulated power output. The pulse width from the generator is variable to allow for the selection of a modulation width or duty cycle that gives a maximum efficiency of operation. Also, the frequency of the pulse from the pulse generator may be varied to select the optimum pulse repetition rate.

3,638,088 A DEVICE FOR GENERATING A VARIABLE LOW-FREQUENCY AC CURRENT USING PULSE SAMPLING TECHNIQUES

Ragnar Georg Jonsson, Kallhall, Sweden, assignor to U.S. Philips Corporation, New York, N.Y.

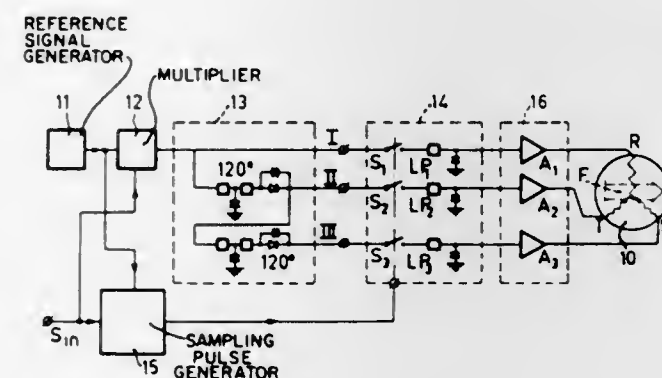
Filed Sept. 13, 1968, Ser. No. 759,686

Claims priority, application Sweden, Sept. 13, 1967, 12652/67

Int. Cl. H02p 5/00

U.S. Cl. 318-227

12 Claims



A motor speed control system that features a low-frequency generator for producing a variable frequency output voltage that varies as a function of a control signal. Motor speed is adjusted by varying the frequency of the stator voltage. The low-frequency generator supplies the adjustable stator voltage by sampling an AC reference signal of a frequency that is higher than the desired stator voltage frequency. The sampling pulses are synchronized with the reference signal and the amplitude of the reference signal is variable as a function of the control signal, i.e., the output frequency.

3,638,089

SPEED CONTROL SYSTEM HAVING HIGH AND LOW LEVEL SPEED MEANS

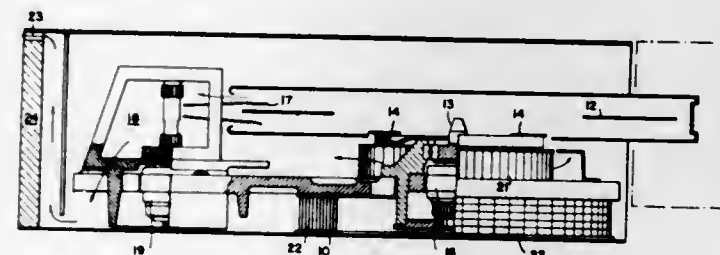
Andrew Gabor, Danville, Calif., assignor to Diablo Systems, Inc., Hayward, Calif.

Filed July 9, 1970, Ser. No. 53,532

Int. Cl. H02p 5/00; G11b 5/82

U.S. Cl. 318-318

13 Claims



A speed control system for a magnetic disk drive where a DC drive motor is integrally mounted on the spindle of the disk drive along with a blower fan. A feedback control loop compares the index marks from the disk unit in conjunction with a counter unit driven by an oscillator to provide a reference level to drive the drive motor between a high-level speed, above its normal speed, and a low-level speed, below its normal speed. During the start up period the motor is maintained at the high-level speed for faster cleaning action and the heads are also landed at this speed after cleaning has occurred. An open loop system also provides high-level and normal speeds.

3,638,090

DRIVING ARRANGEMENT FOR THE DRUM OF A WASHING MACHINE

Willem Ebbinge, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

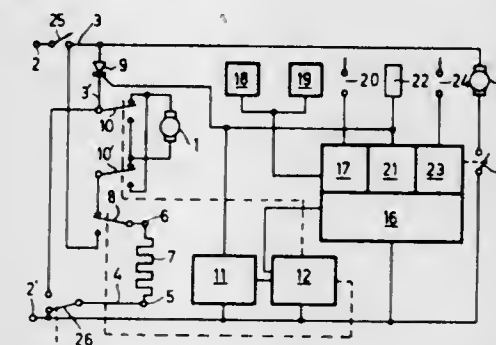
Filed May 27, 1969, Ser. No. 828,128

Claims priority, application Netherlands, May 30, 1968, 6807615

Int. Cl. H02p 5/16

U.S. Cl. 318-345

8 Claims



1. In an automatic washing machine including a commutating electric motor for driving the drum of the washing machine at a first comparatively low-washing speed and at a second comparatively high-spin-drying speed, the improvement comprising an automatic speed adjusting circuit for said motor comprising, a pair of input terminals adapted for connection to an AC voltage supply source, a supply circuit for the motor connected to the input terminals and provided with at least two further terminals, an electric heating element arranged to heat the wash water and connected across said two further terminals, a controlled rectifier connected in the supply circuit so as to regulate the motor speed at a given washing speed, and means connecting said two further terminals in the motor supply circuit so that the motor is at least substantially energized through at least a part of the heating element whereby it exhibits a speed characteristic which decreases very sharply with increasing load.

3,638,091

ELECTRIC POWER CONTROLLING APPARATUS

Tomoyuki Hosokawa, Takarazuka-shi; Chuzo Wada, Osaka, and Hiroshi Horii, Takatsuki-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

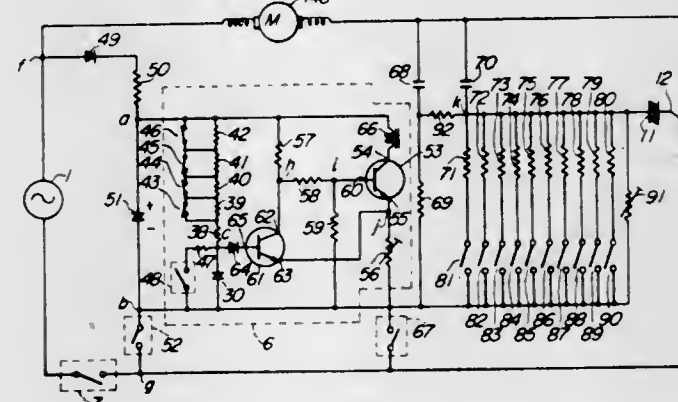
Filed Nov. 24, 1969, Ser. No. 879,188

Claims priority, application Japan, Nov. 25, 1968, 43/85605

Int. Cl. H02p 5/16

U.S. Cl. 318-484

6 Claims



An electric power controlling apparatus, wherein the time for which electric power is supplied to a load is determined in accordance with a change of the charging or discharging time of a capacitor, the amount of power to be supplied to said load is determined in accordance with a change of the trigger phase of a thyristor, and said changes are achieved by selecting variable elements by the use of pushbutton switches.

3,638,092

ALTITUDE PRESELECT AND CAPTURE SYSTEM

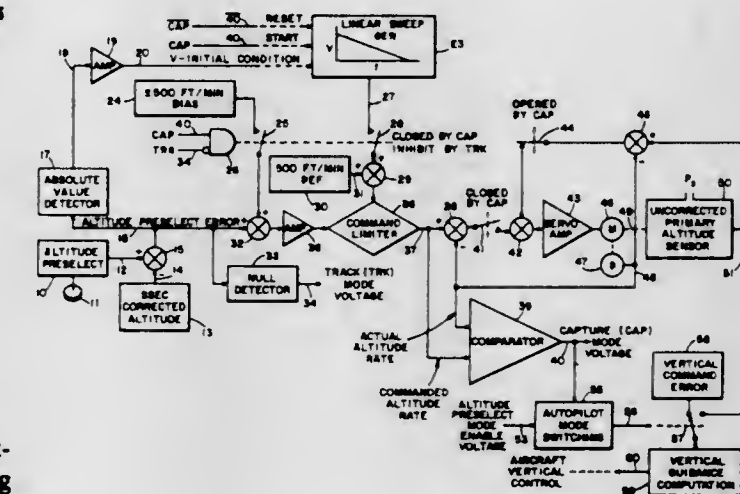
Leo P. Kammerer, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed Dec. 14, 1970, Ser. No. 97,742

Int. Cl. G05b 7/00

U.S. Cl. 318-584

12 Claims



An altitude control system operating on a rate command principle employs an uncorrected primary altitude sensor in a servo loop which, in the absence of command operation, synchronizes the positioning of the sensor zero adjust mechanism with the experienced aircraft altitude rate. Rate command modes establish rate command inputs to the sensor servo loop while removing the synchronizing mode position feedback and initiate aircraft vertical control in response to sensor output signal. A corrected sensor may be employed to formulate altitude capture rate command inputs such that the system enjoys the reference accuracy of the corrected sensor and the rate sensitivity of the uncorrected sensor.

3,638,093

MAGNETIC SUSPENSION AND PROPULSION SYSTEM

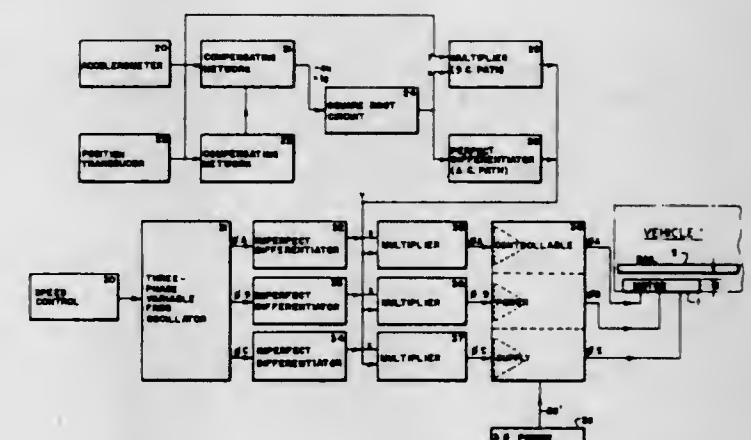
James A. Ross, La Jolla, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Apr. 19, 1971, Ser. No. 131,041

Int. Cl. H02k 41/04

U.S. Cl. 318-687

34 Claims



A method and apparatus for supporting and translating a mass by magnetic attractive means. A ferromagnetic track may have repetitive magnetic discontinuities. A linear plural-phase ferromagnetic electric motor, which may be synchronous, supports the mass at a small gap below the track at zero frequency current variation through the motor. The same motor translates the mass along the track at a speed determined by the frequency of the plural-phase alternating current supplied to the motor. A nonlinear feedback

circuit having plural sensor elements controls the magnitude of the alternating current supplied to the motor. This maintains the gap substantially constant despite varying loads and gradually corrects for unevenness of the track. The feedback circuit provides uniform stability and uniform dynamic response regardless of the length of the gap.

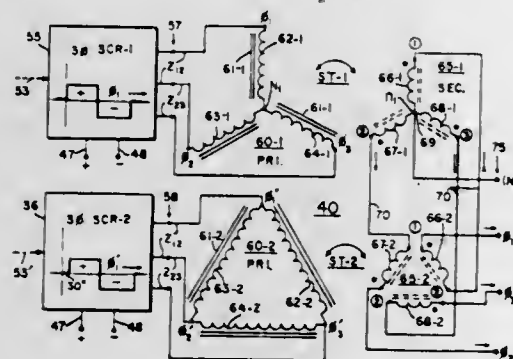
3,638,094

POLYPHASE POWER INVERTER SYSTEM

Dan L. Ve Nard, II, Bonners Ferry, Idaho, assignor to Gates Learjet Corporation, Wichita, Kans.
Continuation of application Ser. No. 630,061, Nov. 4, 1969, now Patent No. 3,477,010. This application Oct. 21, 1969, Ser. No. 868,190

Int. Cl. H02m 1/12, 7/52

U.S. Cl. 321-5



Polyphase inverter system utilizing power silicon-controlled rectifiers. A plurality of polyphase square wave generators or channels are interconnected, each generator in a relative predetermined time phase displacement. Their respective outputs are herein arranged to directly provide multisteped waveforms, filtered to become the system polyphase power output. Each such waveform is composed of a significant number of steps whereby substantially reduced filtering is required. The generator channels are coupled in pairs, to respective delta and wye transformer arrangements, with their corresponding secondary windings in series-add summation, on a phase by phase basis. Reduced weight, bulk, and cost factors are significant, particularly for the summation transformers. Applicable for generating precise output frequency supply as 400-cycle polyphase aircraft installations, and for 60-cycle uninterrupted power ground stations.

3,638,095

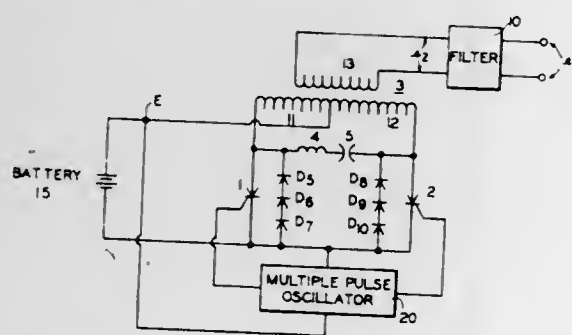
STANDBY POWER CIRCUIT UTILIZING MULTIPLE PULSE MODULATION FOR CONVERTING DC TO AC ELECTRIC POWER

Stuart P. Jackson, 1723 Grace Lane, Columbus, Ohio
Filed July 14, 1969, Ser. No. 841,365

Int. Cl. H02m 1/12, 7/52

U.S. Cl. 321-9 A

4 Claims



A standby power circuit of the input voltage to the converter converting direct current electric power into alternating current electric power. Specifically, the circuit utilizes a

converter utilizing multiple pulse modulation of the source voltage to equal the amplitude to provide a means of varying the output fundamental voltage and reducing the higher order harmonics.

3,638,096

CONSTANT FREQUENCY DC TO DC CONVERTER WITH OSCILLATION SUSTAINING VOLTAGE REGULATION FEEDBACK LOOP

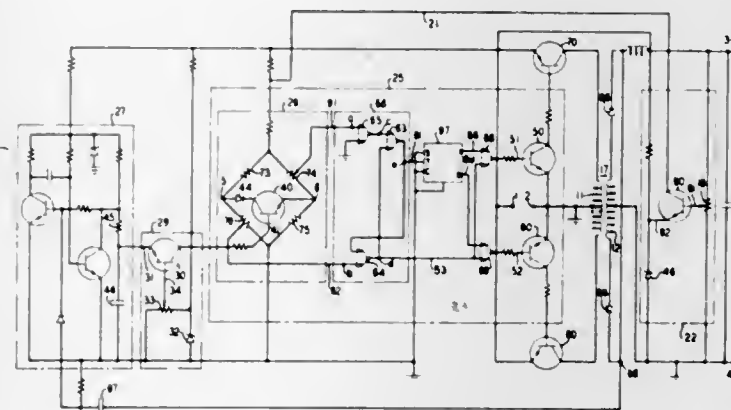
Frank Fuller Judd, Madison; Jan Mark Lieberman, Lake Hiawatha, and Helmut Wilhart, Whippany, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Dec. 21, 1970, Ser. No. 100,151

Int. Cl. H02m 1/08

U.S. Cl. 321-19

5 Claims



A self-oscillating DC to DC power converter establishes oscillations in the inverter through the voltage regulating feedback circuit. Its frequency of oscillation is regulated by a frequency regulation feedback circuit which controls the hysteresis response of the voltage regulating feedback circuit.

3,638,097

ELECTRICAL INVERTER ARRANGEMENTS

Neil S. Hardie, London, England, assignor to The Plessey Company Limited, Ilford, Essex, England

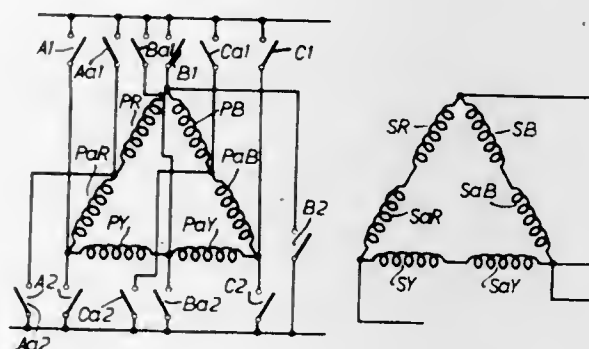
Filed June 15, 1970, Ser. No. 46,207

Claims priority, application Great Britain, June 27, 1969, 32,497/69

Int. Cl. H02m 7/48

U.S. Cl. 321-27

7 Claims



An electrical inverter arrangement comprises a polyphase transformer having a delta-connected primary winding and a delta-connected secondary winding. Positive and negative DC supply lines are provided, and the three junction points of the primary windings are connected to both supply lines through respective electronically controllable switch means. Depending on which switch means are closed, each primary winding can either have 0 volts across it, the full supply volts across it, or half of the full supply volts across it. Each stage of a multistage shift register is connected to control the setting of a respective one of the switch means, and the shift register stages are SET in such order that the resultant

operating sequence of the switches causes a substantially sinusoidal variation of voltage across each primary winding, and thus across each secondary winding.

3,638,098

INVERTER FOR GENERATING SINGLE OR MULTIPHASE CURRENT

Walter B. Guggl, Niederglatt, Switzerland, assignor to Regus AG, Regensdorf, Switzerland

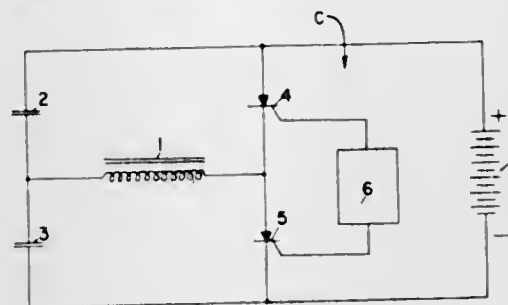
Filed Apr. 14, 1969, Ser. No. 815,598

Claims priority, application Switzerland, Apr. 19, 1968, 5852/68

Int. Cl. H02m 7/52

U.S. Cl. 321-43

19 Claims



An inverter for generating single or multiphase current, comprising series networks equal to the number of phases, such networks being connected to a DC source or sources. Each said series network includes two capacitors in series connection with the common junction between the two capacitors as one load terminal which is connectable to its respective phase load. At least one electronic commutator is provided for each series network, said commutator being connected to a respective second load terminal and being switched alternately between the ends of terminals of the series network. Means are provided for triggering the commutator in sequence with and at the proper phase of the frequency of the alternating current to be generated. The inverter provides a power source for inductive current consuming appliances, particularly induction motors.

3,638,099

SELF-EXCITED INVERTER EMPLOYING COMMUTATION TIME TRANSFORMERS

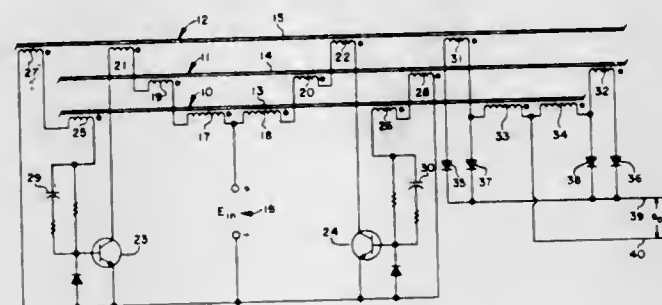
John P. Centala, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed Mar. 29, 1971, Ser. No. 128,749

Int. Cl. H02m 7/48

U.S. Cl. 321-45 R

7 Claims



A self-excited saturating transformer inverter is provided with a pair of auxiliary commutating time transformers the windings of which are connected with those of the power transformer and with commutating diode members in circuit with the power transformer output winding in a manner that, during successive half-cycles of operation, alternate ones of the auxiliary transformers "takeover" to provide a continuing load for the driving power. High-current spike generation upon power transformer saturation is thus obviated.

3,638,100

CIRCUIT TO PREVENT A TRANSFORMER FROM PRESENTING A LOW IMPEDANCE UPON CORE SATURATION

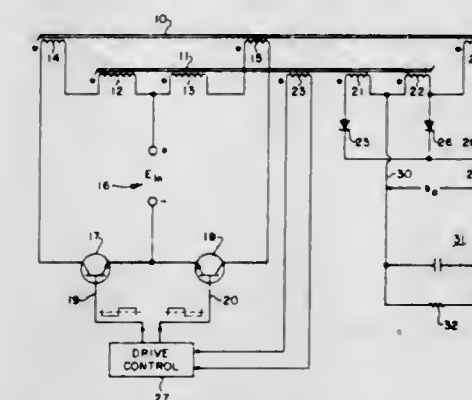
John P. Centala, and Royce W. Lane, both of Cedar Rapids, Iowa

Filed Mar. 29, 1971, Ser. No. 128,747

Int. Cl. H02m 7/48

U.S. Cl. 321-45 R

5 Claims



An externally driven saturating transformer inverter is provided with an auxiliary commutating transformer whose windings are connected with those of a power transformer and diode members such that upon saturation of the power transformer core, a high-reflected load impedance is presented. High-current spike generation is obviated while the regulation advantages of pulse width modulation is retained.

3,638,101

CURRENT OR VOLTAGE-TO-FREQUENCY CONVERTER USING NEGATIVE FEEDBACK

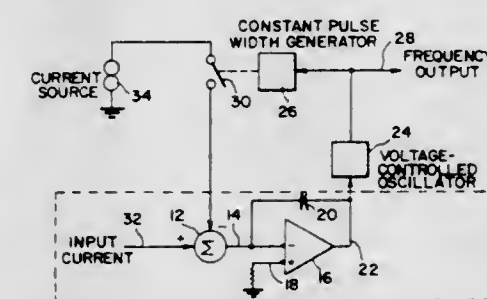
Eric R. Fahnoe, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed June 24, 1970, Ser. No. 49,305

Int. Cl. H02m 5/00

U.S. Cl. 321-60

11 Claims



A current or voltage-to-frequency converter is provided for converting a DC current or voltage to a proportionate frequency of electrical pulses of predetermined width. The converter includes an integrator coupled to control the frequency of a voltage-controlled oscillator, and negative feedback is provided to the input of the integrator during the occurrence of pulses from the oscillator to provide high linearity and stability.

3,638,102

OVERLOAD PROTECTION CIRCUIT

Horst Pelka, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Continuation of application Ser. No. 679,437, Oct. 31, 1967, now abandoned. This application Aug. 26, 1970, Ser. No. 67,240

Claims priority, application Germany, Nov. 4, 1966, S 106853

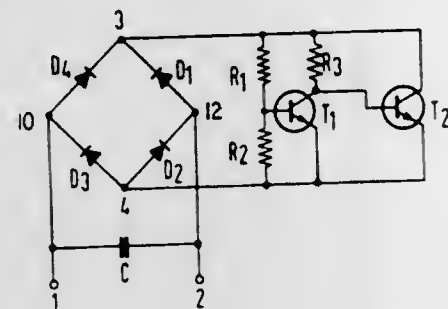
Int. Cl. G05f 1/44

U.S. Cl. 323-9

8 Claims

An overload protection circuit employing a transistor circuit responsive to bipolar direct current signals to prevent

damage to overloaded electrical circuits. The transistor circuit is responsive to instantaneous current amplitudes in the associated electrical circuit to be protected greater than a



predetermined value, to limit the current to a safe value, to thereby prevent damage to various components, such as transistors, of the associated electrical circuit.

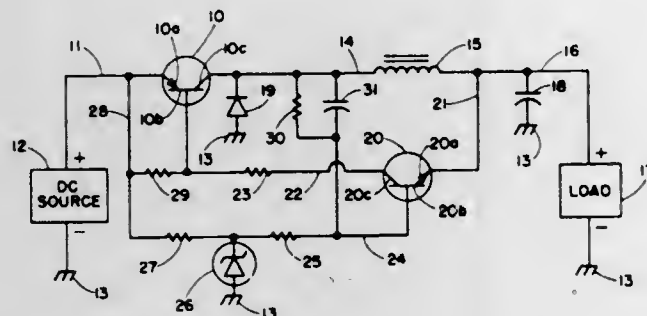
3,638,103

SWITCHING REGULATOR

Arthur G. Birchenough, Brookpark, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Nov. 3, 1970, Ser. No. 86,548
Int. Cl. G05f 1/56

U.S. Cl. 323-22 T

11 Claims



A switch connected between an unregulated DC power source and a load is controlled by a variable conductance device which compares the load voltage to a reference voltage. If the load voltage tends to increase above a predetermined value the variable conductance device tends to reduce the conduction of the switch. A hysteresis network provides feedback to the variable conductance device to produce a cumulative action so that the switch will turn off rapidly when the variable conductance device tends to reduce the conduction of the switch, and similarly, will turn on rapidly when the variable conductance device increases the conduction of the switch.

3,638,104

METHODS AND APPARATUS FOR EXAMINATION AND MEASUREMENT BY MEANS OF NUCLEAR MAGNETIC RESONANCE PHENOMENA

Reginald Graham Wright, Newport Pagnell, England, assignor to Newport Instruments Limited, Newport, Pagnell, England

Filed June 2, 1969, Ser. No. 829,679

Claims priority, application Great Britain, June 7, 1968, 27,200/68

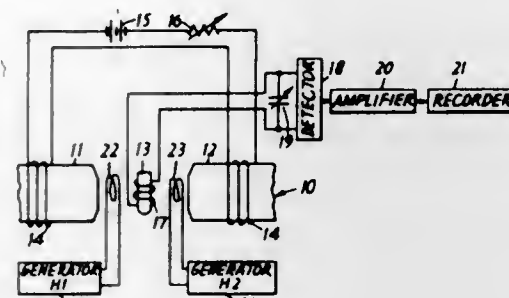
Int. Cl. G01n 27/78

U.S. Cl. 324-0.5

13 Claims

In nuclear magnetic resonance apparatus a sample under test is subjected to a first unidirectional magnetic field and to a second alternating magnetic field perpendicular to said first magnetic field, and the field strength of said first magnetic

field and/or the alternation frequency of said second magnetic field is modulated in such manner that the sum of two



3,638,105

METHODS AND APPARATUS FOR INVESTIGATING THE SPONTANEOUS POTENTIAL OF EARTH FORMATIONS

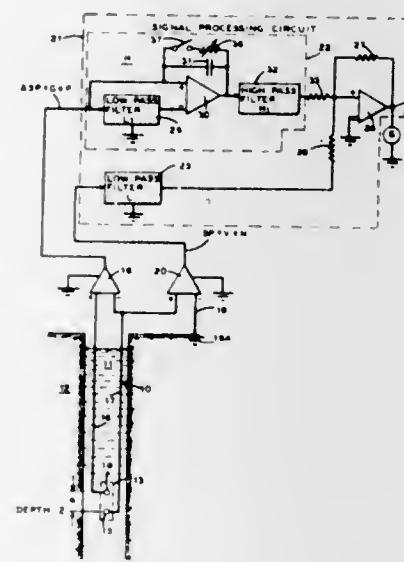
Nick A. Schuster, Darien, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 3, 1969, Ser. No. 881,793

Int. Cl. G01v 3/18

U.S. Cl. 324-1

32 Claims



In accordance with illustrative embodiments of the present invention, a technique is disclosed for substantially eliminating noise from measurements of the spontaneous potential made in a borehole drilled into the earth. An exploring system in the borehole carries two electrodes and the potential is measured between one of these electrodes and an electrode remotely located therefrom to provide a first measurement. The potential between the two exploring device electrodes is measured to provide a second measurement. A low-frequency function of the first measurement and a high-frequency function of the second measurement are utilized to provide a substantially error-free spontaneous potential measurement. The two electrodes carried through the borehole can comprise the armor of a cable which supports a well tool in the borehole and an electrode mounted on the well tool. Alternatively, these two electrodes can take the form of two closely spaced electrodes on the well tool so as to give a differential or gradient-type measurement. This gradient measurement could also be obtained by measuring the naturally occurring current flow in the borehole.

3,638,106

METHOD AND APPARATUS FOR INVESTIGATING THE SPONTANEOUS POTENTIAL OF EARTH FORMATIONS

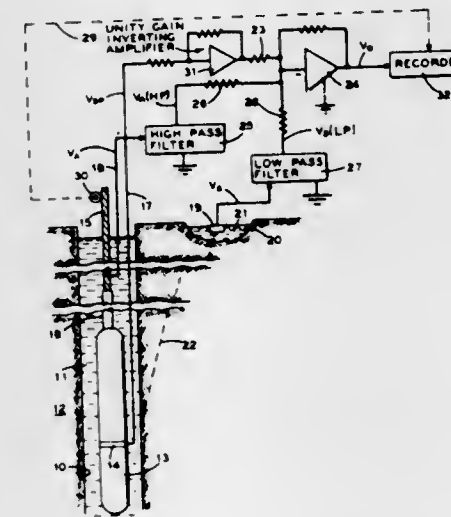
Milton E. Cram, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Dec. 3, 1969, Ser. No. 881,794

Int. Cl. G01v 3/18

U.S. Cl. 324-1

12 Claims



In accordance with illustrative embodiments of the present invention, methods and apparatus are disclosed for obtaining a relatively noiseless measure of the spontaneous potential of earth formations surrounding a borehole. More particularly, the naturally occurring potentials on an electrode carried by a well tool on the end of a cable, on an electrode located at the surface of the earth, and on the armor of the supporting cable are measured. The potential measured on the well tool electrode is referenced to the potential measured on the armor at high frequencies and to the potential measured on the surface located electrode at low frequencies to provide an output signal which is representative of the formation spontaneous potential.

3,638,107

SYSTEM FOR DISPLAYING THE CHARACTERISTICS OF IGNITION SIGNALS IN AN INTERNAL COMBUSTION ENGINE

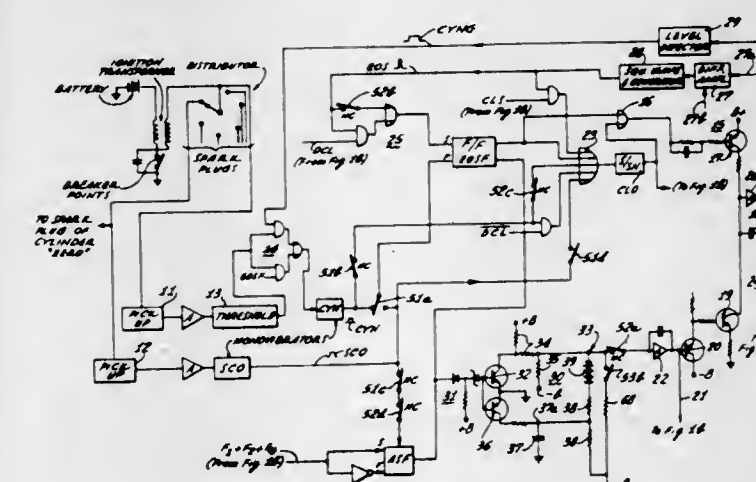
Edmond R. Pelta, Pacific Palisades, and Kenneth Stewart Gold, Canoga Park, both of Calif., assignors to Autocan, Inc., Culver City, Calif.

Original application June 10, 1966, Ser. No. 556,710, now Patent No. 3,603,879, dated Sept. 7, 1971. Divided and this application May 15, 1970, Ser. No. 37,604

Int. Cl. G01m 15/00

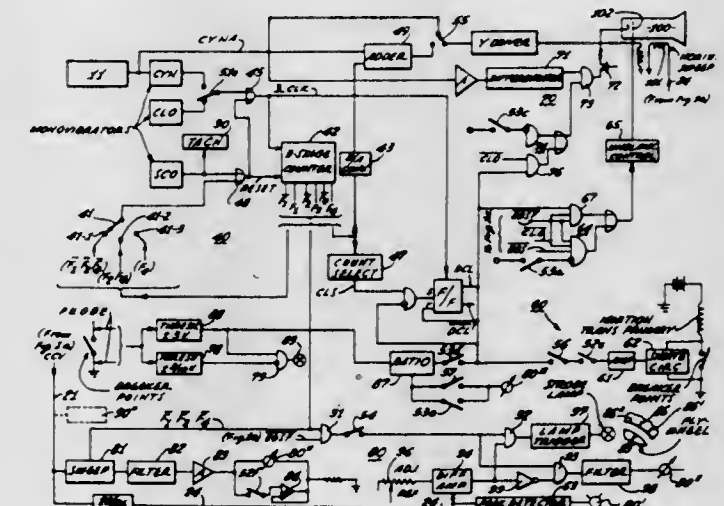
U.S. Cl. 324-15

41 Claims



A system is provided for displaying ignition signals of an internal combustion engine. In one mode, sweep signals are

produced in synchronism with the particular recurring characteristics of the ignition signals for the different signals in an internal combustion engine. In a second mode, sweep signals are produced in synchronism with the particular recurring characteristics of such ignition signals until the oc-



3,638,108

METHOD OF TESTING AN AUTOMOBILE BATTERY AND ELECTRICAL SYSTEM WHILE IN CIRCUIT, USING A BOOSTER BATTERY

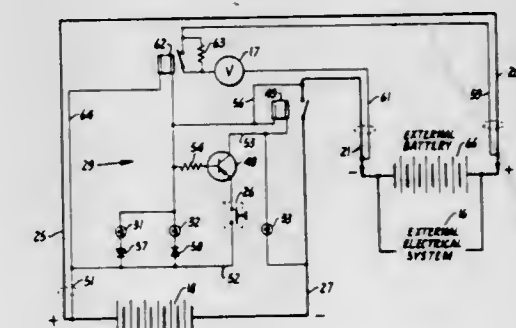
Harry M. Channing, Reading, Pa., assignor to General Battery and Ceramic Corp., Reading, Pa.

Continuation-in-part of application Ser. No. 578,727, Sept. 12, 1966, now abandoned. This application Apr. 28, 1969, Ser. No. 819,650

Int. Cl. G01m 27/42

U.S. Cl. 324-29.5

5 Claims



A combination booster and automobile electrical system tester, including a booster battery, polarity protector, voltmeter, remote control switch, operational indicator lights and interconnecting cables all mounted on a handtruck-type cart with a detachable handle, for making comparison tests of the voltages present in an automobile electrical system with and without the starter cranking and with and without the booster battery connected.

3,638,109

DEVICE FOR THE DETERMINATION OF THE PH VALUE OF A BLOOD TEST SAMPLE

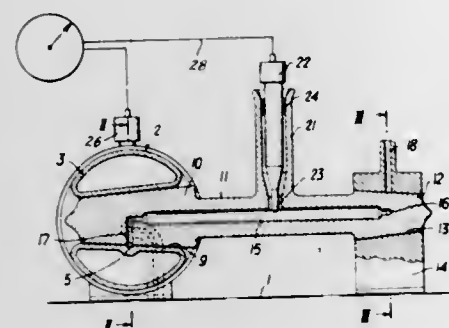
Karl Harnoncourt, Graz, Austria, assignor to Hans List, Graz, Austria

Filed Apr. 22, 1969, Ser. No. 818,287

Claims priority, application Austria, Apr. 30, 1968, A 4208/68

Int. Cl. G01n 27/42

U.S. Cl. 324—30 R



A measuring instrument for the determination of the pH value of a blood test sample including a three-way valve wherein its switch body comprises an electrolyte chamber into which the measurement-sensitive extremity of a reference electrode protrudes, the chamber having an inlet and an outlet in which the outlet is closed in a first end position of the switch body, each inlet and outlet communicating with a corresponding inlet and outlet port for the electrolyte in an intermediate position whereas, in a second end position of the switch body the inlet is closed and the outlet communicates with an aperture provided on the side of a measuring capillary.

3,638,110

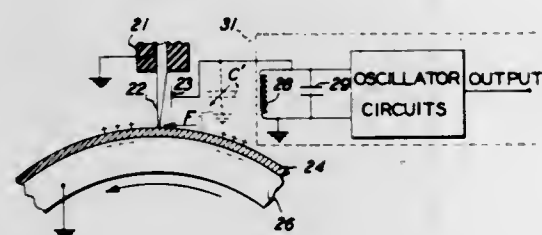
DEVICE FOR MEASURING CHARGE ON A MATERIAL BY CONVERTING INTO ELECTRICAL SIGNALS THE FRICTIONAL FORCES CAUSED BY THE CHARGE

Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Feb. 26, 1969, Ser. No. 802,370

Int. Cl. G01r 29/12, 5/28

U.S. Cl. 324—32



A transducer applying the Johnson-Rahbek effect wherein the frictional force between two electrodes separated by electrostatically chargeable material is augmented by an increase in potential applied to the electrodes. The transducer measures or reads out the potential or charge patterns on the electrostatically chargeable material which may be a semiconductor, dielectric or other charge carrying surface and converts the force variations into electrical signals.

APPARATUS FOR MEASURING ION OR ELECTRON BEAM WIDTH BY MONITORING SECONDARY EMISSION FROM A MOVING PROBE

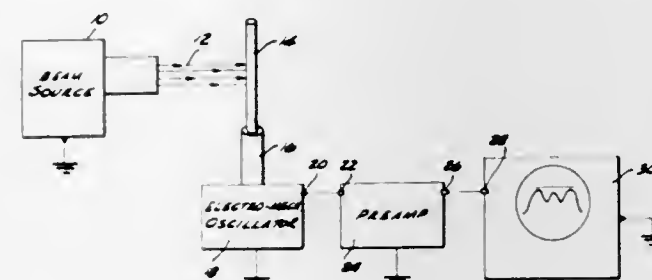
Robert M. Ennis, Jr., Oakridge, Tenn., and Robert G. Wilson, Canoga Park, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 29, 1970, Ser. No. 33,017

Int. Cl. G01n 27/00

2 Claims U.S. Cl. 324—71 EB

13 Claims



A device for measuring and displaying selected characteristics (i.e., the intensity profile distribution, the shape and the width) of molecular and/or submolecular particle beams, such as ion or electron beams, in which the beam width may be of the order of 5 microns or less, is disclosed. The device comprises a thin wire (at least 10 mils in diameter) having a very narrow zone such as a thin groove (less than 5 microns wide) along a portion of its length. When there is relative movement between the beam and the wire so that the grooved portion of the wire is passed transversely through the beam, a secondary charged particle emission current dependent upon the beam intensity and angle of incidence with the wire surface is generated and displayed on an oscilloscope as a beam intensity profile. The width of the beam is a function of the width of that portion of the profile resulting from movement of the groove across the beam.

3,638,112

VLF AND ELF SPECTROMETER

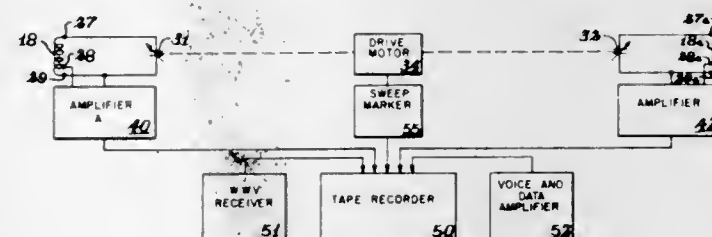
James A. Lasater, and David D. Woodbridge, both of Dallas, Tex., assignors to International Space Corporation

Filed July 26, 1963, Ser. No. 297,803

Int. Cl. G01r 23/18; H01q 7/08

U.S. Cl. 324—77

9 Claims



Apparatus for detecting and recording an electromagnetic radiation spectrum in the VLF and ELF range including a ferromagnetic cored antenna in a variably tuned circuit, a drive motor for sweeping the tuning and actuating a sweep marker, a time reference, and a voice and data amplifier. The output signals of these devices are fed into a multichannel recorder. A plurality of such variably tuned circuits may be used.

3,638,113

ELECTRONIC FREQUENCY-TUNING MECHANISM

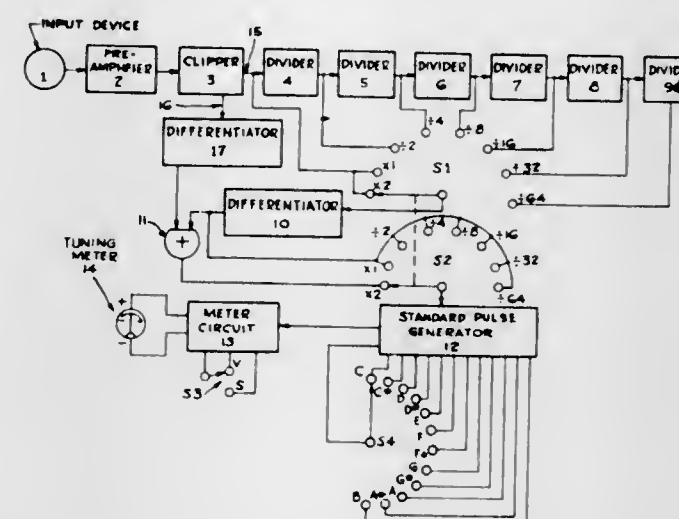
Robert M. Glorioso, 19 Mass Lane, Amherst, Mass., and H. Craig Brooks, 83 Sagamore Ave., Oceanport, N.J.

Filed Mar. 4, 1970, Ser. No. 16,089

Int. Cl. G01r 23/02

U.S. Cl. 324—78 E

4 Claims



This invention is concerned with an electronic mechanism for tuning musical instruments and other frequency-generating devices, by means of a meter eliminating the necessity of a trained human ear. The mechanism provides means for feeding the input signal to a preamplifier; feeding the amplified signal to a clipper; feeding the output of the clipper to both a divider and to a differentiator; thence, to a selector switch which may be used to divide or multiply the frequency of the signal by powers of two. The signal is then fed to a standard pulse generator and from there to a meter circuit which may be of the D'Arsonval-type. The readings on the meter will indicate to the operator to what extent the frequency of the musical instrument is tuned since the mechanism is already calibrated in accordance with the position of the selector switch to a specific frequency.

3,638,114

SPLIT RANGE TRANSDUCER

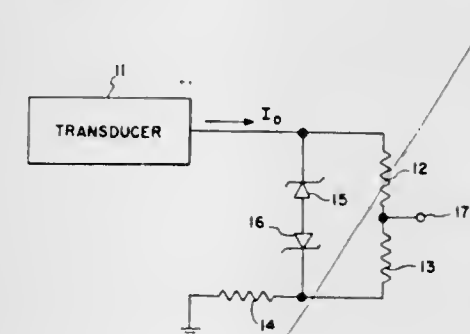
Tom D. Finley, Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 31, 1969, Ser. No. 889,375

Int. Cl. G01r 15/08, 15/10

U.S. Cl. 324—115

2 Claims



A nonlinear circuit connected to the output of a current-producing transducer to form a split range transducer. In the range where most of the data to be measured is expected, the resolution is high and in the other range the resolution is lower.

3,638,115

RATE PARAMETER INDICATOR HAVING METER MOVEMENT SMOOTHING AT LOW RATES

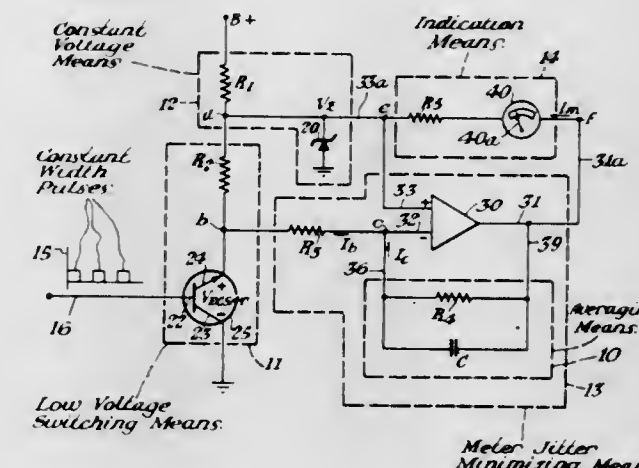
Reed H. Grundy, Murrysville, Pa., assignor to Westinghouse Air Brake Company, Swinsvale, Pa.

Filed Nov. 25, 1969, Ser. No. 879,716

Int. Cl. G01r 1/14

U.S. Cl. 324—125

7 Claims



This disclosure relates to a rate parameter indicator which uniquely allows extremely accurate measuring and indicating of a rate parameter at low rates due to provision of a smooth linear signal to an indication meter circuit. The system incorporates a low-voltage drift switching circuit which is coupled to a constant reference voltage source and receptive to constant-width pulses, the frequency of which is proportional to a rate parameter. A meter jitter minimizing circuit is electrically coupled to the low-voltage drift switching circuitry, as well as the constant voltage source, and includes an averaging circuit which allows the meter jitter minimizing means to provide the aforementioned smooth linear signal to the indication meter circuit in a unique manner.

3,638,116

WATT-HOUR METERS WITH PHASING PLATE PHASED AFTER METER COMPLETION

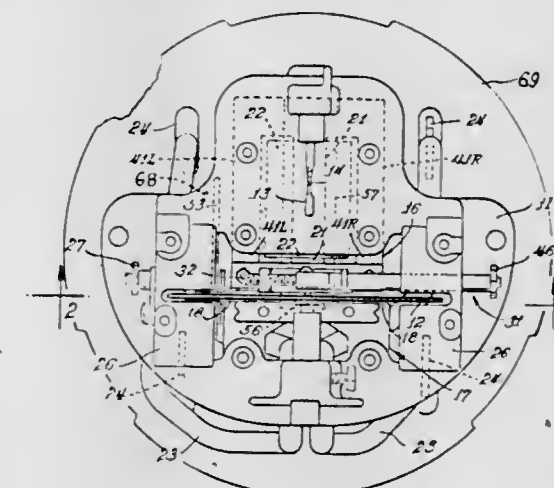
Hugo J. A. Hess, Steinhausen, Switzerland; James W. Milligan, and Harvey L. Friend, both of Lafayette, Ind., assignors to Duncan Electric Company, Inc., Lafayette, Ind.

Filed Sept. 26, 1969, Ser. No. 870,658

Int. Cl. G01r 11/02, 35/04

U.S. Cl. 324—138

5 Claims



The phasing of electricity meters (watt-hour meters) i.e., producing the proper phase relationship between its two interacting alternating magnetic fields, is performed by a punching operation after the meter is fully assembled. A lag

plate in the form of a conductive loop which surrounds the central pole of the voltage magnet is provided with a tail into the base of which extends a slot opening from the opening of the loop. The slot can be extended outwardly from the loop by successive nibbles of a punch to increase the length of the current path around the loop. This increases the resistance and decreases the current and the lag effect. This slotted tail is now so positioned (and bent upwardly) as to be accessible from the top of the fully assembled meter, using a slim punching tool inserted downwardly through a narrow passage between the parts. The fully assembled meter is tested and the slot is then lengthened by an amount calculated from the test results, a second test and second calculated lengthening being expectable to achieve desired accuracy. The entire testing, inserting and lengthening operation can be computer-controlled.

3,638,117

MINIATURE DRUM INDICATOR

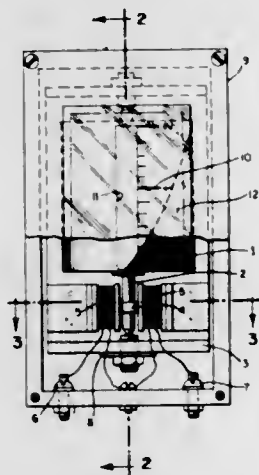
Hobart H. Fleetman, Perkaskie, Pa., assignor to Electro-Mechanical Instrument Co., Inc., Perkaskie, Pa.

Filed Mar. 14, 1969, Ser. No. 807,267

Int. Cl. G01r 1/20, 1/16

U.S. Cl. 324-146

3 Claims



In an electrical meter, the indicator includes a drum driven by a moving-magnet-type meter movement. A helical pattern on the drum moves relative to a flat scale to represent the value of an applied electrical signal.

3,638,118

DRUM INDICATOR

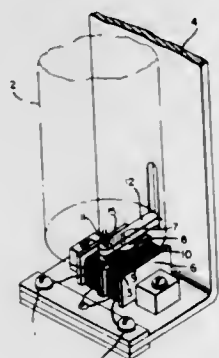
Elbert Kennedy Mackenzie, North Wales, Pa., assignor to Electro-Mechanical Instrument Co., Inc., Perkaskie, Pa.

Filed Mar. 14, 1969, Ser. No. 807,268

Int. Cl. G01r 1/20, 1/16

U.S. Cl. 324-146

12 Claims



In an electrical meter, the indicator includes a drum constructed of a low-density material to reduce the rotational inertia of the drum. The drum is mechanically coupled for

rotation by an armature so that indicia on the drum represent the value of an applied electrical signal in accordance with the relative rotation of the drum.

3,638,119

INDEX MOUNTINGS FOR ELECTRICAL METERS

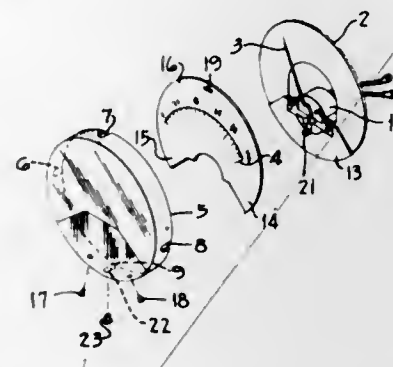
Elbert K. Mackenzie, North Wales, Pa., assignor to Electro-Mechanical Instrument Co., Inc., Perkaskie, Pa.

Filed June 13, 1969, Ser. No. 832,924

Int. Cl. G01r 1/04, 1/08

U.S. Cl. 324-156

8 Claims



In an industrial-type electrical meter, a transparent molded plastic bezel has molded index grooves in the periphery thereof so that the meter can be mounted in an indexed bracket in one of several mounting positions without use of tools. One embodiment of the meter has an interchangeable dial. Another embodiment of the meter has a weatherproof seal. Still another embodiment can be easily installed in an explosionproof case.

3,638,120

COULOMETER AND TIMING APPARATUS

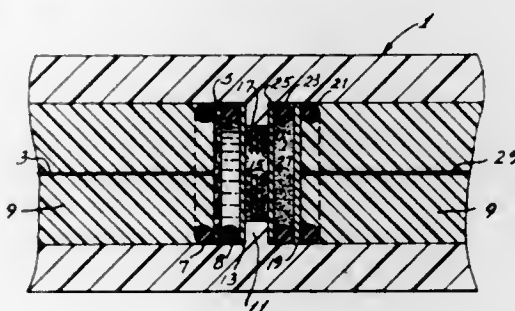
Ernest M. Jost, Plainville, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 17, 1969, Ser. No. 885,785

Int. Cl. G04f 9/00; G01r 19/00

U.S. Cl. 324-182

16 Claims



A reversible coulometer includes a pair of electrodes wherein each electrode alternates between functioning as an anode and as a cathode on alternate cycles. The coulometer includes a container and a liquid alkaline electrolyte in the container. A first electrode is in contact with the electrolyte and comprises an inert support and a solid active cadmium-containing material. A second control electrode comprises a liquid cadmium amalgam containing not more than about 1 percent cadmium by weight, the second electrode having an electrochemical energy storing capacity corresponding to about 1 percent of the capacity of the first electrode. A layer of dielectric material, permeable by the electrolyte and impermeable by the amalgam is in contact with the electrolyte and the amalgam to separate the electrodes. Means are provided for reversibly connecting the two electrodes in alternate sequence in a circuit which is connected to a source of current. During operation of the coulometer, the second electrode is alternately converted to substantially fully charged (reduced) and discharged (oxidized) conditions.

The liquid amalgam maintains a supply of available, electrochemically active cadmium material at the liquid surface of the electrode on each anodic and cathodic cycle for the second electrode. The relatively small capacity of the second electrode relative to the first electrode then cooperates with the liquid surface characteristic of the second electrode so that the relative surface areas of the electrodes and the current density therebetween are maintained substantially constant from cycle to cycle. Also disclosed is electrical timing apparatus comprising the source of current, a resistor having a resistance which is a function of its temperature, and a current integrating device, such as the coulometer. Means are connected to the coulometer for signalling when the second electrode has reached a preselected charge or discharge level. Means are provided for interconnecting the current source and the resistor in a circuit with the reversible coulometer. Shunt-connected across the coulometer electrodes is a voltage limiter which limits the rise of voltage across the coulometer to a level below that at which hydrogen evolution will take place in the coulometer. The length of time for the signalling device to indicate the coulometer has reached a preselected charge or discharge level after reversing the sequence of connection of the electrodes with respect to the current source is a function of both time and temperature.

3,638,121

NONPERIODIC ENERGY COMMUNICATION SYSTEM CAPABLE OF OPERATING AT LOW SIGNAL-TO-NOISE RATIOS

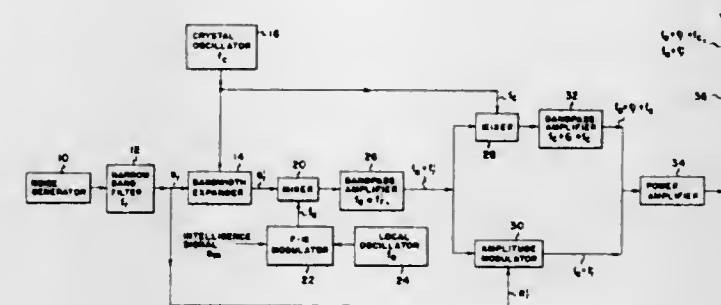
James J. Spilker, Jr., Palo Alto, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Dec. 20, 1960, Ser. No. 77,241

Int. Cl. H04k 1/00

U.S. Cl. 325-32

9 Claims



1. An intelligence communication system comprising a transmitter and a receiver, said transmitter comprising means for obtaining a narrow band reference signal, bandwidth expansion means for expanding said reference signal into a wide band signal having a bandwidth very much greater than the bandwidth of said reference signal, means for modulating said wide band signal with an intelligence signal and said narrow band reference signal, and means for delivering to said receiver a signal corresponding to said wide band signal modulated by said reference signal and said intelligence signal; said receiver comprising means for deriving said narrow band reference signal from the signal delivered to said receiver from said transmitter, bandwidth expansion means for expanding the derived reference signal into a wide band signal substantially identical to the wide band signal produced by said bandwidth expansion means in said transmitter, and means for comparing the signal delivered to said receiver from said transmitter with the wide band signal from said bandwidth expansion means in said receiver to recover said intelligence signal.

3,638,122

HIGH-SPEED DIGITAL TRANSMISSION SYSTEM

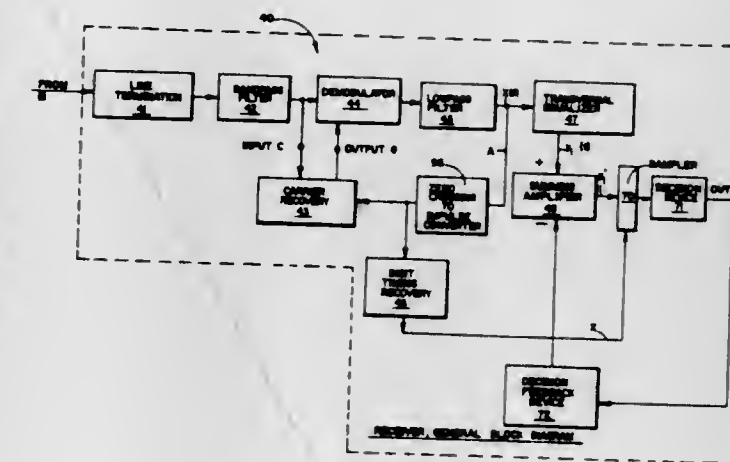
Earl D. Gibson, Huntington Beach, Calif., assignor to North American Rockwell Corporation

Filed Feb. 11, 1970, Ser. No. 10,332

Int. Cl. H04b 1/10

U.S. Cl. 325-42

12 Claims



The apparatus of the present invention allows for digital data communications in the presence of intersymbol interference. A transmitter means transforms bits of digital data into a modulated analog signal for transmission over a transmission channel such as a voice-grade telephone line. A receiver for receiving the transmitted signal is comprised in part of a demodulating means for demodulating the analog signal. The demodulated signal is fed to a transversal equalizer which is a time domain network comprising a multiple tapped delay line, an adjustable attenuator connected to each delay line tap, and a summer circuit for combining the attenuated outputs of all taps into a single coordinated signal. A summer means receives the coordinated output signal from the transversal equalizer. Means are provided for sampling the output signal from the summer means at the data rate to provide a binary signal proportional to the summer means' output signal. Decision means determine the polarity and/or amplitude of the binary signal and provide a second binary signal indicative thereof to a decision feedback means. The decision feedback means forms the second binary signals into a signal having weighted components which are proportional to the received signal with the most significant bit removed. This signal is fed back to the input of the summer means and is subtracted from the later received signal so as to cancel the intersymbol interference caused by recently evaluated digits while maintaining the most significant data bit as the output signal.

3,638,123

VLF ATMOSPHERIC NOISE SYNTHESIZER

L. John Skard, Uncasville, and Christopher G. Foster, Gales Ferry, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy

Filed Dec. 1, 1969, Ser. No. 880,456

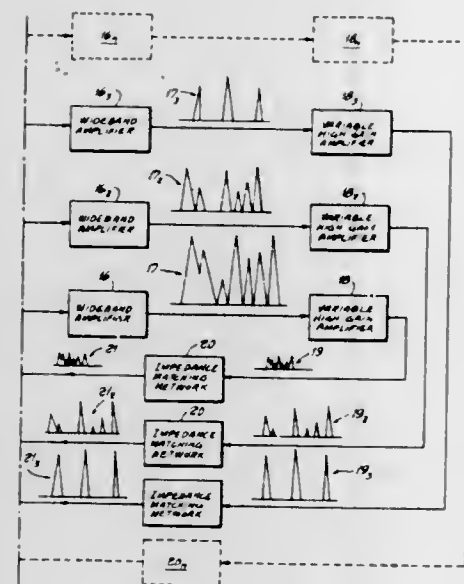
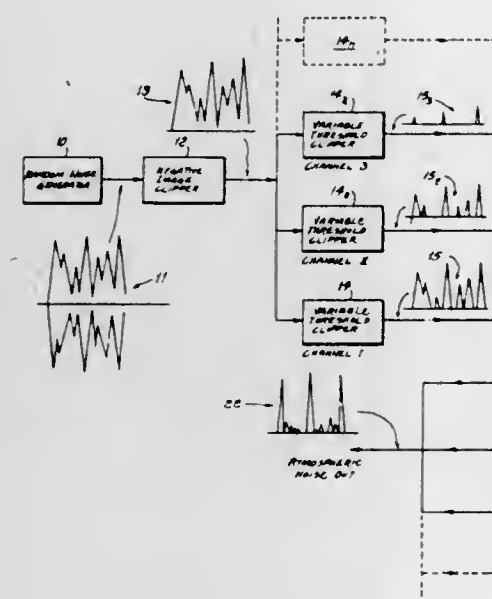
Int. Cl. H03b 29/00

U.S. Cl. 325-132

4 Claims

The output of a random noise generator is applied to a negative image clipper whose clipped output is simultaneously applied to at least three separate channels, each channel having in tandem arrangement a variable threshold

clipper, a wideband amplifier, a variable high-gain amplifier, analog companded signal is obtained. The arrangement is also provided with digital outputs from which a digital value



matching networks are combined to provide selective atmospheric noise.

3,638,124 APPARATUS UTILIZING A TREE NETWORK FOR COMPANDING AND CODING AN ANALOG SIGNAL IN A PCM SYSTEM

Stig Gustaf Lindqvist, Enskede, and Ilmar Valfeld Vaher, Bandhagen, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Dec. 30, 1968, Ser. No. 787,957

Claims priority, application Sweden, Jan. 18, 1968, 662/68
Int. Cl. H04b 1/00

U.S. Cl. 325-141

3 Claims

An arrangement for companding an analog signal in a pulse code modulation system, comprising a tree network having one input and a number of outputs each corresponding to a subrange of the amplitude range within which the analog signal falls. The branches of the tree network comprise amplifiers having different amplification, by means of which signals belonging to different subranges are given different amplification. The outputs of the tree network are connected to an addition circuit at the output of which an

corresponding to the subrange of the analog signal is obtained.

3,638,125 APPARATUS AND METHOD FOR THE SYNCHRONOUS DETECTION OF A DIFFERENTIALLY PHASE MODULATED SIGNAL

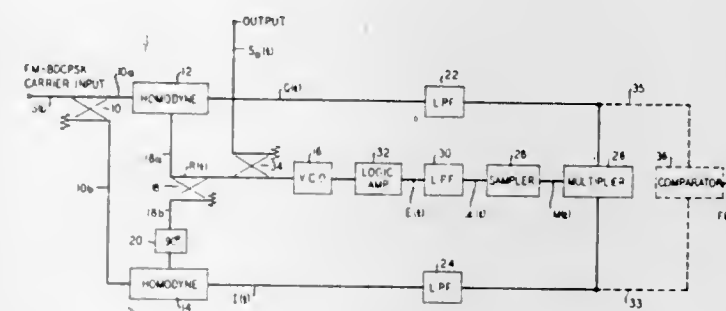
James E. Goell, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 26, 1969, Ser. No. 879,992

Int. Cl. H04b 1/30

U.S. Cl. 325-320

18 Claims



In a synchronous detector the carrier of a binary differentially coherent phase shift-keyed signal is recovered by decomposing the carrier information signal into its conjugate in-phase and out-of-phase components which contain in their arguments a term $\delta(t)$ representing the phase difference between the carrier and a local oscillator signal. The conjugate components are multiplied to generate a product signal which is sampled every other time slot to produce an error signal proportional to $\sin[2\delta(t)]$. This signal is applied to the local oscillator to phase lock the local oscillator signal to the carrier of the information signal.

3,638,126 HIGH-FREQUENCY CONVERTER

George Ctrlad Spacek, 967 La Senda Road, Santa Barbara, Calif.

Filed Aug. 21, 1969, Ser. No. 851,923

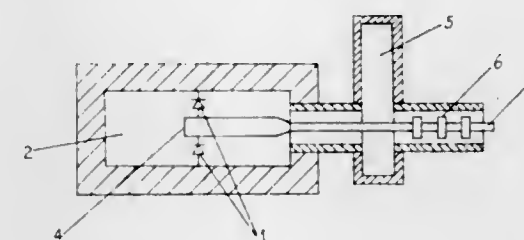
Int. Cl. H03d 7/02

U.S. Cl. 325-446

7 Claims

This invention relates to a balanced high-frequency converter for mixing of microwave signals over large bandwidth. The essential characteristics of this invention is the placement of a pair of semiconductor diodes at the intersection of a waveguide with one coaxial line in such manner that the broad walls of the waveguide are utilized as the continuation

of the outer conductor of the coaxial line. Thus the waveguide does not cause an impedance mismatch for signals propagating on the coaxial line, allowing coupling of wide-band signals into the diodes. The resulting beat frequency signal is extracted through the waveguide. An extension of the above principle allows the construction of a doubly balanced frequency converter, in which two pairs of



semiconductor diodes are placed across the waveguide and in which one coaxial line couples signals to one pair of diodes and a second coaxial line couples signals to the second pair of diodes. The broad walls of the waveguide are utilized as continuation of the outer conductors of the coaxial lines, thereby eliminating impedance mismatch and allowing efficient frequency conversion over a broad frequency range.

3,638,127 STABILIZATION SYSTEM FOR RESONANT CAVITY EXCITATION

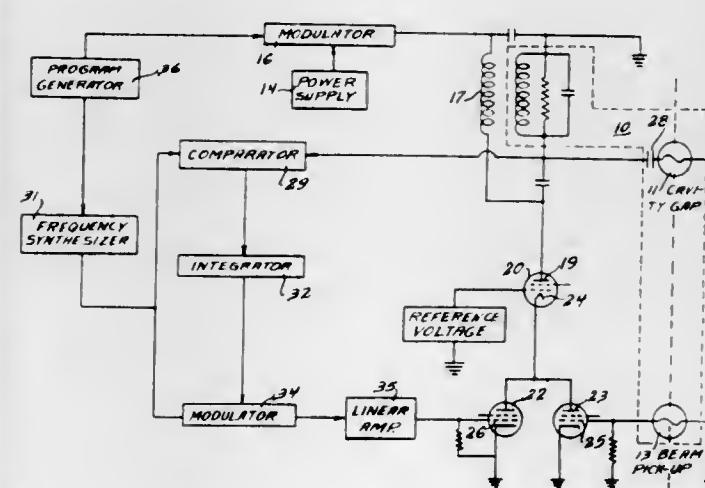
Quentin A. Kerns, Glen Ellyn, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Jan. 29, 1970, Ser. No. 6,874

Int. Cl. H01J 29/52

U.S. Cl. 328-227

5 Claims



A stabilization system for resonant cavity excitation of a particle accelerator or particle storage ring includes a pair of cavity current control tubes coupled in parallel. One tube is coupled to a beam pickup in the accelerator to provide a cavity current which is a function of the beam intensity. The current through the other tube is controlled by a comparison between the voltage across the accelerating gap and a desired voltage. The currents through each of the pair of tubes are combined to provide excitation for the cavity. Each of the pair of tubes may consist of a number of tubes in parallel. The cavity is constructed so that energy at undesired frequencies is absorbed.

3,638,128 PULSE DISCRIMINATOR

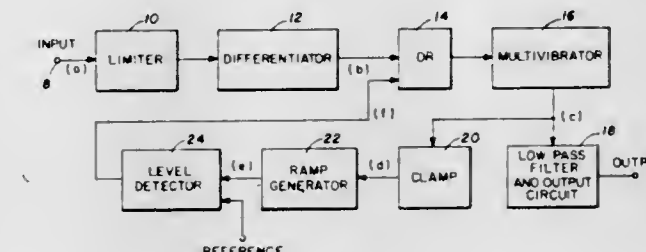
Robert F. Downs, Santa Ana, Calif., assignor to Advanced Technology Center, Inc., Grand Prairie, Tex.

Filed Dec. 22, 1969, Ser. No. 886,834

Int. Cl. H03d 3/04

U.S. Cl. 329-126

13 Claims



Impulse noise effects on pulse-counting discriminators used for converting a frequency-modulated signal into a varying voltage are minimized by a feedback loop that controls the operation of a monostable multivibrator. In pulse-counting discriminators, voltage spikes are produced at a rate related to the frequency of a modulated signal. These spikes trigger the multivibrator that produces an output pulse of predetermined duration for each voltage spike. Output pulses from the multivibrator control the operation of a clamping circuit which, in turn, controls the operation of a ramp generator. A level detector compares the output of the ramp generator to a reference voltage signal and generates a voltage spike when the instantaneous value of the ramp generator output equals the reference signal. This voltage spike also connected to the multivibrator and triggers it to synthesize an output pulse. Operation of the clamping circuit, ramp generator and level detector in conjunction with the multivibrator synthesize an output pulse when one should appear. If the voltage spikes that trigger the multivibrator occur at a frequency in excess of an upper established limit, a second level detector compares the ramp generator output to a second reference signal. This second level detector generates a control signal to inhibit trigger pulses to the monostable multivibrator.

3,638,129 CHOPPER STABILIZED AMPLIFIER

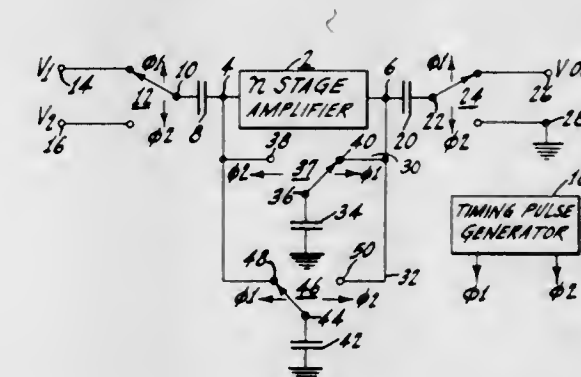
Richard Lee Pryor, Cherry Hill, N.J., assignor to RCA Corporation

Filed May 7, 1970, Ser. No. 35,395

Int. Cl. H03F 3/38

U.S. Cl. 330-9

9 Claims



Successive levels of a chopped direct voltage input signal are applied to an amplifier during succeeding time intervals. During each such interval a portion of the output signal produced by the amplifier is stored and during each following interval, the stored signal is fed back as an input to the amplifier for stabilizing the voltage reference level at the input terminal.

3,638,130

HIGH-SPEED AMPLIFIER FOR DRIVING AN INDUCTIVE LOAD

John C. Freeborn, West Covina, Calif., assignor to Honeywell Inc., Minneapolis, Minn.

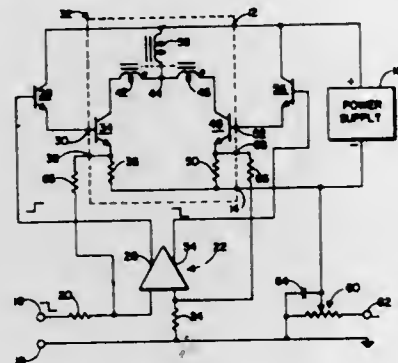
Continuation of application Ser. No. 707,274, Feb. 21, 1968.

This application June 8, 1970, Ser. No. 48,798

Int. Cl. H03F 3/68

U.S. Cl. 330-30 D

6 Claims



A high-speed amplifier for use with a center tapped inductive winding such as found in the deflection coils of a CRT. The amplifier employs an inductive energy storage coil and means for differentially limiting the currents permitted to flow from the coil into opposite ends of the winding, whereby rapidly decreasing current flow through one end of the winding causes rapid increase in current flow through the other end of the winding as a result of back EMF generated by the coil.

3,638,131

MULTIPLEXING CIRCUIT WITH STAGE ISOLATION MEANS

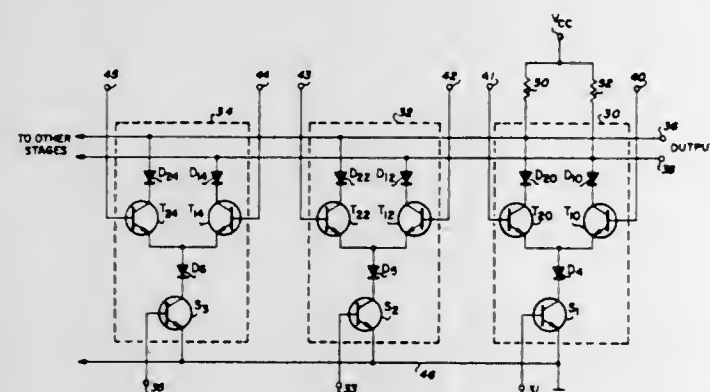
Vahe Sarkisian, Sunnyvale, Calif., assignor to National Semiconductor Corp., Santa Clara, Calif.

Filed Sept. 29, 1969, Ser. No. 861,867

Int. Cl. H03F 3/68

U.S. Cl. 330-30 R

7 Claims



A multiplexing circuit including a plurality of amplifying stages connected in parallel between an output terminal and a common terminal with each stage including an isolating diode, an amplifying transistor, and a switching transistor connected in series, the isolating diodes serving to isolate each stage from disturbances created by the other stages.

3,638,132

DIFFERENTIAL AMPLIFIER

Theodore R. Trilling, Berkshire Road, R.D. #3, Doylestown, Pa.

Filed Apr. 10, 1968, Ser. No. 720,177

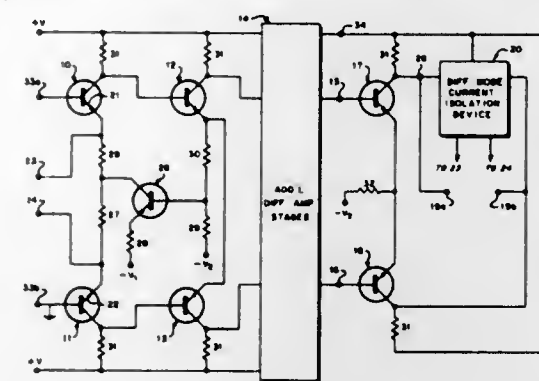
Int. Cl. H03F 1/00

U.S. Cl. 330-69

2 Claims

A direct-coupled cascaded differential amplifier having a current isolation stage connected at the common mode point

in the emitter circuit of the first differential pair and a differential mode current isolation device connected with either



a double-ended or single-ended output circuit to couple negative series differential feedback to the emitter circuit of the first differential pair.

3,638,133

FEEDBACK AMPLIFIER WITH BRIDGE-STABILIZED OUTPUT IMPEDANCE

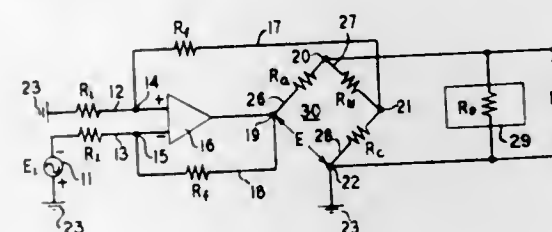
Stanley Thayer Meyers, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 10, 1970, Ser. No. 27,269

Int. Cl. H03F 1/36

U.S. Cl. 330-104

8 Claims



An impedance-matching arrangement comprising an operational amplifier with a bridge-stabilized output impedance transfers power between circuits having a common ground. The resulting stable gain and impedance extend over a wide frequency range and minimize impedance-matching power losses. The output impedance of the amplifier is modified to incorporate a Wheatstone bridge, three of whose arms are resistive and the fourth is the output impedance of the amplifier. One bridge diagonal feeds the grounded load circuit and the other supplies symmetrical feedback currents to the respective inputs of the amplifier.

3,638,134

REFLECTIONLESS AMPLIFIER

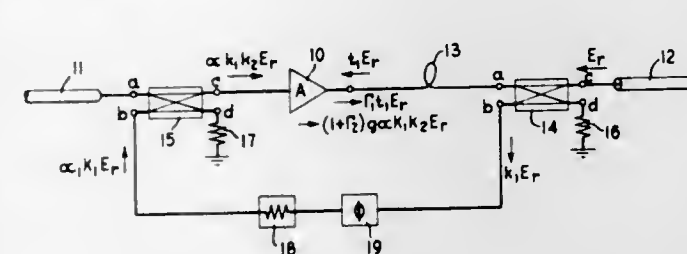
Henry R. Beurrier, Chester Township, Morris County, and Harold Seidel, Warren, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 26, 1969, Ser. No. 880,016

Int. Cl. H03F 1/26

U.S. Cl. 330-149

11 Claims



An impedance match at the external terminals of an amplifier are simulated by cancelling any component of the signal

wave reflected by the amplifier. At the input terminal of the amplifier, the cancelling wave is obtained by sampling the amplified signal and directionally coupling a portion thereof into the amplifier input network in a direction away from the amplifier. At the amplifier output terminal, the cancelling wave is obtained by sampling any wave reflected back towards the amplifier, and injecting a portion of this wave into the input end of the amplifier.

3,638,135

INTERMITTENT PHASE CONTROL LOOP FOR SWEEPED FREQUENCY PULSE GENERATOR

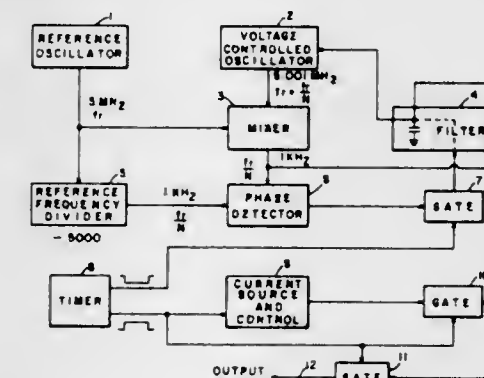
Harris A. Stover, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed Oct. 8, 1970, Ser. No. 79,153

Int. Cl. H03b 3/04, 23/00

U.S. Cl. 331-14

8 Claims



A means for generating pulses with precise time-frequency variation embodies a phase locked loop including a precise reference frequency source and a voltage controlled oscillator by means of which an output frequency may be generated precisely in phase and equal in frequency with respect to the precise reference. Control means including a current source the magnitude of which is a predetermined time varying characteristic determines the variation of output frequency from the initial loop controlled value by supplying current, after loop reference disablement, to a capacitor associated with the loop low-pass filter. The voltage thus supplied to the voltage control oscillator effects a predetermined time variation of output frequency during a prescribed output pulse interval.

3,638,136

METHOD OF AND APPARATUS FOR CONTROLLING OSCILLATOR EFFICIENCY

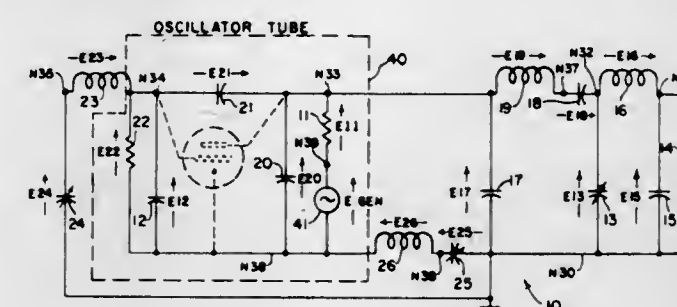
Thomas L. Wilson, Louisville, Ky., assignor to Chemetron Corporation, Chicago, Ill.

Filed May 1, 1970, Ser. No. 33,801

Int. Cl. H03b 3/14, 5/10

U.S. Cl. 331-74

8 Claims



The efficiency of a high-frequency power source is maximized by proper selection of the power oscillator tube filament bypass capacitor. By selecting the proper value for this bypass capacitor, reactive components of the oscillator tube plate current are eliminated and the oscillator tube plate dis-

sipation is minimized. The value of this capacitor can be varied over a fairly wide range without producing any significant percentage change in the frequency at which the power source operates.

3,638,137

METHOD OF Q-SWITCHING AND MODE LOCKING A LASER BEAM AND STRUCTURE

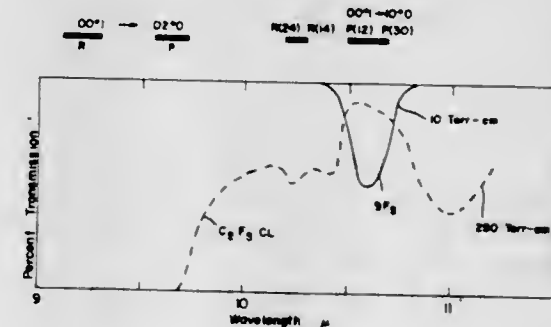
William F. Krupke, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Jan. 10, 1969, Ser. No. 791,212

Int. Cl. H01s 3/11, 3/10

U.S. Cl. 331-94.5

2 Claims



The method of passively Q-switching and mode locking a multiwavelength laser to produce repetitive pulses of coherent radiation at a specific single wavelength using a mixture of gases, and a structural arrangement therefor.

3,638,138

CADMIUM PHOSPHIDE LASER

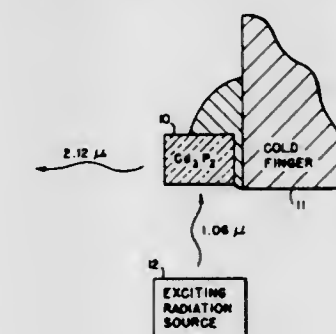
Stephen G. Bishop, Arlington, Va.; William J. Moore, Greenbelt, Md., and Edward M. Swiggard, Alexandria, Va., assignors to The United States of America as represented by the Secretary of the Navy

Filed June 25, 1970, Ser. No. 49,705

Int. Cl. H01s 3/16

U.S. Cl. 331-94.5

3 Claims



A solid-state laser device is provided utilizing cadmium phosphide as the lasing element. At liquid helium temperature it produces coherent laser oscillation having wavelengths near 2.12 micron.

3,638,139

FREQUENCY-SELECTIVE LASER DEVICES

Arthur Ashkin, Bernardsville, and Herwig Kogelnik, Summit, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y.

Original application Sept. 29, 1964, Ser. No. 400,266, now Patent No. 3,403,348, dated Mar. 24, 1968. Divided and this application May 6, 1968, Ser. No. 736,895

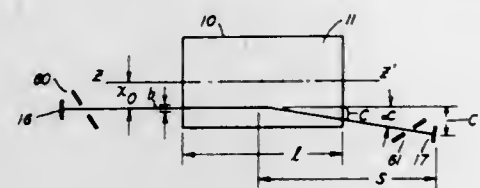
Int. Cl. H01s 3/02

U.S. Cl. 331-94.5

8 Claims

Because the index of refraction in a discharge gas column varies as a function of frequency and radius, light rays of dif-

ferent frequencies are diffracted different amounts as they traverse the column. By suitably locating the cavity mirrors on opposite sides of the column, a single frequency laser



oscillator is realized. By changing the location and orientation of one of the mirrors, the laser can be continuously tuned over the band of frequencies within the Doppler line width.

3,638,140

LASER-COOLING SYSTEM

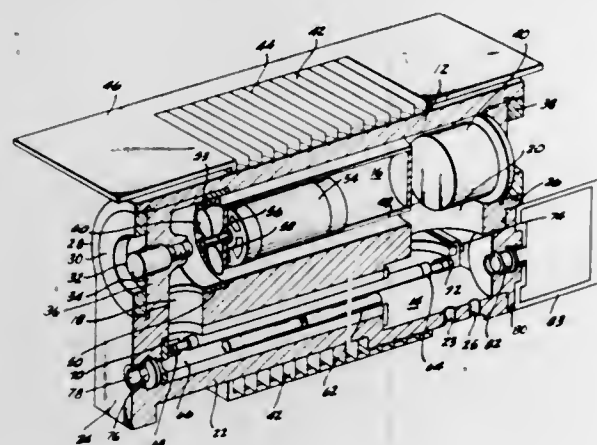
Christopher F. Knapp, Hollywood, and Peter S. Ozzimo, Hawthorne, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed July 28, 1969, Ser. No. 845,335

Int. Cl. H01s 3/02, 3/04

U.S. Cl. 331-94.5

9 Claims



A minimum volume and weight, integrated laser-cooler system comprising a single integrated unit enclosing a closed loop containing a primary coolant fluid. The loop includes a flowing coolant, a laser cavity, a primary coolant circulator and a coolant heat exchanger all in close proximity in concentric, coaxial, parallel or orthogonal configurations within a continuous housing enclosing the laser-cooler system module.

3,638,141

COMPACT, HIGH-POWER, HIGH-EFFICIENCY SILICON AVALANCHE DIODE L-BAND OSCILLATOR

Peter Alan Levine, Hightstown, and Shing-Gong Liu, Princeton, both of N.J., assignors to RCA Corporation

Continuation of application Ser. No. 796,837, Feb. 5, 1969, now abandoned. This application Nov. 12, 1970, Ser. No. 89,129

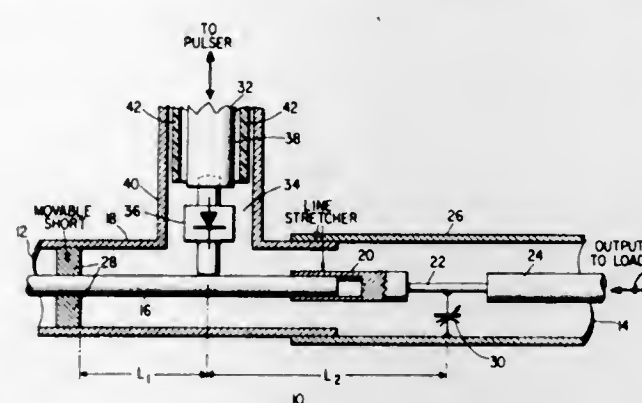
Int. Cl. H03b 7/14

U.S. Cl. 331-101

9 Claims

A compact, easily tunable, silicon avalanche diode oscillator for pulsed operation in the L-band which has an efficiency of about 40 percent, equal to that of vacuum tube oscillators operating at these frequencies, is obtained by utilizing a coaxial line composed of three serially connected sections in which the intermediate section has a characteristic impedance significantly larger than either of the other sections. One end of the coaxial line is short circuited; the avalanche diode is coupled to the coaxial line at a point between the short circuit and the beginning of the intermediate section; a

variable capacitance is connected across the intermediate section at a given point thereof; and the other end of the coaxial line is connected to the output of the oscillator. The



short circuit is made movable with respect to the position of the avalanche diode and the variable capacitance is made adjustable.

3,638,142

FREQUENCY SHIFT MODULATOR WITH AMPLITUDE COMPENSATION

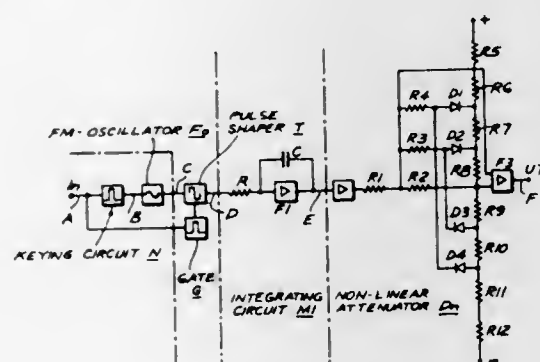
Walter Herbert Erwin Widl, Bandhagen, and Erik Herbert Olofsson, Skarholmen, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Continuation-in-part of application Ser. No. 672,218, Oct. 2, 1967, now abandoned. This application July 20, 1970, Ser. No. 56,362

Int. Cl. H04l 27/12; H03c 3/04

U.S. Cl. 332-9

6 Claims



A frequency modulator apparatus receives pulse signals switching between two amplitudes. The pulse signals are fed, via a modulator means which transmits square wave signals switching between two frequencies, to an integrator means. The integrator means converts the square wave signals to triangular-shaped signals which are then converted to substantially sinusoidal signals. There is also included means for compensating for the frequency dependent changes in amplitude of the signals introduced by the integrator means.

3,638,143

FREQUENCY-MODULATING SYSTEM FOR MICROWAVE SOLID-STATE OSCILLATOR

Tadao Higashi, Yoshinori Iwata, and Masae Ohta, all of Tokyo-to, Japan, assignors to Oki Electric Industry Company Limited, Tokyo, Japan

Filed Sept. 2, 1969, Ser. No. 854,642

Claims priority, application Japan, Sept. 3, 1968, 43/62774

Int. Cl. H03c 3/22

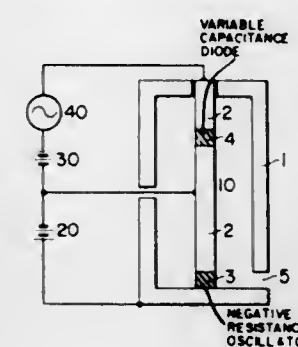
U.S. Cl. 332-30 V

8 Claims

Frequency modulation is obtained by applying a modulating voltage across a variable capacitance diode which appears in the center conductor of a cavity resonator. A direct

voltage energizes a Gunn diode coupled with the resonator. Thus frequency modulation characteristics can be set ir-

on Nov. 13, 1962. Unwanted longitudinal resonances are eliminated by the use of a longitudinal reinforcing member. An improved mounting arrangement is described. It has also been found that the number of transducers necessary for effective operation of this filter can be reduced by one-half.



3,638,146

PIEZOELECTRIC CERAMIC FILTER

Tetsuo Takaku, Saitama-ken, and Meiji Miyashita, Tokyo, both of Japan, assignors to Toko, Inc., Tokyo, Japan

Filed Sept. 24, 1969, Ser. No. 860,717

Claims priority, application Japan, Sept. 25, 1968, 43/83135

Int. Cl. H03h 7/10

U.S. Cl. 333-72

7 Claims

respective of the modulation voltage and current directly influencing the oscillation output.

3,638,144

BROADBAND LOW-PASS FILTER

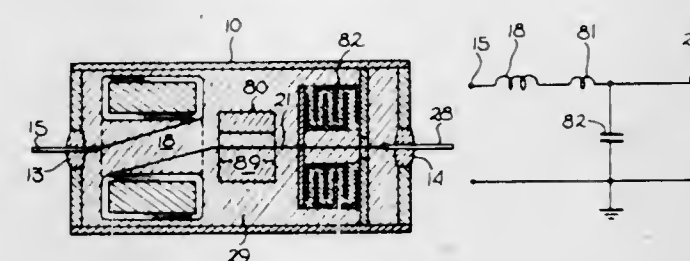
Peter A. Denes, 9101 Crestwood Ave. N.E., Albuquerque, N. Mex.

Continuation-in-part of application Ser. No. 730,352, May 20, 1968. This application Nov. 6, 1969, Ser. No. 874,636

Int. Cl. H03h 7/14

U.S. Cl. 333-79

1 Claim



Broadband low-pass filters containing inductors and/or capacitors wherein resonances of a main inductor and/or capacitor are obviated by utilizing single-turn inductors and/or low distributed inductance capacitors which have no self resonances below 200 MHz. and whose resonances do not coincide with the self resonances of the main components. The auxiliary components are connected so as to maintain the high-insertion loss of the filter at the self-resonant frequencies of the main components.

3,638,145

ELECTROMECHANICAL WAVE FILTER

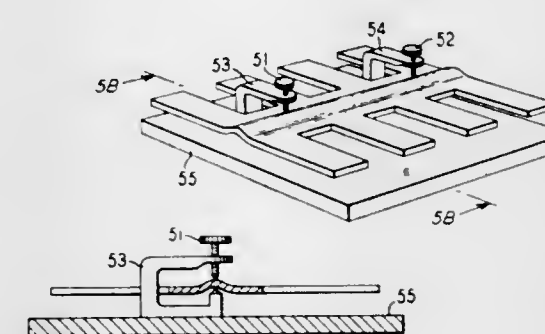
Emmanuel P. Papadakis, Acton, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 15, 1969, Ser. No. 885,050

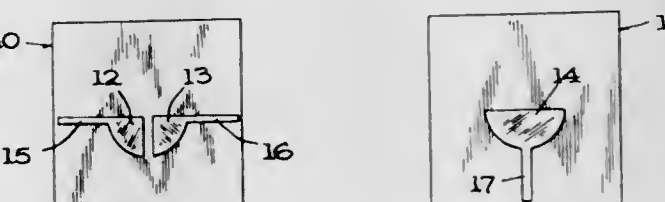
Int. Cl. H03b 9/20

U.S. Cl. 333-71

3 Claims



The specification described an electromechanical filter design which is an improvement over the ladder-type torsional filter of U.S. Pat. No. 3,064,213 issued to W. P. Mason



An improved piezoelectric ceramic filter for use in a frequency range above 1 MHz., which uses the thickness expansion or thickness shear mode of the vibration of a thin ceramic plate having opposed surface electrodes, and having conductor leads from the electrodes disposed at right angles. The body of the filter is a thin ceramic platelike member. A divided active electrode comprising a pair of electrode sectors each having a relatively straight marginal side is mounted on one surface of said body in a manner whereby the marginal straight sides are spaced slightly apart in parallel. A ground electrode is mounted in at least partial peripheral alignment with said active electrode, but on the opposite surface of said body, and corresponds in area size and shape to at least a major portion of that of said active electrode. The active and ground electrodes have a common overlap area which is not in excess of an area whose linear dimension in one direction is one-half that of the other direction, and said area is preferably of a semicircular shape.

3,638,147

HIGH-FREQUENCY LOW-PASS FILTER WITH EMBEDDED ELECTRODE STRUCTURE

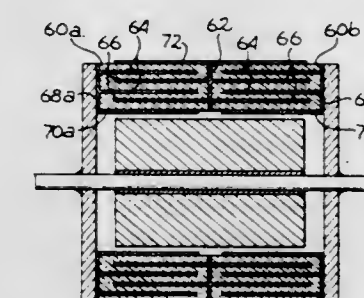
Peter A. Denes, 9101 Crestwood Ave. N.E., Albuquerque, N. Mex.

Continuation-in-part of application Ser. No. 393,946, Sept. 2, 1971, now Patent No. 3,456,215, and a continuation-in-part of 730,352, May 20, 1968. This application June 6, 1969, Ser. No. 831,142. The portion of the term of this patent subsequent to July 15, 1986, has been disclaimed.

Int. Cl. H03h 7/14, 7/06

U.S. Cl. 333-79

34 Claims



A three terminal pi filter having embedded electrodes, or a system of embedded electrodes, whereby the embedded structure of the electrodes results in a pi filter having higher insertion losses, better attenuation of unwanted signal power, greater mechanical strength and smaller dimensions than previously known filters.

3,638,148

LID INTERACTION PROTECTED SHIELD ENCLOSED DIELECTRIC MOUNTED MICROSTRIP

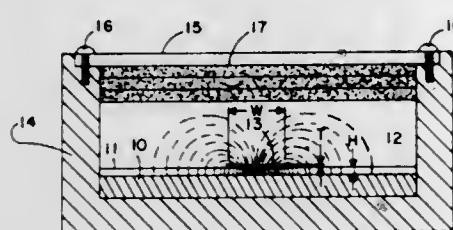
Ben R. Hallford, Dallas, and Carl E. Bach, Garland, both of Tex., assignors to Collins Radio Company, Dallas, Tex.

Filed June 25, 1970, Ser. No. 49,759

Int. Cl. H01p 3/08, 5/08; H04b 15/02

U.S. Cl. 333-84 M

23 Claims



A shield enclosed microstrip circuit on a rigid relatively thick thermally and electrically conductive ground plane plate with polyolefin dielectric material approximately 0.026 inches thick having a dielectric constant within approximately the 2.3 to 2.5 range and microstrip circuitry in bonded laminate relation. RF microwave absorbent foamed material is supported within the shield enclosure in spaced generally parallel relation from the microstrip circuitry to simulate free space and eliminate "LID" effect over the microstrip circuitry.

3,638,149

VIBRATING REED SELECTOR HAVING IMPROVED COMPONENT STRUCTURE

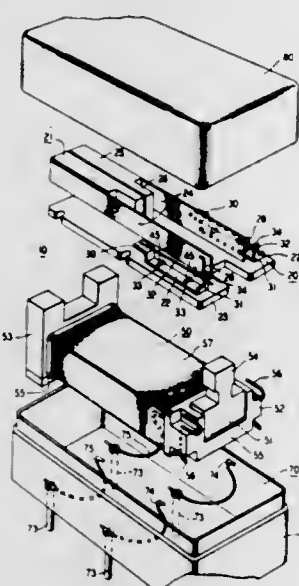
George Ellsworth Bopp, Worthington, and Larry Lee Wiese, Pickerington, both of Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 24, 1970, Ser. No. 101,307

Int. Cl. H01h 51/34

U.S. Cl. 335-91

10 Claims



A vibrating reed selector is disclosed in which a unitary motor-contact unit is encapsulated in a protective housing. The motor-contact unit contains a contact assembly, a motor assembly and an end magnet all of which are joined in a rigid structure. The contact assembly includes a ceramic circuit board rigidly attached to the end magnet at one end, two vibrating tines which carry two moving contacts and two contact brackets which carry two fixed contacts. The motor assembly includes a coil wound bobbin and a core which extends through the bobbin and which is rigidly attached to the end magnet at one end and the circuit board at the other.

3,638,150

REED RELAY

Rene L. Zwobada, Orsay, and Andre Jean Regeffe, Villemomble, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

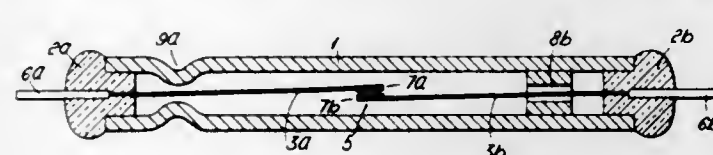
Filed June 19, 1970, Ser. No. 47,719

Claims priority, application France, June 25, 1969, 6921308

Int. Cl. H01h 51/27

U.S. Cl. 335-153

6 Claims



A reed relay is provided in which the sealed envelope is a tube made of magnetic material instead of glass.

3,638,151

CONTACT DEVICE

Hendrik Van der Helde, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

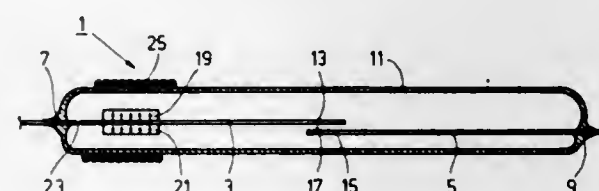
Filed Sept. 15, 1970, Ser. No. 72,363

Claims priority, application Netherlands, Sept. 23, 1969, 6914458

Int. Cl. H01h 51/22, 51/28

U.S. Cl. 335-153

4 Claims



Contact device comprising an electrically conductive contact spring clamped tight at one end, whereas its freely movable end is located opposite a countercontact, and comprising an energizing coil controlling the contact spring and having its field extending in the direction of length of the contact spring, which is provided at its movable part near the clamped end with at least one permanent magnet surrounded by the energizing coil and polarized transversely of the direction of length of the contact spring.

3,638,152

DEFLECTING COILS

Takashi Tsutsumi, Suita, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

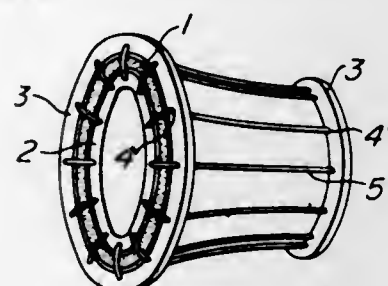
Filed June 15, 1970, Ser. No. 46,241

Claims priority, application Japan, June 19, 1969, 44/49137

Int. Cl. H01f 5/04

U.S. Cl. 335-213

4 Claims



A deflecting coil in which, instead of winding a coil on a core, conductive wires are directly provided on a sheet of insulating material and the sheet is combined with the core or both the sheet of insulating material and the conductive wires are directly provided on the surface of the core, and which, therefore, is adapted to mass production possessing uniform characteristic.

3,638,153

TRANSDUCER HAVING SINGLE LAYERED MAGNETOSTRICTIVE MEMBER

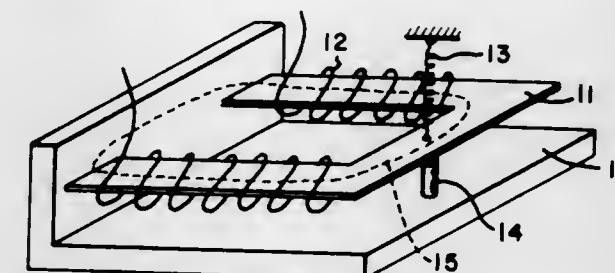
Hubert T. Sparrow, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed July 13, 1970, Ser. No. 54,261

Int. Cl. H01f 7/00

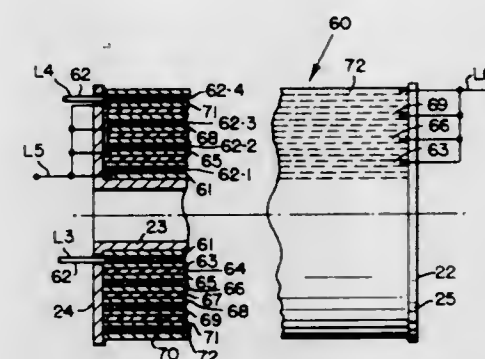
U.S. Cl. 335-215

9 Claims



A magnetomechanical transducer utilizing a single layered magnetostrictive member. A biasing means causes a strain in the magnetostrictive material which gives rise to compressive and tensile stresses in the member. The coefficient of magnetostriction increases or decreases in portions of the member depending on the nature of the stress in the portion. When the member is subjected to a magnetic field the member will deflect as a result of the changed coefficient of magnetostriction.

device or absorber for impulse energy. By adding axially extending metal strips to the coil between its layers of windings,



3,638,156

MICROINDUCTOR DEVICE

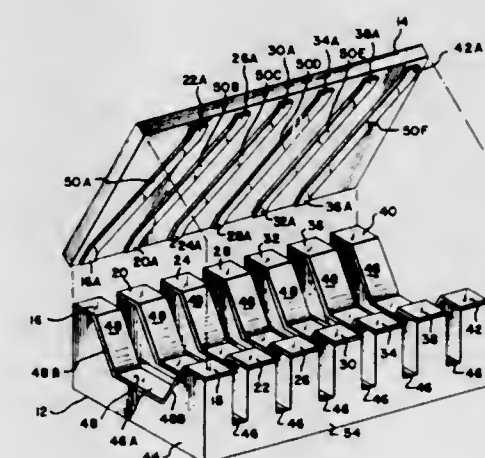
Laurice J. West, 5 Jadewood Road, Levittown, Pa.

Filed Dec. 16, 1970, Ser. No. 98,829

Int. Cl. H01f 27/28

U.S. Cl. 336-200

7 Claims



A microinductor device comprising a ceramic body having opposing pairs of posts, each pair being separate from the other pairs, with a metallic path electrically uniting each of the separate pairs of posts, a printed circuit board having printed members electrically uniting neighboring posts of at least two post pairs, in order to provide a conductive path of the inductor type through a plurality of the pairs of posts, and a ferrite placed within the volume between pairs of posts.

3,638,155

ELECTRICAL COIL HAVING INTEGRATED CAPACITANCE AND INDUCTANCE

Van P. Combs, Penfield, N.Y., assignor to Mega Power Corporation, Rochester, N.Y.

Continuation-in-part of application Ser. No. 800,383, Feb. 19, 1969, now Patent No. 3,568,040, dated Mar. 2, 1971. This application Nov. 6, 1970, Ser. No. 87,447

Int. Cl. H01f 15/14

U.S. Cl. 336-69

6 Claims

This coil comprises an annular core surrounded by a plurality of layers of electrically conductive wire windings separated from each other by at least one layer of metal foil, and at least one layer of elastic dielectric material. By selective connection of the wire windings and the intervening foil layers in electric circuits, the coil may be made to function selectively as a choke, filter, signal delay, or as a storage

3,638,157

COMBINATION MOTOR STARTER

Zelco J. Kruzic, New Brighton, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 28, 1969, Ser. No. 828,466

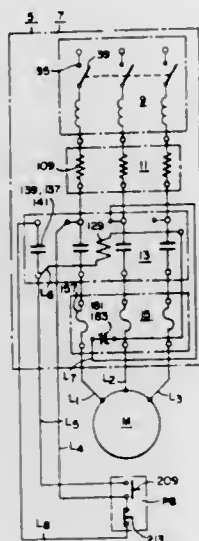
Int. Cl. H01h 85/00

U.S. Cl. 337-6

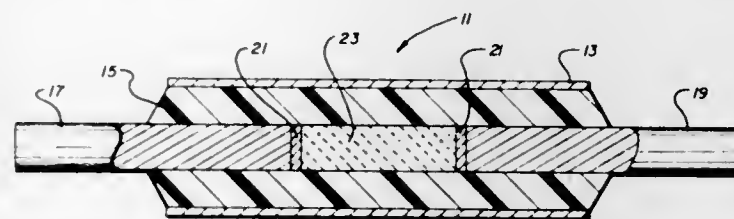
13 Claims

An improved combination motor starter with low overload protection; adjustable low-level fault protection; heavy short circuit interrupting capacity; and a coordinated protection system that protects the motor, the cable and the components of the combination motor starter. More specifically, the low-level fault protection is given by a resettable circuit breaker, and a current-limiting fuse is used both to provide

heavy short circuit protection and to also operate fast enough and at low enough currents to protect against burnout or



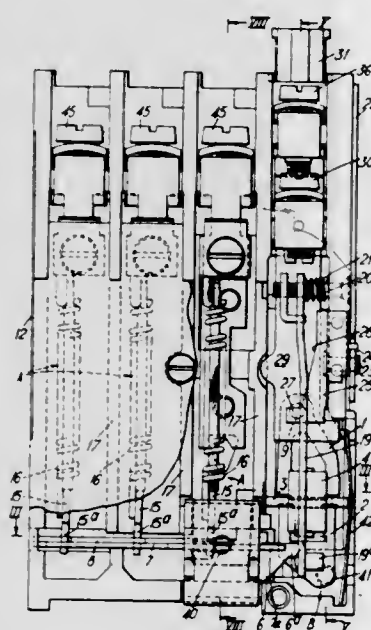
3,638,159
DECLINING RESISTANCE RESISTOR
David A. Kenney, Palos Verdes Estates, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.
Filed Nov. 24, 1969, Ser. No. 879,205
Int. Cl. H01c 7/10
U.S. Cl. 338—20 13 Claims



A solid-state timer device which is comprised of a housing containing a mixture of either a powdered photosensitive metal salt or oxide with an inert conductor. Electrical leads are in contact with the mixture so as to pass a current therethrough. The electrical resistance of the mixture linearly declines with elapsed time at a fixed DC voltage input.

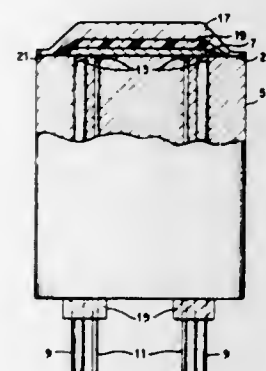
damage of the heater or other current-responsive element of the device protecting the motor against overloads.

3,638,158
OVERLOAD TRIPPING DEVICES FOR ELECTRIC MOTOR STARTING SWITCHES
Arthur Robert Hamilton Thorne, Solihull, England, assignor to J. A. Crabtree & Co., Limited, Walsall, England
Filed Nov. 20, 1969, Ser. No. 878,389
Int. Cl. H01h 37/30, 61/00, 73/30
U.S. Cl. 337—49 5 Claims



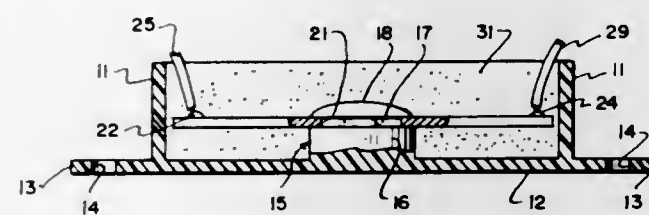
A thermal tripping device for protecting three-phase electric motors against balanced sustained overloads in each phase and against unbalanced overloads, which comprises a quick make and break overcenter spring actuated by a bell-crank connecting slidable trip bars operated by thermal overload elements in each phase. An adjustable reset plunger has a cam formation for enabling hand or automatic reset of the trip mechanism.

3,638,160
SHOCK PRESSURE TRANSDUCER
Roy L. Huddleston, Concord, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 4, 1969, Ser. No. 855,248
Int. Cl. H01c 7/00
U.S. Cl. 338—36 4 Claims



An improved shock pressure transducer has been provided wherein the improvement consists of a low-resistance connection between a thin vapor-deposited sensor grid and the electrical pins of an encapsulated transducer. The connection in combination with other known parts produces a significant increase in the output of the transducer.

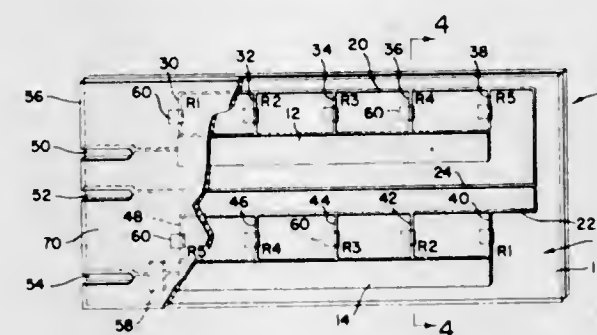
3,638,161
MODULARIZED RESISTANCE UNIT
Christ J. Dumas, Forest View, Ill., assignor to American Plastics Company, Chicago, Ill.
Filed Jan. 14, 1971, Ser. No. 106,502
Int. Cl. H01c 1/02
U.S. Cl. 338—256 10 Claims



A modularized electrical resistance unit for use in connection with high-voltage systems which comprises a casing

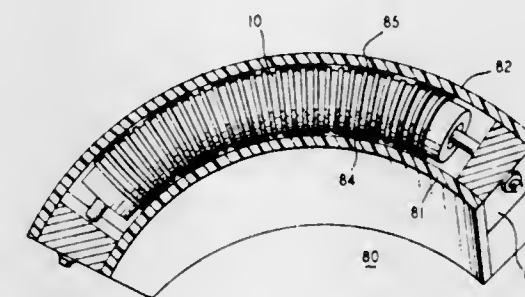
body, a support boss mounted within the casing body, a resistance carrier mounted on the support boss and disposed within the casing body, and encapsulating material completely encapsulating the resistance carrier including the peripheral edges thereof. The casing body is provided with an enlarged chamber surrounding the anode terminal to accommodate a greater volume of encapsulating material, and a barrier wall and corresponding slot arrangement between the high-voltage and low-voltage terminals.

3,638,162
PROGRAMMABLE ELECTRIC CIRCUIT CARD
John E. McWade, Broomall, Pa., assignor to Gulf & Western Industrial Products Company, Grand Rapids, Mich.
Filed May 4, 1970, Ser. No. 34,175
Int. Cl. H01c 1/16
U.S. Cl. 338—320 7 Claims



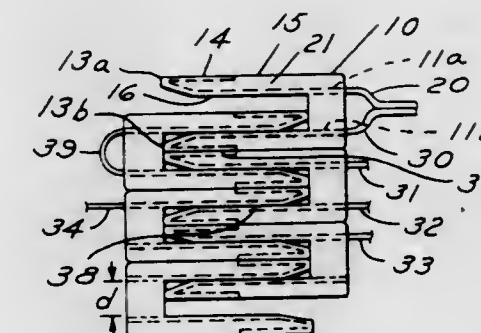
A flexible selective programmable electrical circuit card including a flexible base onto which electrical film components and film connectors are applied. An indicia which allows the card to be punched in a manner to program the electrical components of the card.

3,638,163
CONNECTOR FOR ELECTRICALLY INTERCONNECTING TWO PARALLEL SURFACES
Oskar Loosme, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 20, 1970, Ser. No. 56,341
Int. Cl. H05k 1/02
U.S. Cl. 339—17 M 7 Claims



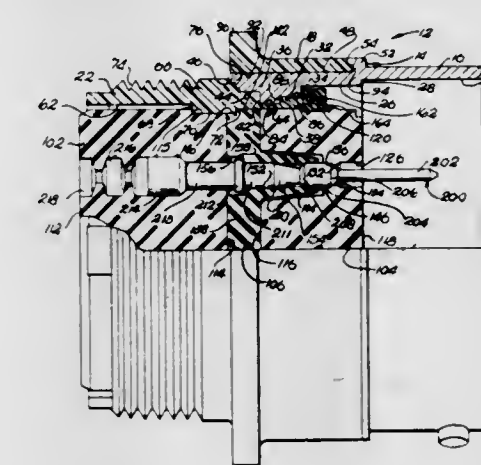
A universal, mass-producible connector which conducts electrical currents between conductive strips on uniformly spaced surfaces comprises a nonconductive body bearing on its periphery a plurality of conductive contacts. The device is conformable to curved, as well as flat, surfaces and facilitates assembly and disassembly of printed and integrated circuit structures without damage to mounted electrical components.

3,638,164
BISEXUAL ELECTRICAL CONNECTOR
Patrick M. Glance, Plymouth, Mich., and Thomas S. Ashley, Dallas, Tex., assignors to Ford Motor Company, Dearborn, Mich.
Filed Apr. 23, 1970, Ser. No. 31,186
Int. Cl. H01r 25/00, 13/50
U.S. Cl. 339—49 R 3 Claims



A bisexual electrical connector made from a nonconductive material. The connector is designed to electrically and mechanically connect a plurality of flat flexible conductor strips. The connector has at least one U-shaped portion defined by a base and finger means projecting from the base, the finger means comprising two parallel projections spaced apart to form interlocking means into which projections from an identical connector are able to fit in a mating relationship. The conductor strips pass through the base of the connector and into means in the parallel projections adapted to receive the strips. Two or more of the conductors are mated together to mechanically and electrically connect the conductor strips, the projection or projections from one connector fitting into the space between the projections of another identical connector.

3,638,165
ELECTRICAL CONNECTOR CONTACT RETENTION ASSEMBLY
John W. Anhalt, La Crescenta; Bruce K. Arnold, Pasadena, and Joseph Sugar, Los Angeles, all of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed June 29, 1970, Ser. No. 50,629
Int. Cl. H01r 13/40
U.S. Cl. 339—59 R 4 Claims



An electrical connector assembly contains removable contacts. An insulator member is mounted in the connector shell and has a plurality of cavities formed therein. A contact retention member comprises a disc portion, one face of which adjoins a face of the insulator. Yieldable clip members for securing the contact members in the connector assembly form an integral part of the retention member and extend from the disc portion face. The clip members are freely posi-

tioned in the insulator member cavities. The cavities limit a radial outward movement of the clip members when the contacts are inserted in the connector assembly. Each of the clip members may be split longitudinally and expanded radially upon insertion of the contact members. Further, the clip members may terminate in the cavities of the insulator member. The clip members about the contact members at the clip termination and thus preventing the contacts from moving axially, once the contacts are fully positioned in the connector assembly. An insertion tool may be utilized for removal of the contact from the connector assembly.

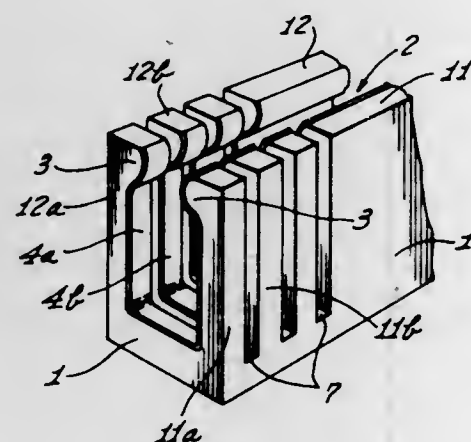
3,638,166

CONNECTOR ELEMENT

Leo A. Steipe, Bachausen, Starnberg, Austria, assignor to Schaltbau Gesellschaft mbH, Munich, Germany
Filed Mar. 12, 1969, Ser. No. 806,582
Int. Cl. H05k 1/07

U.S. Cl. 339—61 M

7 Claims



A connector element is disclosed which is cut from an elongated plastic bar made by extrusion and having a longitudinal groove lined with a conductive layer with notches being cut to form individual socket elements.

3,638,167

CONTROLLED INSERTION FORCE RECEPTACLE FOR FLAT CIRCUIT BEARING ELEMENTS

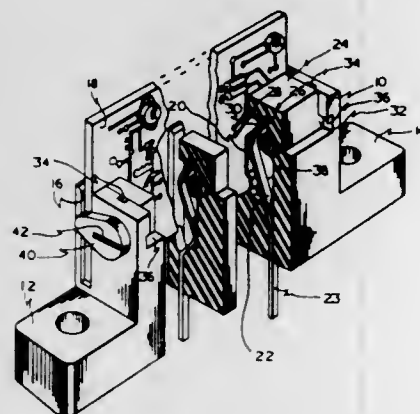
Carl Occhipinti, Melrose Park Post Office, and Dennis R. Cakora, Lyons, both of Ill., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed Apr. 13, 1970, Ser. No. 27,870

Int. Cl. H01r 13/62

U.S. Cl. 339—74 R

10 Claims



A controlled insertion force receptacle for flat circuit bearing elements such as printed circuit boards. A first block of an insulating material having a slot in it which is adapted to receive the element. At least one contact finger is mounted in the first block and is positioned so as to make physical and

electrical contact with a contact point on the element when the element is in the slot. A second block of an insulating material is mounted on the first block in a manner so as to be free to move relative to the first block in a direction perpendicular to the walls of the slot. The second block engages the contact fingers and causes the fingers to move to controlled positions in or out of the slot as the second block is moved relative to the first block. A member such as a camshaft is provided for moving the second block relative to the first block.

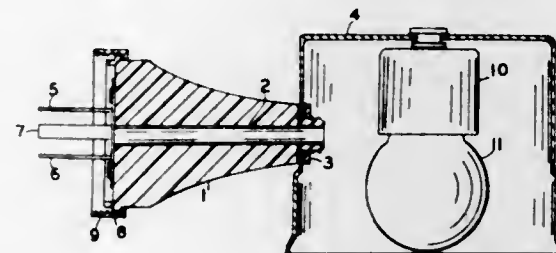
3,638,168

PORTABLE OUTDOOR LIGHTING FIXTURE FOR MOBILE HOMES

Alfred Robbins, 80 East Gates Ave., Lindenhurst, N.Y.
Filed Dec. 22, 1969, Ser. No. 887,035
Int. Cl. H01r 33/04

U.S. Cl. 339—89 M

1 Claim



A portable outdoor light fixture for mobile home trailers comprises a unitary molded plastic member having electrical prongs at one end and a molded threaded portion at its other end adapted to receive a standard light fixture and having a shaftway connecting the ends for wiring.

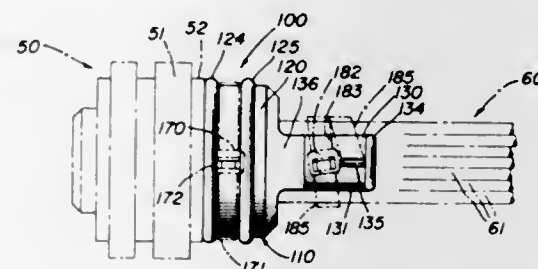
3,638,169

STRAIN RELIEF CLAMP AND ASSEMBLY

Jack E. Caveney, Chicago, and Roy A. Moody, Flossmoor, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.
Filed Jan. 12, 1970, Ser. No. 2,079
Int. Cl. H01r 13/58

U.S. Cl. 339—107

24 Claims



There is disclosed a strain relief clamp and assembly for limiting relative movement between a generally cylindrical connector having retaining structure thereon and a cable of electrical conductors, the clamp assembly comprising a strain relief clamp including at least two body members each having a part-cylindrical connector body portion and a part-cylindrical cable body portion and an interconnecting portion joining the connector body portion and the cable body portion, a first binder tie clamping the connector body portions about the connector to provide engagement between locking structure on the connector body portion and the retaining structure, a second binder tie clamping the cable body portions about the cable at a predetermined position therealong, hinges interconnecting the two body members, and binder tie positioning structure provided on the connector body portions and the cable body portions.

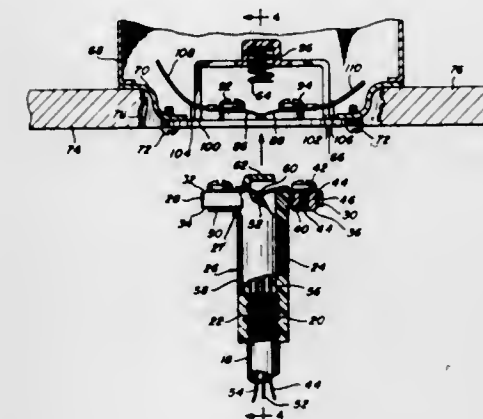
3,638,170

ELECTRICAL COUPLING MECHANISM

Clyde H. Clement, 8439 North 13th Pl., Phoenix, Ariz., and Leland B. Larson, 4069 East Campbell, Phoenix, Ariz., assignors to Clyde H. Clement and Leland B. Larson, Phoenix, Ariz., part interest to each
Filed Sept. 23, 1970, Ser. No. 74,730
Int. Cl. H01r 13/32

U.S. Cl. 339—135

10 Claims



An electrical coupling mechanism adapted removably to suspend a lighting fixture from a ceiling structure of a building room; wherein a mounting plate is supported by a utility box; and a lighting fixture hanger is manually rotatably insertable through an opening in said mounting plate thereby concurrently making electrical and mechanical supporting connection for said lighting fixture whereby said lighting fixture and said hanger may be readily removed mechanically and electrically disconnected relative to structure and electrical contacts on said mounting plate.

3,638,171

TERMINAL STRUCTURE FOR WIRING DEVICES

Cornelis Hulbrechtse, Weston, Ontario, Canada, assignor to Canadian General Electric Company Limited, Toronto, Ontario, Canada

Filed Apr. 25, 1969, Ser. No. 819,209

Int. Cl. H01r 11/22

U.S. Cl. 339—164 R

7 Claims



This invention relates to an improved push-in type terminal construction for wiring devices using a resilient beam constrained at one end and freely supported at the other instead of the conventional cantilever. A greater clamping force and simplified construction is provided and the terminal is mountable in a wiring device so as to be visible.

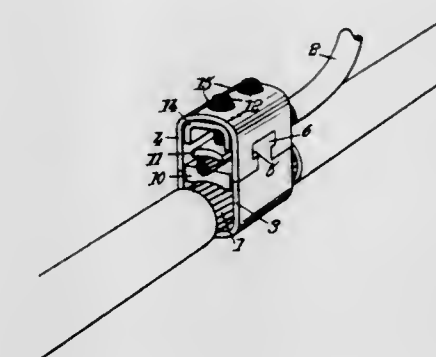
3,638,172

CABLE CLAMPING DEVICE

Georges Clement Adam, 5, rue des Ajoux, 92 Courbevoie, France
Filed Apr. 23, 1968, Ser. No. 723,409
Claims priority, application France, Apr. 24, 1967, 103,836
Int. Cl. H01r 7/14

U.S. Cl. 339—249

7 Claims



The device assures an electrical and mechanical connection between two bare sections of electric cables by clamping these sections together. The device comprises two distinct elements that can be assembled together to form a ring surrounding the two bare cable sections, and means for clamping together the sections disposed at the interior of this ring. The two elements comprise relatively thick plates curved in the form of U's of the same width, and the ends of the wings of these U's are cut out with complementary tenons and mortises such that these wings can be fitted together two by two to close the ring, only in a direction perpendicular to their middle planes.

3,638,173

ELECTRICAL CONNECTING LUG

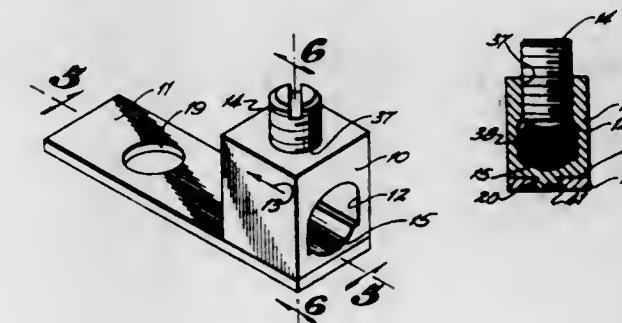
William H. Middendorf, Fort Mitchell; Ralph S. Myers, Covington; Edward J. Fritz, Florence, and Jack N. Koch, Melbourne, all of Ky., assignors to The Wadsworth Electric Mfg. Co., Covington, Ky.

Filed Nov. 12, 1969, Ser. No. 875,926

Int. Cl. H01r 11/10

U.S. Cl. 339—272 U

4 Claims



A connector lug for electrical wires, the lug having an extruded body, a hole through the body in the extrusion direction, a rib extending in the extrusion direction, and an elongated tang mounted on said rib and projecting from said body in the extrusion direction.

3,638,174

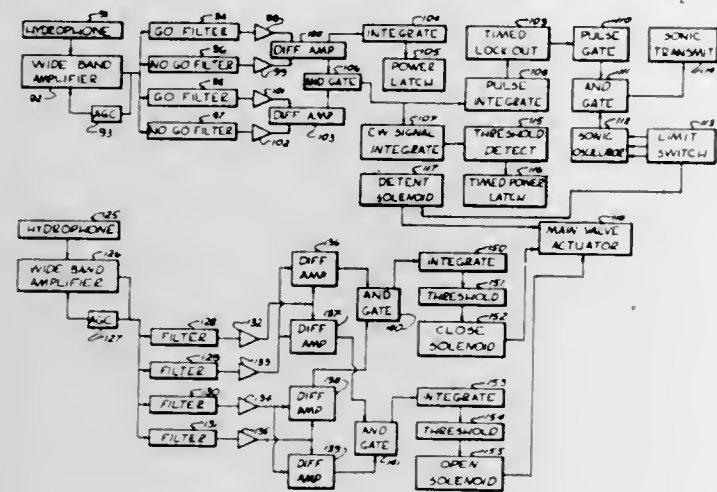
REMOTE CONTROL METHODS AND SYSTEMS

Wallace H. Haase, Northridge; Albie Alton Lyman, Jr., Granada Hills, and Daniel W. Painter, II, Sepulveda, all of Calif., assignors to The Bendix Corporation

Filed May 27, 1969, Ser. No. 828,273

Int. Cl. H04b 1/100

U.S. Cl. 340-5 R



This invention relates to improvements in remote control systems and operating methods. The embodiment selected for illustration is arranged for actuation of a valve in a submerged pipeline. The system includes a controlling station comprising a transmitter and a receiver of sonic signals and it includes a controlled station submerged with the valve and comprised of a receiver and a transmitter. The controlling station is capable of sending arming, interrogation and control signals to the controlled station. The operating and interrogating codes employed in the system include at least two different frequency components and require that certain other frequency components be absent. The receiver of the control station is responsive to such codes to arm the receiver to receive an interrogation signal and an actuating command signal. It is effective upon receiving the interrogation signal to cause a response to be transmitted indicating the condition of the valve to be controlled and placing the system in condition to receive valve control instruction.

3,638,175

NOISE REDUCTION ON SEISMIC RECORDS

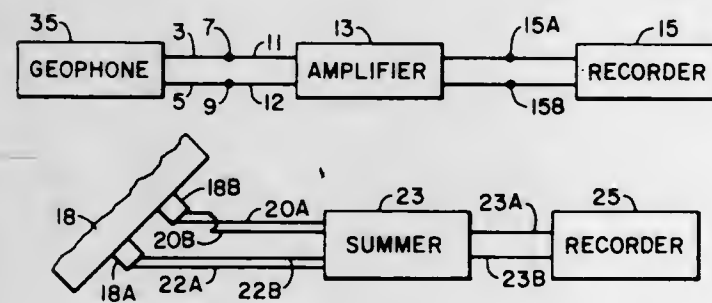
Webster R. Stone, Sydney, New South Wales, Australia, assignor to Esso Production Research Company

Filed Mar. 10, 1970, Ser. No. 18,156

Int. Cl. G01v 1/36

U.S. Cl. 340-15.5

3 Claims



Certain types of coherent noise on seismic records made from a plurality of seismic disturbances in the same local area, is eliminated by reversing the polarity of the signals to be recorded on alternate recordings, or on half of the total number of recordings. The recorded signals are reproduced and summed with the polarity of half of the reproduced signals again reversed so that reflection events are in time-

phase. Coherent noise originating within the recorder will be of opposite time-phase and will not appear on the summed record.

3,638,176

SEISMIC DIFFRACTION SCAN

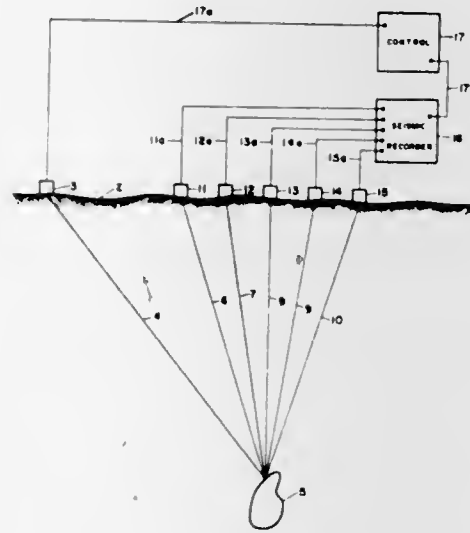
James E. White, Midland, Tex., assignor to Marathon Oil Company, Findlay, Ohio

Filed Jan. 5, 1970, Ser. No. 514

Int. Cl. G01v 1/00

U.S. Cl. 340-15.5

6 Claims



Diffraction elements which are reported by acoustical waves in seismic exploration can be defined by a process wherein seismic traces from a plurality of seismic receivers are shifted by T (T = the travel time from a particular acoustical wave source to a diffractive element and thence to a particular seismic receiver), whereupon the seismic traces are added and the summation of the added seismic traces is indicative of the diffractive power of each diffractive element. The invention further comprises the shifting of seismic traces produced by a plurality of receivers by T and thence adding cross-correlations (the product of multiplying one member of a pair of seismic traces by the other member of the pair) among pairs of seismic traces wherein the summation is indicative of the diffractive power of each diffractive element.

3,638,177

METHOD AND APPARATUS FOR SEISMIC SIGNAL VELOCITY DETERMINATION

Paul V. Lindblade, Ponca City, Okla., and Paul G. Mathieu, Pittsburgh, Pa., assignors to Continental Oil Company, Ponca City, Okla.

Filed July 25, 1969, Ser. No. 844,898

Int. Cl. G01v 1/00

U.S. Cl. 340-15.5 GC

7 Claims

A method for determining actual velocities of seismic events occurring on plural seismic traces by deriving a trace coherence factor which varies directly with signal velocity. The method consists of processing move-out-corrected, plural seismic traces at a plurality of different time delay per trace relationships to establish a coherence factor at each time delay per trace. The coherence factor is arrived at for each probable velocity by summing all trace values and then finding a respective difference value as between each of the trace values and the sum value, which difference values are further processed by summation of their absolute values for derivation of a reciprocal trace value. The reciprocal trace value is then utilized as a gain control factor for controlling

3,638,179

EMERGENCY VEHICLE CONTROL OF TRAFFIC SIGNALS

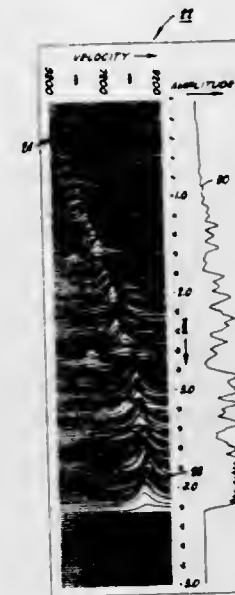
Edward T. Coll, Philadelphia, Pa.; Harold J. Braschwitz, North Royalton; Charles Grace, Bracksville, both of Ohio; Michael J. Manchester, Philadelphia, Pa., and Stephen A. Hunter, III, Charlotte, N.C., assignors to Martha H. Egly, Philadelphia, Pa.

Filed Apr. 16, 1968, Ser. No. 721,668

Int. Cl. G08g 1/00

U.S. Cl. 340-32

8 Claims



rate indicator of coherence of events occurring at the selected velocity.

3,638,178

METHOD FOR PROCESSING THREE-DIMENSIONAL SEISMIC DATA TO SELECT AND PLOT SAID DATA ON A TWO-DIMENSIONAL DISPLAY SURFACE

Lee P. Stephenson, Fullerton, Calif., assignor to Chevron Research Company, San Francisco, Calif.

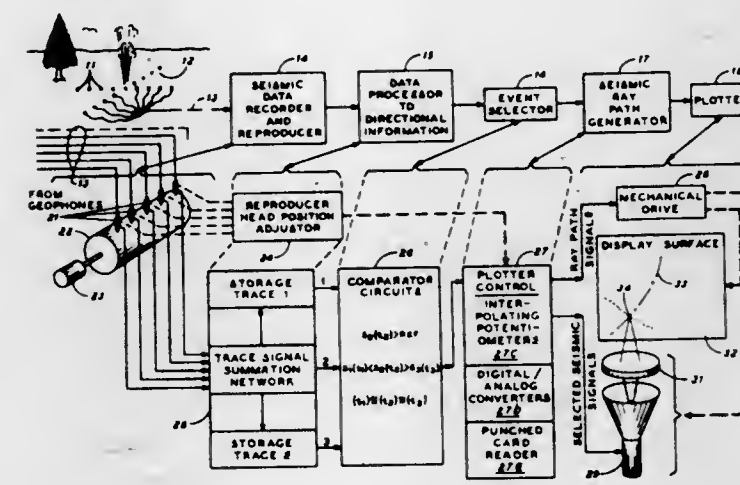
Continuation of application Ser. No. 706,470, Feb. 19, 1968, now abandoned, Continuation of application Ser. No. 452,592, Apr. 28, 1965, Continuation-in-part of application Ser. No. 99,213, Mar. 29, 1961, now abandoned. This

application Dec. 1, 1969, Ser. No. 878,968

Int. Cl. G01v 1/24, 1/34

U.S. Cl. 340-15.5

18 Claims



A method and apparatus for processing seismic data to display representations of reflectors within a three-dimensional volume. The data is collected with a surface geophone array in response to a single seismic source. Separate portions of the data are processed to identify reflectors with respect to certain of the geophones. These separately processed data are then compared to isolate common identifications of the same reflector. Coordinate information applicable to the isolated identification are then resolved to position the reflector within the three-dimensional volume. A projection of that position is then produced on a display surface to provide a two-dimensional representation of the reflectors within the three-dimensional volume.

3,638,180

ALARM FOR SIGNALLING TIRE MALFUNCTION

Daniel Lejeune, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie., Clermont-Ferrand, France

Filed July 23, 1969, Ser. No. 844,096

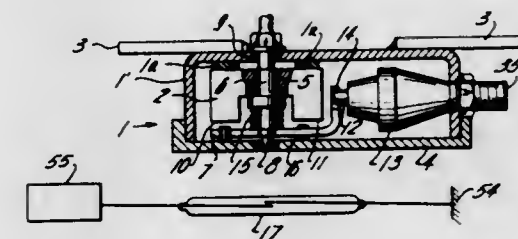
Claims priority, application France, July 29, 1968, 161063;

May 23, 1969, 6917132

Int. Cl. B60c 23/00

U.S. Cl. 340-58

4 Claims



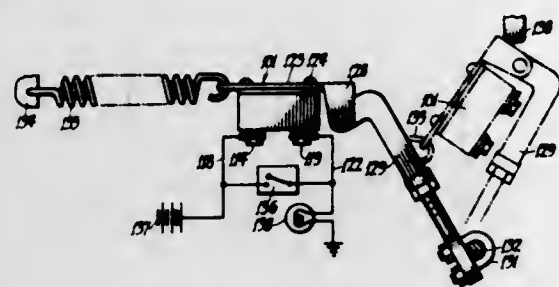
A permanent magnet is mounted on each wheel of an automotive vehicle. In case of low pressure in one of the vehicle tires, the external magnetic field of the magnet mounted on the wheel for that tire is modified by an automatic movement of either the magnet or a shunt associated therewith. A magnetic field responsive switch is mounted on the vehicle frame next to each wheel-tire assembly. The switch next to the malfunctioning tire responds to the change in the magnetic field to activate a signal alerting the driver of the vehicle.

3,638,181

VEHICLE DECELERATION SIGNALING APPARATUS
 Ensor Alexander Bryant, No. 4 Wimmera Avenue Manifold Heights, Geelong, Victoria, Australia
 Continuation-in-part of application Ser. No. 706,909, Feb. 20, 1968, now abandoned. This application Mar. 28, 1968, Ser. No. 721,552

Claims priority, application Australia, Feb. 23, 1967, 18159/67
 Int. Cl. B60q 1/50; H01h 35/14
 U.S. Cl. 340—71

6 Claims



Stoplight signaling equipment for a motor vehicle comprising a normally open inertia switch electrical contacts of which are connected in a circuit controlling illumination of a warning light and are closed by movement of an inertia element in the switch caused by inertia forces upon bodily acceleration of the switch. The switch is preferably mounted on throttle linkage of the vehicle to be moved bodily upon actuation of that linkage so that on sudden release of the throttle the switch is accelerated bodily to cause closure of contacts whereby light is illuminated even before vehicle brake is applied.

ERRATUM

For Class 340—146 see:
 Patent No. 3,638,238

3,638,182

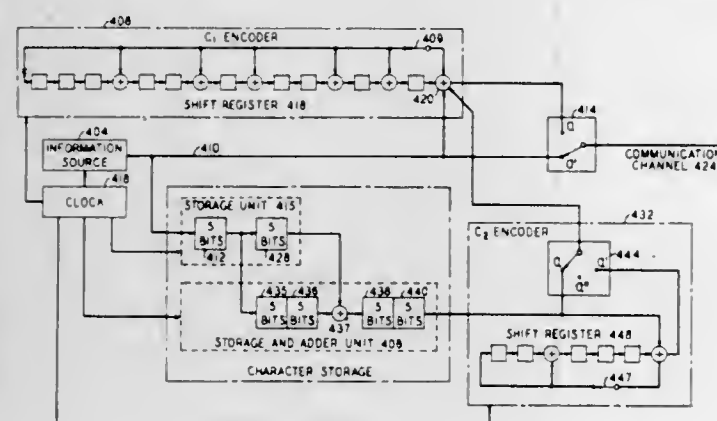
RANDOM AND BURST ERROR-CORRECTING ARRANGEMENT WITH GUARD SPACE ERROR CORRECTION

Herbert O. Burton, Little Silver, N.J.; Sudhakar M. Reddy, Iowa City, Iowa; Daniel D. Sullivan, Howell Township, Monmouth County; Shih Y. Tong, Middletown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 2, 1970, Ser. No. 325
 Int. Cl. G06f 11/12

U.S. Cl. 340—146.1

13 Claims



Information sequences are encoded in a first block code capable of correcting a certain number of random errors. Portions of previously encoded information sequences or sequences derived therefrom are, in turn, encoded into a second block code which is a shortened version of a super

code of the first block code. These encoded portions are added to the code words of the first block code and the resultant sequences are transmitted to a receiving station. At the receiving station, each received sequence is decoded to determine if the number of random errors is less than a certain threshold value related to the error-correcting ability of the first block code. If so, the sequence is corrected using a random error-correcting technique. If not, the information portion of the sequence is replaced with information derived from subsequently received sequences (i.e., sequences which are in the guard space). Random errors which may have occurred in these subsequently received sequences are corrected prior to such replacement utilizing the super code.

3,638,183

THRESHOLD VALUE CIRCUIT

Max Proglar; Klaus Wessenberg; Winfried Wagner, all of Ulm(Danube), and Horst Ohnsorge, Erstetten, all of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

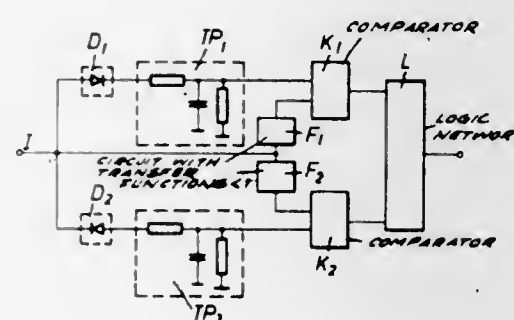
Filed Mar. 9, 1970, Ser. No. 17,635

Claims priority, application Germany, Mar. 7, 1969, P 19 11 678.0; Sept. 26, 1969, P 19 48 738.8

Int. Cl. G08c 25/00

U.S. Cl. 340—146.1

21 Claims



A threshold value circuit for a data transmission system in which at the receiver site the transmitted demodulated binary signals are fed to the threshold value circuit to produce an indication regarding errors in the character bits of the received character. The threshold circuit includes a pair of parallelly connected circuit paths having one end thereof connected to the source of signals and the other ends thereof connected to a comparator. One circuit path has a transfer function whose value is less than 1 while the other circuit path contains circuitry for storing and delaying the peak value of the received signal to provide a threshold level signal for the comparator; the value of the threshold level changing in accordance with changes in the level of the received signal which persists for a given time period.

3,638,184

PROCESSOR FOR m -OUT-OF- n CODE WORDS

Hugh Jacob Beuscher, Winfield, Ill.; Donald Robert Nelson, Madison, Wis.; William Howard Sisson, Villa Park, and Wing Noon Toy, Glen Ellyn, both of Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 8, 1970, Ser. No. 44,270

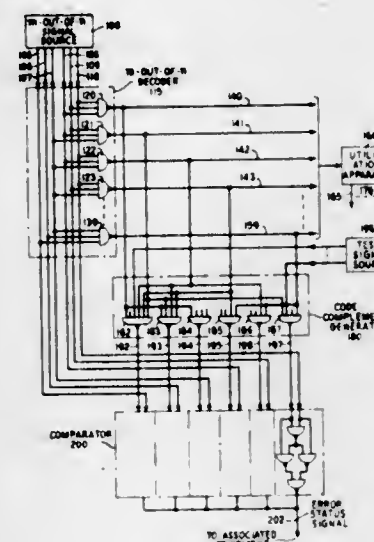
Int. Cl. H03k 13/32

U.S. Cl. 340—146.1

5 Claims

A conventional decoder of the type that converts an m -out-of- n representation to activation of only a single one of plural output lines is modified to have powerful self-checking capabilities. The modified decoder is adapted to be included

in a control system in which the words stored in a microprogram memory are coded in an m -out-of- n format. Such a



errors. During readout the retrieved data is transferred from the high-density storage medium into the buffer and control subsystem for verification of the data. If the data is correct, the synchronous clock and data verification signals are stripped from the output data, the data is reorganized into its original format, and transferred to a computer data channel or other storage medium for subsequent use. If during readout an error is detected, remedial action is automatically initiated before the data is transferred. The buffer and control subsystem includes self-checking diagnostic circuits for detecting and localizing malfunctions in all portions of the high-density data storage and data conversion system.

3,638,186

ARRANGEMENT FOR ERROR DETERMINATION
 Ernst Schwefel, Chiemling, Germany assignor to Dr. Johannes Heldenhain, Traunreut nr. Traunstein, Germany
 Filed Sept. 26, 1969, Ser. No. 861,265

Int. Cl. G06f 11/10

U.S. Cl. 340—146.1

9 Claims

system automatically detects the occurrence of any no-output or multiple-output readout from the memory.

3,638,185

HIGH-DENSITY PERMANENT DATA STORAGE AND RETRIEVAL SYSTEM

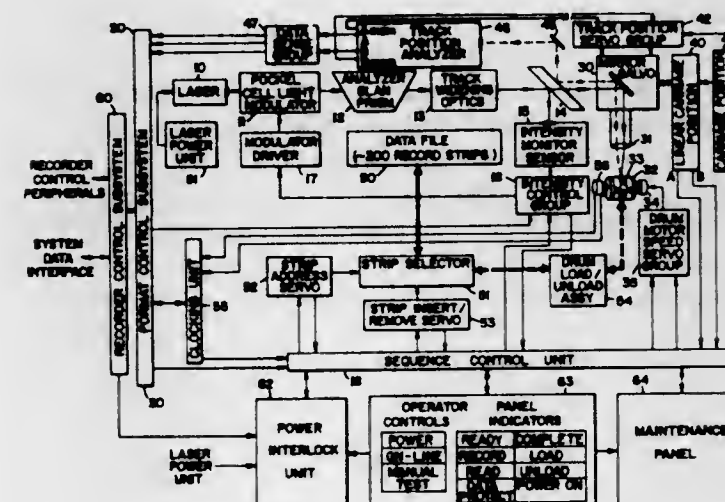
Harold R. Dell, Palo Alto; Masao Hashiguchi, Mt. View, and Edward D. Lara, Cupertino, all of Calif., assignors to Precision Instrument Company, Palo Alto, Calif.

Filed Mar. 17, 1969, Ser. No. 807,551

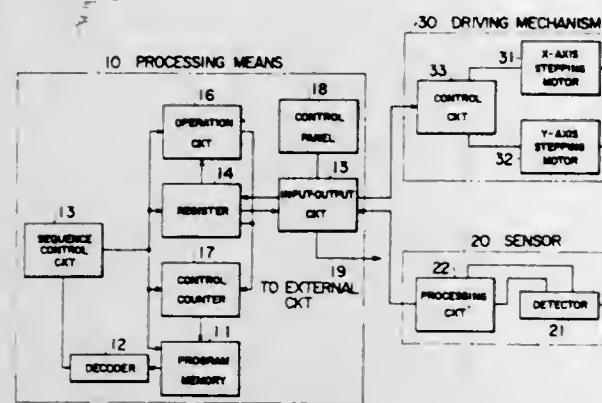
Int. Cl. G11c 29/00

U.S. Cl. 340—146.1

13 Claims



angle included in the curve including means to store a previous tracing direction and means to determine a particular



direction having a minimum difference with respect to the previous tracing direction and within prescribed limits.

3,638,188

CLASSIFICATION METHOD AND APPARATUS FOR PATTERN RECOGNITION SYSTEMS

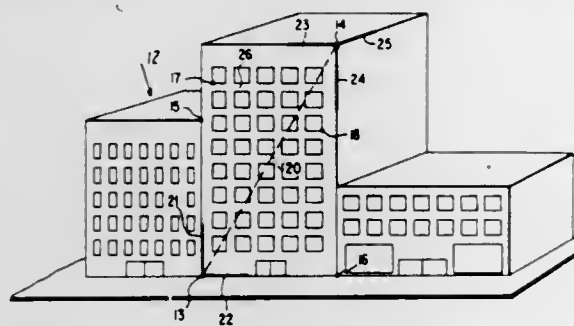
Peter H. Pincoffs, Severna Park, and Glenn E. Tisdale, Towson, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 17, 1969, Ser. No. 867,247

Int. Cl. G06k 9/00

U.S. Cl. 340—146.3AC

13 Claims



Features are extracted from a two-dimensional image for subsequent classification of patterns within the image according to correspondence between the extracted features and reference features in a set extracted previously from known patterns. In extracting the features, measurements are first taken of observed characteristics of the image about two or more predefined points in the image, these measurements being chosen to be invariant regardless of orientation, scale, and position of the pattern in the image. The measurements, along with data regarding relative positions of the selected points, constitute the features from which eventual pattern recognition may be achieved. In the classification procedure, the features extracted from the image are compared with reference features for a set of known pattern classes, in order to classify any unknown pattern that may be present within the image and that is associated with at least some of the extracted features.

3,638,189

SIMPLIFIED MEANS OF SKIPPING SELECTABLE SEGMENTS OF A TIMED PROGRAM

Larry D. Gamache, Yorba Linda; Christopher F. Miller, Diamond Bar, and Kenneth W. Barr, La Habra, all of Calif., assignors to Beckman Instruments, Inc.

Filed Feb. 2, 1970, Ser. No. 7,784

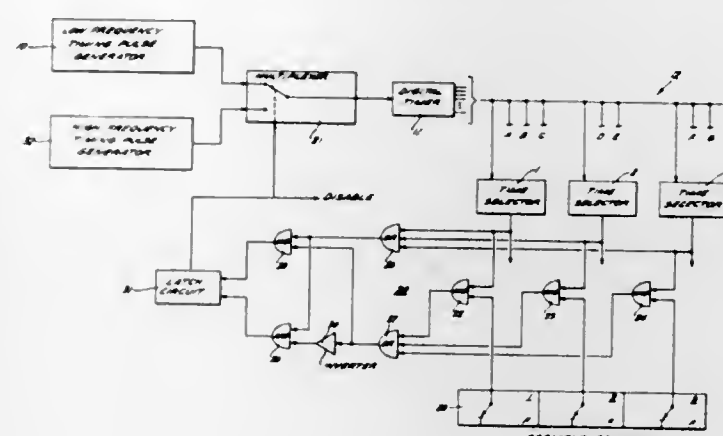
Int. Cl. H04q 9/00

U.S. Cl. 340—147

6 Claims

In a programmer for controlling the operation of a plurality of segments in a multiple segment selector system that nor-

mally sequences all segments in series, wherein a source of low-frequency timing pulses is applied to a digital timer which sequentially activates the segments, a simplified means for selectively bypassing any number of said segments comprising a source of high-frequency timing pulses, selector means for generating a separate disable signal for each of the segments to be bypassed, coincidence means responsive to the activation of each of the segments and the selector means



3,638,190

ADJUSTABLE SOLID-STATE PROGRAM CONTROL FOR TEST SYSTEMS

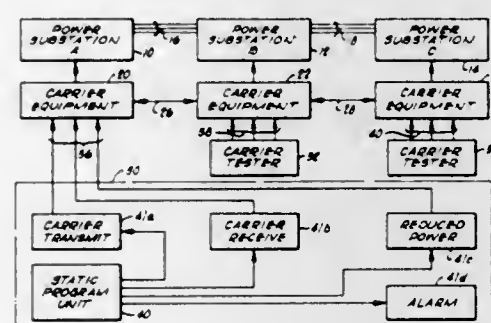
Marion D. Knox, Oklahoma City, Okla., assignor to Wayne Electronic Products Company, Oklahoma City, Okla.

Filed Jan. 8, 1970, Ser. No. 1,524

Int. Cl. H04q 9/00

U.S. Cl. 340—147 R

11 Claims



Apparatus for performing automatic control of carrier systems which apparatus consists of solid-state circuitry utilizing no moving parts and which performs program timed operations as between a master transmitting and receiving carrier system and one or more remotely disposed transmitting and receiving carrier units. The apparatus consists of a time base generator which can provide a selected sequence of outputs for application to control an adjustable program matrix through a series of carrier control functions. Outputs from the programmable matrix are then applied to selected components of the carrier system to effect the desired control functions at the proper times.

3,638,191

PRODUCTION MONITORING SYSTEM

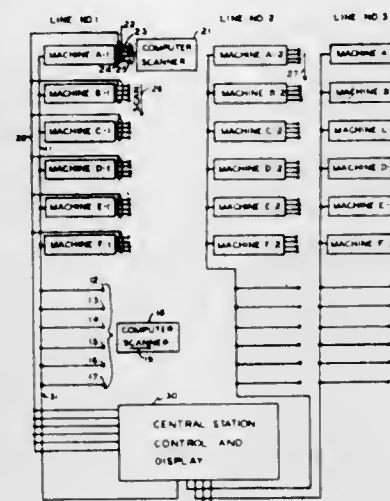
Charles G. Mann, Farmington, Mich., assignor to Weltronik Company, Southfield, Mich.

Filed Jan. 8, 1968, Ser. No. 696,462

Int. Cl. H04q 5/00

U.S. Cl. 340—163

19 Claims



A system providing an interface between work stations in a manufacturing plant and a central station which may include signals to supervisory personnel, and means to apply signals to a supervisory computer. The computer is arranged to regularly monitor a restricted scope of production criteria and in response to any change indicating a significant alteration in plant operation, to review a broadened scope of production criteria and information. Work stations are broken down into groups and groups into lines such that computer time is efficiently utilized by reviewing in detail only the work stations of a group in which a significant change has occurred. Indicators at the central station are oriented to reflect conditions on a line of work stations and include the feature of treating the line as "down" when any station in the line is "down," even though the remaining stations may be in a "run" status.

3,638,192

ASYNCHRONOUS PULSE INFORMATION CLOCK PHASE IMPARTED SHIFT REGISTER DECODER

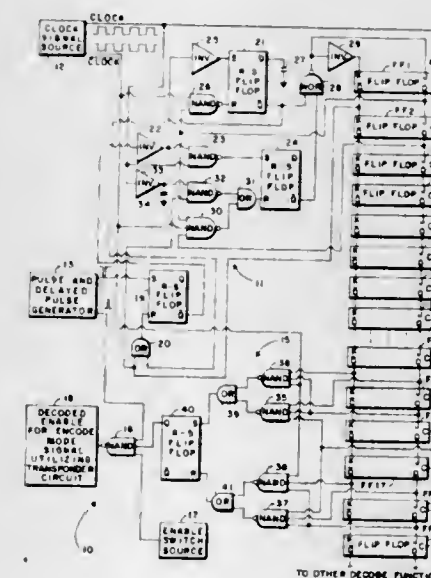
Kenneth R. Rutherford, and Lyle R. Strathman, both of Cedar Rapids, Iowa, assignors to Collins Radio Company, Dallas, Tex.

Filed July 6, 1970, Ser. No. 52,226

Int. Cl. H04q 9/00; H04l 27/24, 27/14

U.S. Cl. 340—168 R

20 Claims



An asynchronous data to clock phase scripted shift register encoder and time/phase decoder circuit with clock phase in-

formation in the shift register in the form of two clock period wide pulses or one clock period wide pulses depending on the asynchronous data being either in phase or out of phase respectively with the clock. The system enables a reduction in shift register elements by a factor of 2 to 1, maximizes the decoder gate aperture, and the time decoder is capable of determining the correct delay to within one-half a clock period while a conventional shift register decoder does so only to within one clock period.

3,638,193

β -ELEMENT SWITCHING NETWORK CONTROL

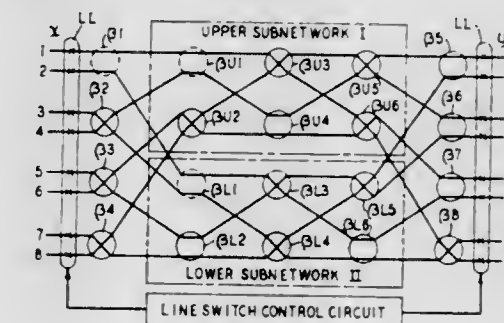
David Clement Opferman, Middletown, N.J., and Nelson Tsai Tsoo-Wu, Boulder, Colo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 2, 1970, Ser. No. 7,871

Int. Cl. H04m 7/00

U.S. Cl. 340—172.5

13 Claims



Control arrangement for a switching network comprised of reversing switch β -elements in which the states of the β -elements are determined by repetitively subdividing the list of input and output points that are to be connected together into sublists such that each sublist is independent in that it does not contain more than one terminal of any β -element in the network. The iterations are advantageously performed by modifying the terminal numbers encoded in a binary one-less code. The control arrangement provides for automatically achieving nonblocking interconnection of the network input and output points.

3,638,194

FIXED MEMORY APPARATUS

Shigenori Matsushita, and Tatsuo Ishikawa, both of Tokyo, Japan, assignors to Tokyo Shibaura Electric Company Limited, Kawasaki-shi, Japan

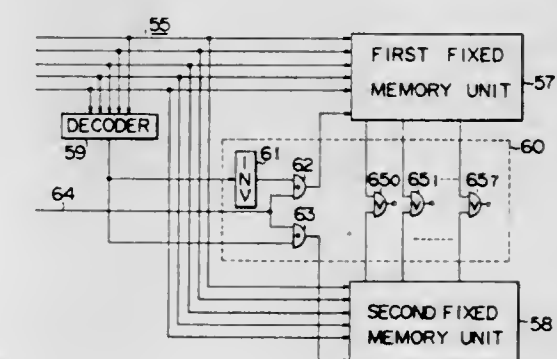
Filed Mar. 25, 1970, Ser. No. 22,433

Claims priority, application Japan, Dec. 16, 1969, 44/100602

Int. Cl. G11c 5/02

U.S. Cl. 340—172.5

15 Claims



A fixed memory apparatus comprising a first memory unit having a fixed configuration in which it is substantially impossible to alter the memory content, a second fixed memory unit in which the memory content is relatively easily altered and a logic control means for logically controlling the memory contents read out of both said fixed memory units.

medium which produce modulation of both the reading and control beams as the result of absorption of both beams are identified as being damaged.

3,638,202

ACCESS CIRCUIT ARRANGEMENT FOR EQUALIZED LOADING IN INTEGRATED CIRCUIT ARRAYS

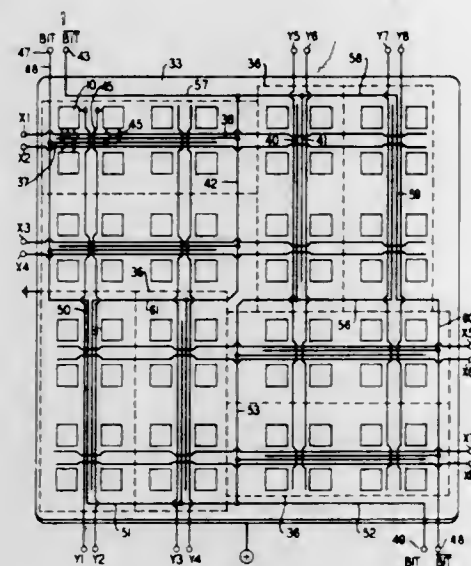
Paul Robert Schroeder, Allentown, Pa., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Mar. 19, 1970, Ser. No. 21,090

Int. Cl. G11c 5/06

U.S. Cl. 340-173 FF

13 Claims



Metalized row and column access circuits for an integrated circuit memory chip each includes crossunders to accommodate intersecting circuits along about half of the extent of such circuit on the chip and no crossunders for the remainder of its extent. The distribution of crossunders along each circuit is such that the bulk of the included crossunders are in the part of the circuit more remote from the circuit-driving point than is the part which is essentially free of crossunders. Metalized bit circuits for the chip are arranged so that they always extend physically parallel to access circuit parts which are free of crossunders so that the bit circuits are entirely free of crossunders. Schematic and actual layouts for a cell used in such a memory chip are shown.

3,638,203

RANDOM ACCESS SOLID-STATE MEMORY USING SCR'S

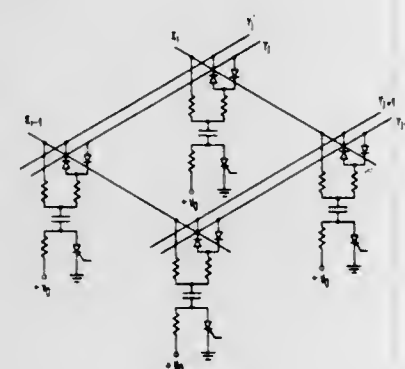
Arvindkumar M. Patel, Wappinger Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 30, 1969, Ser. No. 846,123

Int. Cl. G11c 7/00, 11/14

U.S. Cl. 340-173

7 Claims



A memory array comparable to a core memory may be built up by use of a low-power silicon-control rectifier as the

bistable element in each memory cell. In the preferred embodiment the gate of the low-power SCR is not used, and the four-layer device is referred to as a trigger diode. The trigger diode is driven into a high-conductance state by exceeding the breakover voltage and into a low-conductance state by dropping the current below the holding current. During the high-conductance state, the holding current is guaranteed by a bias circuit directly connected to the anode of the trigger diode. The diode is switched from one bistable state to the other by transient voltages generated in an adjoining circuit. The transients are coupled to the trigger diode by a capacitor. Both the read and write operation are half-select operations so that a single memory cell may be selectively written to a "1" or to a "0" stable state. Readout is accomplished by half-select driving one coordinate and monitoring the drive line on the orthogonal coordinate.

3,638,204

SEMICONDUCTIVE CELL FOR A STORAGE HAVING A PLURALITY OF SIMULTANEOUSLY ACCESSIBLE LOCATIONS

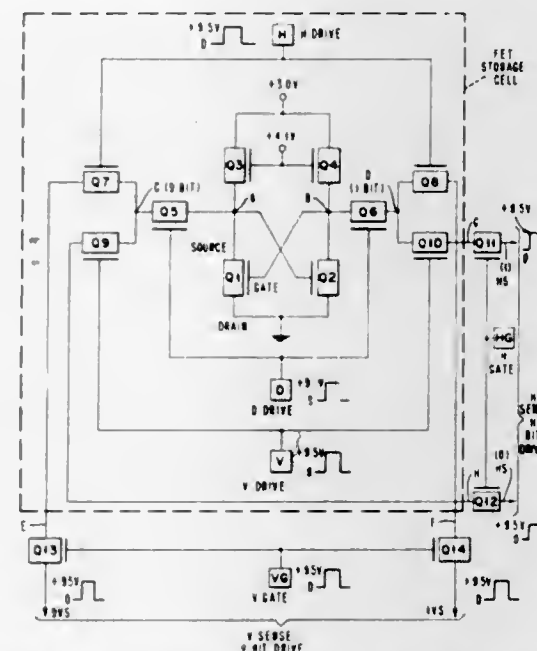
Eugene Kolankowsky, Pleasant Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 19, 1969, Ser. No. 886,509

Int. Cl. G11c 11/40; H03k 3/286

U.S. Cl. 340-173 FF

14 Claims



A storage cell especially suited for use in an array of cells wherein cells may be simultaneously accessed by a plurality of different addressing systems for reading and writing of information via independent sensing and bit driving devices. A latch, constructed from field effect transistors (FET) in a known manner, is selected for accessing by driver lines, retaining and indicating information in accordance with signals supplied on a sense bit driver line pair. The number of drivers required to select the cell and the number of sense bit driver line pairs are increased by providing additional FET devices to gate, in accordance with selected driver signals, information between the latch and sense bit driver line pairs selected in accordance with the relative locations of information simultaneously accessed in the array.

3,638,205

MAGNETIC DOMAIN PROPAGATION ARRANGEMENT

John Alexander Copeland, III, Gillette, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 29, 1970, Ser. No. 50,568

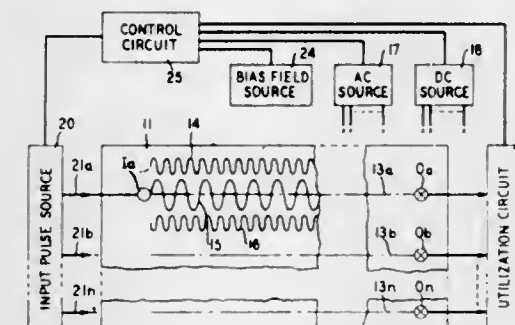
Int. Cl. G11c 19/00, 11/14

U.S. Cl. 340-174 TF

7 Claims

A single electrical conductor to which an AC signal is applied causes oscillation of a single wall domain in a substrate

of magnetic material in which such domains can be moved. The presence of a DC current in auxiliary conductors to either side converts the oscillation to displacement along the



axis of the single conductor. A reversal of the polarity of the DC currents reverses the direction of displacement of domains.

3,638,206

DOMAIN PROPAGATION ARRANGEMENT

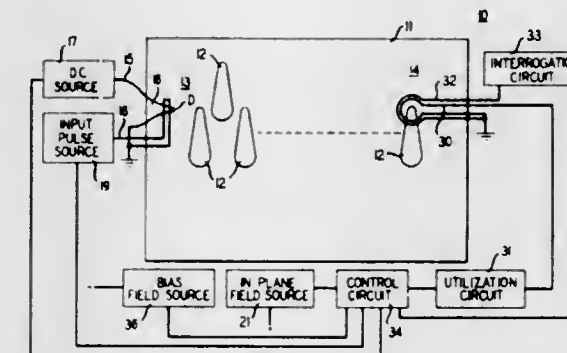
Alfred Almstedt Thiele, East Orange, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 8, 1970, Ser. No. 35,747

Int. Cl. G11c 19/00, 11/14

U.S. Cl. 340-174 TF

13 Claims



Single wall domains are moved in a slice of magnetic material by changing magnetic pole patterns in a soft magnetic overlay in response to a magnetic field reorienting in the plane of the slice. Several overlay geometries are described for achieving improved operation and for a fuller utilization of the potential of presently available photolithographic techniques.

3,638,207

MAGNETIC DEVICES

David H. Smith, Lebanon Township, Hunterdon County, and Le Grand G. Van Uiter, Morris Township, Morris County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 17, 1969, Ser. No. 877,368

Int. Cl. G11b 5/62

U.S. Cl. 340-174 TF

4 Claims

Partial substitution of small amounts of cobalt in a class of materials, sometimes referred to as hexagonal ferrites, produces marked changes in anisotropy. This, in turn, results in an increase in domain wall mobility or in other characteristic changes of device interest. A leading class of such devices is known as "bubble" or single-wall domain devices.

3,638,208

MAGNETIC DOMAIN LOGIC CIRCUIT

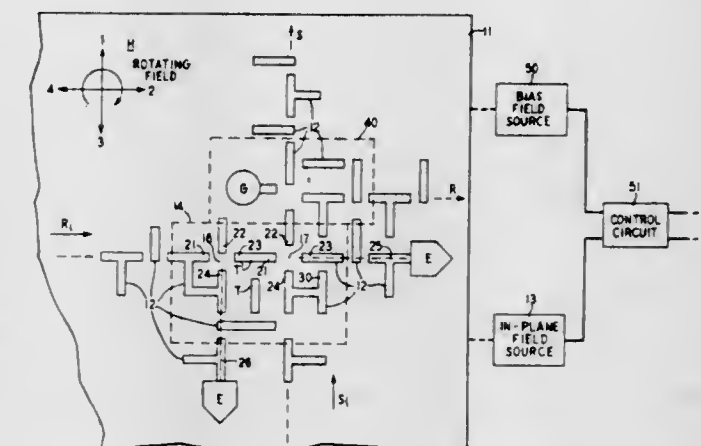
Woo Foung Chow, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 15, 1970, Ser. No. 46,126

Int. Cl. G11c 21/00, 11/14

U.S. Cl. 340-174 TF

7 Claims



A magnetic domain logic circuit is realized by designing a magnetically soft overlay to advance domains along a first or second channel depending on domain interactions. The presence or absence of a control domain for effecting the interaction is determined by the movement of a single control domain.

3,638,209

ESCAPEMENT MECHANISMS

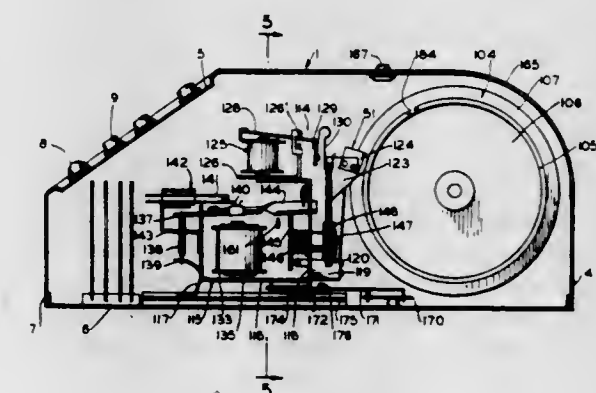
Richard K. Snook, Bridgeton, Mo., assignor to Research Systems Corporation, Bridgeton, Mo.

Original application Dec. 22, 1967, Ser. No. 692,975. Divided and this application Apr. 9, 1970, Ser. No. 27,096

Int. Cl. G11b 21/08

U.S. Cl. 340-174.1 C

16 Claims



Escapement mechanisms for use with apparatus having a reading member, such as a reading head, and a record member such as a magnetic storage device and which members are shiftable relative to each other. In one embodiment of the apparatus, the escapement mechanism carries a reading head on a support member which is shiftable longitudinally relative to a base member. A ratchet means enables intermittent shifting of the support member and the reading head along the base so that the reading head is sequentially positioned with respect to various adjacent elements on the storage member. A first solenoid actuable member is connected to the ratchet-type means for actuating the ratchet-type means upon receipt of a first control signal. A shifting member is also located on the base means for intermittently shifting the head in a second direction toward and away from the storage member. The second solenoid actuable member

is capable of actuating the shifting means upon receipt of a second control signal. A mechanism is provided for causing the head to shift toward and away from the storage member immediately upon termination of the shifting of the support member longitudinally with respect to the storage member. A second escapement mechanism is provided for shifting the storage member with respect to the reading head and includes a shaft retaining the storage member and enabling rotation of the storage member with respect to a base member. A plurality of escapement elements are associated with the shaft and receive various engageable elements normally biased into engagement with the escapement elements to prevent axial movement of the shaft. A follower mechanism controls the engageable elements and sequentially biases the engageable elements into and out of engagement with the escapement elements to thereby enable axial shifting movement of the shaft.

3,638,210

INTRUSION ALARM SYSTEM WITH TURBULENCE COMPENSATION

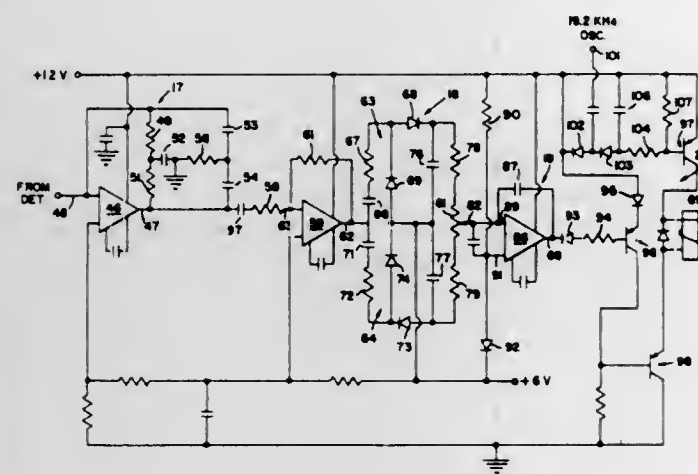
Thomas C. Hankins, and David Glen Barleen, both of Oakland, Calif., assignors to Systron-Donner Corporation, Concord, Calif.

Filed June 26, 1970, Ser. No. 50,233

Int. Cl. G08b 13/18

U.S. Cl. 340—258 A

8 Claims



Ultrasonic intrusion alarm system with oppositely phased voltage doublers and timing capacitors for distinguishing between the movements of an intruder and other movements such as air turbulence. An operational amplifier in the input stage provides common mode rejection; an integrator prevents actuation of the alarm by disturbances of short duration, and fail-safe means is included to prevent the system from being deflated by disabling it.

3,638,211

CRANE SAFETY SYSTEM

Albert A. Sanchez, Wilmington, Mass., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Oct. 8, 1969, Ser. No. 864,728

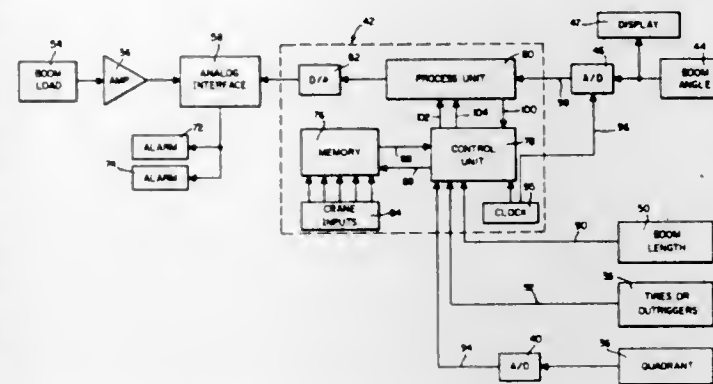
Int. Cl. B66c 15/00

U.S. Cl. 340—267

12 Claims

A system is shown for warning the operator of a crane when the crane is about to overturn due to the moment of a heavy load or when the weight of that load could cause structural failure of the crane. Sensors for measuring the boom length, boom angle, condition of the crane support, and the quadrant in which the crane is operating are connected to the crane and apply signals to a computer which selects previously stored information from a memory unit depending

on the signals received. This stored information is applied to a comparator which compares the stored signal against a



measured load signal and provides a warning alarm to the crane operator when the two signals approach each other.

3,638,212

OVERLOAD SAFETY DEVICE FOR JIB CRANES

Kurt Peter, Karlsruhe; Gerd Huhne, Morach; Harald Kauer; Knud Overlach, both of Karlsruhe, and Volker Schlicker, St. Georgen, all of Germany, assignors to Ludwig Pletzsch, Karlsruhe, Germany

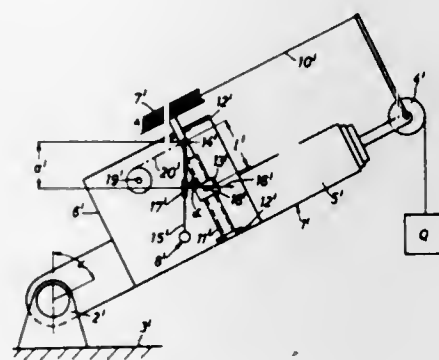
Filed Oct. 14, 1969, Ser. No. 866,338

Claims priority, application Germany, Oct. 16, 1968, P 18 03 457.6; Nov. 23, 1968, P 18 10 639.3; Jan. 24, 1969, P 19 03 493.6

Int. Cl. G08b 21/00

U.S. Cl. 340—267 C

22 Claims



Overload safety device for jib cranes includes means for measuring a crane jib working radius, a multiple tapped potentiometer having a coil, input leads to the coil, and a slider, means for transferring the jib working radius measurement to an angular movement of the slider, means for supplying an independently adjustable voltage to each of the input leads of the potentiometer coil, load measuring means for producing an output voltage corresponding to a given load carried by the jib, means for comparing the output voltage of the potentiometer and the output voltage of the load measuring means, and means for releasing an overload signal when the output voltages of the potentiometer and the load measuring means are equal.

3,638,213

ELECTRICAL ALARM SYSTEM

Glenn C. Dagle, 24844 Pennie Road, Dearborn Heights, Mich.

Filed Dec. 17, 1969, Ser. No. 885,733

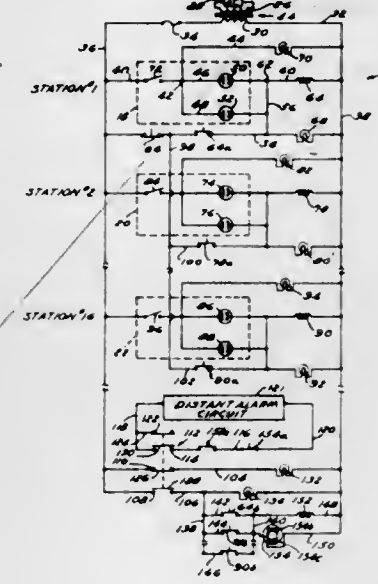
Int. Cl. G08b 13/18

U.S. Cl. 340—280

9 Claims

The electrical alarm system is particularly adapted for use in connection with banks to sound an alarm during a bank robbery. The alarm system includes a photocell device which is positioned beneath a stack of treasury bills located in a money compartment at a teller's cage. Removal of the entire

stack of bills by a teller in response to the demand of a bank robber exposes the photocell to light rays whereupon the



photocell is energized and triggers an alarm system to apprise security forces of the existence of the emergency.

3,638,214

VECTOR GENERATOR

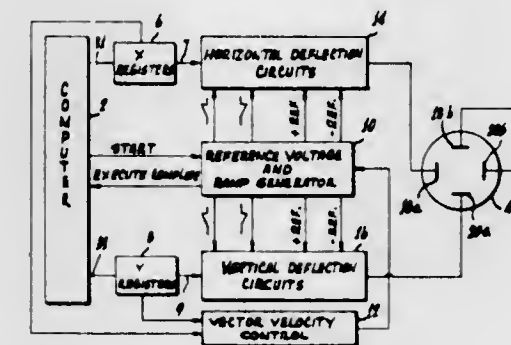
Howard Mulder Scott, Morristown, and Carl Rutherford Corson, Trenton, both of N.J., assignors to RCA Corporation

Filed Jan. 23, 1970, Ser. No. 5,229

Int. Cl. G06f 3/14

U.S. Cl. 340—324 A

8 Claims



Complementary ramp waves are generated which extend between first and second direct-current levels. During successive time intervals, multiple digit binary words are generated defining the horizontal and vertical components of the vector being generated. Registers store the binary words, and gates respond to the stored digits for controlling a plurality of switches which select for each digit one of the complementary ramp waves or the direct-current levels, depending on whether or not a digit has changed value during the preceding time interval. A sum wave is obtained for each component of the vector by adding the selected waves with weights dependent on the power of two represented by a particular digit. The sum waves serve as deflection waveforms for the respective deflection means of the cathode-ray tube.

3,638,215

DISPLAY SYSTEM WITH SOLID MATRIX DISPLAY BOARD

Robert A. Payne, Des Plaines, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed May 28, 1970, Ser. No. 41,310

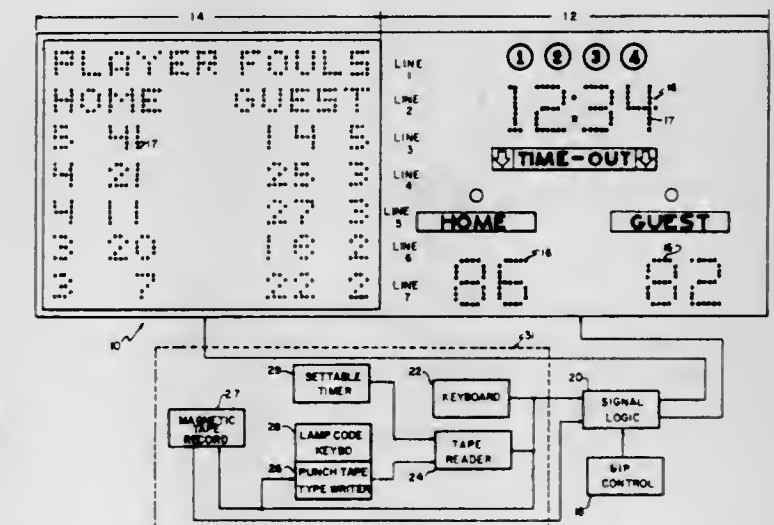
Int. Cl. G09f 13/00

U.S. Cl. 340—324 R

8 Claims

Display system utilizing a solid matrix display board having a plurality of display lines each of which is made up of lamps

arranged in vertical columns and horizontal rows, the display lines and display element columns being locatable by address code data. A shift register is associated with each row, and each storage stage thereof is sequentially related to a lamp in the row. The control circuits for the system select a display line indicated by the input data and the encoded signals for desired data characters are shifted through the shift register



3,638,216

CHARACTER GENERATION SYSTEM

Arthur Edward Brewster, Cheshunt, England, assignor to International Standard Electric Corporation, New York, N.Y.

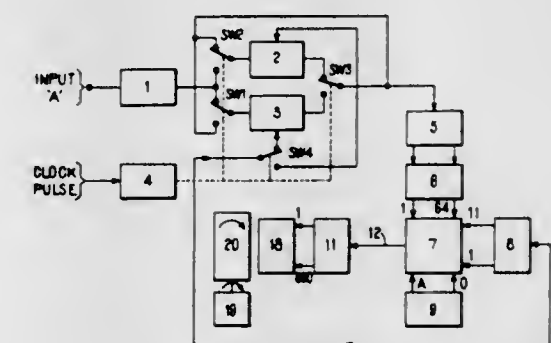
Filed Mar. 24, 1969, Ser. No. 809,896

Claims priority, application Great Britain, Apr. 4, 1968, 16,157/68

Int. Cl. G06f 3/14

U.S. Cl. 340—324 R

19 Claims



The invention provides a character generation system for converting input data signals into driving signals for a full-page-width mosaic printer or display. The number of columns of a storage matrix which are scanned during the generation process is determined by the character set into the matrix; thus the length of line occupied by a character is determined by the size of the character.

Facilities for line justification and the generation of bold, italic and varying-size characters are also outlined.

3,638,217

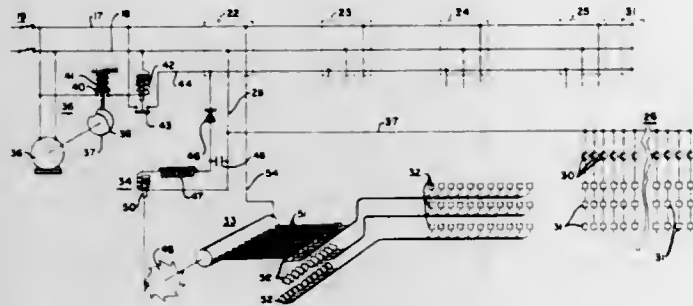
CHANGEABLE CHARACTER DISPLAY SYSTEM

Eldon L. Sutherland, Grand Junction, Colo., assignor to Benjamin L. Noel, Uniontown, Ala.

Filed Sept. 5, 1968, Ser. No. 757,692
Int. Cl. G09f 9/34

U.S. Cl. 340—336

5 Claims



A changeable message signal comprises a plurality of multiple light source panels arranged in rows for presentation of letters and numerals. The panels are energized in accordance with predetermined patterns and the patterns for the individual panels are changed by operation of stepping switches. A bank of circuit-selecting members such as printed circuit cards may readily be changed to change the information on the panels and each position of the stepping switches energizes a different set of the members to provide a multiplicity of messages in turn.

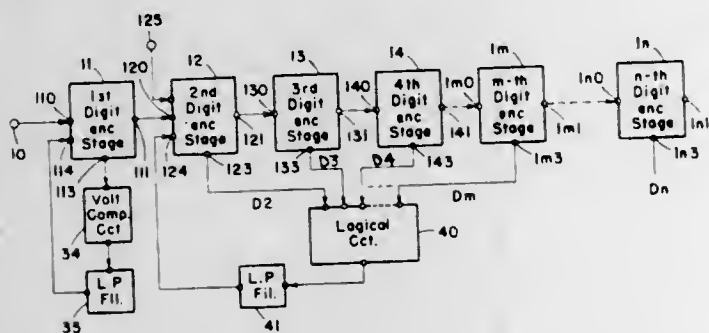
3,638,218

DRIFT COMPENSATION SYSTEM FOR A CASCADE-TYPE ENCODER

Haruo Kaneko, and Yoshio Katagiri, both of Tokyo, Japan, assignors to Nippon Electric Company, Tokyo, Japan
Filed Aug. 31, 1970, Ser. No. 68,069Claims priority, application Japan, Nov. 1, 1969, 44/88259
Int. Cl. H03k 13/02

U.S. Cl. 340—347 CC

6 Claims



A drift compensation circuit for a cascade encoder used in a pulse code modulation communication system, including at least first, second through m -th encoders connected in cascade for converting an intermittent input analogue signal into an output digital binary signal subject to deterioration in the respective encoders due to drift of the level of direct current utilized to effect energization thereof, comprising first feedback means connected to the first encoder for providing an output of zero level while the input analogue signal is absent therefrom, a reference analogue signal of predetermined level supplied to the second encoder, and second feedback means comparing the levels of digital analogue signals derived from the respective second through m -th encoders and corresponding to the reference analogue signal with a predetermined reference digital binary signal representing the reference analogue signal to provide a signal to activate the second encoder to adjust the levels of the derived digital binary signals to coincide with the level of the reference digital binary signal.

3,638,219

PCM CODER

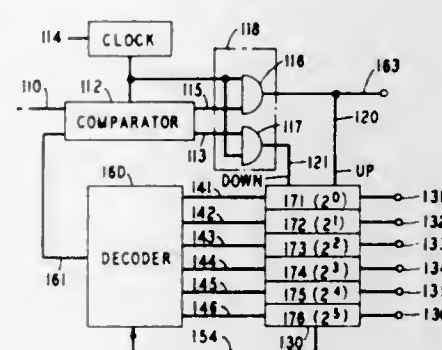
David A. Harms, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 23, 1969, Ser. No. 827,261

Int. Cl. H03k 13/22

U.S. Cl. 340—347 AD

4 Claims



A delta modulator converts an analog signal into a PCM code and also provides a corresponding delta modulated signal. The modulator includes a bidirectional counter in its feedback path which counter stores a code corresponding to the sequence of sampled delta modulated signals. The stored code is converted into an analog feedback signal and a PCM code is derived from the counter outputs.

3,638,220

FORCE-BALANCING MEANS FOR A LINEAR TAPE TRANSDUCER

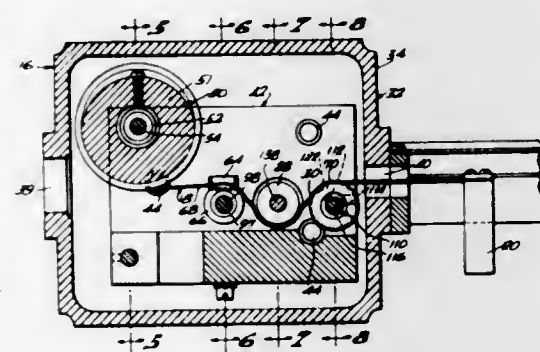
Jay T. Malina, and Mitchell Tress, both of Miami Beach, Fla., assignors to Anilam Electronics Corporation, Hialeah, Fla.

Filed Sept. 15, 1969, Ser. No. 858,003

Int. Cl. H03k 13/02

U.S. Cl. 340—347 AD

13 Claims



This invention pertains to a linear tape transducer including a force-balancing means to balance the forces on a measuring roller, carried by a pulse generator, having a spring-tempered measuring tape partially wrapped around said measuring wheel. The linear tape transducer includes a retractable-type of spring-tempered measuring tape and converts the mechanical movement of a movable member of a machine tool into electric pulses which are, in turn, converted into numbers, illuminated on a display unit for visual observation by the operator, to indicate the amount of movement of said movable member. The force balancing means consists generally of a pair of guide rollers for the measuring tape with the measuring roller disposed therebetween. The result of the force balancing being to achieve a minimum resultant force on the axis of the measuring pulse generator.

One of the guide rollers is adjustable whereby the path of the measuring tape may be varied as it passes partially around each of the guide rollers and the measuring roller to compensate for minute variations in the mounting of the various components.

3,638,221

SOLID-STATE KEYBOARD

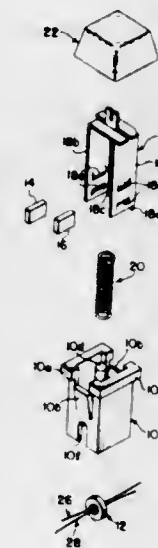
Victor M. Bernin, Mount Prospect, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Nov. 24, 1969, Ser. No. 879,220

Int. Cl. H03k 17/02

U.S. Cl. 340—365

9 Claims



The disclosure describes solid-state keyboards employing a saturable magnetic core switch for each key. Each key has a keystem of magnetic material, the keystem having legs extending on opposing sides of the core. Two permanent magnets are attached to the keystem. When a key is not depressed, the magnets are located adjacent opposing sides of the core so that a flux path is formed through the core, the keystem, and the two magnets, to thereby saturate the core. When a key is depressed, the permanent magnets are moved away from the core so that it becomes unsaturated. The core is threaded by one or more windings, at least one of them being excited from an AC drive source. The core and its winding or windings may act as a transformer or variable inductance. Depending upon the wiring configuration employed, a single output signal or a coded combination of output signals may be obtained when a key is actuated.

3,638,222

FLUX GATE SWITCH

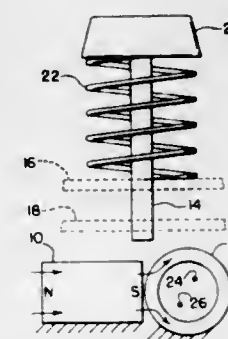
Victor M. Bernin, Mount Prospect, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Nov. 24, 1969, Ser. No. 879,219

Int. Cl. H03k 17/02

U.S. Cl. 340—365

13 Claims U.S. Cl. 343—771



This disclosure describes a solid-state magnetic switch such as that used in keyboard devices. The switch includes a keystem of magnetic material, a magnetic core, and a permanent magnet adjacent the magnetic core. When the keystem is not depressed, the flux from the magnet saturates the core. When the keystem is depressed, it moves adjacent the permanent magnet and provides a flux path which

3,638,223

OSCILLATOR MEANS FOR DRIVING A RESONANT LOAD

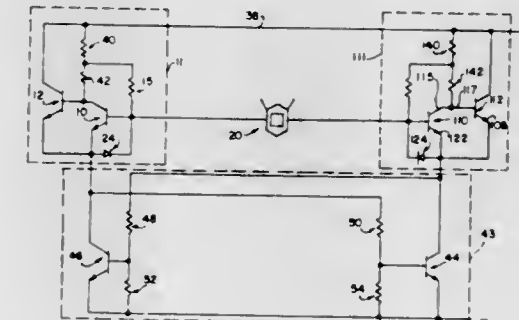
Bronson M. Potter, RFD #1, Greenville, N.H.

Filed May 1, 1969, Ser. No. 820,890

Int. Cl. G08b 3/00

U.S. Cl. 340—384 E

4 Claims



Improvements in sonic alerting devices of the type controlled by the natural frequency of the transducer are shown as well as improved circuits for driving loads in general. Efficient drive circuits suited for but not limited to integrated circuit chips employ transistors connected in the common collector-common base configuration. Very efficient quasi-symmetrical circuits are shown employing cross coupled transistors in place of inefficient resistors.

Bridge oscillators are shown in which the transducer controls the frequency of oscillation and in which the voltage driving the transducer is nominally twice the supply voltage. There are circuits made of two sets of elements and each set compels the other to oscillate at opposite phase with additive effect in powering the transducer.

3,638,224

STACKED ARRAY OF OMNIDIRECTIONAL ANTENNAS

Marion C. Bailey, Blacksburg, and William F. Croswell, Hampton, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Apr. 24, 1970, Ser. No. 31,703

Int. Cl. H01q 13/10

U.S. Cl. 343—771

3 Claims



A stacked vertically polarized collinear array of a plurality of independently fed omnidirectional antennas operating at

different frequencies. Each antenna consists of an array of five circumferential slots in the outer conductor of a dielectric filled shorted coaxial transmission line with a hollow center conductor for feed leads to pass through.

3,638,225

ANTENNA WINDSHIELD

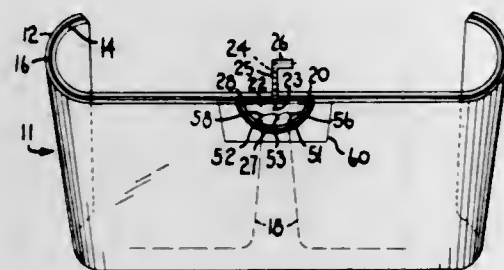
Rodger V. Zawodniak, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 773,805, Nov., 1968, now Patent No. 3,543,272. This application Aug. 13, 1970, Ser. No. 63,362

Int. Cl. H01q 1/32

U.S. Cl. 343-713

5 Claims



An improved antenna for a laminated windshield comprising two glass sheets, one of which has a notched portion in its lower edge portion and a single continuous antenna wire mounted in a plastic interlay that adheres the two glass sheets together. The wire has its central portion exposed for electrical connection within the notched portion to a metal tab electrically connected to a radio receiver. The notched portion is filled with an electrical insulating material, such as polysulfide resin, enclosed on one side with a transparent tape of electrical insulation material, such as polyurethane or polyethylene.

3,638,226

PLANAR-TYPE SPIRAL ANTENNA

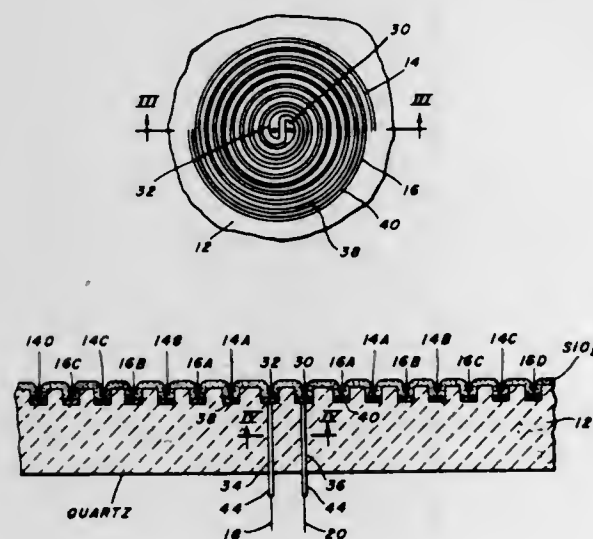
Charles G. Brooks, Kingsville, and Noel C. Peterson, Severna Park, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 10, 1970, Ser. No. 53,798

Int. Cl. H01q 1/36, 1/40

U.S. Cl. 343-895

7 Claims



A planar-type spiral antenna assembly capable of handling higher input powers than prior art planar antennas and enabling greater ranges of a radiated beam of electromagnetic wave energy. This is accomplished by recessing the spiral convolutions of conductive material forming the anten-

na into corresponding spiral slots formed in a dielectric disc having a high-dielectric strength, the disc being formed from a material such as quartz or alumina. The spiral convolutions of conductive material, recessed within the aforesaid slots, are preferably covered with a dielectric material such as silicon monoxide or silicon dioxide to further increase the dielectric constant in the space between adjacent conductors.

3,638,227

AUTOMATIC THRESHOLD PLOTTER

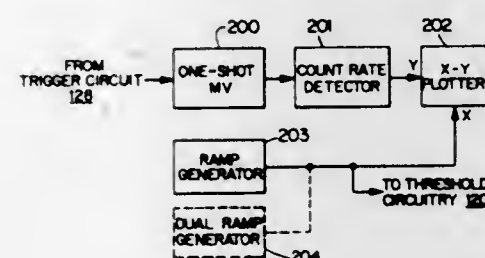
Henry R. Angel, Trumbull, Conn., assignor to General Science Corp., Bridgeport, Conn.

Filed Apr. 28, 1970, Ser. No. 32,524

Int. Cl. G01d 9/40; G06m 11/00

U.S. Cl. 346-1

6 Claims



An automatic threshold plotter for use with a particle-counting system in which, during a single analytical run, a plot is provided of particle count rate as a function of threshold voltage from which particular threshold settings can be readily determined.

3,638,228

AIRCRAFT RANGE PLOTTING MEANS

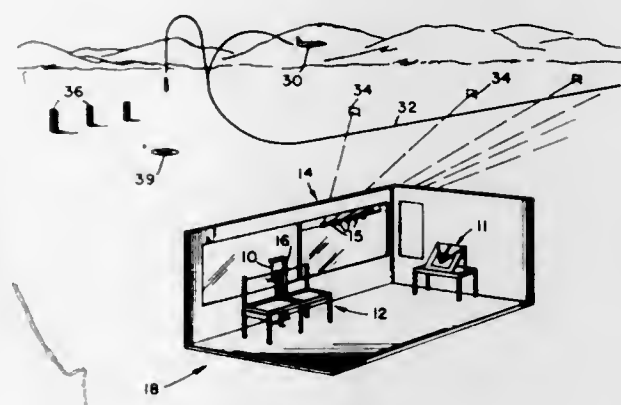
Everett B. Hill, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 4, 1969, Ser. No. 882,074

Int. Cl. G01c 21/22

U.S. Cl. 346-8

4 Claims



This invention involves the instrumentation necessary for training aircraft pilots in bombing techniques. The essential elements of the system are a flight-profile plotter, an optical tracker, three impact-spotting quadrants, an impact-spotting board, and a timing console. When the training includes dive bombing and conventional-weapons delivery, optical acquisition and radar acquisition systems are added. This equipment measures the aircraft's speed and flight path while it performs weapons delivery maneuvers.

3,638,229

TIME-RECORDING APPARATUS

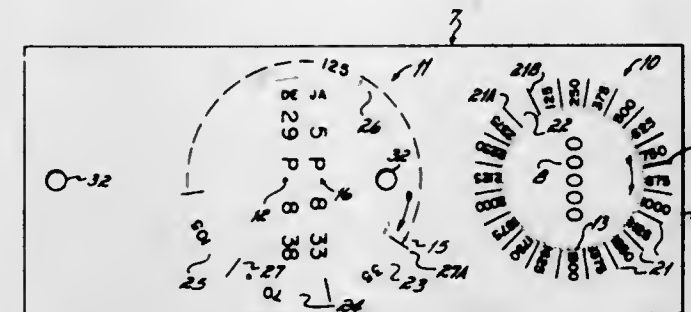
Thomas J. Schinner, Cincinnati, Ohio, assignor to The Cincinnati Time Recorder Company, Inc., Cincinnati, Ohio

Filed Feb. 5, 1970, Ser. No. 8,822

Int. Cl. G07c 1/30

U.S. Cl. 346-24

8 Claims



A time-recording apparatus and system for automobile parking garages in which there is provided an "in" clock and "out" clock, the two clocks synchronized with one another to provide a printed ticket which indicates arrival time ("in" clock) and a record of the time of departure ("out" clock) with the parking rate and corresponding charge automatically printed on the ticket for payment to the cashier.

3,638,230

APPARATUS FOR MEASURING DYNAMIC LOSS ANGLE
Masashi Umeno, Kawasaki; Shiro Yabuta, Yokohama, and Takashi Nishida, Tokyo, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

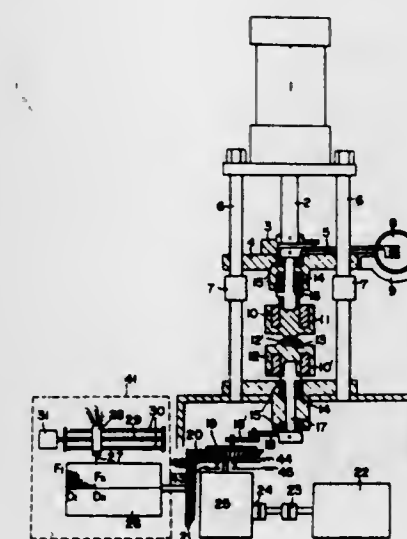
Filed June 24, 1970, Ser. No. 49,486

Claims priority, application Japan, June 27, 1969, 44/50366

Int. Cl. G01n 25/02

U.S. Cl. 346-33 R

2 Claims



The dynamic loss angle of rubber or plastic materials is measured with simplicity by using a vibration-type cure meter such as curelometer, wherein the moment the deformation of a specimen of the rubber or plastic materials is ± 0 and the moment the torque of the specimen is ± 0 , electric current is caused to flow in an event marker moving against the peripheral surface of a rotary drum adapted to rotate in synchronous relation with the vibration of the tester, whereby pulses are recorded on the rotary drum.

3,638,231

DEVICE FOR RECORDING WITH ELECTRON RAYS

Jan B. Le Poole, Delft; Leendert A. Fontijn, Maastricht, and Alfred B. Bok, Berkel, all of Netherlands, assignors to Nederlands Centrale Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek, The Hague, Netherlands

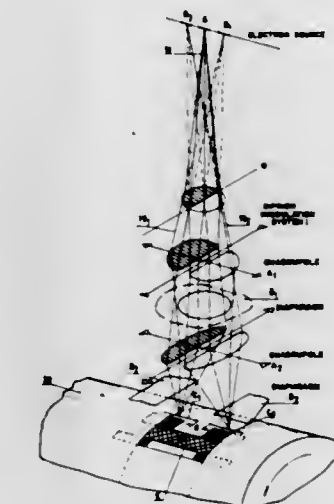
Filed May 26, 1969, Ser. No. 827,510

Claims priority, application Netherlands, May 27, 1968, 6807439

Int. Cl. B23k 15/00; G01d 15/04; G11c 13/00

U.S. Cl. 346-74 EB

13 Claims



A device is disclosed for recording image elements, by exposing recording material, at constant current density with the aid of a focused electron beam provided with means before the last focusing device for varying the shape and/or size, in the recording plane, the cross section of the electron beam in conformity with image signals.

3,638,232

REAL-TIME COHERENT OPTICAL PROCESSOR

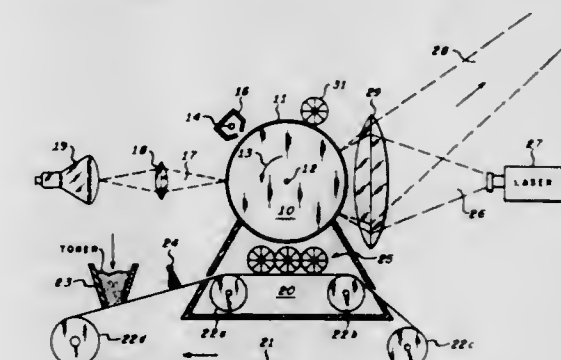
Donald Howland McMahon, Carlisle, and William Thomas Maloney, Sudbury, both of Mass., assignors to Sperry Rand Corporation

Filed Jan. 23, 1970, Ser. No. 5,437

Int. Cl. G03g 15/04; G01d 15/06

U.S. Cl. 346-74 CR

4 Claims



A coherent optical processor comprising writing, developing, readout and erasing stations disposed proximate to and consecutively spaced along the direction of motion of a rotatable drum having a photoconductive layer affixed thereto. A time-varying signal is written on the photoconductive layer by first establishing a uniform electrostatic charge thereon and then applying a light beam to spatially modulate the electrostatic charge pattern in accordance with time-amplitude variations of the light beam. Next it is exposed to a cloud of toner particles at the developing station whereat the spatially distributed electrostatic charge pattern is converted to a visible image of varying transparency. Optical processing

is performed as the visible image passes the readout station where it intersects a laser beam and thereafter the toner image is erased from the tape in readiness for the next cycle of operation commencing at the writing station.

3,638,233

TIME CARD RECORDER

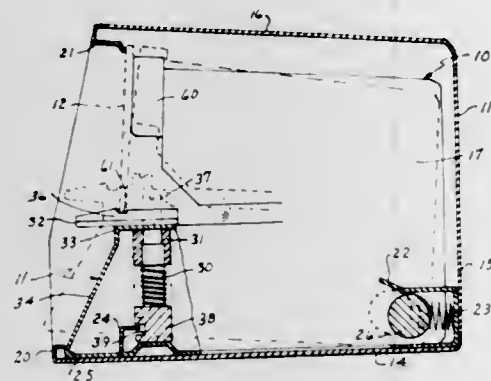
Menachem Futter, Jamaica, N.Y., assignor to Heat Timer Corporation, New York, N.Y.

Filed July 8, 1969, Ser. No. 839,836

Int. Cl. G07c 1/06

U.S. Cl. 346-82

4 Claims



A device for recording time of initiation and ending of work periods commonly referred to as a "timeclock" and more particularly certain features of a timeclock. A timeclock should be a precise timing device and safely guarded from any tampering or false recording, therefore in this instance, the timeclock is housed in a foolproof locked housing into which the device is inserted easily, quickly and ready for immediate use or as easily removed by authorized personnel. The timeclock is also provided with mechanized card-handling features to remove the human element, that is, the card when inserted in a slot in the housing is automatically gripped and moved to processing and returned duly processed.

3,638,234

QUANTITY RECORDER

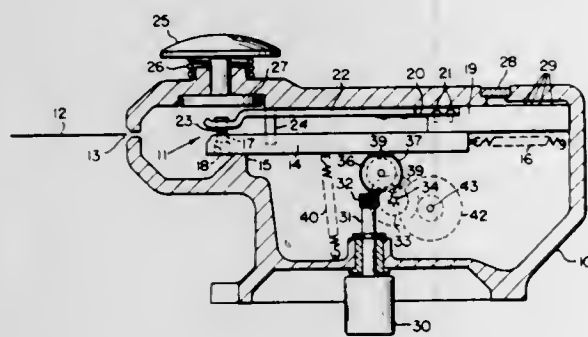
James R. Fiannaca, Rochester, N.Y., assignor to Metrix Data Systems, Inc., Rochester, N.Y.

Filed Feb. 24, 1969, Ser. No. 801,638

Int. Cl. G01d 4/00

U.S. Cl. 346-95

6 Claims



A quantity recorder advances punch sets repeatedly at different rates from the beginning to the end of respective paths as a function of the quantity measured and includes means for operating the punch sets to punch their path positions into a card to record the quantity. Recorders other than punch sets can also be used, and the device is useful for recording the quantities measured by utility meters.

3,638,235
BOREHOLE TOOL

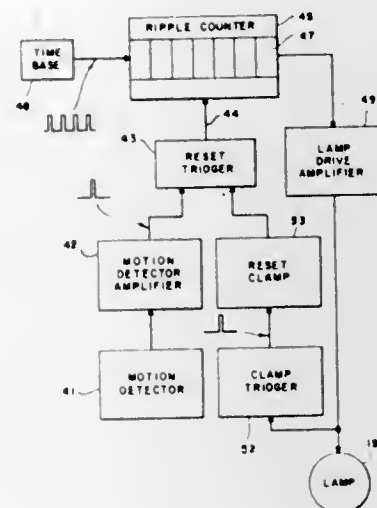
James M. Lindsey, Houston, Tex., assignor to Sperry Sun Well Surveying Company, Sugar Land, Tex.

Filed Apr. 2, 1970, Ser. No. 25,003

Int. Cl. E21b 47/022

U.S. Cl. 346-107 W

7 Claims



The particular embodiment described herein as illustrative of one form of the invention utilizes a motion-sensing device to control the operation of a timing circuit in a downhole borehole tool. The absence of motion for a predetermined period is indicative of the tool being at its operating position and permits an electronic counting circuit to initiate signals for operating the tool. Once the tool has operated, the circuit incorporates means for preventing further operation of the tool until the circuit is reset at the surface.

3,638,236

CHART-CHANGING APPARATUS

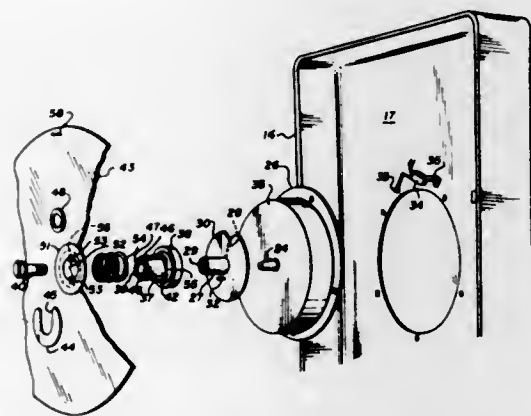
Bobby D. Adams, El Paso, Tex., assignor to Texas Instrument Engineers, Inc., Houston, Tex.

Continuation of application Ser. No. 797,116, Feb. 6, 1969, now abandoned. This application Sept. 10, 1970, Ser. No. 71,272

Int. Cl. G01d 15/32

U.S. Cl. 346-137

27 Claims



This chart-changing apparatus includes an arbor which is mounted by a central locking screw on a hub attached to the chart drive motor of a recorder. The arbor is provided with flats or splines on opposite sides and an abutment ring at the outer end, while a series of charts having central holes and an interspaced series of washers having slots at one side engageable with the splines are mounted on the arbor, with the outermost washer engaging the abutment ring. The charts and washers are held in position by a spring pushing against a chart disc which rotates with the arbor and is keyed thereto

for longitudinal movement. When a pusher is actuated to engage the outermost chart, through a microswitch having a cam follower which will engage a notch in the rear flange of the hub when the arbor is rotated so that the washer slots are uppermost, the outermost washer will drop from the arbor and then the outermost chart will drop off the end of the arbor. The remaining washers are held between the charts by the spring and against the abutment. A series of charts and washers sufficient for a period, such as one month, are mounted on an arbor for replacement of an arbor from which the charts have been removed, by the same central locking screw.

vert them to visible indicia on a chemically-treated web, means being provided to prevent the drying of the web.

3,638,238

MAGNETIC INK SYMBOL RECOGNITION SYSTEM WITH WAVESHAPES REPRESENTING DIRECT MAGNETIC FLUX

Richard E. Milford, and Leland J. Hanchett, Jr., both of Phoenix, Ariz., assignors to Honeywell Information Systems Inc.

Filed Aug. 12, 1969, Ser. No. 849,485

Int. Cl. G06k 9/00

U.S. Cl. 340-146.3 C

17 Claims

3,638,237

ELECTRICAL RECORDER UTILIZING A CHEMICALLY-TREATED WEB

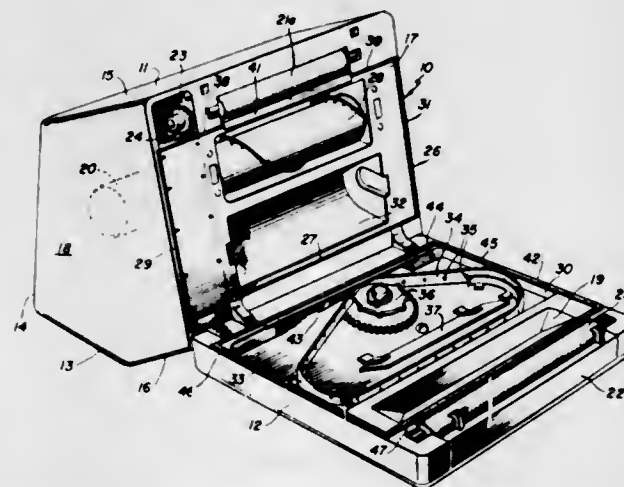
Milton Alden, Needham, Mass., assignor to Alden Research Foundation, Brockton, Mass.

Continuation of application Ser. No. 595,778, Nov. 21, 1966, now abandoned. This application Aug. 15, 1969, Ser. No. 852,968

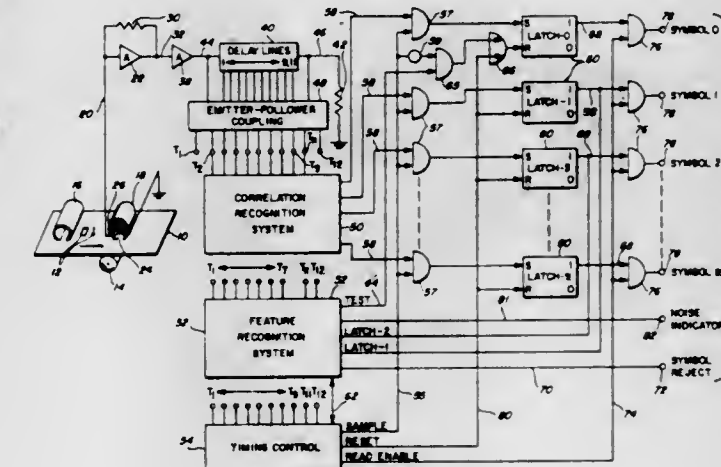
Int. Cl. G01d 15/06, 15/20

U.S. Cl. 346-145

2 Claims



This invention relates to a recorder and, more particularly, to apparatus arranged to receive electrical signals and con-



DESIGNS

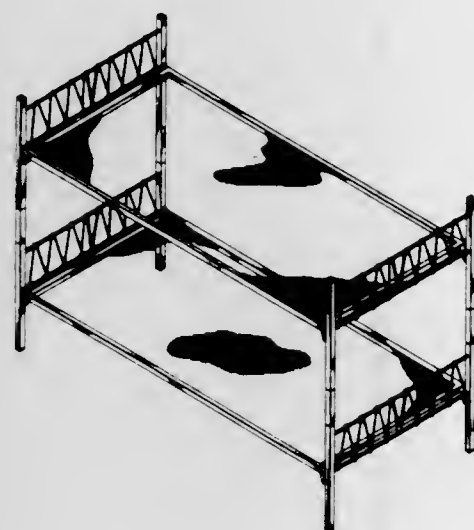
JANUARY 25, 1972

222,871

BUNK BED

Egbertus J. Diks, Uden, Netherlands, assignor to
Diks & Coenen N.V. Uden, Netherlands
Filed Mar. 19, 1970, Ser. No. 21,967
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D5—4



222,873

CABINET KNOB

Richard C. J. Palson, Medfield, Mass., assignor to
P.X. Industries, Inc., Rockland, Mass.
Filed Sept. 15, 1970, Ser. No. 25,011
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—145



222,874

DOOR LEVER

John R. Gerlach, Monterey Park, Calif., assignor to
Emhart Corporation, Bloomfield, Conn.
Filed July 29, 1970, Ser. No. 24,197
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—162



222,872

SPANNER

Guy Boucher, Paris, France, assignor to E.F.E. (European
Fund Establishment), Vaduz, Liechtenstein
Filed June 10, 1970, Ser. No. 23,426
Claims priority, application France Dec. 26, 1969
Term of patent 14 years
Int. Cl. D8—05

U.S. Cl. D8—22



JANUARY 25, 1972

U. S. PATENT OFFICE

1629

222,875

DOOR LEVER

John R. Gerlach, Monterey Park, Calif., assignor to
Emhart Corporation, Bloomfield, Conn.
Filed July 29, 1970, Ser. No. 24,198
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—162



222,876

DOOR LEVER

John R. Gerlach, Monterey Park, Calif., assignor to
Emhart Corporation, Bloomfield, Conn.
Filed July 29, 1970, Ser. No. 24,199
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—162

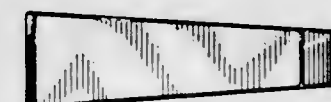


222,877

DOOR LEVER

John R. Gerlach, Monterey Park, Calif., assignor to
Emhart Corporation, Bloomfield, Conn.
Filed July 29, 1970, Ser. No. 24,200
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—162



222,878

BUNDLING STRAP

Richard S. Schwartz, Union, N.J., assignor to
Thomas & Betts Corporation, Elizabeth, N.J.
Filed Mar. 17, 1970, Ser. No. 21,929
Term of patent 14 years
Int. Cl. D9—06

U.S. Cl. D9—252

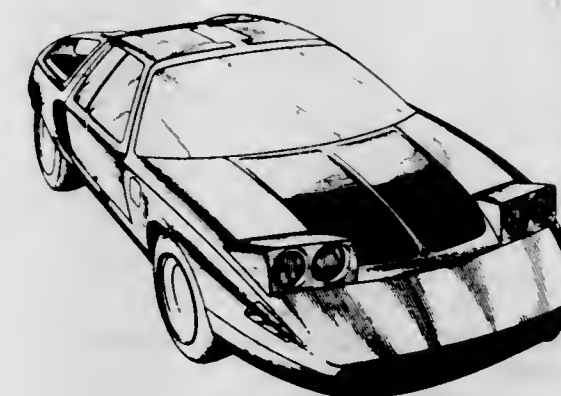


222,879

AUTOMOBILE

Karl Wilfert, Gerlingen-Waldstadt, and Friedrich Geiger,
Boblingen, Germany, assignors to Daimler-Benz Ak-
tiengesellschaft
Filed Sept. 4, 1970, Ser. No. 24,853
Claims priority, application Germany Mar. 4, 1970
Term of patent 14 years
Int. Cl. D12—08

U.S. Cl. D14—3

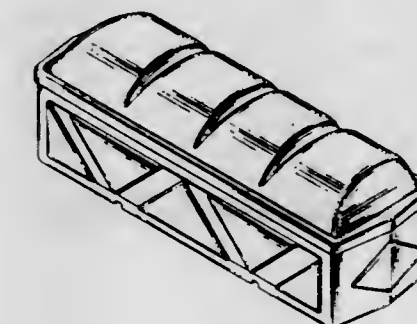


222,880

BURIAL VAULT

John R. Madlem, Box 136A3, High Falls Road, R.D. 1,
Catskill, N.Y. 12414
Filed Nov. 19, 1970, Ser. No. 26,073
Term of patent 14 years
Int. Cl. D31

U.S. Cl. D19—1

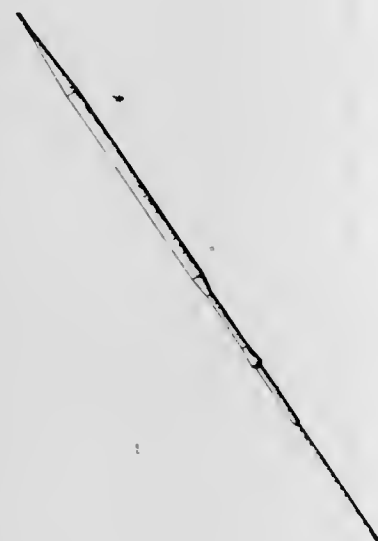


222,881

WEIGHT FORWARD TAPERED FLY FISHING LINE

Leon L. Martuch, Midland, Mich., assignor to Scientific Anglers Inc., Midland, Mich.
 Filed May 1, 1970, Ser. No. 22,775
 Term of patent 14 years
 Int. Cl. D22—05

U.S. Cl. D22—99

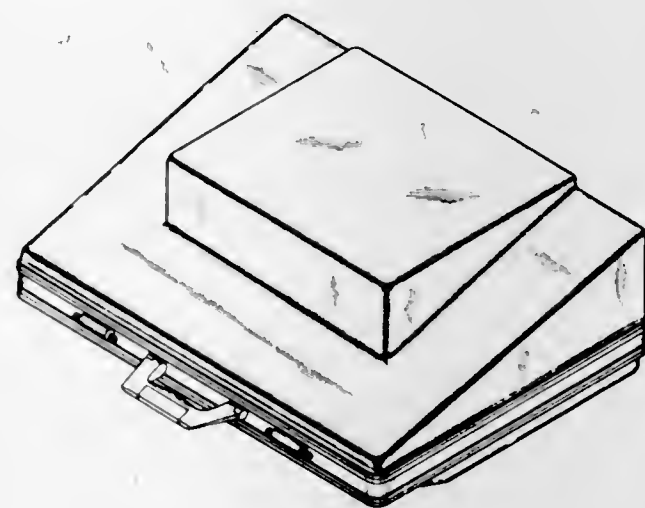


222,883

DATA TERMINAL

Lawrence Levow, Dix Hills, and Carl Yurdin, Port Washington, N.Y., assignors to Acrodyne, Inc., Clifton, N.J.
 Filed June 30, 1970, Ser. No. 23,757
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5

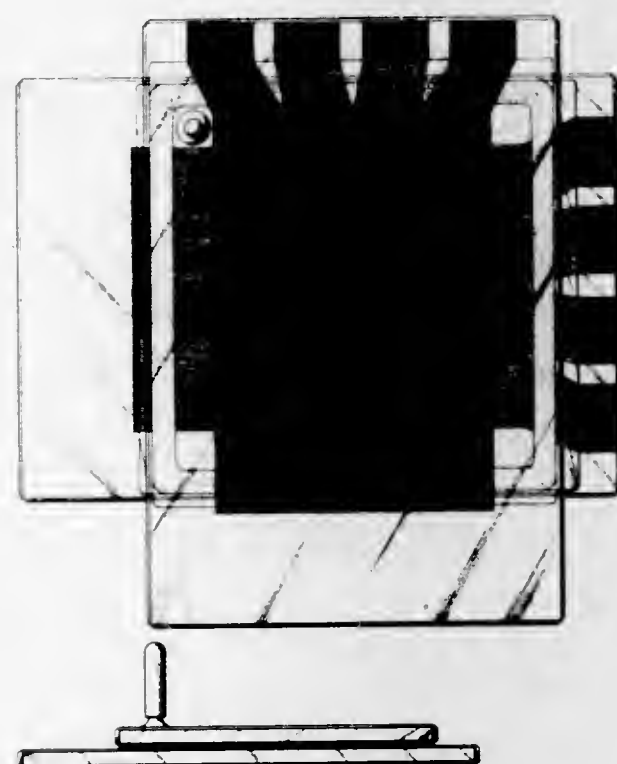


222,884

LIGHT EMITTING GAS DISCHARGE MATRIX DISPLAY PANEL

Gerald E. Wojcik, 4619 282nd St., Toledo, Ohio 43611
 Filed Aug. 7, 1970, Ser. No. 24,379
 Term of patent 14 years
 Int. Cl. D14—01

U.S. Cl. D26—5

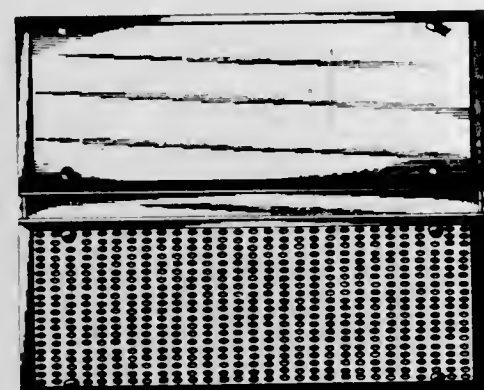


222,882

COMBINED PEG, MAGNETIC AND CHALK BOARD

Wesley E. Sharer, Chicago, Ill., assignor to Playskool, Inc., Chicago, Ill.
 Filed Aug. 19, 1970, Ser. No. 24,576
 Term of patent 14 years
 Int. Cl. D19—08

U.S. Cl. D25—1

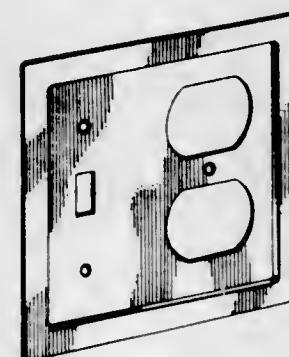


222,885

ELECTRIC OUTLET BOX COVER PLATE

Earl E. Smith, Charlevoix, Mich., assignor to Lexalite Corporation, Charlevoix, Mich.
 Filed Mar. 30, 1970, Ser. No. 22,117
 Term of patent 14 years
 Int. Cl. D13—03

U.S. Cl. D26—13



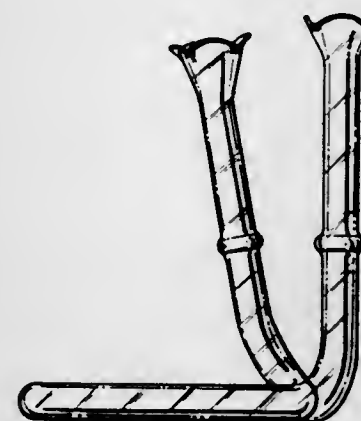
222,886

VASE FOR FLOWERS OR THE LIKE

Loyal F. Miner, Norco, Calif., assignor of a fractional part interest to Robert T. Ehninger, Huntington Beach, Calif.

Filed June 22, 1970, Ser. No. 23,581
 Term of patent 14 years
 Int. Cl. D11—02

U.S. Cl. D29—28

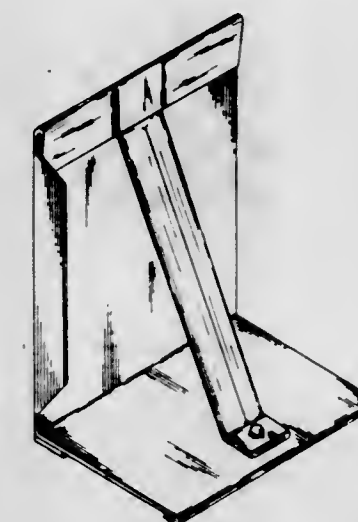


222,887

BOOK END

Charles E. Weyll, Jr., P.O. Box 62, Glen Cove, N.Y. 11542
 Continuation-in-part of design application Ser. No. 18,112, July 8, 1969. This application July 14, 1970, Ser. No. 23,946
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—3

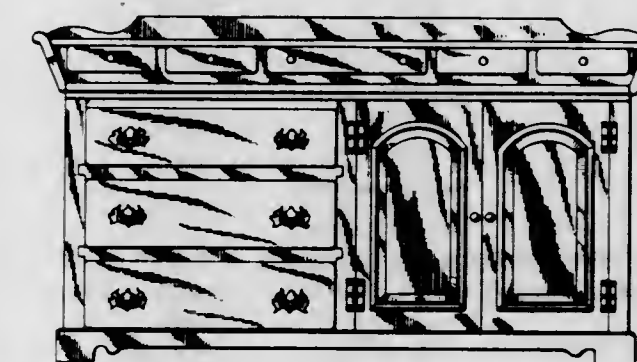


222,888

DRESSER

Oscar Lax, South Orange, N.J., assignor to The Bennington Company, Union, N.J.
 Filed Apr. 17, 1970, Ser. No. 22,488
 Term of patent 7 years
 Int. Cl. D6—04

U.S. Cl. D33—6

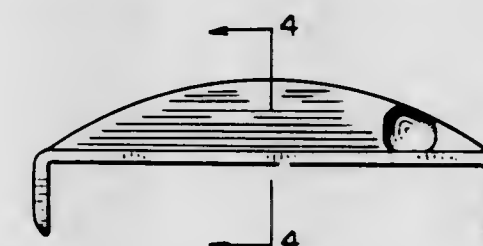


222,889

GOLF PUTTER HEAD

Michael A. Dziurgot, 34242 Azter, Westland, Mich. 48185
 Filed June 11, 1970, Ser. No. 22,919
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5

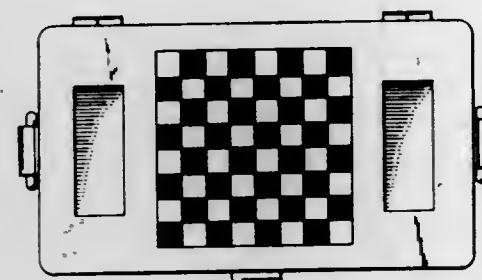


222,890

INSULATED PICNIC CHEST

Robert A. White, Cleveland Heights, Ohio, assignor to
The Hamilton-Skotch Corporation, Cleveland, Ohio
Filed Sept. 8, 1970, Ser. No. 24,864
Term of patent 14 years
Int. Cl. D7—99

U.S. Cl. D44—1

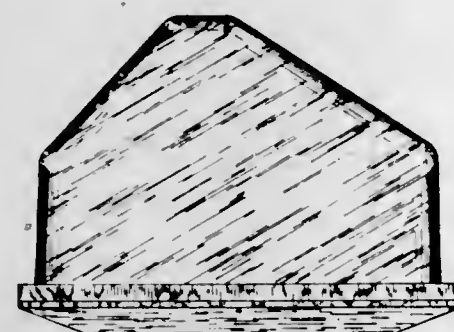


222,891

VEHICLE SIGNAL LAMP OR THE LIKE

Leandre Proteau, 791 Decelles Terrace, Jacques
Cartier, Quebec, Canada
Filed June 1, 1970, Ser. No. 23,219
Term of patent 14 years
Int. Cl. D26—06, 05

U.S. Cl. D48—32

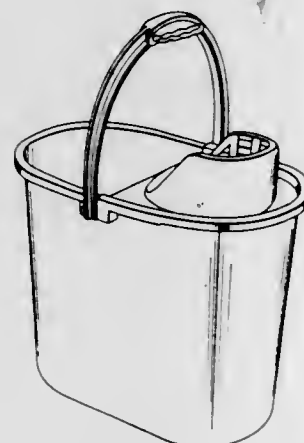


222,892

COMBINED PAIL AND MOP WRINGER

Juan Gunfaus, Tarrasa, Barcelona, Spain, assignor to
Mery S.A., Barcelona, Spain
Filed Nov. 2, 1970, Ser. No. 25,783
Claims priority, application Spain May 8, 1970
Term of patent 14 years
Int. Cl. D7—05

U.S. Cl. D49—29

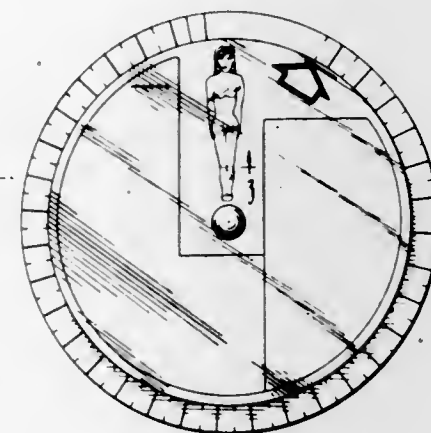


222,893

ROTARY DIET REMINDER DEVICE

Marcel Neumann, 7240 Lowell, Lincolnwood, Ill. 60646,
and Burton L. Siegal, Skokie, Ill.; said Siegal assignor
to said Neumann
Filed July 15, 1970, Ser. No. 23,952
Term of patent 14 years
Int. Cl. D20—99

U.S. Cl. D52—6

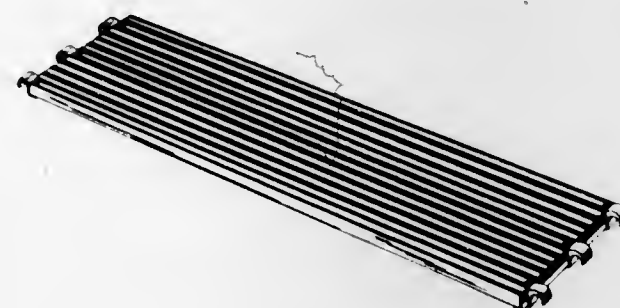


222,894

SCAFFOLD PLANK

Charles Polk Taylor, Magnolia, Ark., assignor to Southern
Extrusions, Inc., Magnolia, Ark.
Filed May 18, 1970, Ser. No. 23,044
Term of patent 14 years
Int. Cl. D25—99

U.S. Cl. D54—1

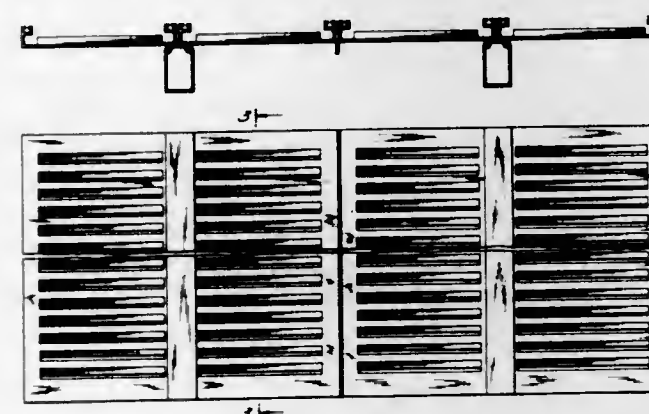


222,895

GRILLE

Patrick Zampetti and Robert Deuchler, Cranford, N.J.,
assignors to Construction Specialties, Inc., Cranford,
N.J.

Filed Mar. 5, 1970, Ser. No. 21,753
Term of patent 14 years
Int. Cl. D25—02; D23—03
U.S. Cl. D54—2



222,896

CALCULATOR

Chester J. Abend, Camillus, and James H. Frakes, Jr.,
Manlius, N.Y., assignors to SCM Corporation, New
York, N.Y.
Filed Nov. 2, 1970, Ser. No. 25,789
Term of patent 14 years
Int. Cl. D18—01

U.S. Cl. D64—11

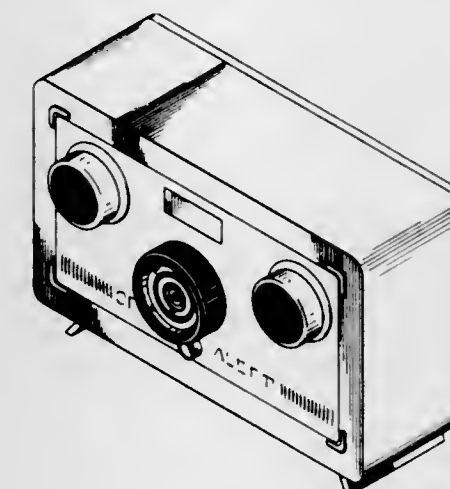


222,897

INTRUSION ALARM DEVICE

Maurice Y. White, Overland Park, Kans., assignor to
P. R. Mallory & Co. Inc., Indianapolis, Ind.
Filed June 1, 1970, Ser. No. 23,215
Term of patent 14 years
Int. Cl. D29—99

U.S. Cl. D72—1

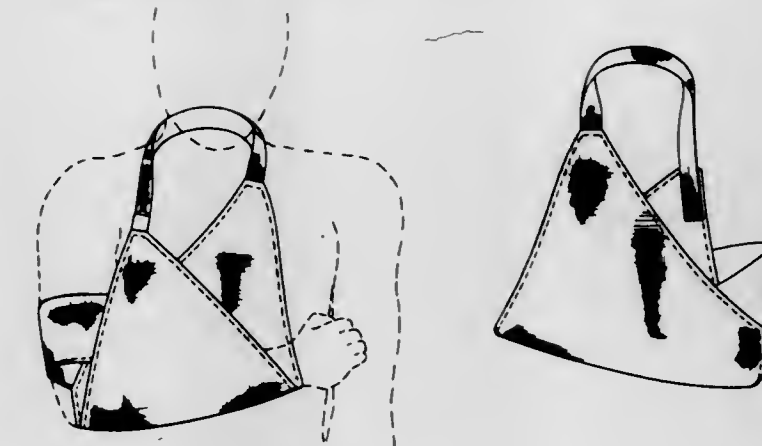


222,898

ARM SLING

Eleanor R. Morris, 1260 W. 7th Drive,
Mesa, Ariz. 85202
Filed July 8, 1970, Ser. No. 23,864
Term of patent 14 years
Int. Cl. D24—05

U.S. Cl. D83—1



222,899

TIRE

Raymond P. Hawkinson, Jr., Minneapolis, Minn., assignor
to Paul E. Hawkinson Company, Minneapolis, Minn.
Filed Mar. 9, 1970, Ser. No. 21,775
Term of patent 14 years
Int. Cl. D12—15

U.S. Cl. D90—20



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 25TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- 10% So Pomerantz, Marilyn.; See—
Glasgow, Horack K., 3,636,951.
- Aaronson, Henry A.; Schwartz, Frank R.; and Sukornick, Bernard, to
United States of America, Army. Deterrent coating for propellant
grains. 3,636,882, Cl. 102-104.
- AB Cementa: See—
Naredi, Robert Gerhard Franz Josef, 3,637,147.
- AB Jarnforadling: See—
Bylund, Karl Gusten; and Bark, Evert Henry, 3,637,373.
- AB Vibrasug: See—
Folke, Carl Tage Evert, 3,637,977.
- Abbott Laboratories: See—
Horrom, Bruce Wayne; and Wright, Howard Bernard, 3,637,705.
- Post, Gerald George, 3,637,654.
- Abe, Katsutoshi: See—
Sato, Koichi; Tamugi, Norifusa; and Abe, Katsutoshi, 3,637,568.
- Abel, Dennis G., to Zenith Radio Corporation. Luminance amplifier
with black level stabilization control. 3,637,921, Cl. 178-5.4
- Abella, Isaac D.: See—
Hartmann, Sven R.; Kurnit, Norman A.; and Abella, Isaac
D., 3,638,029.
- Abes Corporation: See—
Adams, Cecil E., 3,636,977.
- Abraham, Edward D., to Sherwin-Williams Company, The. Foundry
mold and core blowing machine. 3,637,191, Cl. 259-153.
- Abuls, Dzintars: See—
Christie, John B.; Abuls, Dzintars; and Van Breukelen, Wilfridus
G., 3,637,993.
- Achelpohl, Fritz, to Windmoller & Holscher. Conveying apparatus.
3,636,828, Cl. 93-93.
- Ackerman Engravers Inc.: See—
Strianese, Bernard V., 3,638,009.
- Ackerman, James H., to Sterling Drug Inc. 3-(Carboxyal-
kanoylrimino)-2,4,6-triiodo- hydrocinnamic acids. 3,637,825, Cl.
260-518.
- Active Garage Builders, Inc.: See—
Monroe, Donald G., 3,636,673.
- Acton, Daniel D.: See—
Risch, William E.; and Acton, Daniel D., 3,637,101.
- Adam, Georges Clement. Cable clamping device. 3,638,172, Cl. 339-
249.
- Adams, Aaron W., Jr.: See—
Sumner, Elton; and Adams, Aaron W., Jr., 3,636,928.
- Adams, Arnold G.: See—
Fiddler, Theodore E.; and Adams, Arnold G., 3,637,961.
Fiddler, Theodore E.; and Adams, Arnold G., 3,637,962.
- Adams, Arthur C., deceased (by Adams, Mary; administratrix), to
American Home Products Corporation. Process for the preparation
of high density N,N'- dibenzyl-ethylenediamine bis[D(-)- α -
aminobenzylpenicillin]. 3,637,665, Cl. 260-239.1
- Adams, Bobby D., to Tejas Instrument Engineers, Inc., mesne. Chart
changing apparatus. 3,638,236, Cl. 346-137.
- Adams, Cecil E., to Abex Corporation. Electro-hydraulic flow control
circuit. 3,636,977, Cl. 137-608.
- Adams, Charles D.: See—
Schlatter, Rudolph; and Adams, Charles D., 3,637,733.
- Adams, Clarence R.: See—
Hager, Mark H.; and Adams, Clarence R., 3,636,587.
- Adams, James R.: See—
Scarnato, Thomas J.; Adams, James R.; Keller, Arthur H.; and
Peacock, Peter J., 3,637,237.
- Adams, Mary: See—
Adams, Arthur C., 3,637,665.
- Adams, Richard H.: See—
Nicholson, James E.; and Adams, Richard H., 3,637,166.
- Adams, William M.: See—
Fueslein, Jerome L.; and Adams, William M., 3,637,028.
- Adler, Franklin P., to Pullman Transport Leasing Company, mesne.
Pneumatic discharge arrangement. 3,637,262, Cl. 302-52.
- Admiral Corporation: See—
Meier, James L., 3,637,930.
- Advanced Technology Center, Inc.: See—
Downs, Robert F., 3,638,128.
- AGA Aktiebolag: See—
Lilljefors, Gustaf Lennart, 3,636,994.
- Agamennone, Marco: See—
Pregaglia, Gianfranco; Agamennone, Marco; Santangelo, Nicola;
and Croci, Mauro, 3,637,834.
- Agata, Akihiko: See—
Sato, Ryuichi; Harimaya, Seizi; Agata, Akihiko; Morishima, Ku-
nio; Tsutsui, Toshiaki; and Kano, Yasuhiro, 3,637,329.
- Ager, Patrick W., to FMC Corporation. Hydantoin-formaldehyde resin
modified polypropylene. 3,637,905, Cl. 260-854.
- Agfa-Gevaert Aktiengesellschaft: See—
Kisselmann, Willy; Rumpel, Fritz; and Kopf, Paul, 3,637,286.
Ranz, Erwin; Von Rintelen, Harald; Pfeiffenschneider, Raymund;
and Voight, Armin, 3,637,388.
Saleck, Wilhelm; Himmelmann, Wolfgang; Meyer, Rudolf; Moll,
Franz; and Huckstadt, Harlad, 3,637,391.
Wagner, Karl; and Ganser, Josef, 3,636,841.
- Agostinelli, Armand J., to Dart Industries Inc. Dual finish surgeon's
glove. 3,637,411, Cl. 117-18.
- Air Products and Chemicals, Inc.: See—
Green, Harold A., 3,637,417.
- Air Reduction Company, Incorporated: See—
Croix, Louis S., 3,637,477.
- Aisin Seiki Company Limited: See—
Kitano, Shin; and Momose, Yutaka, 3,637,243.
Okamoto, Tosiaki, 3,637,057.
- Akasaka, Shigeo, to Nippon Kogaku K.K. Automatic film sensitivity
setting device. 3,636,847, Cl. 95-31.
- Aktiebolaget Astra: See—
Carlsson, Lars Anders Fritz; Helgstrand, Ake John Erik; Sjöberg,
Berndt Olof Harald; and Stjernstrom, Nil Erik, 3,637,714.
- Aktiebolaget Bofors: See—
Bakke, Jan Magnus; and Hakansson, Christer Lennart Lennart,
3,637,857.
- Aktiebolaget Leo: See—
Eriksoo, Edgar; Fex, Hans Jacob; Hogberg, Knut Beril; Mollberg,
Henri Rene; Kneip, Paul Hans Otto Josef; and Rohte, Oskar
Adolf, 3,637,660.
- Aktiebolaget Svenska Metallverken: See—
Remning, Ake Gustav Vilhelm, 3,636,616.
- Aktiengesellschaft Brown, Boveri & Cie: See—
Muller, Elmar; and Weimann, Klaus, 3,638,080.
Schmitz, Wolfgang, 3,637,965.
- Alburger, James R. Process of penetrant inspection. 3,636,759, Cl. 73-
104.
- Alden, Milton, to Alden Research Foundation. Electrical recorder
utilizing a chemically-treated web. 3,638,237, Cl. 346-145.
- Alden Research Foundation: See—
Alden, Milton, 3,638,237.
- Aldrich, Billy R.; Cooper, Charles R.; and Rasquin, John R., to United
States of America, National Aeronautics and Space Administration.
Underwater space suit pressure control regulator. 3,636,966, Cl.
137-81.
- Aleckner, John F., Jr., to Union Carbide Corporation. Adhesion of
coatings to ethylene-polar monomer copolymer. 3,637,428, Cl. 117-
138.8
- Alert, Jerry George; and Mauldin, Robert Daniel, to Formica Corpora-
tion. Decorative laminates carrying removable protective coating.
3,637,408, Cl. 117-6.
- Alexander, Roy P.; and Schroeder, Hans Juergen A., to Olin Mathieson
Chemical Corporation. Chloro-phosphine-m-carborane and a
method of making them. 3,637,836, Cl. 260-543.
- Alexeff, Alexander V., to Alexeff-Snyder Enterprises, Inc. Web guiding
and spreading apparatus. 3,637,121, Cl. 226-17.
- Alexeff-Snyder Enterprises, Inc.: See—
Alexeff, Alexander V., 3,637,121.
- Alfa Farmaceutici S.p.A.: See—
Vitale, Eupremio, 3,637,717.
- Allegheny Ludlum Industries, Inc.: See—
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- Harimaya, Seizi: See—
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- Haring, Robert C., to Olin Mathieson Chemical Corporation. Polyethers stabilized with mixture of butylated to hydroxy toluene and p,p'-diocetyl diphenylamine. 3,637,865, Cl. 260-611-5.
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- Harms, David A., to Bell Telephone Laboratories, Incorporated. PCM coder. 3,638,219, Cl. 340-347.
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- Harp, Edgar E., to Texas Instruments, Incorporated. Preamplification circuitry for photoconductive sensors. 3,638,050, Cl. 307-311.
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- Harrington, Joseph Kenneth; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., to Minnesota Mining and Manufacturing Company. Perfluoroalkanesulfonamides N-substituted by heterocyclic groups. 3,637,729, Cl. 260-308.
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- Haugen, Leif Gunnar: See—
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- Hauser, Raimund: See—
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- Hauska, Loren A. Composition and process for preparing flexible polyester based polyurethane foams. 3,637,783, Cl. 260-448-2.
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Kokubo, Ryo; Yokomichi, Koji; Takakuwa, Yasuo; Maruyama, Isao; Shiroishi, Akihiro; and Nagakura, Mizuhiko, 3,637,686.
- York Research & Development Corporation: See—
Smith, Dale R., 3,637,144.
- Yoshida, Shigeo, to Reduced size motion picture films and the photographing and projection thereof. 3,637,297, Cl. 352-38.
- Yoshida, Susumu: See—
Tachikawa, Takuji; Ohgoshi, Akio; Yoshida, Susumu; Nakayama, Akira; and Ishii, Eiji, 3,638,063.
- Yoshida, Tomio: See—
Nishiyama, Akira; Yoshino, Hirokazu; Yoshida, Tomio; and Yamaguchi, Tetsuo, 3,638,196.
- Yoshikawa, Shogo: See—
Matsumura, Hiroyoshi; Yoshikawa, Shogo; and Tatsumi, Ryuji, 3,637,295.
- Yoshino, Hirokazu: See—
Nishiyama, Akira; Yoshino, Hirokazu; Yoshida, Tomio; and Yamaguchi, Tetsuo, 3,638,196.
- Yoshitomi Pharmaceutical Industries, Ltd.: See—
Nakanishi, Michio; and Tashiro, Chiaki, 3,637,713.
- Young, Donald C.; and Harbort, Bruce A., to Union Oil Company of California. Porous particulate sulfur and means and method for its preparation. 3,637,351, Cl. 23-224.
- Young, Einar T., to Sun Oil Company of Pennsylvania. Price increment unit for liquid dispensing apparatus. 3,637,055, Cl. 192-4.
- Young, Noble E. Process and apparatus for treating oil emulsions. 3,637,522, Cl. 252-328.
- Young, Ronald W.: See—
Sylvester, Robert A.; and Young, Ronald W., 3,637,998.
- Yurin Tokushi Kogyo Co., Ltd.: See—
Narusawa, Shozo; and Iizuka, Noritoshi, 3,637,072.
- Zagyvai, Istvan: See—
Hollo, Janos; Zagyvai, Istvan; and Koch, Lehel, 3,637,396.
- Zakaria, Moneeb Hassan, to Armour-Dial, Inc. Antiseptic detergent composition. 3,637,510, Cl. 252-107.
- Zaremski, Donald R., to Allegheny Ludlum Steel Corporation. Trim members. 3,637,354, Cl. 29-191.6.
- Zawodniak, Rodger V., to PPG Industries, Inc. Antenna windshield. 3,638,225, Cl. 343-713.
- Zelinski, Robert P.: See—
Short, James N.; Zelinski, Robert P.; Gaeth, Rudolf H.; and Zuech, Ernest A., 3,637,627.
- Zeller, Paul: See—
Hegedus, Balthasar; and Zeller, Paul, 3,637,804.
- Zeman, Willard V. Window sash paintbrush. 3,636,581, Cl. 15-166.
- Zenith Radio Corporation: See—
Abel, Dennis G., 3,637,921.
- Poppy, Dwight J., 3,637,923.
- Zenner, Karl-Friedrich; Oertel, Gunter; and Holtschmidt, Hans, to Farbenfabriken Bayer Aktiengesellschaft. Production of organic isocyanates. 3,637,811, Cl. 260-482.
- Ziemek, Gerhard: See—
Eilhardt, Bernd; and Ziemek, Gerhard, 3,637,975.
- Zimbelmann, Henry Peter, to General Instrument Corporation. Four-phase logic circuit. 3,638,036, Cl. 307-205.
- Zimmermann, Urs, to Sulzer Brothers, Ltd. Electrical apparatus. 3,638,055, Cl. 310-43.
- Zinniel, Francis R.; Blome, Eugene R.; and Kimball, Philip D., said Blome and Kimball assor to said Zinniel. Resin extraction process. 3,637,639, Cl. 260-107.
- Zirkle, Charles L.: See—
Kaiser, Carl; and Zirkle, Charles L., 3,637,827.
- Zoecon Corporation: See—
Siddall, John B., 3,637,752.
- Zuech, Ernest A.: See—
Short, James N.; Zelinski, Robert P.; Gaeth, Rudolf H.; and Zuech, Ernest A., 3,637,627.
- Zuntini, Franco; Gioria, Jean M.; and Foulke, Donald Gardner, to Sel-Rex Corporation. Electrodeposition of palladium. 3,637,474, Cl. 204-47.
- Zuurveen, Frans, to U.S. Philips Corporation. Dry shaver. 3,636,626, Cl. 30-43.5.
- Zwight, Daniel H.; and Balogh, Roy, to Mc Cabe-Powers Body Company. Articulated aerial device. 3,637,043, Cl. 182-2.
- Zwoboda, Rene L.; and Regeffe, Andre Jean, to International Standard Electric Corporation. Reed relay. 3,638,150, Cl. 335-153.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 25TH DAY OF JANUARY, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

American Cyanamid Co.: See—
Layman, Ralph E. Re. 27,279.
Layman, Ralph E., to American Cyanamid Co. Dimer acid containing alkyl resinous coating compositions and process of preparing the same. Re. 27,279, 1-25-72, Cl. 260-22.

LIST OF DESIGN PATENTEEES

- Abend, Chester J., and J. H. Frakes, Jr., to SCM Corp. Calculator. 222,896, 1-25-72, Cl. D64-11.
- Acrodyn, Inc.: See—
Levow, Lawrence, and Yurdin. 222,883.
- Bennington Co., The: See—
Lax, Oscar. 222,888.
- Boucher, Guy, to E.F.E. (European Fund Establishment). Spanner. 222,872, 1-25-72, Cl. D8-22.
- Construction Specialties, Inc.: See—
Zampetti, Patrick, and Deuchler. 222,895.
- Daimler-Benz Aktiengesellschaft: See—
Wilfert, Karl, and Geiger. 222,879.
- Deuchler, Robert: See—
Zampetti, Patrick, and Deuchler. 222,895.
- Diks & Coenen N.V.: See—
Diks, Egbertus J., to Diks & Coenen N.V. Bunk bed. 222,871, 1-25-72, Cl. D6-4.
- Dziurgot, Michael A. Golf putter head. 222,889, 1-25-72, Cl. D34-5.
- E.F.E. (European Fund Establishment): See—
Boucher, Guy. 222,872.
- Ehninger, Robert T.: See—
Miner, Loyal F. 222,886.
- Emhart Corp.: See—
Gerlach, John R. 222,874.
Gerlach, John R. 222,875.
Gerlach, John R. 222,876.
Gerlach, John R. 222,877.
- Frakes, James H., Jr.: See—
Abend, Chester J., and Frakes. 222,896.
- Geiger, Friedrich: See—
Wilfert, Karl, and Geiger. 222,879.
- Gerlach, John R., to Emhart Corp. Door lever. 222,874, 1-25-72, Cl. D8-162.
- Gerlach, John R., to Emhart Corp. Door lever. 222,875, 1-25-72, Cl. D8-162.
- Gerlach, John R., to Emhart Corp. Door lever. 222,876, 1-25-72, Cl. D8-162.
- Gerlach, John R., to Emhart Corp. Door lever. 222,877, 1-25-72, Cl. D8-162.
- Gunfaus, Juan, to Mery S.A. Combined pail and mop wringer. 222,892, 1-25-72, Cl. D49-29.
- Hamilton-Skotch Corp., The: See—
White, Robert A. 222,890.
- Hawkinson, Paul E., Co.: See—
Hawkinson, Raymond P., Jr. 222,899.
- Hawkinson, Raymond P., Jr., to Paul E. Hawkinson Co. Tire. 222,899, 1-25-72, Cl. D90-20.
- Lax, Oscar, to The Bennington Co. Dresser. 222,888, 1-25-72, Cl. D83-6.
- Levow, Lawrence, and C. Yurdin, to Acrodyn, Inc. Data-terminal. 222,883, 1-25-72, Cl. D26-5.
- Lexalite Corp.: See—
Smith, Earl E. 222,885.
- Madlem, John B. Burial vault. 222,880, 1-25-72, Cl. D19-1.
- Mallory, P. R., & Co. Inc.: See—
White, Maurice Y. 222,897.
- Martuch, Leon L., to Scientific Anglers Inc. Weight forward tapered fly fishing line. 222,881, 1-25-72, Cl. D22-99.
- Mery S.A.: See—
Gunfaus, Juan. 222,892.
- Miner, Loyal F.: fractional part interest to Robert T. Ehninger. Vase for flowers or the like. 222,886, 1-25-72, Cl. D29-28.
- Morris, Eleanor R. Arm sling. 222,898, 1-25-72, Cl. D88-1.
- Neumann, Marcel, and B. L. Siegal: said Siegal assignor to said Neumann. Rotary diet reminder device. 222,893, 1-25-72, Cl. D52-6.
- P.X. Industries, Inc.: See—
Palson, Richard C. J. 222,878.
- Palson, Richard C. J., to P.X. Industries, Inc. Cabinet knob. 222,878, 1-25-72, Cl. D8-145.
- Playskool, Inc.: See—
Sharer, Wesley E. 222,882.
- Proteau, Leandre. Vehicle signal lamp or the like. 222,891, 1-25-72, Cl. D48-82.
- SCM Corp.: See—
Abend, Chester J., and Frakes. 222,896.
- Schwartz, Richard S., to Thomas & Betts Corp. Bundling strap. 222,878, 1-25-72, Cl. D9-252.
- Scientific Anglers Inc.: See—
Martuch, Leon L. 222,881.
- Sharer, Wesley E., to Playskool, Inc. Combined peg and magnetic chalk board. 222,882, 1-25-72, Cl. D26-1.
- Siegal, Burton L.: See—
Neumann, Marcel, and Siegal. 222,893.
- Smith, Earl E., to Lexalite Corp. Electric outlet box cover plate. 222,885, 1-25-72, Cl. D28-18.
- Southern Extrusions, Inc.: See—
Taylor, Charles P. 222,894.
- Taylor, Charles P., to Southern Extrusions, Inc. Scaffold plank. 222,894, 1-25-72, Cl. D54-1.
- Thomas & Betts Corp.: See—
Schwartz, Richard S. 222,878.
- Weyll, Charles E., Jr. Book end. 222,887, 1-25-72, Cl. D33-3.
- White, Maurice Y., to P. R. Mallory & Co. Inc. Intrusion alarm device. 222,897, 1-25-72, Cl. D72-1.
- White, Robert A., to The Hamilton-Skotch Corp. Insulated picnic chest. 222,890, 1-25-72, Cl. D44-1.
- Wilfert, Karl, and F. Geiger, to Daimler-Benz Aktiengesellschaft. Automobile. 222,879, 1-25-72, Cl. D14-3.
- Wojcik, Gerald E. Light emitting gas discharge matrix display panel. 222,884, 1-25-72, Cl. D26-5.
- Yurdin, Carl: See—
Levow, Lawrence, and Yurdin. 222,883.
- Zampetti, Patrick, and R. Deuchler, to Construction Specialties, Inc. Grille. 222,895, 1-25-72, Cl. D54-2.

CLASSIFICATION OF PATENTS

ISSUED JANUARY 25, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	211R	3,636,614	214	3,636,672	CLASS 70	514	3,636,808	65	3,637,397							
21A	401	3,636,615	282	3,636,668	38A	3,636,738	71	3,637,398								
6	557	3,636,616	293	3,636,673	58	3,636,739	80PS	3,637,399								
69.5	578	3,636,617	509	3,636,674	92	3,636,740	83	3,637,400								
115	589	3,636,618	633	3,636,690	230	3,636,741	107	3,637,401								
161	591	3,636,619	659	3,636,675	281	3,636,745	118R	3,637,402								
325	596	3,636,621	747	3,636,676	424	3,636,742	140R	3,637,403								
CLASS 3	622	3,636,622	CLASS 53	3,636,677	CLASS 71	263	3,636,809	172	3,637,404							
1	624	3,636,620	3	3,636,678	92	3,637,366	457	3,636,810	194	3,637,405						
CLASS 5	626	3,636,623	14	3,636,678	CLASS 72	477B	3,636,811	234	3,636,855							
11	3,636,571	3,636,624	CLASS 55	3,636,679	9	3,636,743	CLASS 86	237	3,636,856							
13	3,636,572	CLASS 30	26	3,636,679	91	3,636,744	33	3,636,812	257	3,636,857						
68	3,636,573	26	3,636,625	291	3,636,680	100	3,636,746	CLASS 89	348	3,636,859						
186	3,636,574	43.5	3,636,626	372	3,636,681	214	3,636,747	43R	410	3,636,860						
334	3,636,575	43.6	3,636,628	459	3,636,682	349	3,636,748	CLASS 90	4	3,636,861						
344	3,636,576	45	3,636,627	493	3,636,683	351	3,636,749	11R	45	3,636,862						
344	3,636,577	94	3,636,629	CLASS 56	3,636,684	1B	3,636,750	38	49	3,636,863						
CLASS 8	89	3,636,630	14.7	3,636,685	37	3,636,755	CLASS 91	189	3,636,869							
41	143	3,636,630	295	3,636,685	38	3,636,751	4R	211	3,636,870							
111	3,637,339	CLASS 32	320.2	3,636,686	53	3,636,777	171	3,636,816	CLASS 101	22	3,636,866					
166	3,637,340	5	3,636,632	327A	3,636,687	59	3,636,773	475	3,636,818	93C	3,636,865					
CLASS 11	22	3,636,633	330	3,636,688	67.8R	3,636,754	498	3,636,819	93	3,636,867						
93	3,636,867	32	3,636,634	400.1	3,636,689	71.5	3,636,756	499	3,636,820	366	3,636,873					
CLASS 13	64	3,636,631	15	3,636,691	71.5	3,636,757	504	3,636,821	CLASS 102	6	3,636,874					
6	3,637,912	CLASS 33	58.3	3,636,692	81	3,636,758	63	3,636,822	20	3,636,875						
CLASS 14	174L	3,636,635	38.95	3,636,693	100	3,636,759	187	3,636,823	24	3,636,876						
71	185	3,636,636	77.3	3,636,694	104	3,636,760	249	3,636,824	49.5	3,636,877						
CLASS 15	1	3,636,637	84	3,636,695	141A	3,636,762	59R	3,636,825	64	3,636,878						
84	3,636,580	45	3,636,638	95	3,636,696	155	3,636,762	93K	70.2R	3,636,879						
166	3,636,581	72	3,636,638	106	3,636,697	194EM	3,636,764	31	71R	3,636,880						
250.03	3,636,582	133	3,636,639	156	3,636,698	215	3,636,765	33	103	3,636,881						
250.36	3,636,583	149	3,638,134	22	3,636,699	228	3,636,766	45R	104	3,636,882						
339	3,636,584	CLASS 35	74	3,636,700	229	3,636,767	46	3,636,829	50	3,636,883						
340	3,636,585	19R	3,636,641	141	3,636,701	336.5	3,636,768	49	172BT	3,636,884						
CLASS 16	19R	3,636,640	143R	3,636,702	371	3,636,769	50R	3,636,830	157A	3,636,885						
35	3,636,586	CLASS 36	146	3,636,703	421R	3,636,771	50R	3,636,833	164	3,636,886						
87.2	3,636,587	2.5AL	3,636,642	15	3,636,704	432R	3,636,772	4.5	376	3,636,887						
94	3,636,588	4.5	3,636,643	19	3,636,705	466	3,636,773	10CE	39R	3,637,406						
171	3,636,589	CLASS 38	3,636,644	36	3,636,706	496	3,636,774	10CT	213	3,637,407						
CLASS 19	140	3,636,644	51	3,636,707	507	3,636,775	11R	3,636,842	51	3,636,888						
236	3,636,591	CLASS 40	52R	3,636,708	517R	3,636,752	13	3,636,844	53	3,636,889						
CLASS 21	124.1	3,636,645	203	3,636,709	10.33	3,636,776	31FS	3,636,845	60	3,636,890						
2.5	3,637,341	CLASS 41	231	3,636,710	89	3,636,779	39	3,636,847	66	3,636,891						
102R	3,637,342	15	3,638,013	234	3,636,711	89.15	3,636,780	42	79	3,636,892						
CLASS 23	16	3,636,648	260	3,636,712	123.5	3,636,781	45	3,636,848	111	3,636,893						
2C	3,637,343	CLASS 42	4	3,636,713	143	3,636,782	53E	3,636,850	156	3,636,894						
2E	3,637,344	44	3,636,646	41R	3,636,714	217R	3,636,784	89R	78	3,636,895						
2R	3,637,345	50	3,636,647	41	3,636,715	229	3,636,783	28	8R	3,636,896						
107	3,637,346	CLASS 43	46.5	3,636,716	230.17	3,636,785	29	3,637,376	182.5	3,636,897						
122	3,637,347	21.2	3,636,649	53.68	3,636,717	242.11R	3,636,786	35	3,637,377	CLASS 111	77	3,636,897				
165	3,637,348	CLASS 44	53.74	3,636,718	250S	3,636,788	42	3,637,378	3,637,380	CLASS 112	203	3,636,898				
183	3,637,349	1R	3,637,355	6	3,636,719	409	3,636,790	35.1	3,637,381	207	3,636,899					
209.4	3,637,350	51	3,637,356	49	3,636,720	422	3,636,791	36	3,637,379	210	3,636,900					
224	3,637,351	72	3,637,357	98	3,636,721	461	3,636,792	48	3,637,383	219A	3,636,901					
225P	3,637,352	CLASS 46	123	3,636,722	473R	3,636,793	60	3,637,385	66	3,636,902	CLASS 113	54	3,636,903			
288F	3,637,353	1K	3,636,651	197	3,636,723	495	3,636,794	90	3,637,390	41	3,636,904					
CLASS 24	23W	3,636,592	1R	3,636,650	215	3,636,724	606R	3,636,795	94	3,637,391	43.5	3,636,905				
73ES	3,636,594	8	3,636,652	235	3,636,725	700	3,636,796	108	3,637,392	66.5R	3,636,906					
73MF	3,636,593	117	3,636,655	294	3,636,726	26	3,637,368	109	3,637,393	230	3,636,908					
81CC	3,636,595	118	3,636,653	409	3,636,727	35.1	3,637,369	114	3,637,394	CLASS 115	34R	3,636,909				
191	3,636,596	175AR	3,636,654	11R	3,636,728	36	3,637,370	110	3,637,396	35R	3,636,910					
198	3,636,597	CLASS 49	40	3,636,656	14	3,636,729	101	3,637,371	78	3,636,853	70	3,636,911				
CLASS 26	51.4	3,636,598	144	3,636,657	25	3,637,361	130A	3,637,372	110	3,636,854	CLASS 116	28	3,636,912			
CLASS 28	1.6	3,636,599	362	3,636,658	32	3,637,362	174	3,637,373	9	3,637,396	114R	3,636,913				
1.8	3,636,600	383	3,636,659	65A	3,637,363	107R	3,636,797	9	3,637,396	335	3,636,858	115.5	3,636,914			
72.12	3,636,601	408	3,636,660	134	3,637,365	CLASS 75	3,636,797	9.5R	3,636,798	CLASS 82	50	3,636,852	CLASS 117	34R	3,636,909	
CLASS 29	95	3,636,602	413	3,636,661	84	3,636,731	9.51	3,636,799	145	3,636,800	50	3,636,853	78	3,636,911		
120	3,636,603	5	3,636,662	CLASS 51	95	3,636,730	2.5	3,636,802	107R	3,636,797	78	3,636,853	CLASS 118	28	3,636,912	
155R	3,636,604	138	3,636,663	84	3,636,731	CLASS 52	4C	3,636,803	21	3,636,804	9	3,637,396	114R	3,636,913		
156.7R	3,636,605	165.9	3,636,664	95	3,636,730	CLASS 53	35	3,636,805	35	3,636,806	335	3,636,806	115.5	3,636,914		
157.3R	3,636,607	206.5	3,636,665	133	3,636,732	CLASS 54	21	3,636,804	203	3,636,807	CLASS 83	335	3,636,806	CLASS 119	34R	3,636,909
157.3	3,636,606	250	3,636,666	176	3,636,733	CLASS 55	35	3,636,805	355	3,636,806	CLASS 84	335	3,636,806	CLASS 120	34R	3,636,909
183.5	3,636,608	298	3,637,359	CLASS 56	12R	3,636,734	21	3,636,804	203	3,636,807	CLASS 85	335	3,636,806	CLASS 121	34R	3,636,909
191.6	3,637,354	309	3,637,360	CLASS 57	18F	3,636,735	35	3,636,805	355	3,636,806	CLASS 86	335	3,636,806	CLASS 122	34R	3,636,909
200J	3,636,609	38	3,636,669	CLASS 58	42	3,636,737	203	3,636,807	355	3,636,806	CLASS 87	335	3,636,806	CLASS 123	34R	3,636,909
203D	3,636,611	79	3,636,667	CLASS 59	42	3,636,737	355	3,636,806	355	3,636,806	CLASS 88	335	3,636,806	CLASS 124	34R	3,636,909
203	3,636,612	38	3,636,670	CLASS 60	42	3,636,737	355	3,636,806	355	3,636,806	CLASS 89	335	3,636,806	CLASS 125	34R	3,636,909
205R	3,636,613	157	3,636,671	CLASS 61	42	3,636,737	355	3,636,806	355	3,636,806	CLASS 90	335	3,636,806	CLASS 126	34R	3,636,909

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124	3,636,915	390	3,636,976	CLASS 174	213	3,637,069	519	3,637,986	186	3,637,161			
CLASS 117	608	3,636,977	152GM	3,637,917	CLASS 200	38CA	3,637,958	25	3,637,104	188	3,637,162		
6	3,637,408	625.23	3,636,979	158R	3,637,918	50A	3,637,959	53	3,637,105	191	3,637,163		
7	3,637,409	625.26	3,636,980	CLASS 175	65	3,637,030	54	3,637,106	195	3,637,164			
8	3,637,410	625.44	3,636,981	66	3,637,031	61.86	3,637,062	3	3,637,107	199	3,637,165		
18	3,637,411	625.46	3,636,982	73	3,637,032	82D	3,637,063	211	3,637,108	CLASS 244	15A	3,637,169	
26	3,637,412	38	3,636,983	320	3,637,033	86.5	3,637,064	310	3,637,109	1R	3,637,166		
33.5CS	3,637,413	39	3,636,984	208	3,637,034	148E	3,637,065	3	3,637,110	3.21	3,637,167		
36.2	3,637,414	155	3,636,985	CLASS 178	5.2R	3,637,919	155R	3,637,967	86	3,637,113	7A	3,637,168	
62	3,637,415	162	3,636,986	5.2R	3,637,920	168R	3,637,968	135	3,637,114	91	3,638,014	CLASS 246	3,638,014
72	3,637,416	17	3,636,987	5.4BD	3,637,921	203	3,637,969	146H	3,637,115	14	3,637,171	CLASS 248	3,637,171
76F	3,637,418	34	3,636,988	5.4HE	3,637,922	6	3,637,969	195	3,637,116	54CS	3,637,173	54CS	3,637,173
76T	3,637,417	46	3,636,989	5.4ST	3,637,923	CLASS 201	3,637,969	309	3,637,117	54R	3,637,174	54R	3,637,174
93.31	3,637,419	125	3,636,990	5.4R	3,637,924	CLASS 203	3,637,969	317	3,637,118	55	3,637,175	55	3,637,175
93.42	3,637,420	92.1	3,636,991	5.4R	3,637,925	CLASS 204	3,637,969	400.7	3,637,119	59	3,637,176	59	3,637,176
106R	3,637,421	105	3,636,992	5.4R	3,637,926	1R	3,637,969	517	3,637,120	74PB	3,637,177	74PB	3,637,177
107	3,637,422	105	3,636,993	5.4R	3,637,927	14R	3,637,969	39	3,637,121	188.7	3,637,178	188.7	3,637,178
107.2R	3,637,423	105	3,636,994	5.4R	3,637,928	15	3,637,969	73	3,637,122	203	3,637,179	203	3,637,179
118	3,637,424	105	3,636,995	5.4R	3,637,929	26	3,637,969	203	3,637,123	205A	3,637,180	205A	3,637,180
125	3,637,425	105	3,636,996	5.4R	3,637,930	29	3,637,969	5A	3,637,124	226B	3,637,181	226B	3,637,181
138.8UA	3,637,426	105	3,636,997	5.4R	3,637,931	43	3,637,969	17	3,637,125	235	3,637,182	235	3,637,182
138.8A	3,637,427	105	3,636,998	5.4R	3,637,932	46	3,637,969	20	3,637,126	279	3,637,183	279	3,637,183
138.8E	3,637,428	105	3,636,999	5.4R	3,637,933	47	3,637,969	36	3,637,127	425	3,637,184	425	3,637,184
143A	3,637,429	105	3,637,000	5.4R	3,637,934	55R	3,637,969	42	3,637,128	460	3,637,185	460	3,637,185
155UA	3,637,430	105	3,637,001	5.4R	3,637,935	106	3,637,969	62	3,637,129	478	3,637,186	478	3,637,186
161UT	3,637,431	105	3,637,002	5.4R	3,637,936	158HA	3,637,969	62	3,637,130	49.5A	3,638,015	49.5A	3,638,015
201	3,637,432	105	3,637,003	5.4R	3,637,937	162	3,637,969	3	3,637,131	65ZE	3,638,016	65ZE	3,638,016
227	3,637,433	105	3,637,004	5.4R	3,637,938	163R	3,637,969	9	3,637,132	71.5R	3,638,017	71.5R	3,638,017
CLASS 118	3,636,916	105	3,637,005	5.4R	3,637,939	180P	3,637,969	20	3,637,133	83.1H	3,638,018	83.1H	3,638,018
8	3,636,917	105	3,637,006	5.4R	3,637,940	228	3,637,969	28	3,637,134	83.3H	3,638,019	83.3H	3,638,019
9	3,636,918	105	3,637,007	5.4R	3,637,941	CLASS 206	3,637,969	36	3,637,135	83.3R	3,638,020	83.3R	3,638,020
37	3,636,919	105	3,637,008	5.4R	3,637,942	13	3,637,969	53	3,637,136	106	3,638,021	106	3,638,021
48	3,636,920	105	3,637,009	5.4R	3,637,943	32W	3,637,969	199	3,638,022	199	3,638,022	199	3,638,022
243	3,636,921	105	3,637,010	5.4R	3,637,944	63.2R	3,637,969	203	3,638,023	203	3,638,023	203	3,638,023
259	3,636,922	105	3,637,011	5.4R	3,637,945	65K	3,637,969	211J	3,638,024	211J	3,638,024	211J	3,638,024
264	3,636,923	105	3,637,012	5.4R	3,637,946	CLASS 208	3,637,969	213R	3,638,025	213R	3,638,025	213R	3,638,025
400	3,636,924	105	3,637,013	5.4R	3,637,947	86	3,637,969	219D	3,638,026	219D	3,638,026	219D	3,638,026
629	3,636,925	105	3,637,014	5.4R	3,637,948	143	3,637,969	225	3,638,027	225	3,638,027	225	3,638,027
637	3,636,926	105	3,637,015	5.4R	3,637,949	363	3,637,969	60.28	3,638,028	60.28	3,638,028	60.28	3,638,028
CLASS 119	3,636,927	105	3,637,016	5.4R	3,637,950	74	3,637,969	61.11E	3,638,029	61.11E	3,638,029	61.11E	3,638,029
52	3,636,928	105	3,637,017	5.4R	3,637,951	122	3,637,969	61.11R	3,638,030	61.11R	3,638,030	61.11R	3,638,030
460	3,636,929	105	3,637,018	5.4R	3,637,952	124	3,637,969	61.12R	3,638,031	61.12R	3,638,031	61.12R	3,638,031
CLASS 123	3,636,930	105	3,637,019	5.4R	3,637,953	273	3,637,969	61.6J	3,638,032	61.6J	3,638,032	61.6J	3,638,032
8.45	3,636,931	105	3,637,020	5.4R	3,637,954	CLASS 209	3,637,969	61.7B	3,638,033	61.7B	3,638,033	61.7B	3,638,033
32EA	3,636,932	105	3,637,021	5.4R	3,637,955	122	3,637,969	61.7C	3,638,034	61.7C	3,638,034	61.7C	3,638,034
90.55	3,636,933	105	3,637,022	5.4R	3,637,956	124	3,637,969	61.7D	3,638,035	61.7D	3,638,035	61.7D	3,638,035
102	3,636,934	105	3,637,023	5.4R	3,637,957	273	3,637,969	61.7E	3,638,036	61.7E	3,638,036	61.7E	3,638,036
119A	3,636,935	105	3,637,024	5.4R	3,637,958	CLASS 210	3,637,969	61.7F	3,638,037	61.7F	3,638,037	61.7F	3,638,037
122AB	3,636,936	105	3,637,025	5.4R	3,637,959	5	3,637,969	61.7G	3,638,038	61.7G	3,638,038	61.7G	3,638,038
148E	3,636,937	105	3,637,026	5.4R	3,637,960	22	3,637,969	61.7H	3,638,039	61.7H	3,638,039	61.7H	3,638,039
CLASS 126	3,636,938	105	3,637,027	5.4R	3,637,961	31C	3,637,969	61.7I	3,638,040	61.7I	3,638,040	61.7I	3,638,040
19R	3,636,939	105	3,637,028	5.4R	3,637,962	44	3,637,969	61.7J	3,638,041	61.7J	3,638,041	61.7J	3,638,041
30	3,636,940	105	3,637,029	5.4R	3,637,963	54	3,637,969	61.7K	3,638,042	61.7K	3,638,042	61.7K	3,638,042
271.2R	3,636,941	105	3,637,030	5.4R	3,637,964	73	3,637,969	61.7L	3,638,043	61.7L	3,638,043	61.7L	3,638,043
CLASS 128	3,636,942	105	3,637,031	5.4R	3,637,965	82	3,637,969	61.7M	3,638,044	61.7M	3,638,044	61.7M	3,638,044
2B	3,636,943	105	3,637,032	5.4R	3,637,966	110	3,637,969	61.7N	3,638,045	61.7N	3,638,045	61.7N	3,638,045
2.05A	3,636,944	105	3,637,033	5.4R	3,637,967	122	3,637,969	61.7O	3,638,046	61.7O	3,638,046	61.7O	3,638,046
2.05D	3,636,945	105	3,637,034	5.4R	3,637,968	124	3,637,969	61.7P	3,638,047	61.7P	3,638,047	61.7P	3,638,047
24A	3,636,946	105	3,637,035	5.4R	3,637,969	149	3,637,969	61.7Q	3,638,048	61.7Q	3,638,048	61.7Q	3,638,048
24.1	3,636,947	105	3,637,036	5.4R	3,637,970	222	3,637,969	61.7R	3,638,049	61.7R	3,638,049	61.7R	3,638,049
36	3,636,948	105	3,637,037	5.4R	3,637,971	CLASS 211	3,637,969	61.7S	3,638,050	61.7S	3,638,050	61.7S	3,638,050
57	3,636,949	105	3,637,038	5.4R	3,637,972	105.1	3,637,969	61.7T	3,638,051	61.7T	3,638,051	61.7T	3,638,051
66	3,636,950	105	3,637,039	5.4R	3,637,973	153	3,637,969	61.7U	3,638,052	61.7U	3,638,052	61.7U	3,638,052
79	3,636,951	105	3,637,040	5.4R	3,637,974	176	3,637,969	61.7V	3,638,053	61.7V	3,638,053	61.7V	3,638,053
173	3,636,952	105	3,637,041	5.4R	3,637,975	CLASS 212	3,637,969	61.7W	3,638,054	61.7W	3,638,054	61.7W	3,638,054
218M	3,636,953	105	3,637,042	5.4R	3,637,976	153	3,637,969	61.7X	3,638,055	61.7X	3,638,055	61.7X	3,638,055
281	3,636,954	105	3,637,043	5.4R	3,637,977	176	3,637,969	61.7Y	3,638,056	61.7Y	3,638,056	61.7Y	3,638,056
284	3,636,955	105	3,637,044	5.4R	3,637,978	176	3,637,969	61.7Z	3,638,057	61.7Z	3,638,057	61.7Z	3,638,057
287	3,636,956	105	3,637,045	5.4R	3,637,979	CLASS 213	3,637,969	61.7A	3,638,058	61.7A	3,638,058	61.7A	3,638,058
305	3,636,957	105	3,637,046	5.4R	3,637,980	45	3,637,969	61.7B	3,638,059	61.7B	3,638,059	61.7B	3,638,059
321	3,636,958	105	3,637,047	5.4R	3,637,981	153	3,637,969	61.7C	3,638,060	61.7C	3,638,060	61.7C	3,638,060
335.5	3,636,959	105	3,637,048	5.4R	3,637,982	CLASS 214	3,637,969	61.7D	3,638,061	61.7D	3,638,061	61.7D	3,638,061
CLASS 131	3,636,960	105	3,637,049	5.4R	3,637,983	153	3,637,969	61.7E	3,638,062	61.7E	3,638,062	61.7E	3,638,062
10R	3,636,961	105	3,637,050	5.4R	3,637,984	153	3,637,969	61.7F	3,638,063	61.7F	3,638,063	61.7F	3,638,063
82	3,636,962	105	3,637,051	5.4R	3,637,985	153	3,637,969	61.7G	3,638,064	61.7G	3,638,064	61.7G	3,638,064
133A	3,636,963	105	3,637,052	5.4R	3,637,986	153	3,637,969	61.7H	3,638,065	61.7H	3,63		

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215	3,638,153	15.5	3,638,175	173	3,638,202	24	3,638,229	310	3,637,296	CLASS 401	
216	3,638,154		3,638,176		3,638,203	33R	3,638,230		CLASS 382	104	3,637,316
	CLASS 336		3,638,178	174TF	3,638,205	74CR	3,638,232	38	3,637,297	CLASS 408	
69	3,638,155	32	3,638,179		3,638,206	74EB	3,638,231	72	3,637,298	1	3,637,317
200	3,638,156	58	3,638,180		3,638,207		3,638,233	83	3,637,299	11	3,637,318
	CLASS 337	71	3,638,181		3,638,208	82	3,638,234	121	3,637,300	CLASS 415	
6	3,638,157	146.1	3,638,182	174.1C	3,638,209	95	3,638,235		CLASS 383	1	3,637,319
49	3,638,158		3,638,183	258A	3,638,210	107W	3,638,236	69	3,637,308	200	3,637,320
	CLASS 338		3,638,184	267C	3,638,212	137	3,638,237		CLASS 385	123	3,637,321
20	3,638,159		3,638,185	267	3,638,211	143	3,638,237	8	3,637,302	138	3,637,322
36	3,638,160	146.3AC	3,638,186	280	3,638,213	CLASS 390		10	3,637,303	139	3,637,323
256	3,638,161	146.3C	3,638,188	324A	3,638,214	7	3,637,281	13	3,637,304	146	3,637,324
320	3,638,162	146.3	3,638,187	324R	3,638,215	13	3,637,280	15	3,637,305	230	3,637,325
	CLASS 339		3,638,188	336	3,638,217	39	3,637,282	40	3,637,306	CLASS 417	
17M	3,638,163	147R	3,638,189	347AD	3,638,219	91	3,637,283	44	3,637,307	44	3,637,326
49R	3,638,164	147	3,638,189		3,638,220	96B	3,637,284	222	3,637,327	246	3,637,328
59R	3,638,165	163	3,638,191	347CC	3,638,218	105	3,637,285	360	3,637,329	389	3,637,330
61M	3,638,166	168R	3,638,192	365	3,638,221	112	3,637,286	424	3,637,331	424	3,637,331
74R	3,638,167	172.5	3,638,193		3,638,222	147	3,637,287	CLASS 418		159	3,637,332
89M	3,638,168		3,638,194	384E	3,638,223	149	3,637,288	172	3,637,309	182	3,637,333
107	3,638,169		3,638,195		CLASS 343	151	3,637,289	209	3,637,314	CLASS 424	
135	3,638,170		3,638,196	713	3,638,225	160	3,637,291	251	3,637,315	177	3,637,641
164R	3,638,171		3,638,197	771	3,638,224	161	3,637,292	CLASS 340		270	3,637,707
249	3,638,172		3,638,198	895	3,638,226	162SF	3,637,290	45	3,636,643	CLASS 431	
272U	3,638,173		3,638,199		CLASS 344		3,637,293	17	3,637,334	291	3,637,335
	CLASS 340	173CA	3,638,200	1	3,638,227	166	3,637,294	238	3,638,039	351	3,637,336
5R	3,638,174	173FF	3,638,204	8	3,638,228	230	3,637,295				
15.5GC	3,638,177	173LM	3,638,201								

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D 5— 4	222,871	222,876	D22— 99	222,881	D29— 28	222,886	D48— 32	222,891	D64— 11	222,896
D 8— 22	222,872	222,877	D25— 1	222,882	D33— 3	222,887	D49— 29	222,892	D72— 1	222,897
145	222,873	222,878	D26— 5	222,883	D52— 6	222,893	D52— 6	222,893	D83—	222,898
162	222,874	222,879	D14— 3	222,884	D34— 5	222,889	D54— 1	222,894	D90— 20	222,899
	222,875	222,880	D19— 1	222,885	D44— 1	222,890	2	222,895		

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PATENTS

1 : 3,636,940	3,636,960	3,637,402	3,638,061	3,636,995	3,637,217
3,636,966	3,636,963	3,637,422	3,638,070	3,637,029	3,637,655
3,637,337	3,636,969	3,637,424	3,638,071	3,637,096	3,637,842
3,637,982	3,636,975	3,637,443	3,638,074	3,637,114	3,638,059
4 : 3,636,982	3,636,981	3,637,449	3,638,081	3,637,201	3,638,066
3,637,294	3,636,983	3,637,452	3,638,089	3,637,251	3,636,601
3,637,980	3,636,991	3,637,471	3,638,093	3,637,296	3,636,696
3,638,041	3,636,998	3,637,478	3,638,107	3,637,347	3,636,706
3,638,170	3,636,999	3,637,482	3,638,111	3,637,411	3,636,907
3,638,238	3,637,000	3,637,483	3,638,121	3,637,437	3,636,958
3,638,238	3,637,004	3,637,484	3,638,122	3,637,476	3,637,032
5 : 3,637,485	3,637,007	3,637,494	3,638,126	3,637,634	3,637,053
6 : 3,636,964	3,637,010	3,637,527	3,638,128	3,637,684	3,637,080
3,636,980	3,637,015	3,637,535	3,638,130	3,637,707	3,637,132
3,636,985	3,637,016	3,637,618	3,638,131	3,637,740	3,637,183
3,636,987	3,637,021	3,637,636	3,638,137	3,637,784	3,637,212
3,636,617	3,637,028	3,637,639	3,638,140	3,637,785	3,637,220
3,636,619	3,637,041	3,637,640	3,638,159	3,637,786	3,637,332
3,636,631	3,637,042	3,637,641	3,638,165	3,637,788	3,637,470
3,636,633	3,637,044	3,637,670	3,638,174	3,637,794	3,637,534
3,636,647	3,637,060	3,637,691	3,638,178	3,637,810	3,637,552
3,636,649	3,637,069	3,637,730	3,638,185	3,637,836	3,637,600
3,636,654	3,637,075	3,637,743	3,638,189	3,637,865	3,637,675
3,636,655	3,637,076	3,637,752	3,638,198	3,638,028	3,637,919
3,636,674	3,637,084	3,637,767	3,638,210	3,638,056	3,637,979
3,636,687	3,637,094	3,637,791	3,638,228	3,638,105	3,638,002
3,636,704	3,637,117	3,637,792	3,638,231	3,638,123	3,638,220
3,636,720	3,637,120	3,637,815	8 : 3,636,667	3,638,227	3,636,928
3,636,728	3,637,126	3,637,833	3,637,011	3,636,640	3,637,205
3,636,746	3,637,138	3,637,848	3,637,018	3,636,678	3,637,250
3,636,759	3,637,165	3,637,878	3,637,022	3,636,956	3,637,259
3,636,764	3,637,167	3,637,893	3,637,031	3,637,458	3,636,615
3,636,774	3,637,168	3,637,913	3,637,059	3,637,496	3,637,248
3,636,781	3,637,188	3,637,928	3,637,078	3,637,528	3,636,568
3,636,792	3,637,211	3,637,943	3,637,104	3,637,550	3,638,094
3,636,810	3,637,223	3,637,956	3,637,139	3,637,551	3,638,099
3,636,837	3,637,245	3,637,957	3,637,200	3,637,576	3,638,100
3,636,853	3,637,263	3,637,970	3,637,265	3,637,592	3,636,588
3,636,872	3,637,278	3,637,989	3,637,319	3,637,613	3,636,589
3,636,874	3,637,285	3,637,994	3,637,465	3,637,614	3,636,592
3,636,887	3,637,293	3,638,001	3,637,871	3,637,616	3,636,604
3,636,890	3,637,298	3,638,004	3,637,939	3,637,638	3,636,627
3,636,897	3,637,299	3,638,013	3,637,985	3,637,731	3,636,644
3,636,911	3,637,311	3,638,013	3,638,217	3,637,749	3,636,662
3,636,914	3,637,317	3,638,017	9 : Re. 27,279	3,637,775	3,636,666
3,636,916	3,637,336	3,638,025	3,636,574	3,637,873	3,636,673
3,636,917	3,637,342	3,638,032	3,636,756	3,638,101	3,636,684
3,636,921	3,637,343	3,638,040	3,636,863	3,636,623	3,636,707
3,636,938	3,637,351	3,638,045	3,636,878	3,636,711	3,636,729
3,636,944	3,637,364	3,638,048	3,636,946	3,637,051	3,636,739
3,636,947	3,637,374	3,638,058	3,636,959	3,637,170	3,636,757

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,636,782	3,636,832	3,637,083	3,636,882	3,638,139	3,638,012
3,636,786	3,637,046	3,637,197	3,636,900	3,638,141	3,638,016
3,636,821	3,637,520	3,637,253	3,636,920	3,638,163	3,638,029
3,636,822	3,637,958	3,637,256	3,636,941	3,638,182	3,638,036
3,636,827	3,637,964	3,637,290	3,637,030	3,638,193	3,638,047
3,636,831	3,638,087	3,637,313	3,637,039	3,638,205	3,638,060
3,636,857	3,638,092	3,637,349	3,637,056	3,638,206	3,638,062
3,636,861	3,638,135	3,637,377	3,637,100	3,638,207	3,638,073
3,636,870	3,638,192	3,637,378	3,637,110	3,638,208	3,638,110
3,636,925	3,637,426	3,637,379	3,637,118	3,638,214	3,638,154
3,636,932	3,637,563	3,637,380	3,637,173	3,638,259	3,638,155
3,636,936	3,636,645	3,637,381	3,637,176	3,636,923	3,638,168
3,636,965	3,637,128	3,637,383	3,637,195	3,637,035	3,638,199
3,636,980	3,637,209	3,637,432	3,637,215	3,638,144	3,638,203
3,636,987	3,637,306	3,637,435	3,637,216	3,638,147	3,638,204
3,637,034	3,637,433	3,637,440	3,637,239	3,638,200	3,638,233
3,637,054	3,637,902	3,637,459	3,637,244	3,636,611	3,638,234
3,637,070	3,638,136	3,637,469	3,637,249	3,636,620	3,636,382
3,637,086	3,638,173	3,637,501	3,637,287	3,636,624	3,636,825
3,637,102	3,636,652	3,637,503	3,637,288	3,636,650	3,636,881
3,637,103	3,636,876	3,637,546	3,637,289	3,636,653	3,636,988
3,637,116	3,637,210	3,637,560	3,637,292	3,636,671	3,637,023
3,637,137	3,637,369	3,637,565	3,637,308	3,636,679	3,637,154
3,637,150	3,637,511	3,637,585	3,637,331	3,636,713	3,637,403
3,637,177	3,637,522	3,637,586	3,637,338	3,636,721	3,637,457
3,637,179	3,637,617	3,637,697	3,637,339	3,636,722	3,636,566
3,637,185	3,637,888	3,637,715	3,637,344	3,636,777	3,636,584
3,637,186	3,637,897	3,637,722	3,637,345	3,636,788	3,636,586
3,637,194	3,636,740	3,637,725	3,637,357	3,636,802	3,636,593
3,637,213	3,637,390	3,637,732	3,637,360	3,636,807	3,636,603
3,637,214	3,637,405	3,637,779	3,637,375	3,636,817	3,636,605
3,637,221	3,637,996	3,637,783	3,637,398	3,636,819	3,636,607
3,637,224	3,636,877	3,637,869	3,637,415	3,636,824	3,636,612
3,637,237	3,637,169	3,637,903	3,637,428	3,636,838	3,636,622
3,637,257	3,637,192	3,637,918	3,637,444	3,636,840	3,636,672
3,637,275	3,637,242	3,637,960	3,637,445	3,636,844	3,636,708
3,637,276	3,637,348	3,637,961	3,637,446	3,636,854	3,636,749
3,637,304	3,637,419	3,637,962	3,637,454	3,636,864	3,636,803
3,637,335	3,637,489	3,638,164	3,637,477	3,636,873	3,636,814
3,637,358	3,637,490	3,638,191	3,637,488	3,636,912	3,636,868
3,637,358	3,637,521	3,638,195	3,637,499	3,636,913	3,636,892
3,637,412	3,637,578	3,638,213	3,637,508	3,636,922	3,636,894
3,637,416	3,637,589	3,636,621	3,637,513	3,636,924	3,636,919
3,637,420	3,637,776	3,636,630	3,637,533	3,636,943	3,636,927
3,637,448	3,638,020	3,636,648	3,637,544	3,636,951	3,636,977
3,637,481	3,638,021	3,636,880	3,637,556	3,636,953	3,637,006

	3,637,993	3,636,727	3,637,559	3,638,179	3,637,087	3,636,689
	3,638,006	3,636,735	3,637,569	3,638,202	3,637,131	3,636,830
	3,638,095	3,636,743	3,637,579	3,638,225	3,637,204	3,636,906
	3,638,103	3,636,755	3,637,598	43 : 3,636,952	3,637,206	3,636,986
	3,638,149	3,636,758	3,637,606	44 : 3,636,598	3,637,208	3,637,130
	3,638,229	3,636,765	3,637,612	3,637,531	3,637,320	3,637,157
40 :	3,636,606	3,636,778	3,637,659	3,637,841	3,637,368	3,637,300
	3,636,682	3,636,793	3,637,665	45 : 3,636,681	3,637,399	3,637,312
	3,636,972	3,636,797	3,637,687	3,636,690	3,637,436	3,637,326
	3,637,009	3,636,800	3,637,688	3,636,695	3,637,438	3,637,447
	3,637,026	3,636,800	3,637,706	3,637,156	3,637,462	3,638,086
	3,637,036	3,636,836	3,637,733	47 : 3,636,578	3,637,515	3,638,114
	3,637,142	3,636,849	3,637,737	3,636,811	3,637,526	3,638,138
	3,637,234	3,636,855	3,637,744	3,636,898	3,637,590	3,638,224
	3,637,252	3,636,871	3,637,746	3,637,406	3,637,773	52 : 3,637,141
	3,637,350	3,636,889	3,637,760	3,637,658	3,637,778	53 : 3,636,784
	3,637,410	3,636,895	3,637,830	3,637,677	3,637,822	3,637,024
	3,637,512	3,636,899	3,637,833	3,638,160	3,637,829	3,637,182
	3,637,554	3,636,950	3,637,846	48 : 3,636,637	3,637,831	3,637,279
	3,637,588	3,636,957	3,637,882	3,636,683	3,637,832	3,637,562
	3,637,627	3,636,971	3,637,904	3,636,716	3,637,843	3,637,861
	3,637,877	3,636,976	3,637,905	3,636,717	3,637,862	3,638,018
	3,637,885	3,636,982	3,637,978	3,636,724	3,637,880	54 : 3,636,751
	3,637,907	3,637,003	3,637,978	3,636,742	3,637,951	3,636,852
	3,638,177	3,637,049	3,637,998	3,636,762	3,638,010	3,637,844
41 :	3,638,190	3,637,055	3,638,008	3,636,826	3,638,044	55 : 3,636,573
	3,636,996	3,637,063	3,638,023	3,636,854	3,638,046	3,636,610
	3,637,091	3,637,081	3,638,033	3,636,856	3,638,050	3,636,737
	3,637,119	3,637,144	3,638,035	3,636,875	3,638,106	3,636,752
	3,637,247	3,637,175	3,638,051	3,636,905	3,638,112	3,636,769
	3,637,542	3,637,202	3,638,067	3,636,942	3,638,148	3,636,770
	3,637,983	3,637,231	3,638,108	3,636,948	3,638,176	3,636,791
	3,637,997	3,637,241	3,638,115	3,636,961	3,638,197	3,636,799
42 :	3,636,565	3,637,341	3,638,117	3,637,002	3,638,235	3,636,915
	3,636,599	3,637,353	3,638,118	3,637,012	3,638,236	3,636,973
	3,636,634	3,637,354	3,638,119	3,637,013	3,638,236	3,636,978
	3,636,651	3,637,417	3,638,132	3,637,014	3,638,236	3,636,985
	3,636,658	3,637,421	3,638,156	3,637,017	3,638,236	3,637,082
	3,636,664	3,637,423	3,638,157	3,637,019	3,638,236	3,637,178
	3,636,665	3,637,441	3,638,162	3,637,020	3,638,236	3,637,266
	3,636,668	3,637,498	3,638,162	3,637,037	3,638,236	3,637,330
	3,636,709	3,637,503	3,638,162	3,637,038	3,638,236	3,637,654
	3,636,723	3,637,517	3,638,162	3,637,038	3,638,236	3,637,747
					51 : 3,636,656	3

DESIGN PATENTS

4	:	222,898		222,876		222,893		222,885		222,888		222,887
5	:	222,894		222,877	20	:	222,897		222,889		222,895	222,896
6	:	222,874		222,886	25	:	222,873	27	:	222,899		222,884
		222,875	17	:	222,882	26	:	222,881	34	:	222,878	222,890

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